



South Coast Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

A G E N D A

HYBRID GOVERNING BOARD MEETING JUNE 7, 2024

A meeting of the South Coast Air Quality Management District Board will be held at 9:00 a.m. on Friday, June 7, 2024 through a hybrid format of in-person attendance in the Dr. William A. Burke Auditorium at the South Coast AQMD Headquarters, 21865 Copley Drive, Diamond Bar, California, and/or virtual attendance via videoconferencing and by telephone. Please follow the instructions below to join the meeting remotely.

Please refer to South Coast AQMD's website for information regarding the format of the meeting, updates, and details on how to participate at: <http://www.aqmd.gov/home/news-events/meeting-agendas-minutes>.

Electronic Participation Information (Instructions provided at the bottom of the agenda)

Join Zoom Meeting - from PC, Laptop or Phone

<https://scaqmd.zoom.us/j/93128605044>

Meeting ID: **931 2860 5044** (applies to all)

Teleconference Dial In +1 669 900 6833 or +1 253 215 8782

One tap mobile +16699006833,,93128605044# or

+12532158782,,93128605044#

Spanish Language Only Audience (telephone)

Número Telefónico para la Audiencia que Habla Español

Teleconference Dial In/Numero para llamar: +1 669 900 6833

Meeting ID/Identificación de la reunión: **932 0955 9643**

One tap mobile: +16699006833,,93209559643

Public Comment Will Still Be Taken

Audience will be allowed to provide public comment in person and through Zoom connection or telephone. Comments are limited to three (3) minutes per person for all items on the Consent and Board Calendars and may be further limited by the Chair to ensure all can be heard.

Phone controls for participants:

The following commands can be used on your phone's dial pad while in meeting: *6 (Toggle mute/unmute); *9 - Raise hand

Questions About an Agenda Item

- The name and telephone number of the appropriate staff person to call for additional information or to resolve concerns is listed for each agenda item.
- In preparation for the meeting, you are encouraged to obtain whatever clarifying information may be needed to allow the Board to move expeditiously in its deliberations.

Meeting Procedures

- The public meeting of the South Coast AQMD Governing Board begins at 9:00 a.m. The Governing Board generally will consider items in the order listed on the agenda. However, any item may be considered in any order.
- After taking action on any agenda item not requiring a public hearing, the Board may reconsider or amend the item at any time during the meeting.

All documents (i) constituting non-exempt public records, (ii) relating to an item on the agenda, and (iii) having been distributed to at least a majority of the Governing Board after the agenda is posted, are available prior to the meeting for public review at South Coast AQMD's Clerk of the Boards Office, 21865 Copley Drive, Diamond Bar, CA 91765 or web page at www.aqmd.gov

Americans with Disabilities Act and Language Accessibility

Disability and language-related accommodations can be requested to allow participation in the Governing Board meeting. The agenda will be made available, upon request, in appropriate alternative formats to assist persons with a disability (Gov. Code Section 54954.2(a)). In addition, other documents may be requested in alternative formats and languages. Any disability or language-related accommodation must be requested as soon as practicable. Requests will be accommodated unless providing the accommodation would result in a fundamental alteration or undue burden to the South Coast AQMD. Please contact the Clerk of the Boards Office at (909) 396-2500 from 7:00 a.m. to 5:30 p.m., Tuesday through Friday, or send the request to cob@aqmd.gov.

A webcast of the meeting is available for viewing at:
<http://www.aqmd.gov/home/news-events/webcast>

CALL TO ORDER

- Pledge of Allegiance
- Roll Call
- Opening Comments: Vanessa Delgado, Chair
Other Board Members
Wayne Nastri, Executive Officer

Staff/Phone (909) 396-

PUBLIC COMMENT PERIOD – (Public Comment on Non-Agenda Items, Pursuant to Government Code Section 54954.3) The public may comment on any subject within the South Coast AQMD’s authority that does not appear on the agenda, during the Public Comment Period. Each speaker addressing non-agenda items may be limited to a total of (3) minutes.

CONSENT AND BOARD CALENDAR (Items 1 through 22)

Note: Consent and Board Calendar items held for discussion will be moved to Item No. 23.

Item 1 and 2 – Action Items/No Fiscal Impact

1. Approve Minutes of May 3, 2024 **Thomas/3268**
2. Set Public Hearing August 2, 2024 to Consider **Nastri/3131**
Adoption of and/or Amendments to South Coast AQMD
Rules and Regulations:
 - A. Determine That Proposed Amended Rule 1148.1 – Oil and Gas Production Wells, Is Exempt from CEQA and Amend Rule 1148.1 **Krause/2706**

Rule 1148.1 – Oil and Gas Production Wells applies to facilities that operate oil and gas wells. Proposed Amended Rule (PAR) 1148.1 will address objectives of the Wilmington, Carson, and West Long Beach and South Los Angeles AB 617 communities. PAR 1148.1 requires the use of enhanced leak detection technology, equipment that uses produced gas to meet specific NOx limits, and workover rigs to use Tier 4 Final diesel engines. PAR 1148.1 also bans the use of odorants and updates signage requirements. This action is to adopt the Resolution: 1) Determining that Proposed Amended Rule 1148.1 – Oil and Gas Production Wells, is exempt from the requirements of the California Environmental Quality Act, and 2) Amending Rule 1148.1. (Reviewed: Stationary Source Committee, May 17, 2024)

- B. Determine That Proposed Rule 2306 – Freight Rail Yards Does Not Require a New Environmental Document; Determine That Proposed Rule 316.2 – Fees for Rule 2306, Is Exempt From CEQA; and Adopt Proposed Rules 2306 and 316.2

MacMillan/3244

Proposed Rule 2306 seeks to reduce NOx emissions associated with freight rail yard operations by requiring operators of freight rail yards to meet or exceed emission reduction targets. The proposed rule will ensure that emission reductions will be proportional or greater in the South Coast AQMD relative to reductions throughout California from implementation of state regulations. Additionally, any state or local government agency contracting with the owner or operator of a freight rail yard in relation to its lease, construction, or operation will be required to include requirements for rule compliance in new, renewed, or amended contracts. Proposed Rule 316.2 will establish fees for owners and operators of freight rail yards to recover costs incurred by South Coast AQMD for implementation of Proposed Rule 2306. If adopted, Proposed Rule 2306 will be submitted to CARB for their consideration and transmittal to U.S. EPA. (Reviewed: Mobile Source Committee, January 19, April 19, and June 21, 2024)

Items 3 through 9 – Budget/Fiscal Impact

3. Recognize Revenue, Appropriate Funds and Issue Solicitation and Purchase Order for Laboratory Equipment

Low/2269

South Coast AQMD is expected to receive grant funds up to \$270,006 from U.S. EPA for the NATTS Monitoring Program. This action is to recognize revenue, appropriate funds and issue a sole source purchase order for Laboratory equipment. (Reviewed: Administrative Committee, May 9, 2024; Recommended for Approval)

4. Appropriate Funds, Issue Solicitation and Purchase Orders to Meet Operational Needs for Rule 1180 Air Monitoring Program

Low/2269

Rule 1180 established a fee schedule to fund community air monitoring stations to provide air quality information and notification to the public on refinery emissions in neighboring communities. The FY 2023-24 budget for this program includes approximately \$4.6 million in annual fees from refineries for community air monitoring. These actions are to appropriate up to \$199,000 from the General Fund Undesignated (Unassigned) Fund Balance to Monitoring and Analysis' FY 2023-24 and/or FY 2024-25 Budget, issue a solicitation and purchase orders to meet operational needs of the Rule 1180 Air Monitoring Program. (Reviewed: Administrative Committee, May 9, 2024; Recommended for Approval)

5. Authorize Purchase of OnBase Software Support

Moskowitz/3329

South Coast AQMD uses OnBase software for its electronic document management system to manage critical documents and to support South Coast AQMD's Record Retention Policy. The software subscription and support for OnBase expires on July 31, 2024. This action is to obtain approval for sole source purchase of OnBase software subscription and support for one year from Information Management's FY 2024-25 Budget. Funds for this purchase (\$200,000) are conditional on approval of the Proposed FY 2024-25 Budget. (Reviewed: Administrative Committee, May 9, 2024; Recommended for Approval)

6. Issue RFP for Legislative Representation in Washington, D.C.

Alatorre/3122

The current contracts for federal legislative representation in Washington, D.C. expire on January 14, 2025. This action is to issue an RFP for federal legislative representation and consulting services for South Coast AQMD in Washington, D.C. for 2025. The RFP will also indicate that the contract(s) may be extended for up to two additional one-year extensions. (Reviewed: Administrative Committee, May 9, 2024; Recommended for approval)

7. Appropriate Funds from the General Fund Undesignated (Unassigned) Fund Balance for Administrative and Human Resources Related Expenditures, and Approve Amending Contracts with Outside Labor and Employment Counsel

Olvera/2309

This action is to appropriate \$800,000 from the General Fund Undesignated (Unassigned) Fund Balance to the District General – Administrative and Human Resources FY 2023-24 and/or FY 2024-25 Budget in the amount of \$625,000, and the Administrative and Human Resources FY 2023-24 and/or FY 2024-25 division budget in the amount of \$175,000. This action is also to approve amending contracts with prequalified labor and employment counsel to add funds, up to \$200,000, as necessary. (Reviewed: Administrative Committee, May 9, 2024; Recommended for Approval)

8. Appoint Regular and Alternate Attorney and Engineer Members to South Coast AQMD Hearing Board for July 1, 2024 to June 30, 2027

Thomas/3268

The terms of office for the Hearing Board Attorney and Engineer Members, as well as their alternates, expire on June 30, 2024. In November 2023, a recruitment was opened to seek candidates for the new term of July 1, 2024 through June 30, 2027. As required by state law, a Hearing Board Advisory Committee appointed by five members of the Governing Board is responsible to review and make recommendations to the Administrative Committee in making appointments to the Hearing Board. On April 19, 2024, the Advisory Committee recommended that the Administrative Committee interview three candidates for the Regular and

Alternate Attorney Member positions, two candidates for the Regular Engineer Member position, and two candidates for the Alternate Engineer Member position. The Administrative Committee interviewed the candidates at its meeting on May 9, 2024 and made final recommendations to the Governing Board. (Reviewed: Administrative Committee, May 9, 2024; Recommended for Approval)

9. Approve Contract Modification as Approved by MSRC

McCallon

As part of their FYs 2016-18 Work Program, the MSRC approved a contract with the City of Paramount under their Local Government Partnership Program. The MSRC seeks Board approval of the contract award as part of the FYs 2016-18 Work Program. (Reviewed; Mobile Source Air Pollution Reduction Review Committee, May 16, 2024; Recommended for Approval)

Items 10 through 16 – Information Only/Receive and File

10. Legislative, Public Affairs and Media Report

Alatorre/3122

This report highlights the April 2024 outreach activities of the Legislative, Public Affairs and Media Office, which includes: Major Events, Community Events/Public Meetings, Environmental Justice Update, Speakers Bureau/Visitor Services, Communications Center, Public Information Center, Business Assistance, Media Relations and Outreach to Business and Federal, State and Local Government. (No Committee Review)

11. Hearing Board Report

Verdugo-Peralta

This reports the actions taken by the Hearing Board during the period of March 1 through April 30, 2024. (No Committee Review)

12. Civil Filings and Civil Penalties Report

Gilchrist/3459

This report summarizes monthly penalties and legal actions filed by the General Counsel's Office from April 1, 2024 through April 30, 2024. An Index of South Coast AQMD Rules is attached with the penalty report. (Reviewed: Stationary Source Committee, May 17, 2024)

13. Intergovernmental Review of Environmental Documents and CEQA Lead Agency Projects

Krause /2706

This report provides a listing of CEQA documents received by South Coast AQMD between April 1, 2024 and April 30, 2024, and those projects for which South Coast AQMD is acting as lead agency pursuant to CEQA. (Reviewed: Mobile Source Committee, May 17, 2024)

14. Rule and Control Measure Forecast **Rees/2856**
- This report highlights South Coast AQMD rulemaking activities and public hearings scheduled for 2024. (No Committee Review)

15. Report of RFQs/RFPs Scheduled for Release in June **Jain/2804**
- This report summarizes the RFQs/RFPs for budgeted services over \$100,000 scheduled to be released for advertisement for the month of June. (Reviewed: Administrative Committee, May 9, 2024)

16. Status Report on Major Ongoing and Upcoming Projects for Information Management **Moskowitz/3329**
- Information Management is responsible for data systems management services in support of all South Coast AQMD operations. This action is to provide the monthly status report on major automation contracts and planned projects. (Reviewed: Administrative Committee, May 9, 2024)

Items 17 through 22 -- Reports for Committees and CARB

The May 17, 2024 Technology Committee was cancelled. The next regularly scheduled Technology Committee meeting is June 21, 2024.

17. Administrative Committee (Receive & File) Chair: Delgado **Nastri/3131**
18. Legislative Committee Chair: Cacciotti **Alatorre/3122**
- Receive and file; and take the following actions as recommended:

Agenda Item	Recommendation
AB 2851 (Bonta) Metal shredding facilities: fence-line air quality monitoring.	Support if Amended
SB 1054 (Rubio) Climate Pollution Reduction in Homes Initiative: natural gas: customer credit	Support
SB 1095 (Becker) Cozy Home Clean Up Act: building standards: gas-fuel-burning, appliances	Support
SB 1298 (Cortese) Certification of thermal powerplants: data centers.	Oppose

19. Mobile Source Committee (Receive & File) Chair: Kracov **Rees/2856**
20. Stationary Source Committee (Receive & File) Chair: McCallon **Aspell/2491**
21. Mobile Source Air Pollution Reduction Review Committee Report (Receive & File) Board Rep.: Hagman **Katzenstein/2219**
22. California Air Resources Board Monthly Report (Receive & File) Board Rep.: Kracov **Thomas/3268**

23. Items Deferred from Consent and Board Calendar

PUBLIC HEARINGS

24. Determine That Proposed Rule 317.1 – Clean Air Act Nonattainment Fees for 8-Hour Ozone Standards Is Not Considered Subject to CEQA; and Adopt Rule 317.1

Krause/2706

Section 185 of the federal Clean Air Act (CAA) requires areas that are classified as “severe” or “extreme” that do not attain the NAAQS for ozone by their assigned attainment dates to pay fees based upon a prescribed formula each year until the NAAQS is attained. Proposed Rule 317.1 – Clean Air Act Nonattainment Fees for 8-Hour Ozone Standards (PR 317.1) would implement these CAA requirements for the 1997 and 2008 8-hour ozone standards. The provisions of PR 317.1 would address when and how the CAA nonattainment fees would be assessed and collected. This action is to adopt the Resolution: 1) Determining that Proposed Rule 317.1 – Clean Air Act Nonattainment Fees for 8-Hour Ozone Standards, is not considered a project subject to the requirements of the California Environmental Quality Act; and 2) Adopt Rule 317.1 – Clean Air Act Nonattainment Fees for 8-Hour Ozone Standards. (Reviewed: Stationary Source Committee, April 19, and May 17, 2024)

25. Certify Final Environmental Assessment for Proposed Amended Rule 463 – Organic Liquid Storage; and Amend Rule 463

Krause/2706

Proposed Amended Rule 463 (PAR 463) establishes enhanced leak detection using optical gas imaging, more stringent control requirements to dome external floating roof tanks, and other requirements. Additionally, PAR 463 will include contingency measures for both the Coachella Valley and the South Coast Air Basin, which will require more frequent use of optical gas imaging, if triggered. This action is to adopt the Resolution: 1) Certifying the Final Environmental Assessment for Proposed Amended Rule 463 – Organic Liquid Storage; and 2) Amending Rule 463 – Organic Liquid Storage. (Reviewed: Stationary Source Committee, April 19, 2024)

26. Determine That Proposed Amended Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters, Small Boilers and Process Heaters Does Not Require a New Environmental Document; and Amend Rule 1146.2

Krause/2706

Rule 1146.2 applies to units that are between 75,000 and 2,000,000 Btu/hour that are exempt from permitting. Proposed Amended Rule 1146.2 (PAR 1146.2) proposes to require a zero- NOx emission limit for new installations of applicable large water heaters, small boilers, and process heaters based on future effective dates, implementing a 2022 AQMP Control Measure necessary to meet the NAAQS ozone standards. PAR 1146.2 proposes zero-emission limits for existing units after the unit reaches a specific age, with an allowance for units installed at residential structures and small businesses to

comply with the zero-emission limits upon natural replacement, and provides alternative compliance options and a low-use exemption to address challenges transitioning to zero-emission technologies. In addition, PAR 1146.2 clarifies existing rule language, removes obsolete provisions, and is a later activity within scope of Final Program Environmental Impact Report for 2022 AQMP such that no new environmental document will be required. This action is to adopt the Resolution: 1) Determining that Proposed Amended Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters, Small Boilers and Process Heaters, is a later activity within the scope of the Final Program Environmental Impact Report for the 2022 AQMP such that no new environmental document will be required; and 2) Amending Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters, Small Boilers and Process Heaters. (Reviewed: Stationary Source Committee, March 15, April 19 and May 17, 2024)

27. Determine That South Coast Air Basin Attainment Plan for 2012 Annual PM2.5 Standard Does Not Require a New Environmental Document; and Adopt South Coast Air Basin Attainment Plan for 2012 Annual PM2.5 Standard

Rees/2856

The South Coast Air Basin is in “serious” nonattainment for the 2012 annual PM2.5 National Ambient Air Quality Standard. A plan to attain this standard was originally submitted to U.S. EPA in 2017 but U.S. EPA delayed acting on the plan. In the meantime, near-road air quality monitoring data became eligible for inclusion in SIP attainment demonstrations, and the plan was withdrawn in 2023 to account for this new data and to satisfy other SIP requirements. A Draft PM2.5 Plan was developed that demonstrates attainment of the 2012 annual PM2.5 standard by 2030 in the South Coast Air Basin. This plan also includes limited additional controls for PM2.5 and its precursors to satisfy Clean Air Act Section 188(e) requirements. (Reviewed: Mobile Source Committee, October 20, 2023 and March 15, 2024, Reviewed)

BOARD MEMBER TRAVEL – (No Written Material)

Board member travel reports have been filed with the Clerk of the Boards, and copies are available upon request.

CLOSED SESSION -- (No Written Material)

Gilchrist/3459

CONFERENCE WITH LEGAL COUNSEL – EXISTING LITIGATION

It is necessary for the Board to recess to closed session pursuant to Government Code sections 54956.9(a) and 54956.9(d)(1) to confer with its counsel regarding pending litigation which has been initiated formally and to which the South Coast AQMD is a party. The actions are:

- In the Matter of South Coast Air Quality Management District v. Southern California Gas Company, Aliso Canyon Storage Facility, South Coast AQMD Hearing Board Case No. 137-76 (Order for Abatement); People of the State of California, ex rel South Coast Air Quality Management District v. Southern California Gas Company, Los Angeles Superior Court Case No. BC608322; Judicial Council Coordinated Proceeding No.4861;

- South Coast Air Quality Management District, et al. v. EPA, United States Court of Appeals, D.C. Circuit, Case No. 19-1241 (consolidated with Union of Concerned Scientists v. NHTSA, No. 19-1230);
- South Coast Air Quality Management District, et al. v. NHTSA, EPA, et al., United States Court of Appeals, D.C. Circuit, Case No. 20-1173 (consolidated with Competitive Enterprise Institute, et al. v. NHTSA, No. 20-1145);
- Natural Resources Defense Council, et al. v. City of Los Angeles, et al., San Diego Superior Court, Case No. 37-2021-00023385-CU-TT-CTL (China Shipping Case) (transferred from Los Angeles Superior Court, Case No. 20STCP02985); Fourth District Court of Appeal, Division One, No. D080902;
- California Trucking Association v. South Coast Air Quality Management District; the Governing Board of the South Coast Air Quality Management District; and Does 1 through 25, inclusive, U.S. District Court for the Central District of California, Case No. 2:21-cv-06341;
- In the Matter of South Coast Air Quality Management District v. Baker Commodities, South Coast AQMD Hearing Board Case No. 6223-1 (Order for Abatement); Baker Commodities, Inc. v. South Coast Air Quality Management District Hearing Board; South Coast Air Quality Management District; South Coast Air Quality Management District Hearing Board Members: Cynthia Verdugo-Peralta, Robert Pearman, Micah Ali, and Allan Bernstein, DPM MBA, in their official capacities only; and 100 Does and Roes, Los Angeles County Superior Court, Case No. 22STCP03597;
- South Coast Air Quality Management District v. EPA, U.S. District Court for the Central District of California, Case No. 2:23-cv-02646;
- East Yard Communities for Environmental Justice, et al. v. South Coast Air Quality Management District, the Governing Board of the South Coast Air Quality Management District, the California Air Resources Board, and Does 1 through 25, Inclusive, U.S. District Court for the Central District of California, Case No. 2:23-cv-06682;
- Western States Trucking Association, Inc. v. EPA, et al., United States Court of Appeals, D.C. Circuit, Case No. 23-1143 (amicus brief); and
- Legislature of the State of California, et al. v. Weber (Hiltachk), Supreme Court of California Case No. S81977 (amicus brief).

CONFERENCE WITH LEGAL COUNSEL – INITIATING LITIGATION

It is also necessary for the Board to recess to closed session pursuant to Government Code section 54956.9(a) and 54956.9(d)(4) to consider initiation of litigation (two cases).

CONFERENCE WITH LEGAL COUNSEL – ANTICIPATED LITIGATION

Also, it is necessary for the Board to recess to closed session pursuant to Government Code section 54956.9(d)(2) to confer with its counsel because there is a significant exposure to litigation against the South Coast AQMD (two cases).

ADJOURNMENT

*****PUBLIC COMMENTS*****

Members of the public are afforded an opportunity to speak on any agenda item before consideration of that item. Persons wishing to speak may do so in person or remotely via Zoom or telephone. To provide public comments via a Desktop/Laptop or Smartphone, click on the “Raise Hand” at the bottom of the screen, or if participating via Dial-in/Telephone Press *9. This will signal to the host that you would like to provide a public comment and you will be added to the list.

All agendas are posted at South Coast AQMD Headquarters, 21865 Copley Drive, Diamond Bar, California, and website, <http://www.aqmd.gov/home/news-events/meeting-agendas-minutes>, at least 72 hours in advance of the meeting. At the beginning of the agenda, an opportunity is also provided for the public to speak on any subject within the South Coast AQMD's authority. Speakers may be limited to a total of three (3) minutes for the entirety of the Consent Calendar plus Board Calendar, and three (3) minutes or less for each of the other agenda items.

Note that on items listed on the Consent Calendar and the balance of the agenda any motion, including action, can be taken (consideration is not limited to listed recommended actions). Additional matters can be added and action taken by two-thirds vote, or in the case of an emergency, by a majority vote. Matters raised under the Public Comment Period may not be acted upon at that meeting other than as provided above.

Written comments will be accepted by the Board and made part of the record. Individuals who wish to submit written or electronic comments must submit such comments to the Clerk of the Board, South Coast AQMD, 21865 Copley Drive, Diamond Bar, CA 91765-4178, (909) 396-2500, or to cob@aqmd.gov, on or before 5:00 p.m. on the Tuesday prior to the Board meeting.

ACRONYMS

AQ-SPEC = Air Quality Sensor Performance
Evaluation Center

AQIP = Air Quality Investment Program

AQMP = Air Quality Management Plan

AVR = Average Vehicle Ridership

BACT = Best Available Control Technology

BARCT = Best Available Retrofit Control Technology

Cal/EPA = California Environmental Protection Agency

CARB = California Air Resources Board

CEMS = Continuous Emissions Monitoring Systems

CEC = California Energy Commission

CEQA = California Environmental Quality Act

CE-CERT =College of Engineering-Center for Environmental
Research and Technology

CNG = Compressed Natural Gas

CO = Carbon Monoxide

DOE = Department of Energy

EV = Electric Vehicle

EV/BEV = Electric Vehicle/Battery Electric Vehicle

FY = Fiscal Year

GHG = Greenhouse Gas

HRA = Health Risk Assessment

LEV = Low Emission Vehicle

LNG = Liquefied Natural Gas

MATES = Multiple Air Toxics Exposure Study

MOU = Memorandum of Understanding

MSERCs = Mobile Source Emission Reduction Credits

MSRC = Mobile Source (Air Pollution Reduction) Review
Committee

NAAQS = National Ambient Air Quality Standards

NATTS =National Air Toxics Trends Station

NESHAPS = National Emission Standards for
Hazardous Air Pollutants

NGV = Natural Gas Vehicle

NOx = Oxides of Nitrogen

NSPS = New Source Performance Standards

NSR = New Source Review

OEHHA = Office of Environmental Health Hazard
Assessment

PAMS = Photochemical Assessment Monitoring
Stations

PEV = Plug-In Electric Vehicle

PHEV = Plug-In Hybrid Electric Vehicle

PM10 = Particulate Matter ≤ 10 microns

PM2.5 = Particulate Matter ≤ 2.5 microns

RECLAIM=Regional Clean Air Incentives Market

RFP = Request for Proposals

RFQ = Request for Quotations

RFQQ=Request for Qualifications and Quotations

SCAG = Southern California Association of Governments

SIP = State Implementation Plan

SOx = Oxides of Sulfur

SOON = Surplus Off-Road Opt-In for NOx

SULEV = Super Ultra Low Emission Vehicle

TCM = Transportation Control Measure

ULEV = Ultra Low Emission Vehicle

U.S. EPA = United States Environmental Protection
Agency

VOC = Volatile Organic Compound

ZEV = Zero Emission Vehicle

INSTRUCTIONS FOR ELECTRONIC PARTICIPATION

Instructions for Participating in a Virtual Meeting as an Attendee

As an attendee, you will have the opportunity to virtually raise your hand and provide public comment.

Before joining the call, please silence your other communication devices such as your cell or desk phone. This will prevent any feedback or interruptions during the meeting.

For language interpretation:

Click the interpretation Globe icon at the bottom of the screen

Select the language you want to hear (either English or Spanish)

Click "Mute Original Audio" if you hear both languages at the same time.

Para interpretación de idiomas:

Haga clic en el icono de interpretación el globo terráqueo en la parte inferior de la pantalla

Seleccione el idioma que desea escuchar (inglés o español)

Haga clic en "Silenciar audio original" si escucha ambos idiomas al mismo tiempo.

Please note: During the meeting, all participants will be placed on Mute by the host. You will not be able to mute or unmute your lines manually.

After each agenda item, the Chair will announce public comment.

Speakers may be limited to a total of 3 minutes for the entirety of the consent calendar plus board calendar, and three minutes or less for each of the other agenda items.

A countdown timer will be displayed on the screen for each public comment.

If interpretation is needed, more time will be allotted.

Directions to provide public comment on ZOOM from a DESKTOP/LAPTOP or SMARTPHONE:

Click on the "Raise Hand" feature at the bottom of the screen.

This will signal to the host that you would like to provide a public comment and you will be added to the list.

Directions to provide public comment via TELEPHONE:

Dial *9 on your keypad to signal that you would like to comment.

Directions for Spanish Language TELEPHONE line only:

- The call in number is the same (+1 669 900 6833)
- The meeting ID number is 928-3000-3925
- If you would like to make public comment, please dial *9 on your keypad to signal that you would like to comment.

Instrucciones para la línea de TELÉFONO en español únicamente:

- El número de llamada es el mismo (+1 669900 6833 o +1 93209559643)
- El número de identificación de la reunión es 928-3000-3925
- Si desea hacer un comentario público, marque *9 en su teclado para indicar que desea comentar.

 [Back to Agenda](#)

BOARD MEETING DATE: June 7, 2024

AGENDA NO. 1

MINUTES: Governing Board Monthly Meeting

SYNOPSIS: Attached are the Minutes of the May 3, 2024 Board Meeting.

RECOMMENDED ACTION:

Approve the May 3, 2024 Board Meeting Minutes.

Faye Thomas
Clerk of the Boards

FT

FRIDAY, MAY 3, 2024

Notice having been duly given, the regular meeting of the South Coast Air Quality Management District Board was conducted in a hybrid format (in person and remotely via videoconferencing and telephone). Members present:

Senator Vanessa Delgado (Ret.), Chair
Senate Rules Committee Appointee

Councilmember Michael A. Cacciotti, Vice Chair
Cities of Los Angeles County – Eastern Region

Supervisor Andrew Do
County of Orange

Gideon Kracov
Governor's Appointee

Mayor Pro Tem Larry McCallon
Cities of San Bernardino County

Supervisor V. Manuel Perez
County of Riverside

Councilmember Nithya Raman
City of Los Angeles

Councilmember Carlos Rodriguez
Cities of Orange County

Mayor José Luis Solache
Cities of Los Angeles County – Western Region

Absent: Mayor Patricia Lock Dawson
Cities of Riverside County

Supervisor Curt Hagman
County of San Bernardino

Supervisor Holly J. Mitchell
County of Los Angeles

Board Member Veronica Padilla-Campos
Speaker of the Assembly Appointee

For additional details of the Governing Board Meeting, please refer to the recording of the [Webcast](#) at: [Live Webcast \(aqmd.gov\)](#)

CALL TO ORDER: Chair Delgado called the meeting to order at 9:04 a.m.

- Pledge of Allegiance: Led by Supervisor Andrew Do
- Roll Call

Councilmember Rodriguez arrived at 9:05 and Councilmember Raman arrived at 9:07 a.m.

- Opening Comments

Councilmember Cacciotti shared photos of the following: South Coast AQMD employee BreTania Chase-Young and commended her handling of 1-800-CUT-SMOG calls; the son of a South Pasadena employee to highlight the medical equipment he carries around due to having severe asthma; and Earth Day activities with students from the Institute for the Redesign of Learning.

Supervisor Perez thanked staff for meeting with the Coachella Valley Association of Governments to discuss dust mitigation and concerns about the adverse impact of dust emissions to public health, quality of life, and economy in the Coachella Valley. He explained the significance of Cinco de Mayo to the histories of Mexico and the United States, and wished everyone a happy Cinco de Mayo.

Executive Officer Wayne Nastri provided information about the Board Retreat; the Legislative and Administrative Committee meetings on May 9 in Rancho Mirage; and the status of the Governing Board Student Internship Program. He announced that to celebrate May as National Clean Air Month, South Coast AQMD employee volunteers would be working with Habitat for Humanity in Riverside and invited others to join them.

PUBLIC COMMENT PERIOD – (Public Comment on Non-Agenda Items, Pursuant to Government Code Section 54954.3)

The Public Comment Period on Non-Agenda Items was opened. There being no requests to speak, the Public Comment Period on Non-Agenda Items was closed.

Written Comment Letters Regarding:

Request for Delay of Proposed Amended Rule 1146.2 Submitted By:

Roger Ades, Venice
Anthony Alvarez II, Bright, Torrance
Pat Anderson, La Cañada Flintridge Chamber of Commerce, La Cañada Flintridge
Lonnie Andre, Covina
Robert Apodaca, The Two Hundred for Home Ownership, Los Angeles
Roberto Arnold, Multicultural Business Alliance, Covina
Greg Astorian, Glendale Association of Realtors, Glendale
Mikal Ayala, Hardage Hospitality, Marina Del Rey
Ali Bahadorzadeh, Carlo, Inc., Winnetka
Elie Balas, Menchie's, Inc., Encino

Request for Delay of Proposed Amended Rule 1146.2 Submitted By: (continued):

Craig Berberian, Empire Property Group, West Hollywood
Manuel Bernal, San Juan Capistrano
Yaselin Bolanos, Los Angeles
Stephen Brown, Pasadena
Lee Brown, Western States Trucking Association, Upland
Elsa Camacho, PBF Energy, Carson
Karina Carias, Lynwood
Aidan Chao, Los Angeles Taxpayers Association, Arcadia
Stephen Comeau, Huntington Beach
Ana Dahan, GPSN, Los Angeles
Hamlet Danielyan, Carlo, Inc., North Hills
Patrick DiBennardo, San Pedro
Jan Drumright, Hardage Hospitality, Marina Del Rey
Lucy Dunn, Coto de Caza
Donna Duperron, Torrance Area Chamber of Commerce, Torrance
John Edell, Los Angeles
David Englin, Bizfed, Pasadena
Verdel Flores, Los Angeles
George Francisco, Venice Chamber of Commerce
Michelle Gastelum, Summit Consulting & Engineering, Pasadena
Michelle Gonzalez, Los Angeles
Sean Graham, San Pedro
Chase Hardage, The Hardage Group, Marina Del Rey
Dustin Hensley, Los Angeles
Veronica Hill, Hardage Hospitality, Marina Del Rey
Daivd Honda, Northridge
Jeff Ignowski, San Jacinto
Jay Johnson, Santa Monica
Steven Jones, Better Shelter, Los Angeles
Andre Kelly, Bellflower
Robert Kress, Venice
Rosie Lim, Carlo, Inc., Los Angeles
Audre Lopez-King, Mettle, LLC, Los Angeles
Joan Mackay, San Pedro
Richard Markuson, Western Electrical Contractors Association/Plumbing-Heating-Cooling
Contractors Association of California, Sacramento
James Mckenna, Palm Springs
Ashley Miranda, Carlo, Inc., Van Nuys
Mark Murphy, Hardage Hospitality, Santa Clarita
Jeantine Nazar, Glendale
Dan Newman, Los Angeles
Nancy Olson, San Gabriel
Bert Ortiz, Prime Group, Oceanside
Alexandra Otterstrom, Parkwest Rentals, Lawndale
Ellor Parikh, Pari Enterprises, Glendale
Gregory J. Pawlik, Coldwell Banker, Pacific Palisades
Patricia Petralia, Maxon Properties, Porter Ranch
Ariana Puraci, Hardage Hospitality, Marina Del Rey
Gaye Rainey, Keller Williams, West Hills
Tim Riley, Marina Del Rey Lessees Association, Panorama City
Darren W. Stroud, PBF Energy, Torrance
Bennie Tinson, Licensed Adult Residential Care Association, Los Angeles

Request for Delay of Proposed Amended Rule 1146.2 Submitted By: (continued):

Nick Tirabassi, Los Angeles
Mike Tolj, Tolj Commercial, Los Angeles
Talin Melkonian Toumajan, Glendale
Ann Trussell, HomeBased Realty, Acton
Irma Vargas, Greater Los Angeles Association of Realtors, Los Angeles
Jessica Vincent, Chevron, El Segundo
Todd Vradenburg, National Association of Theater Owners, Los Angeles
Diana Waters, Ignite!, Redondo Beach
James Wood, Redondo Beach

Support for Proposed Amended Rule 1146.2 Submitted by:

Mayor Justin Massey, City of Hermosa Beach

Opposition of California State Nonroad Engine Pollution Control Standards In-Use Locomotive Regulation

Jay Bradshaw, Nor Cal Carpenters Union

Disneyland Autopia Ride

Zan Dubin, ZDS Communications



CONSENT AND BOARD CALENDAR

Items 1 and 2 – Action Items/No Fiscal Impact

1. Approve Minutes of April 5, 2024 Board Meeting
2. Set Public Hearings June 7, 2024 to Consider Adoption of and/or Amendments to South Coast AQMD Rules and Regulations
 - A. Determine That Proposed Rule 317.1 – Clean Air Act Nonattainment Fees for 8-Hour Ozone Standards Is Not Considered Subject to CEQA; and Adopt Rule 317.1
 - B. Certify Final Environmental Assessment for Proposed Amended Rule 463 – Organic Liquid Storage; and Amend Rule 463
 - C. Determine That South Coast Air Basin Attainment Plan for 2012 Annual PM2.5 Standard Does Not Require A New Environmental Document; and Adopt South Coast Air Basin Attainment Plan for 2012 Annual PM2.5 Standard

Items 3 through 11 – Budget/Fiscal Impact

3. Transfer Funds Between Major Objects, Issue Solicitations and Purchase Orders for AQ-SPEC Program
4. Recognize Revenue, Appropriate and Transfer Funds, Issue Solicitation and Purchase Order for One Vehicle
5. Recognize Funds, Execute Agreements for School Air Filtration Systems in Environmental Justice Communities, and Reimburse General Fund for Administrative Costs

6. Recognize Revenue, Transfer Funds, Execute Contract for Electrification of Balboa Island Ferries and Installation of Supporting Charging Infrastructure, and Reimburse General Fund for Administrative Costs
7. Execute Contracts for Short and Long-Term Systems Development, Maintenance and Support Services
8. Authorize Purchase of Videotelephony Service
9. Approve Compensation Adjustments for Board Member Assistants and Board Member Consultants for FY 2024-25
10. Execute Agreement with California High-Speed Rail Authority Setting Forth Framework for Development of Future Contract to Reduce Construction Emissions and Satisfy General Conformity for Palmdale to Burbank Project Section of California High-Speed Rail Project
11. Issue RFP and Approve Contract Modification as Approved by MSRC

Items 12 through 19 – Information Only/Receive and File

12. Legislative, Public Affairs and Media Report
13. Hearing Board Report
14. Civil Filings and Civil Penalties Report
15. Intergovernmental Review of Environmental Documents and CEQA Lead Agency Projects
16. Rule and Control Measure Forecast
17. Annual Audited Financial Statements for FY Ended June 30, 2023
18. Status Report on Major Ongoing and Upcoming Projects for Information Management
19. Annual Meeting of the Health Effects of Air Pollution Foundation

Items 20 through 27 – Reports for Committees and CARB

20. Administrative Committee
21. Climate Change Committee
22. Legislative Committee
23. Mobile Source Committee
24. Stationary Source Committee
25. Technology Committee
26. Mobile Source Air Pollution Reduction Review Committee
27. California Air Resources Board Monthly Report (*No report; CARB meeting cancelled*)
28. Items Deferred from Consent and Board Calendar

SB 1095 (Becker) was pulled from Agenda Item No. 22 for discussion.

Disclosures

Board Member Kracov recused himself from Agenda Item No. 2A because of a financial interest in Disney, which is materially affected by this item; and reported that he had no financial interest in Agenda Item No. 6 but is required to identify for the record that he is a Board Member of the California Air Resources Board, which is involved in this item.

Supervisor Perez reported that he had no financial interests in Agenda Item No. 5 but is required to identify for the record that he is a Supervisor for the County of Riverside, which is involved in this item; and that he had no financial interests in Agenda Item No 6 but is required to identify for the record that he is a Board Member for the California Air Resource Board, which is involved in this item.

Supervisor Do reported that he had no financial interests in Agenda Item No. 5 but is required to identify for the record that he is a Supervisor for the County of Orange, which is involved in this item.

Vice Chair Cacciotti made a motion to approve Agenda Item Nos. 1 through 27 and Supervisor Perez seconded the motion. Councilmember Rodriguez announced that he was abstaining from Agenda Item No. 22. For additional details, please refer to the [Webcast](#) beginning at 18:13.

Item Pulled for Discussion – SB 1095 in Agenda Item No. 22

Councilmember Rodriguez commented on the role of the Western Manufactured Housing Communities Association (WMA) and California Manufactured Housing Institute (CMHI) in helping to address California's affordable housing crisis, and inquired about the WMA and CMHI's concerns and reasons for opposing SB 1095 (Becker). For additional details, please refer to the [Webcast](#) beginning at 19:36.

Philip Crabbe, Senior Public Affairs Manager, confirmed that WMA and CHMI opposed SB 1095; however, the bill is supported by CAPCOA and other air districts. For additional details, please refer to the [Webcast](#) beginning at 21:04.

Councilmember Rodriguez recommended pulling SB 1095 from consideration until more information is obtained to understand the concerns of the WMA and CHMI. Given the dire housing crisis in California, he questioned whether the bill may be unintentionally undermining the ability to bring affordable housing to the housing market. For additional details, please refer to the [Webcast](#) beginning at 21:38.

Mr. Nastri clarified the intent of the bill. He added that staff recently became aware of the opposition and will look into it further. For additional details, please refer to the [Webcast](#) beginning at 22:34.

Councilmember Rodriguez offered a friendly amendment to pull SB 1095 from Agenda Item No. 22 to send it back to the Legislative Committee for additional information and review. Vice Chair Cacciotti accepted the amendment. For additional details, please refer to the [Webcast](#) beginning at 23:27.

The public comment period was opened for Agenda Item Nos. 1 through 27. There being no requests to speak, the public comment period was closed for Agenda Item Nos. 1 through 27.

Board Action (Items 1-27)

MOVED BY CACCIOTTI AND SECONDED BY PEREZ TO APPROVE AGENDA ITEM NOS. 1 THROUGH 27 AS RECOMMENDED, WITH BOARD MEMBER KRACOV RECUSING FROM ITEM 2A AND COUNCILMEMBER RODRIGUEZ ABSTAINING FROM ITEM NO. 22, AND TO:

RECEIVE AND FILE THE REPORTS FOR THE BOARD COMMITTEES AND MSRC AND ADOPT THE POSITIONS ON LEGISLATIONS AS SET FORTH BELOW; AND

ADOPT RESOLUTION NO. 24-12 REGARDING THE WINDING UP AND DISSOLUTION OF THE HEALTH EFFECTS OF AIR POLLUTION FOUNDATION.

THE MOTION PASSED BY THE FOLLOWING VOTE:

AYES: Cacciotti, Delgado, Do, Kracov (except Item 2A), McCallon, Perez, Raman, Rodriguez (except Item 22), and Solache

NOES: None

ABSTAIN: Rodriguez (Item 22 only)

RECUSE: Kracov (Item 2A only)

ABSENT: Lock Dawson, Hagman, Mitchell, and Padilla-Campos

<u>Legislation/Agenda Item</u>	<u>Recommended Action</u>
AB 1857 (Jackson) State Air Resources Board: air quality regulation: valleys.	Oppose
AB 2561 (McKinnor) Local public employees: vacant positions	Oppose Unless Amended
SB 1095 (Becker) Cozy Homes Cleanup Act: building standards: gas fuel burning appliances.	Support (THIS ITEM WAS PULLED FROM CONSIDERATION)
SB 1193 (Menjivar) Airports: leaded aviation gasoline	Support



PUBLIC HEARING

29. Determine That Proposed Amendments to Regulation III – Fees Are Exempt from CEQA; Amend Regulation III – Fees; and Adopt Executive Officer's Proposed Goals and Priority Objectives, and Proposed Budget for FY 2024-25

Sujata Jain, Chief Financial Officer/Deputy Executive Officer, gave the staff presentation on the Executive Officer's Proposed Goals and Priority Objectives, and Proposed Budget for FY 2024-25; and Mike Krause, Assistant Deputy Executive Officer/Planning, Rule Development and Implementation, gave the staff presentation on the proposed amendments to Regulation III.

Mayor McCallon expressed his reservations about drawing from the reserves to balance the budget. For additional details, please refer to the [Webcast](#) beginning at 30:24.

Mayor Pro Tem Rodriguez recommended that staff works to ensure that the agency does not go below the 20 percent threshold for the reserves and supported the comments from Mayor McCallon. Ms. Jain explained that staff provides quarterly budget numbers so the Board stays informed about the budget. Mr. Nastri commented about the conservative forecasting of the fifth-year projection. For additional details, please refer to the [Webcast](#) beginning at 31:42.

Vice Chair Cacciotti, Supervisor Perez, and Chair Delgado supported Mayor McCallon's and Mayor Rodriguez's comments and Executive Officer Nastri's comments. For additional details, please refer to the [Webcast](#) beginning at 33:51.

The public comment period was opened for Agenda Item No. 29 and the following individuals addressed the Board.

Harvey Eder, Public Solar Power Coalition, was cut off because he was speaking off topic. For additional details, please refer to the [Webcast](#) beginning at 40:05.

Rita Loof, RadTech International, commented on UV/EB/LED processes and thanked the Board for their willingness to engage in technical discussions that involve complex issues related to air quality policies that have been in place for decades and do not easily accommodate new pollution prevention technologies. She expressed support for the Rule 301 proposal, noting that it will help companies who invest in new technologies. For additional details, please refer to the [Webcast](#) beginning at 41:35.

There being no further requests to speak, the public comment period was closed for Agenda Item No. 29.

Mayor Solache commented on the need to be mindful of the concerns of small businesses when proposing fee increases. For additional details, please refer to the [Webcast](#) beginning at 43:32.

Board Action (Item 29)

MOVED BY MCCALLON AND SECONDED BY CACCIOTTI TO APPROVE AGENDA ITEM NO. 29 AS RECOMMENDED AND SET FORTH BELOW:

- 1) ADOPT RESOLUTION NO. 24-13:
 - A. DETERMINING THAT THE PROPOSED AMENDMENTS TO REGULATION III – FEES, WHICH INCLUDE PROPOSED AMENDED RULE 301 – PERMITTING AND ASSOCIATED FEES, PROPOSED AMENDED RULE 303 – HEARING BOARD FEES, PROPOSED AMENDED RULE 304 – EQUIPMENT, MATERIALS AND AMBIENT AIR ANALYSES, PROPOSED AMENDED RULE 304.1 – ANALYSES FEES, PROPOSED AMENDED RULE 306 – PLAN FEES, PROPOSED AMENDED RULE 307.1 – ALTERNATIVE FEES FOR AIR TOXICS EMISSIONS INVENTORY, PROPOSED AMENDED RULE 308 – ON-ROAD MOTOR VEHICLE MITIGATION OPTIONS FEES, PROPOSED AMENDED RULE 309 – FEES FOR REGULATION XVI AND REGULATION XXV, PROPOSED AMENDED RULE 311 – AIR QUALITY INVESTMENT PROGRAM (AQIP) FEES, PROPOSED AMENDED RULE 313 – AUTHORITY TO ADJUST FEES AND DUE DATES, PROPOSED AMENDED RULE 314 – FEES FOR ARCHITECTURAL COATINGS, PROPOSED AMENDED RULE 315 – FEES FOR TRAINING CLASSES AND LICENSE RENEWAL, AND PROPOSED AMENDED RULE 316 – FEES FOR RULE 2305, ARE EXEMPT FROM THE REQUIREMENTS OF THE CALIFORNIA ENVIRONMENTAL QUALITY ACT; AND
 - B. AMENDING REGULATION III – FEES, WHICH INCLUDES PROPOSED AMENDED RULES 301, 303, 304, 304.1, 306, 307.1, 308, 309, 311, 313, 314, 315, AND 316.
- 2) APPROVE THE EXECUTIVE OFFICER'S PROPOSED GOALS AND PRIORITY OBJECTIVES, AND PROPOSED BUDGET FOR FY 2024-25;
- 3) REMOVE FROM RESERVES AND DESIGNATIONS ALL AMOUNTS ASSOCIATED WITH THE FY 2023-24 BUDGET;

4) APPROVE APPROPRIATIONS IN THE MAJOR OBJECTS FOR FY 2024-25 OF:

Salary and Employee Benefits	\$174,519,397
Services and Supplies	31,492,598
Capital Outlays	3,418,500
Transfers Out	<u>2,000,000</u>
Total	<u>\$211,430,495</u>

5) APPROVE REVENUES FOR FY 2024-25 OF \$209,545,500;

6) APPROVE THE DELETION OF TWO NET AUTHORIZED/FUNDED POSITIONS AS DETAILED IN THE FY 2024-25 BUDGET; AND

7) APPROVE A PROJECTED JUNE 30, 2025 FUND BALANCE OF THE FOLLOWING:

Classification ¹	Reserves/Unreserved Designations	Amount
Committed	Reserve for Encumbrances	\$19,900,000
Nonspendable	Reserve for Inventory of Supplies	80,000
Assigned	Designated for Enhanced Compliance Activities	883,018
Assigned	Designated for Other Post Employment Benefit (OPEB) Obligations	2,952,496
Assigned	Designated for Permit Streamlining	234,159
Assigned	Designated for Self-Insurance	2,000,000
Assigned	Designated for Unemployment Claims	80,000
Total Reserved & Unreserved Designations		\$26,129,673
Unassigned	Undesignated Fund Balance	\$75,607,207
¹ The fund balance classifications of Committed, Nonspendable, Assigned, and Unassigned are established by the Government Accounting Standards Board 54.		

THE MOTION PASSED BY THE FOLLOWING VOTE:

AYES: Cacciotti, Delgado, Do, Kracov, McCallon, Perez, Raman, Rodriguez, and Solache

NOES: None

ABSENT: Lock Dawson, Hagman, Mitchell, and Padilla-Campos



CLOSED SESSION

The Board recessed to closed session at 9:42 a.m. pursuant to Government Code sections:

CONFERENCE WITH LEGAL COUNSEL – EXISTING LITIGATION

- 54956.9(a) and 54956.9(d)(1) to confer with its counsel regarding pending litigation which has been initiated formally and to which the SCAQMD is a party. The action is:

In the Matter of South Coast Air Quality Management District v. Baker Commodities, South Coast AQMD Hearing Board Case No. 6223-1 (Order for Abatement); Baker Commodities, Inc. v. South Coast Air Quality Management District Hearing Board; South Coast Air Quality Management District; South Coast Air Quality Management District Hearing Board Members: Cynthia Verdugo-Peralta, Robert Pearman, Micah Ali, and Allan Bernstein, DPM MBA, in their official capacities only; and 100 Does and Roes, Los Angeles County Superior Court, Case No. 22STCP03597; and

South Coast Air Quality Management District v. EPA, U.S. District Court for the Central District of California, Case No. 2:23-cv-02646.

CONFERENCE WITH LEGAL COUNSEL – INITIATING LITIGATION

- 54956.9(a) and 54956.9(d)(4) to consider initiation of litigation in one case.

Following closed session, Bayron Gilchrist, General Counsel, announced that there were no reportable actions taken in closed session.

ADJOURNMENT

There being no further business, the meeting was adjourned by Mr. Gilchrist at 10:57 a.m.

The foregoing is a true statement of the proceedings held by the South Coast Air Quality Management District Board on May 3, 2024.

Respectfully Submitted,

Faye Thomas
Clerk of the Boards

Date Minutes Approved: _____

Vanessa Delgado, Chair

ACRONYMS

AQMP = Air Quality Management Plan
CAPCOA = California Air Pollution Control Officers Association
CARB = California Air Resources Board
CEQA = California Environmental Quality Act
FY = Fiscal Year
MSRC = Mobile Source Air Pollution Reduction Review Committee
UV/EB/LED = Ultraviolet/Electron Beam/Light-Emitting

BOARD MEETING DATE: June 7, 2024

AGENDA NO. 2

PROPOSAL: Set Public Hearings August 2, 2024 to Consider Adoption of and/or Amendments to South Coast AQMD Rules and Regulations:

A. Determine That Proposed Amended Rule 1148.1 – Oil and Gas Production Wells, Is Exempt from CEQA; and Amend Rule 1148.1

Rule 1148.1 – Oil and Gas Production Wells applies to facilities that operate oil and gas wells. Proposed Amended Rule (PAR) 1148.1 will address objectives of the Wilmington, Carson, and West Long Beach and South Los Angeles AB 617 communities. PAR 1148.1 requires the use of enhanced leak detection technology, equipment that uses produced gas to meet specific NOx limits, and workover rigs to use Tier 4 Final diesel engines. PAR 1148.1 also bans the use of odorants and updates signage requirements. This action is to adopt the Resolution: 1) Determining that Proposed Amended Rule 1148.1 – Oil and Gas Production Wells, is exempt from the requirements of the California Environmental Quality Act, and 2) Amending Rule 1148.1. (Reviewed: Stationary Source Committee, May 17, 2024)

B. Determine That Proposed Rule 2306 – Freight Rail Yards Does Not Require a New Environmental Document; Determine That Proposed Rule 316.2 – Fees for Rule 2306 Is Exempt From CEQA; and Adopt Proposed Rules 2306 and 316.2

Proposed Rule 2306 seeks to reduce NOx emissions associated with freight rail yard operations by requiring operators of freight rail yards to meet or exceed emission reduction targets. The proposed rule will ensure that emission reductions will be proportional or greater in the South Coast AQMD relative to reductions throughout California from implementation of state regulations. Additionally, any state or local government agency contracting with the owner or operator of a freight rail yard in relation to its lease, construction, or operation will be required to include requirements for rule compliance in new, renewed, or amended contracts. Proposed Rule 316.2 will establish fees for owners and operators of freight rail yards to recover costs incurred by South Coast AQMD for implementation of Proposed Rule

2306. If adopted, Proposed Rule 2306 will be submitted to CARB for their consideration and transmittal to U.S. EPA. (Reviewed: Mobile Source Committee, January 19, 2024, April 19, 2024, and June 21, 2024)

The complete text of the proposed and proposed amended rules, staff report and other supporting documents will be available from the South Coast AQMD's Public Information Center at (909) 396-2001, or Mr. Derrick Alatorre – Deputy Executive Officer/Public Advisor, South Coast AQMD, 21865 Copley Drive, Diamond Bar, CA 91765, (909) 396-2432, dalatorre@aqmd.gov and on the Internet (www.aqmd.gov) as of July 2, 2024.

RECOMMENDED ACTIONS:

Set Public Hearings August 2, 2024 to: 1) Determine That Proposed Amended Rule 1148.1 – Oil and Gas Production Wells, Is Exempt from CEQA; and Amend Rule 1148.1; and 2) A. Determine That Proposed Rule 2306 – Freight Rail Yards Does Not Require a New Environmental Document; Determine That Proposed Rule 316.2 – Fees for Rule 2306 Is Exempt From CEQA; and Adopt Proposed Rules 2306 and 316.2

Wayne Nastri
Executive Officer

FT

BOARD MEETING DATE: June 7, 2024

AGENDA NO. 3

PROPOSAL: Recognize Revenue, Appropriate Funds and Issue Solicitation and Purchase Order for Laboratory Equipment

SYNOPSIS: South Coast AQMD is expected to receive grant funds up to \$270,006 from U.S. EPA for the NATTS Monitoring Program. This action is to recognize revenue, appropriate funds and issue a sole source purchase order for Laboratory equipment.

COMMITTEE: Administrative, May 9, 2024; Recommended for Approval

RECOMMENDED ACTIONS:

1. Recognize revenue upon receipt, and appropriate up to \$93,245 (\$176,761 is recognized in FY 2024-25 Budget for Salaries, Employee Benefits, and Indirect Costs) into the Monitoring and Analysis' (MAD) FY 2024-25 Budget as set forth in Attachment 1; and
2. Authorize the Procurement Manager, in accordance with South Coast AQMD's Procurement Policy and Procedure, to issue a sole source purchase order for laboratory equipment as listed in Table 1.

Wayne Nastri
Executive Officer

JCL:AP:RMB:ld:ir:eq

Background

There are currently 188 hazardous air pollutants (HAPs), or air toxics regulated under the Clean Air Act that are associated with a wide variety of adverse health effects including cancer and neurological effects. The NATTS Program was developed to fulfill the need for long-term national HAP monitoring data. In 2007, U.S. EPA expanded the NATTS Program and awarded Section 103 funds to conduct monitoring for toxic air contaminants at two existing monitoring sites, Central Los Angeles, and Rubidoux. The air toxics data serves as a continuum between past and future air toxic measurement programs, such as MATES, and allows for more ongoing evaluation of toxic trends on a regional basis using the most robust air measurement methods. South Coast AQMD is expected to receive up to \$270,006 from U.S. EPA for the annually funded NATTS

Program for the operation and maintenance of the monitoring program for FY 2024-25. Revenue for this grant in the amount of \$176,761 has already been included in the FY 2024-25 Budget.

Proposal

This action is to recognize, upon receipt, the remaining grant revenue up to \$93,245 not included in the FY 2024-25 Budget, appropriate it into MAD's FY 2024-25 Budget as set forth in Attachment 1, and issue sole source purchase order as described below.

The procurement of a Milestone TraceClean Acid Steam Cleaning System is critical to maintain the laboratory's operational capacity and ensure ongoing compliance with NATTS program requirements. The current acid cleaning system used for NATTS metals analysis is outdated, being more than 15 years old and no longer supported by the manufacturer. This system is the sole means for acid cleaning in the laboratory, and if it fails that will halt the laboratory's ability to perform metals analysis as required as part of the NATTS program. To address this, the laboratory proposes the purchase of the Milestone TraceClean Acid Steam Cleaning System at an estimated cost of \$25,000 as listed in Table 1. The purchase will be made as a sole source purchase followed by the issuance of a purchase order.

Sole Source Justification

Section VIII.B.3 of South Coast AQMD's Procurement Policy and Procedure identifies four major provisions under which a sole source award funded in whole or in part with federal funds, may be justified. Specifically, this request for sole source award is made under provision VIII.B.3.a., the item is available only from a single source. The Milestone TraceClean Acid Steam Cleaning System is a unique acid steam cleaning system that can operate safely without the use of a fume hood and eliminates the operator's exposure to vapors throughout the cleaning process.

Resource Impacts

U.S. EPA funding will support the continuation of the NATTS Monitoring Program.

Table 1
Proposed Purchase through Sole Source Purchase Order

Description	Qty	Funding Source	Estimated Amount
Milestone TraceClean Acid Steam Cleaning System	1	U.S EPA NATTS FY 2024-25	\$25,000
Total			\$25,000

Attachment

Proposed NATTS Expenditures for FY 2024-25

Attachment 1
Proposed NATTS Expenditures for FY 2024-25

Account Description	Account Number	Program Code	Estimated Expenditures*
Services & Supplies Major Object:			
Maintenance of Equipment	67600	47468	\$30,000
Travel	67800	47468	\$6,000
Laboratory Supplies	68050	47468	\$30,000
Office Expense	68100	47468	\$1,033
Small Tools, Instruments, Equipment	68300	47468	\$1,212
Total Services & Supplies Major Object:			\$68,245
Capital Outlay Major Object:			
Milestone TraceClean Acid Steam Cleaning System (1)*	77000	47468	\$25,000
Total Capital Outlay Major Object:			\$25,000
Total Appropriations			\$93,245

*Expenditures may be appropriated in Services and Supplies and/or Capital Outlays Major Objects as warranted.

Note: Salaries, Benefits, and Indirect Costs are included in the FY 2024-25 Budget.

BOARD MEETING DATE: June 7, 2024

AGENDA NO. 4

PROPOSAL: Appropriate Funds, Issue Solicitation and Purchase Orders to Meet Operational Needs for Rule 1180 Air Monitoring Program

SYNOPSIS: Rule 1180 established a fee schedule to fund community air monitoring stations to provide air quality information and notification to the public on refinery emissions in neighboring communities. The FY 2023-24 budget for this program includes approximately \$4.6 million in annual fees from refineries for community air monitoring. These actions are to appropriate up to \$199,000 from the General Fund Undesignated (Unassigned) Fund Balance to Monitoring and Analysis' FY 2023-24 and/or FY 2024-25 Budget, issue a solicitation and purchase orders to meet operational needs of the Rule 1180 Air Monitoring Program.

COMMITTEE: Administrative, May 9, 2024; Recommended for Approval

RECOMMENDED ACTIONS:

1. Appropriate up to \$199,000 from the General Fund Undesignated (Unassigned) fund balance for Rule 1180 activities into the Monitoring and Analysis' (MAD) FY 2023-24 and/or 2024-25 Budget (Org 42), Capital Outlays (up to \$119,000), and Services & Supplies (up to \$80,000) Major Object as indicated in Tables 1 and 2;
2. Authorize the Procurement Manager, in accordance with South Coast AQMD Procurement Policy and Procedure, to issue a solicitation, and based on the results of the solicitation, issue a purchase order for installed safety railings and ladders at Rule 1180 community air monitoring shelters, where needed, in an amount not to exceed \$81,000, as listed in Table 1; and
3. Authorize the Procurement Manager, in accordance with South Coast AQMD's Procurement Policy and Procedure, to issue sole source purchase orders for the following items in support of Rule 1180 community air monitoring as listed in Tables 1 and 2:
 - a. One hydrogen sulfide/sulfur dioxide (H₂S/SO₂) analyzer from Teledyne Advanced Pollution Instrumentation (Teledyne) in an amount not to exceed \$25,000;
 - b. One air conditioning system including installation from KLM HVAC and Refrigeration (KLM HVAC) in an amount not to exceed \$13,000;

- c. Up to ten liquid nitrogen microdosing systems from FluxSense, Inc. (FluxSense) in an amount not to exceed \$50,000; and
- d. Up to three specialized optical fibers including installation from FluxSense in an amount not to exceed \$30,000.

Wayne Natri
Executive Officer

JCL:AP:OP:ld:ir:kdl

Background

Rule 1180 - Refinery Fenceline and Community Air Monitoring was adopted by the Board in December 2017 and requires all seven major refineries in the South Coast Air Basin (Basin) to measure the ambient levels of various air pollutants at their fenceline, and notify the public if the concentration of any pollutant is above pre-determined threshold levels. Rule 1180 also established a fee schedule for these refineries to fund the installation, operation, and maintenance of community air monitoring stations (operated by South Coast AQMD) to provide air quality information and notifications to the public.

The requirements of Rule 1180 apply to the following seven facilities:

- Tesoro Refining & Marketing Company, LLC, Carson;
- Tesoro Refining & Marketing Company, LLC, Wilmington;
- Torrance Refining Company, LLC, Torrance;
- Chevron Products Company, El Segundo;
- Phillips 66 Company, Los Angeles Refinery, Carson;
- Phillips 66 Company, Los Angeles Refinery, Wilmington; and
- Valero Wilmington Refinery (permitted as Ultramar, Inc.), Wilmington.

The Rule 1180 refinery fenceline and community air monitoring network has been in operation since January 2020. To satisfy the Rule requirements, novel optical remote sensing (ORS), automated gas chromatography, and traditional analyzers have been installed at fenceline and community air monitoring sites, making this network the first of its kind in terms of complexity and technologies deployed.

Proposal

This action is to appropriate up to \$199,000 from the General Fund Undesignated (Unassigned) Fund Balance for Rule 1180 activities into the MAD FY 2023-24 and/or 2024-25 Budget (Org 42) Capital Outlays and Services & Supplies Major Object, as indicated in Tables 1 and 2. This action is also to issue a solicitation and purchase orders to meet operational needs of the Rule 1180 Air Monitoring Program, as shown in Tables 1 and 2.

Proposed Purchase through Solicitation

Safety Railings and Ladders for Air Monitoring Containers

Rule 1180 community air monitoring stations are housed in office containers or trailers. There is a need to outfit the containers with safety railings and ladders to maintain a safe workspace for staff while conducting maintenance and quality assurance activities. This action is to issue a solicitation, and based on the results of this solicitation, issue a purchase order for installation of safety railings and ladders in an amount not to exceed \$81,000.

Proposed Purchases through Sole Source

H2S/SO2 Analyzer

H2S/SO2 multi-pollutant analyzers are deployed at all Rule 1180 community air monitoring sites. The technical specifications of an H2S/SO2 analyzer manufactured by Teledyne is consistent with the equipment already operating within the South Coast AQMD community network for Rule 1180, and other community and federal air monitoring programs. One additional unit is needed for quality assurance and equipment verification purposes. This sole source purchase of one H2S/SO2 multi-pollutant analyzer from Teledyne will not exceed \$25,000 as listed in Table 1.

Air Conditioning System

Air conditioning systems are used to maintain stable temperature conditions inside the Rule 1180 community air monitoring stations and need to be replaced every three to five years. This community air monitoring network has been in operation for more than four years, and one spare air conditioning system is needed in case one of the existing air conditioning units experiences a failure. KLM HVAC is a local business in Long Beach that has an extensive expertise in the installation, service, and repair of air conditioning systems in South Coast AQMD air monitoring stations. KLM HVAC has an in-depth understanding of controlled-environment requirements to operate air monitoring instrumentation and is uniquely qualified to select and install the appropriate air conditioning equipment. The cost to purchase and install an air conditioning system will not exceed \$13,000 as listed in Table 1.

Liquid Nitrogen Microdosing Systems

Fourier Transform InfraRed (FTIR) optical multi-pollutant analyzers have been in constant operation at ten Rule 1180 community air monitoring stations since January 2020. Liquid nitrogen microdosing systems, that are part of FTIR analyzers, ensure uninterrupted FTIR detector cooling, and need to be replaced approximately every five years. FluxSense is the sole source provider of FTIR optical analyzers, including the liquid nitrogen microdosing systems. The cost to purchase and install up to ten liquid nitrogen microdosing systems from FluxSense will not exceed \$50,000 as listed in Table 2.

Specialized Optical Fibers

Optical multi-pollutant analyzers have been in constant operation at ten Rule 1180 community air monitoring stations since January 2020. Optical fibers are critical components of the optical multi-pollutant analyzers, and three spare fibers are needed in case one of the existing units experiences a failure. FluxSense is the sole source provider of optical multi-pollutant analyzer and specialized optical fibers. The cost to purchase and install up to three specialized optical fibers will not exceed \$30,000 as listed in Table 2.

Sole Source Justification

Section VIII.B.2 of the Procurement Policy and Procedure identifies four major provisions under which a sole source award may be justified. The request for sole source purchases of H2S/SO2 analyzers from Teledyne and liquid nitrogen microdosing systems and specialized optical fibers from FluxSense are made under Sections VIII.B.2.c (1): The unique experience and capabilities of the proposed contractor; VIII.B.2.c (2): The project involves the use of proprietary technology; and VIII.B.2.d (6): Projects requiring compatibility with existing specialized equipment. There are no other vendors who can provide this equipment, supplies, and installation meeting all required specifications and that are compatible with existing specialized equipment already in operation.

The request for sole source purchase of an air conditioning system from KLM HVAC is made under Section VIII.B.2.d (6): Projects requiring compatibility with existing specialized equipment. KLM HVAC is a local business that is an established vendor with South Coast AQMD, has been providing air conditioning systems compatible with existing air monitoring stations and equipment, and has provided reliable services to support air monitoring efforts for the last decade.

Benefits to South Coast AQMD

Funding for the implementation of Rule 1180 will allow South Coast AQMD to fulfill the requirements of this fenceline and community air monitoring program, which will result in benefits to environmental justice communities and others working and residing in the Basin near refineries.

Resource Impacts

Rule 1180 annual fees will provide resources for ongoing community air monitoring operation and maintenance. Sufficient funding is available in the Undesignated (Unassigned) Fund Balance from Rule 1180 prior year budget savings to support the activities outlined in this Board letter.

Table 1
FYs 2023-24 and/or 2024-25
Proposed Capital Outlays Expenditures for Rule 1180

Description	Qty	Appropriation from Prior Years Budget Savings	Procurement Method
Safety Railings and Ladders for Air Monitoring Containers*	Up to 9	\$81,000	Solicitation
H2S/SO2 Multi-pollutant Analyzer*	1	\$25,000	Sole Source
Air Conditioning System*	1	\$13,000	Sole Source
Total		Up to \$119,000	

*Expenditures may be appropriated as Capital Outlays or Services & Supplies Major Object, as warranted.

Table 2
FYs 2023-24 and/or 2024-25
Proposed Services and Supplies Expenditures for Rule 1180

Description	Qty	Appropriation from Prior Years Budget Savings	Procurement Method
Liquid Nitrogen Microdosing Systems*	Up to 10	\$50,000	Sole Source
Specialized Optical Fibers*	Up to 3	\$30,000	Sole Source
Total		Up to \$80,000	

*Expenditures may be appropriated as Services & Supplies or Capital Outlays Major Object, as warranted.

BOARD MEETING DATE: June 7, 2024

AGENDA NO. 5

PROPOSAL: Authorize Purchase of OnBase Software Support

SYNOPSIS South Coast AQMD uses OnBase software for its electronic document management system to manage critical documents and to support South Coast AQMD's Record Retention Policy. The software subscription and support for OnBase expires on July 31, 2024. This action is to obtain approval for sole source purchase of OnBase software subscription and support for one year from Information Management's FY 2024-25 Budget. Funds for this purchase (\$200,000) are conditional on approval of the Proposed FY 2024-25 Budget.

COMMITTEE: Administrative, May 9, 2024; Recommended for Approval

RECOMMENDED ACTION:

Authorize the Procurement Manager to purchase OnBase software subscription and support for one year from Hyland Software at a cost not to exceed \$200,000 contingent on approval of this funding in Information Management's Proposed FY 2024-25 Budget, Services and Supplies Major Object, Professional and Special Services Account.

Wayne Nastri
Executive Officer

RMM:HL;mf

Background

South Coast AQMD uses OnBase software as its electronic document management system, which has maintained South Coast AQMD documents and other critical records since 1990. Total storage to date is over three million multi-page documents. OnBase is used by many of South Coast AQMD's mission critical web applications including Online Application Filing, Asbestos Notifications, and Oil and Gas Well Electronic Notification and Reporting. OnBase is a Windows-based, menu-driven, document

management system designed to store and retrieve critical documents in electronic format. The system provides concurrent information to multiple workstations simultaneously. It has a flexible compound document structure where black-and-white or color images co-exist with text and data within a single document. It stores various types of documents such as Microsoft Word documents, Outlook emails, PDFs, videos and data files.

The system includes document routing and ad-hoc, scheduled point-to-point, and broadcast distribution of documents. It contains a complete set of markup and annotation tools that allow users to add notes, comments and drawings to pages without compromising the original document's integrity. The system has full network support so information can be distributed rapidly within an organization regardless of system architecture. Finally, the system has an extensive number of features to allow the secure display of documents on South Coast AQMD's internal and external websites and on iPhone, iPad and Android mobile applications. The OnBase software subscription and support expires on July 31, 2024.

Proposal

Hyland Software is the sole manufacturer and provider of OnBase software and is, therefore, the only source for its maintenance support licensing agreements. Staff recommends the purchase of OnBase software subscription and support for one year from Hyland Software at a cost of \$200,000.

Sole Source Justification

Section VIII.B.2 of the Procurement Policy and Procedure identifies circumstances under which a sole source purchase award may be justified. This request for a sole source award is made under provision VIII.B.2.c.(2) and (3). The products and services are available from only Hyland Software; involves the use of proprietary technology; and uses key contractor-owned assets for project performance. The cost of these support services reflects General Services Administration pricing.

Resource Impacts

Sufficient funds are included in Information Management's Proposed FY 2024-25 Budget within the Services and Supplies Major Object Professional and Special Services Account.

 [Back to Agenda](#)

BOARD MEETING DATE: June 7, 2024

AGENDA NO. 6

PROPOSAL: Issue RFP for Legislative Representation in Washington, D.C.

SYNOPSIS: The current contracts for federal legislative representation in Washington, D.C. expire on January 14, 2025. This action is to issue an RFP for federal legislative representation and consulting services for South Coast AQMD in Washington, D.C. for 2025. The RFP will also indicate that the contract(s) may be extended for up to two additional one-year extensions.

COMMITTEE: Administrative, May 10, 2024; Recommended for Approval

RECOMMENDED ACTION:

Approve release of RFP #P2024-10 to solicit proposals for legislative representation in Washington, D.C. at a cost not to exceed \$665,000 for the initial one-year period.

Wayne Nastri
Executive Officer

DJA:LTO:EJH

Background

South Coast AQMD is responsible for air quality issues on an order of magnitude that is unlike any other region in the nation. It is critical for South Coast AQMD to have a consistent and actively engaged presence in Washington, D.C. to advocate for policies and funding to support attainment of federal standards under the Clean Air Act. South Coast AQMD is also looked to as a leader in air quality issues and is an important contributor to national policymaking discussions. This effort includes policy development for air quality-related legislation, Clean Air Act implementation, subvention funding and special grants, incentive funding, and other issues.

Therefore, it is appropriate to continue direct federal representation to advocate for South Coast AQMD in support of Governing Board priorities in Washington, D.C. The current contracts for legislative representation in Washington, D.C. expires on January 14, 2025.

The 2025 South Coast AQMD Legislative Guiding Principles and Policy Priorities in Washington, D.C. will focus on policy and funding, especially for mobile sources impacting the South Coast region. The federal representatives will be required to engage with the Administration, Congress, industry, environment and health organizations, labor, federal agencies, and other stakeholders. South Coast AQMD will conduct advocacy trips on our own and potentially with other government agencies, community-based organizations, industry, and other stakeholders. The 2025 legislative priorities will likely include the following:

Air Quality Funding (Authorization of Program/Policies and Appropriations of Funds)

Increase and protect existing and seek new funding sources that support South Coast AQMD programs and priorities to reach attainment of state and federal ambient air quality standards and reduce hazardous air pollutants to protect public health. Examples of programs are, but not limited to, Targeted Airshed Grants, Diesel Emissions Reduction Act, Clean Ports, Port Infrastructure Development Program, National Electric Vehicle Infrastructure, Charging and Fueling Infrastructure Grants for Corridors and Communities, Clean Heavy-Duty Trucks, Reduction of Emissions at Port, Section 103/105, annual Appropriations, and other programs.

South Coast AQMD Authority / Policy Implementation

Defend and ensure adequate South Coast AQMD authority for implementation of the Board's clean air policies and programs, including those required by the federal Clean Air Act and other federal and state laws to support AQMPs and SIPs.

Federal Support – Clean Air Act, National Ambient Air Quality Standards (NAAQS), and SIPs

Work to ensure the federal government (Administration, Agencies and Congress) do their fair share to reduce air pollution with a focus on mobile sources, within the South Coast region through funding, regulations, and administration actions. In particular, South Coast AQMD requires federal action to: 1) Maximize funding opportunities under the Bipartisan Infrastructure Law, Inflation Reduction Act, and other public laws; 2) Provide incentive funding, policies, and develop regulatory actions sufficient to, in combination with state and local actions, attain ozone and PM 2.5 NAAQS in the South Coast Air Basin, and if standards are not attained due to lack of federal actions, ensure that the Basin is not punished by sanctions, fees or any other penalties; 3) Provide support for and protect state and local regulatory authority for nonattainment areas to meet NAAQS for upcoming federal deadlines, and South Coast AQMD to implement AQMPs and attain federal ozone and particulate matter standards; and, 4) Protect science-driven and health-based determinations of NAAQS, and efforts to streamline and provide flexible implementation of SIP requirements, as needed, to reach attainment.

Surface Transportation & Goods Movement

Pursue the adoption of legislation and/or policies which will reduce or eliminate air quality impacts from mobile sources with an emphasis on the goods movement sector including, but not limited to, medium- and heavy-duty vehicles, oceangoing vessels, locomotives, aircraft, and non-road equipment such as cargo handling and construction equipment.

Technology Advancement

Expand and secure funding, policies, and tax incentives for advanced clean technology research, development, demonstration, and deployment programs, including those related to:

- Technologies for zero-emission (ZE) and the cleanest vehicles such as heavy- and medium-duty trucks, locomotives, oceangoing vessels, aircraft, and non-road technologies and the cleanest stationary sources such as heaters, boilers, furnaces, engines, etc.), with prioritization of ZE technologies;
- Charging and fueling infrastructure for zero-emission technologies;
- Renewable energy and alternative energy, energy storage, microgrids and other programs, especially as related to electric and hydrogen infrastructure for transportation and clean back-up power;
- Technologies, systems and/or processes which reduce ambient concentrations of air pollutants and/or toxic air emissions;
- Establishing programs or policies that incentivize the federal government to purchase and use advanced clean technologies with prioritization for ZE; and,
- Incentivizing individuals, businesses, states, and local governments to purchase and use ZE technologies.

Environmental Justice

Support legislation and regulatory action that promotes environmental justice initiatives to reduce localized health risks, develop clean air technologies that directly benefit disproportionately impacted communities, and enhance community participation in decision-making.

Reduction of Toxic Emissions

Pursue efforts through legislative and administrative programs, to reduce toxic emissions, and the public's exposure to toxic emissions, within the South Coast region.

Climate Change

Seek to influence climate change initiatives and facilitate their implementation at local levels, including funding, to promote co-benefits with pollutants needed to achieve NAAQS and to reduce air toxic emissions, consistent with the Board's policy.

Business, Jobs Creation & Economy

Support legislation, policies or administrative actions that support and assist the regulated community in complying with rules and regulations in the most efficient and cost-effective manner that protects and encourages job retention and creation, and promotes economic growth, while working toward attainment of clean air standards.

Addressing Impacts of Natural and Manmade Events

Support and advocate for legislative and administrative policies, programs, and funding that reduce and/or mitigate air quality-related public health impacts within the South Coast region caused by wildfires, dust/sandstorms, odors, or other events.

Administrative Operations

Support and seek legislative and administrative policies, programs, funding and/or actions that ensure that South Coast AQMD can meet its administrative and operational needs related to human resources, health and safety or other.

Proposal

South Coast AQMD seeks the service(s) of a contractor(s) to support the Board's goals and objectives for 2025 in Washington D.C. The selected firm(s) will be expected to provide a variety of services consistent with the Board's direction. Funding for the initial year shall be up to a maximum amount of \$665,000. The contract(s) may include options for two annual renewals, contingent on satisfactory performance and approval of subsequent budgets, at the Board's discretion.

Bid Evaluation

Proposals received will be initially evaluated by a diverse panel of technically qualified individuals according to the criteria described in the attached RFP #P2024-10. The Legislative Committee is expected to conduct oral interviews with the most highly qualified bidders and will make a recommendation to the full Board for approval.

Outreach

In accordance with South Coast AQMD's Procurement Policy and Procedure, a public notice advertising the RFP and inviting bids will be published in the Los Angeles Times, the Orange County Register, the San Bernardino Sun, Riverside County Press Enterprise, Politico and The Hill newspapers to leverage the most cost-effective method of outreach.

Additionally, potential bidders may be notified utilizing South Coast AQMD's electronic listing of certified minority vendors. Notice of the RFP will be emailed broadly including, but not limited to, the Congressional Black, Hispanic, Asian Pacific Islander Caucuses and various minority chambers of commerce and business associations and placed on South Coast AQMD's website where it can be viewed by making the selection "Grants & Bids."

Resource Impacts

The funding for the first year is available in the Legislative & Public Affairs FY 2024-25 Budget. Funding for the two optional one-year extensions is contingent upon Board approval for the respective fiscal years.

Attachment

RFP #P2024-10 for Legislative Representation in Washington, D.C.



**SOUTH COAST AIR QUALITY MANAGEMENT
DISTRICT REQUEST FOR PROPOSALS
FOR LEGISLATIVE REPRESENTATION IN
WASHINGTON, D.C.**

P2024-10

South Coast Air Quality Management District (South Coast AQMD) requests proposals for the following purpose according to terms and conditions attached. In the preparation of this Request for Proposals (RFP) the words "Proposer," "Contractor," "Consultant," "Bidder" and "Firm" are used interchangeably.

PURPOSE

South Coast AQMD requires representation in Washington, D.C. to ensure that South Coast AQMD's input and policy priorities are conveyed in a timely and effective manner during the federal legislative and policy-setting process. It is critical that South Coast AQMD be involved in policy development relating to federal air quality legislation, federal Clean Air Act implementation, subvention funding and special grants, and other related issues, and that all these issues are closely monitored.

The purpose of this Request for Proposals (RFP) is to contract with outside representative(s) knowledgeable in air quality-related issues to provide assistance with and representation of South Coast AQMD policy positions and funding needs before the Congress, the White House and federal agencies. Consultant(s) shall be paid on a monthly basis for services rendered at an agreed upon Flat Monthly Fee and actual costs incurred for out-of-pocket expenses. The current South Coast AQMD contracts for legislative representation in Washington, D.C. expire on January 14, 2025.

The selected firm(s) will be expected to provide a variety of services, to be outlined in the work statement, and consistent with South Coast AQMD Governing Board direction. Total funding for the initial year shall be up to a maximum amount of **\$665,000**. The contract may include an option for two annual renewals, contingent on satisfactory performance and approval of subsequent budgets, upon approval of the Board.

INDEX – The following are contained in this RFP:

Section I	Background/Information
Section II	Contact Person
Section III	Schedule of Events
Section IV	Participation in the Procurement
Process Section V	Statement of Work/Schedule of
Deliverables Section VI	Required Qualifications
Section VII	Proposal Submittal
Requirements Section VIII	Proposal
Submission	
Section IX	Proposal Evaluation/Contractor
Selection Criteria Section X	Funding
Section XI	Sample Contract
Attachment A - Participation in the Procurement Process	
Attachment B - Certifications and Representations	

SECTION I: BACKGROUND/INFORMATION

South Coast AQMD is the air pollution control agency for all of Orange County and the urban portions of Los Angeles, Riverside, and San Bernardino counties, the smoggiest region of the U.S. As a regulatory agency, South Coast AQMD is committed to protecting the health of residents of the four-county area from the harmful effects of air pollution, while remaining sensitive to businesses and the economic vitality of the region.

From time to time, South Coast AQMD requires the assistance of outside counsel having special expertise and experience as one of the largest air quality regulatory agencies in the United States and a leader in air quality innovations, South Coast AQMD is an important contributor to the national policymaking discussions relevant to air quality related issues. Given the fluid activity in Congress, the Administration and within federal agencies on air quality matters, our mandates to achieve National Ambient Air Quality Standards, and the large portion of federally regulated sources of pollution that challenge our ability to achieve attainment in the South Coast region, it is imperative that South Coast AQMD maintain a strong presence in Washington, D.C. Thus, South Coast AQMD seeks a contractual agreement with consultant(s) to support the South Coast AQMD Governing Board's Federal Legislative goals and objectives for 2025 in Washington D.C., in accordance with the requirements of this RFP.

Much of the 2025 South Coast AQMD legislative guiding principles and policy priorities in Washington, D.C. will depend on the outcome of the 2024 legislative session. However, many of 2024's program elements are expected to continue, and it is anticipated that there will be a need to build upon them in the coming 2025 legislative session in Washington, D.C. This ongoing presence at the federal level is essential for the achievement of meaningful progress. The 2025 South Coast AQMD legislative goals and objectives in Washington, D.C. will be focused on policy and funding, especially for mobile sources impacting the South Coast region. The federal representatives will be required to engage with the Administration, Congress, industry, environment and health organizations and other stakeholders. The 2025 legislative priorities will likely include the following:

South Coast AQMD Authority / Policy Implementation

Defend and ensure adequate South Coast AQMD authority for implementation of the Board's clean air policies and programs, including those required by the federal Clean Air Act and other federal and state laws to support Air Quality Management Plans (AQMP) and State Implementation Plans.

Federal Support – Clean Air Act, NAAQS, and State Implementation Plan (SIP)

Work to ensure the federal government (Administration, Agencies and Congress) do their fair share to reduce air pollution with a focus on mobile sources, within the South Coast region through funding, regulations, and administration actions. In particular, South Coast AQMD requires federal action to: 1) Maximize funding opportunities under the Bipartisan Infrastructure Law, Inflation Reduction Act, and other public laws 2) Provide incentive funding, policies, and require regulatory actions sufficient to, in combination with state and local actions, attain NAAQS for ozone by 2031 and 2037 in the South Coast Air Basin, and if standards are not attained due to lack of federal actions, ensure that the Basin is not punished by sanctions, fees or any other penalty

for failure to timely attain; 3) Provide support for and protect state and local regulatory authority for nonattainment areas to meet NAAQS for upcoming federal deadlines, and the South Coast AQMD to implement AQMPs and attain federal ozone and particulate matter standards; and, 4) Protect science-driven and health-based determinations of NAAQS, and efforts to streamline and provide flexible implementation of SIP requirements, as needed, to reach attainment.

Surface Transportation & Goods Movement

Pursue the adoption of legislation and/or policies which will reduce or eliminate air quality impacts from mobile sources with an emphasis on the goods movement sector including, but not limited to, medium- and heavy-duty vehicles, oceangoing vessels, locomotives, aircraft, and non-road equipment such as cargo handling and construction equipment.

Technology Advancement

Expand and secure funding, policies, and tax incentives for advanced clean technology research, development, demonstration, and deployment programs, including those related to:

- Technologies for zero-emission (ZE) and the cleanest vehicles such as heavy- and medium-duty trucks, locomotives, oceangoing vessels, aircraft, and non-road technologies and the cleanest stationary sources such as heaters, boilers, furnaces, engines, etc.), with prioritization of ZE technologies;
- Charging and fueling infrastructure, prioritizing zero-emission technologies where available;
- Renewable energy and alternative energy, energy storage, microgrids and other programs, especially as related to electric and hydrogen infrastructure for transportation and emissions reductions from sources such as back-up generators;
- Technologies, systems and/or processes which reduce ambient concentrations of air pollutants and/or toxic air emissions;
- Establishing programs or policies that incentivize the federal government to purchase and use advanced clean technologies with prioritization for ZE; and,
- Incentivizing individuals, businesses, states, and local governments to purchase and use ZE technologies.

Environmental Justice

Support legislation and regulatory action that promotes environmental justice initiatives to reduce localized health risks, develop clean air technologies that directly benefit disproportionately impacted communities, and enhance community participation in decision-making.

Reduction of Toxic Emissions

Pursue efforts through legislative and administrative programs, to reduce toxic emissions, and the public's exposure to toxic emissions, within the South Coast region.

Climate Change

Seek to influence climate change initiatives and facilitate their implementation at local levels, including funding, to promote co-benefits with pollutants needed to achieve NAAQS and to reduce air toxic emissions, consistent with the Board's policy.

Business, Jobs Creation & Economy

Support legislation, policies or administrative actions that support and assist the regulated community in complying with rules and regulations in the most efficient and cost-effective manner that protects and encourages job retention and creation, and promotes economic growth, while working toward attainment of clean air standards.

Addressing Impacts of Natural and Manmade Events

Support and advocate for legislative and administrative policies, programs, and funding that reduce and/or mitigate air quality-related public health impacts within the South Coast region caused by wildfires, dust/sandstorms, odors, or other events.

Administrative Operations

Support and seek legislative and administrative policies, programs, funding and/or actions that ensure that South Coast AQMD can meet its administrative and operational needs related to human resources, health and safety or other.

The 2025 legislative priorities for South Coast AQMD will be further refined and presented to the Board's Legislative Committee and the full Board for approval later in the year, as determined by the course of events in 2024.

SECTION II: CONTACT PERSON:

Questions regarding the content or intent of this RFP or on procedural matters should be addressed to:

Lisa Tanaka-O'Malley
Assistant Deputy Executive Officer
Legislative and Public Affairs
South Coast AQMD
21865 Copley Drive
Diamond Bar, CA 91765-4178
(909) 396-3327

SECTION III: SCHEDULE OF EVENTS

Date	Event
June 7, 2024	RFP Released
July 9, 2024	Proposals Due to South Coast AQMD - No Later Than 1:00 pm
July 9-July 16, 2024	Proposal Evaluations
September 13, 2024	Interviews, if required
October 4, 2024	Governing Board Approval
December 6, 2024	Anticipated Contract Execution

SECTION IV: PARTICIPATION IN THE PROCUREMENT PROCESS

It is the policy of South Coast AQMD to ensure that all businesses including minority business enterprises, women business enterprises, disabled veteran business enterprises and small businesses have a fair and equitable opportunity to compete for and participate in South Coast AQMD contracts. Attachment A to this RFP contains definitions and further information.

SECTION V: STATEMENT OF WORK/SCHEDULE OF DELIVERABLES

A. Statement of Work

Under the direction of the South Coast AQMD Executive Officer or Deputy Executive Officer of Legislative & Public Affairs, and, as appropriate, in coordination with South Coast AQMD's staff, the Consultant(s) will gather information, provide advice and assistance, and/or advocate positions on legislative/regulatory matters in Washington, D.C., on behalf of South Coast AQMD as it directly pertains to air quality-related issues, energy and climate issues, transportation issues, the federal Clean Air Act, and related issues.

The selected Consultant(s) will perform services on legislative/regulatory matters, including but not necessarily limited to the following:

1. Preparation of a strategic plan for the upcoming legislative year by no later than January 31, 2025, to ensure maximizing South Coast AQMD Board and staff participation and involvement, with an emphasis on increasing federal air quality program funding for the South Coast Air Basin; protecting the legal authorities of South Coast AQMD; promoting South Coast AQMD federal policy priorities, and reducing emissions from federally- controlled mobile sources;
2. Securing the support of South Coast AQMD's mission and positions by the decision- makers in the legislative and administrative bodies of the United States government;
3. Advising South Coast AQMD on federal issues as requested or as deemed necessary;
4. Advocating positions as directed by South Coast AQMD, on all identified and/or drafted legislation and administrative and other policy proposals; providing testimony at committee and other special hearings; and providing written communications to legislators, key administrative officials, and other staff regarding such legislation;
5. Assisting in the development of South Coast AQMD positions on identified air quality- related federal legislative proposals;
6. Producing materials destined for strategic distribution or inclusion in South Coast AQMD legislative committee/Board proceedings;
7. Reviewing and providing editorial and technical revisions and quality control for legislative materials destined for distribution or inclusion in South Coast AQMD legislative committee/Board proceedings;
8. Aiding South Coast AQMD in making appropriate contact(s) as the Agency participates directly in federal legislative negotiations, including securing additional federal funds for South Coast AQMD's clean air programs and activities;
9. Advising/assisting South Coast AQMD in presentation of requests to U.S. EPA or other federal agencies on policy matters impacting South Coast AQMD operations or its ability to meet the federal clean air standards;

10. Coordination of meetings for South Coast AQMD Board members and their executive or legislative staff with federal legislators and/or officials, as well as gathering proper briefing materials for each meeting;
11. Attending and participating in meetings exclusively on behalf of South Coast AQMD with legislative representatives and administration members and appointees;
12. Assisting with the development of a national stakeholder network and/or coalition to help facilitate national support for South Coast AQMD policy and funding priorities; and
13. Assisting with coordination, as needed, with any South Coast AQMD conferences, forums, symposia, meetings and/or briefings that are held in Washington, D.C. or otherwise related to federal issues.

B. Schedule of Deliverables

1. A written strategic and tactical implementation plan for 2025;
2. Written and/or oral communications to South Coast AQMD, in a timely manner, on federal legislation or policy matters having a potential to affect South Coast AQMD objectives;
3. Written analyses on federal legislation having a potential to affect air quality objectives;
4. Oral and/or written reports on federal legislative/policy meetings attended or monitored on behalf of South Coast AQMD;
5. Oral and/or written briefings to the South Coast AQMD Legislative Committee and/or Governing Board on federal legislation or policy, as determined by South Coast AQMD. These briefings may take place in person, by teleconference, or in writing;
6. Oral and/or written recommendations regarding South Coast AQMD positions on, and strategies for, federal air quality-related legislation or policies within 14 days of a request by South Coast AQMD;
7. Oral and/or written recommendations regarding ways to increase federal appropriations or other funding opportunities for clean air efforts in the Southern California region;
8. Written communications to legislators and key administrative officials conveying South Coast AQMD positions on various bills and administrative actions;
9. Preparing and presenting testimony before Congressional committees and/or federal agency hearings;
10. Attending and participating in meetings exclusively on behalf of South Coast AQMD with legislative representatives and administration members and appointees;
11. Negotiating bill language, policies or other federal agency provisions related to environmental, transportation or air quality issues;
12. A monthly written briefing covering pertinent administrative/legislative activities;
13. Written quarterly reports, a year-end report, and a year-end presentation delineating and summarizing relevant administrative and legislative actions;
14. An original signed confidentiality agreement; and

15. Maintaining records from which the correctness of all written records and filings can be verified. These records are to be open to inspection by South Coast AQMD or its representatives during normal business hours.

SECTION VI: REQUIRED QUALIFICATIONS

- A. Persons or firms proposing to bid on this proposal must be qualified and experienced in representing and advising governmental agencies and must submit qualifications demonstrating this ability in cases involving as many as possible of the following areas:
 1. Political and legislative analysis of the federal Clean Air Act;
 2. Preparing policy positions on environmental and air quality issues;
 3. Legislative monitoring and bill tracking;
 4. Congressional appropriations process;
 5. Preparing and presenting testimony before Congressional committees and/or federal agency hearings;
 6. Negotiating bill language, policies or other federal agency provisions related to environmental, transportation, energy or air quality issues;
 7. Ability to work proactively and productively with all political affiliations and points of view; and
 8. Demonstrated ability in successfully seeking and securing funding for represented clients.
- B. Proposer must submit the following:
 1. Resumes or similar statement of qualifications of person or persons who may be designated as lead Consultant for South Coast AQMD projects.
 2. List of representative clients.
 3. Summary of proposer's general qualifications to meet required qualifications and fulfill statement of work, including additional Firm personnel and resources beyond those of the designated lead Consultant.

SECTION VII: PROPOSAL SUBMITTAL REQUIREMENTS

Submitted proposals must follow the format outlined below and all requested information must be supplied. Failure to submit proposals in the required format will result in elimination from proposal evaluation. South Coast AQMD may modify the RFP or issue supplementary information or guidelines during the proposal preparation period prior to the due date. Please check our website for updates (<http://www.aqmd.gov/grants-bids>). The cost for developing the proposal is the responsibility of the Contractor and shall not be chargeable to South Coast AQMD.

Each proposal must be submitted in three separate volumes:

- Volume I - Technical Proposal
- Volume II - Cost Proposal
- Volume III - Certifications and Representations included in Attachment B to this RFP, must be completed and executed by an authorized official of the Contractor.

A separate cover letter including the name, address, and telephone number of the contractor, and signed by the person or persons authorized to represent the Firm should accompany the proposal submission. Firm contact information as follows should also be included in the cover letter:

1. Address and telephone number of office in, or nearest to, Diamond Bar, California.
2. Name and title of Firm's representative designated as contact.

A separate Table of Contents should be provided for Volumes I and II.

VOLUME I - TECHNICAL PROPOSAL

DO NOT INCLUDE ANY COST INFORMATION IN THE TECHNICAL VOLUME

Summary (Section A) - State overall approach to meeting the objectives and satisfying the scope of work to be performed, the sequence of activities, and a description of methodology or techniques to be used.

Program Schedule (Section B) - Provide projected milestones or benchmarks for completing the project (to include reports) within the total time allowed.

Project Organization (Section C) - Describe the proposed management structure, program monitoring procedures, and organization of the proposed team. Provide a statement detailing your approach to the project, specifically address the Firm's ability and willingness to commit and maintain staffing to successfully complete the project on the proposed schedule.

Qualifications (Section D) - Describe the technical capabilities of the Firm. Provide references of other similar studies or projects performed during the last five years demonstrating ability to successfully complete the work. Include contact name, title, and telephone number for any references listed. Provide a statement of your Firm's background and related experience in performing similar services for other governmental organizations.

Assigned Personnel (Section E) - Provide the following information about the staff to be assigned to this project:

1. List all key personnel assigned to the project by level, name, and location. Provide a resume or similar statement describing the background, qualifications and experience of the lead person and all persons assigned to the project. The substitute of project manager or lead personnel will not be permitted without prior written approval of South Coast AQMD.

2. Provide a spreadsheet of the labor hours proposed for each labor category at the task level.
3. Provide a statement indicating whether or not 90% of the work will be performed within the geographical boundaries of South Coast AQMD.
4. Provide a statement of education and training programs provided to, or required of, the staff identified for participation in the project, particularly with reference to management consulting, governmental practices and procedures, and technical matters.
5. Provide a summary of your Firm's general qualifications to meet required qualifications and fulfill statement of work, including additional Firm personnel and resources beyond those who may be assigned to the project.

Subcontractors (Section F) - This project may require expertise in multiple technical areas. List any subcontractors that will be used, identifying functions to be performed by them, their related qualifications and experience and the total number of hours or percentage of time they will spend on the project.

Conflict of Interest (Section G) - Address possible conflicts of interest with other clients affected by actions performed by the Firm on behalf of South Coast AQMD. South Coast AQMD recognizes that prospective Contractors may be performing similar projects for other clients. Include a complete list of such clients for the past three (3) years with the type of work performed and the total number of years performing such tasks for each client. Although the Proposer will not be automatically disqualified by reason of work performed for such clients, South Coast AQMD reserves the right to consider the nature and extent of such work in evaluating the proposal.

Additional Data (Section H) - Provide other essential data that may assist in the evaluation of this proposal.

VOLUME II - COST PROPOSAL

Name and Address - The Cost Proposal must list the name and complete address of the Proposer in the upper left-hand corner.

Cost Proposal - South Coast AQMD anticipates awarding a fixed price contract. Cost information must be provided as listed below:

1. Detail must be provided by the following categories:
 - A. Labor - The Cost Proposal must list the fully-burdened hourly rates and the total number of hours estimated for each level of professional and administrative staff to be used to perform the tasks required by this RFP. Costs should be estimated for each of the components of the work plan.
 - B. Subcontractor Costs - List subcontractor costs and identify subcontractors by name. Itemize subcontractor charges per hour or per day.
 - C. Travel Costs - Indicate amount of travel cost and basis of estimate to include trip destination, purpose of trip, length of trip, airline fare or mileage expense, per diem costs, lodging and car rental.
 - D. Other Direct Costs - This category may include such items as postage and mailing expense, printing and reproduction costs, etc. Provide a basis of estimate for these costs.

2. It is the policy of the South Coast AQMD to receive at least as favorable pricing, warranties, conditions, benefits and terms as other customers or clients making similar purchases or receiving similar services. South Coast AQMD will give preference, where appropriate, to vendors who certify that they will provide "most favored customer" status to the South Coast AQMD. To receive preference points, Proposer shall certify that South Coast AQMD is receiving "most favored customer" pricing in the Business Status Certifications page of Volume III, Attachment B – Certifications and Representations.

VOLUME III - CERTIFICATIONS AND REPRESENTATIONS

(see Attachment B to this RFP)

SECTION VIII: PROPOSAL SUBMISSION

All proposals must be submitted according to specifications set forth in the section above, and this section. Failure to adhere to these specifications may be cause for rejection of the proposal.

Signature - All proposals must be signed by an authorized representative of the Proposer.

Due Date - **All proposals are due no later than 1:00 p.m., July 9, 2024, and should be directed to:**

Procurement Unit
South Coast Air Quality
Management District 21865 Copley
Drive
Diamond Bar, CA 91765-
4178 (909) 396-3520

Submittal - Submit eight (8) complete copies of the proposal in a sealed envelope, plainly marked in the upper left-hand corner with the name and address of the Proposer and the words "Request for Proposals P2024-10."

Late bids/proposals will not be accepted under any circumstances.

Grounds for Rejection - A proposal may be immediately rejected if:

- It is not prepared in the format described, or
- It is signed by an individual not authorized to represent the Firm.

Modification or Withdrawal - Once submitted, proposals cannot be altered without the prior written consent of South Coast AQMD. All proposals shall constitute firm offers and may not be withdrawn for a period of ninety (90) days following the last day to accept proposals.

SECTION IX: PROPOSAL EVALUATION/CONTRACTOR SELECTION CRITERIA

- A. Proposals will be evaluated by a panel of three to five South Coast AQMD staff members familiar with the subject matter of the project. The panel shall be appointed by the Executive Officer or his designee. In addition, the evaluation panel may include such outside public sector or academic community expertise as deemed desirable by the Executive Officer. The panel will make a

recommendation to the Executive Officer and/or the Governing Board of South Coast AQMD for final selection of a contractor and negotiation of a contract.

- B. Each member of the evaluation panel shall be accorded equal weight in his or her rating of proposals. The evaluation panel members shall evaluate the proposals according to the specified criteria and numerical weightings set forth below.

a. R&D Projects Requiring Technical or Scientific Expertise, or Special Projects Requiring Unique Knowledge or Abilities

Understanding the Problem	20
Technical/Management Approach	20
Contractor Qualifications	20
Previous Experience on Similar Projects	10
Cost	<u>30</u>
TOTAL	100

b. Additional Points

Small Business or Small Business Joint Venture	10
DVBE or DVBE Joint Venture	10
Use of DVBE or Small Business Subcontractors	7
Zero or Near-Zero Emission Vehicle Business	5
Local Business (Non-Federally Funded Projects Only)	5
Off-Peak Hours Delivery Business	2
Most Favored Customer	2

The cumulative points awarded for small business, DVBE, use of small business or DVBE subcontractors, Zero or Near-Zero emission vehicle business, local business, and off-peak hours delivery business shall not exceed 15 points. Most Favored Customer status incentive points shall be added, as applicable for a total of 17 points.

Self-Certification for Additional Points

The award of these additional points shall be contingent upon Proposer completing the Self-Certification section of Attachment B – Certifications and Representations and/or inclusion of a statement in the proposal self-certifying that Proposer qualifies for additional points as detailed above.

1. To receive additional points in the evaluation process for the categories of Small Business or Small Business Joint Venture, DVBE or DVBE Joint Venture or Local Business (for non-federally funded projects), the proposer must submit a self-certification at the time of proposal submission certifying that the proposer meets the requirements set forth in Attachments A and B. To receive points for the use of DVBE and/or Small Business subcontractors, at least 25 percent of the total contract value must be subcontracted to DVBEs and/or Small Businesses. To receive points as a Zero or Near-Zero Emission Vehicle

Business, the proposer must demonstrate to the Executive Officer, or designee, that supplies and materials delivered to South Coast AQMD are delivered in vehicles that operate on clean-fuels. To receive points as a Local Business, the proposer must affirm that it has an ongoing business within the South Coast AQMD at the time of bid/proposal submittal and that 90% of the work related to the contract will be performed within the South Coast AQMD. Proposals for legislative representation, such as in Sacramento, California or Washington D.C. are not eligible for local business incentive points. Federally funded projects are not eligible for local business incentive points. To receive points as an Off-Peak Hours Delivery Business, the proposer must submit, at proposal submission, certification of its commitment to delivering supplies and materials to South Coast AQMD between the hours of 10:00 a.m. and 3:00 p.m. To receive points for Most Favored Customer status, the proposer must submit, at proposal submission, certification of its commitment to provide most favored customer status to the South Coast AQMD. The cumulative points awarded for Small Business, DVBE, use of Small Business or DVBE Subcontractors, Local Business, Zero or Near- Zero Emission Vehicle Business, Off-Peak Hour Delivery Business and Most Favored Customer shall not exceed 17 points.

2. For procurement of Research and Development (R & D) projects or projects requiring technical or scientific expertise or special projects requiring unique knowledge and abilities, technical factors including past experience shall be weighted at 70 points and cost shall be weighted at 30 points. A proposal must receive at least 56 out of 70 points on R & D projects and projects requiring technical or scientific expertise or special projects requiring unique knowledge and abilities, in order to be deemed qualified for award.
 3. The lowest cost proposal will be awarded the maximum cost points available and all other cost proposals will receive points on a prorated basis. For example if the lowest cost proposal is \$1,000 and the maximum points available are 30 points, this proposal would receive the full 30 points. If the next lowest cost proposal is \$1,100 it would receive 27 points reflecting the fact that it is 10% higher than the lowest cost (90% of 30 points = 27 points).
- C. During the selection process the evaluation panel may wish to interview some proposers for clarification purposes only. No new material will be permitted at this time. Additional information provided during the bid review process is limited to clarification by the Proposer of information presented in his/her proposal, upon request by South Coast AQMD.
 - D. The Executive Officer or Governing Board may award the contract to a Proposer other than the Proposer receiving the highest rating in the event the Governing Board determines that another Proposer from among those technically qualified would provide the best value to South Coast AQMD considering cost and technical factors. The determination shall be based solely on the Evaluation Criteria contained in the Request for Proposal (RFP), on evidence provided in the proposal and on any other evidence provided during the bid review process.
 - E. Selection will be made based on the above-described criteria and rating factors. The selection will be made by and is subject to Executive Officer or Governing Board approval. Proposers may be notified of the results by letter.

- F. The Governing Board has approved a Bid Protest Procedure which provides a process for a Bidder or prospective Bidder to submit a written protest to South Coast AQMD Procurement Manager in recognition of two types of protests: Protest Regarding Solicitation and Protest Regarding Award of a Contract. Copies of the Bid Protest Policy can be secured through a request to South Coast AQMD Procurement Department.
- G. The Executive Officer or Governing Board may award contracts to more than one proposer if in (his or their) sole judgment the purposes of the (contract or award) would best be served by selecting multiple proposers.
- H. If additional funds become available, the Executive Officer or Governing Board may increase the amount awarded. The Executive Officer or Governing Board may also select additional proposers for a grant or contract if additional funds become available.
- I. Disposition of Proposals – Pursuant to South Coast AQMD’s Procurement Policy and Procedure, South Coast AQMD reserves the right to reject any or all proposals. All proposals become the property of South Coast AQMD and are subject to the California Public Records Act. One copy of the proposal shall be retained for South Coast AQMD files. Additional copies and materials will be returned only if requested and at the proposer’s expense.
- J. **If proposal submitted is for a Public Works project as defined by State of California Labor Code Section 1720, Proposer is required to include Contractor Registration No. In Attachment B. Proposal submittal will be deemed as non-responsive and Bidder may be disqualified if Contractor Registration No. Is not included in Attachment B. Proposer is alerted to changes to California Prevailing Wage compliance requirements as defined in Senate Bill 854 (Stat. 2014, Chapter 28), and California Labor Code Sections 1770, 1771, 1725, 1777, 1813, and 1815.**

SECTION X: FUNDING

The total funding for the work contemplated by this RFP will be a maximum **\$665,000** for the base year with an option to renew the contract for two additional one-year terms. The funding for the base year is available in the Legislative & Public Affairs FY 2024-25 budget. Funding for the two optional one-year extensions is contingent upon performance and Board approval of the budget for the respective fiscal years.

SECTION XI: SAMPLE CONTRACT

A sample contract to carry out the work described in this RFP is available on South Coast AQMD’s website at <http://www.aqmd.gov/grants-bids> or upon request from the RFP Contact Person (Section II).

ATTACHMENT A

PARTICIPATION IN THE PROCUREMENT PROCESS

- A. It is the policy of South Coast Air Quality Management District (South Coast AQMD) to ensure that all businesses including minority business enterprises, women business enterprises, disabled veteran business enterprises and small businesses have a fair and equitable opportunity to compete for and participate in South Coast AQMD contracts.

B. Definitions:

The definition of minority, women or disadvantaged business enterprises set forth below is included for purposes of determining compliance with the affirmative steps requirement described in Paragraph G below on procurements funded in whole or in part with federal grant funds which involve the use of subcontractors. The definition provided for disabled veteran business enterprise, local business, small business enterprise, Zero or Near-Zero emission vehicle business and off-peak hours delivery business are provided for purposes of determining eligibility for point or cost considerations in the evaluation process.

1. "Women business enterprise" (WBE) as used in this policy means a business enterprise that meets all of the following criteria:
 - a. a business that is at least 51 percent (51%) owned by one or more women, or in the case of any business whose stock is publicly held, at least 51 percent (51%) of the stock is owned by one or more or women.
 - b. a business whose management and daily business operations are controlled by one or more women.
 - c. a business which is a sole proprietorship, corporation, or partnership with its primary headquarters office located in the United States, which is not a branch or subsidiary of a foreign corporation, foreign firm, or other foreign-based business.
2. "Disabled veteran" as used in this policy is a United States military, naval, or air service veteran with at least 10 percent (10%) service-connected disability who is a resident of California.
3. "Disabled veteran business enterprise" (DVBE) as used in this policy means a business enterprise that meets all the following criteria:
 - a. is a sole proprietorship or partnership of which at least 51 percent (51%) is owned by one or more disabled veterans or, in the case of a publicly owned business, at least 51 percent (51%) of its stock is owned by one or more disabled veterans; a subsidiary which is wholly owned by a parent corporation but only if at least 51 percent (51%) of the voting stock of the parent corporation is owned by one or more disabled veterans; or a joint venture in which at least 51 percent (51%) of the joint venture's management and control and earnings are held by one or more

disabled veterans.

- b. the management and control of the daily business operations are by one or more disabled veterans. The disabled veterans who exercise management and control are not required to be the same disabled veterans as the owners of the business.
 - c. is a sole proprietorship, corporation, or partnership with its primary headquarters office located in the United States, which is not a branch or subsidiary of a foreign corporation, firm, or other foreign-based business.
4. "Local business" as used in this policy means a company that has an ongoing business within geographical boundaries of South Coast AQMD at the time of bid or proposal submittal and performs 90 percent (90%) of the work related to the contract within the geographical boundaries of South Coast AQMD and satisfies the requirements of subparagraph H below. Proposals for legislative representation, such as in Sacramento, California or Washington D.C. are not eligible for local business incentive points.
5. "Small business" as used in this policy means a business that meets the following criteria:
 - a. 1) an independently owned and operated business; 2) not dominant in its field of operation; 3) together with affiliates is either:
 - A service, construction, or non-manufacturer with 100 or fewer employees, and average annual gross receipts of ten million dollars (\$10,000,000) or less over the previous three years, or
 - A manufacturer with 100 or fewer employees.
 - b. Manufacturer means a business that is both of the following:
 - 1) Primarily engaged in the chemical or mechanical transformation of raw materials or processed substances into new products.
 - 2) Classified between Codes 311000 and 339000, inclusive, of the North American Industrial Classification System (NAICS) Manual published by the United States Office of Management and Budget, 2007 edition.
6. "Joint ventures" as defined in this policy pertaining to certification means that one party to the joint venture is a DVBE or small business and owns at least 51 percent (51%) of the joint venture.
7. "Zero or Near-Zero Emission Vehicle Business" as used in this policy means a company or contractor that uses Zero or Near-Zero emission vehicles in conducting deliveries to South Coast AQMD. Zero or Near-Zero emission vehicles include vehicles powered by electric, compressed natural gas (CNG), liquefied natural

gas (LNG), liquefied petroleum gas (LPG), ethanol, methanol and hydrogen and are certified to 90 percent (90%) or lower of the existing standard.

8. "Off-Peak Hours Delivery Business" as used in this policy means a company or contractor that commits to conducting deliveries to South Coast AQMD during off- peak traffic hours defined as between 10:00 a.m. and 3:00 p.m.
9. "Benefits Incentive Business" as used in this policy means a company or contractor that provides janitorial, security guard or landscaping services to South Coast AQMD and commits to providing employee health benefits (as defined below in Section VIII.D.2.d) for full time workers with affordable deductible and co-payment terms.
10. "Minority Business Enterprise" as used in this policy means a business that is at least 51 percent (51%) owned by one or more minority person(s), or in the case of any business whose stock is publicly held, at least 51 percent (51%) of the stock is owned by one or more or minority persons.
 - a. a business whose management and daily business operations are controlled by one or more minority persons.
 - b. a business which is a sole proprietorship, corporation, or partnership with its primary headquarters office located in the United States, which is not a branch or subsidiary of a foreign corporation, foreign firm, or other foreign-based business.
 - c. "Minority person" for purposes of this policy, means a Black American, Hispanic American, Native-American (including American Indian, Eskimo, Aleut, and Native Hawaiian), Asian-Indian (including a person whose origins are from India, Pakistan, and Bangladesh), Asian-Pacific-American (including a person whose origins are from Japan, China, the Philippines, Vietnam, Korea, Samoa, Guam, the United States Trust Territories of the Pacific, Northern Marianas, Laos, Cambodia, and Taiwan).
11. "Most Favored Customer" as used in this policy means that the South Coast AQMD will receive at least as favorable pricing, warranties, conditions, benefits and terms as other customers or clients making similar purchases or receiving similar services.
12. "Disadvantaged Business Enterprise" as used in this policy means a business that is an entity owned and/or controlled by a socially and economically disadvantaged individual(s) as described by Title X of the Clean Air Act Amendments of 1990 (42 U.S.C. 7601 note) (10% statute), and Public Law 102-389 (42 U.S.C. 4370d)(8% statute), respectively;
 - a Small Business Enterprise (SBE);
 - a Small Business in a Rural Area (SBRA);
 - a Labor Surplus Area Firm (LSAF); or
 - a Historically Underutilized Business (HUB) Zone Small Business Concern, or
 - a concern under a successor program.

C. Under Request for Quotations (RFQ), DVBEs, DVBE business joint ventures,

small businesses, and small business joint ventures shall be granted a preference in an amount equal to 5 percent (5%) of the lowest cost responsive bid. Zero or Near-Zero Emission Vehicle Businesses shall be granted a preference in an amount equal to 5 percent of the lowest cost responsive bid. Off-Peak Hours Delivery Businesses shall be granted a preference in an amount equal to 2 percent (2%) of the lowest cost responsive bid. Local businesses (if the procurement is not funded in whole or in part by federal grant funds) shall be granted a preference in an amount equal to 2 percent (2%) of the lowest cost responsive bid. Businesses offering Most Favored Customer status shall be granted a preference in an amount equal to 2 percent (2%) of the lowest cost responsive bid.

- D. Under Request for Proposals, DVBEs, DVBE joint ventures, small businesses, and small business joint ventures shall be awarded ten (10) points in the evaluation process. A non-DVBE or large business shall receive seven (7) points for subcontracting at least 25 percent (25%) of the total contract value to a DVBE and/or small business. Zero or Near-Zero Emission Vehicle Businesses shall be awarded five (5) points in the evaluation process. On procurements which are not funded in whole or in part by federal grant funds local businesses shall receive five (5) points. Off-Peak Hours Delivery Businesses shall be awarded two (2) points in the evaluation process. Businesses offering Most Favored Customer status shall be awarded two (2) points in the evaluation process.
- E. South Coast AQMD will ensure that discrimination in the award and performance of contracts does not occur on the basis of race, color, sex, national origin, marital status, sexual preference, creed, ancestry, medical condition, or retaliation for having filed a discrimination complaint in the performance of South Coast AQMD contractual obligations.
- F. South Coast AQMD requires Contractor to be in compliance with all state and federal laws and regulations with respect to its employees throughout the term of any awarded contract, including state minimum wage laws and OSHA requirements.
- G. When contracts are funded in whole or in part by federal funds, and if subcontracts are to be let, the Contractor must comply with the following, evidencing a good faith effort to solicit disadvantaged businesses. Contractor shall submit a certification signed by an authorized official affirming its status as a MBE or WBE, as applicable, at the time of contract execution. South Coast AQMD reserves the right to request documentation demonstrating compliance with the following good faith efforts prior to contract execution.
 - 1. Ensure Disadvantaged Business Enterprises (DBEs) are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities. For Indian Tribal, State and Local Government recipients, this will include placing DBEs on solicitation lists and soliciting them whenever they are potential sources.
 - 2. Make information on forthcoming opportunities available to DBEs and arrange time frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in the competitive process. This includes, whenever possible, posting solicitations for bids or proposals for a minimum of 30 calendar days before the bid or proposal closing date.

3. Consider in the contracting process whether firms competing for large contracts could subcontract with DBEs. For Indian Tribal, State and Local Government recipients, this will include dividing total requirements when economically feasible into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.
 4. Encourage contracting with a consortium of DBEs when a contract is too large for one of these firms to handle individually.
 5. Using the services and assistance of the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.
 6. If the prime contractor awards subcontracts, require the prime contractor to take the above steps.
- H. To the extent that any conflict exists between this policy and any requirements imposed by federal and state law relating to participation in a contract by a certified MBE/WBE/DVBE as a condition of receipt of federal or state funds, the federal or state requirements shall prevail.
- I. When contracts are not funded in whole or in part by federal grant funds, a local business preference will be awarded. For such contracts that involve the purchase of commercial off-the-shelf products, local business preference will be given to suppliers or distributors of commercial off-the-shelf products who maintain an ongoing business within the geographical boundaries of South Coast AQMD. However, if the subject matter of the RFP or RFQ calls for the fabrication or manufacture of custom products, only companies performing 90 percent (90%) of the manufacturing or fabrication effort within the geographical boundaries of South Coast AQMD shall be entitled to the local business preference. Proposals for legislative representation, such as in Sacramento, California or Washington D.C. are not eligible for local business incentive points.
- J. In compliance with federal fair share requirements set forth in 40 CFR Part 33, South Coast AQMD shall establish a fair share goal annually for expenditures with federal funds covered by its procurement policy.

ATTACHMENT B

CERTIFICATIONS & REPRESENTATIONS



South Coast Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

Business Information Request

Dear South Coast AQMD Contractor/Supplier:

South Coast Air Quality Management District (South Coast AQMD) is committed to ensuring that our contractor/supplier records are current and accurate. If your firm is selected for award of a purchase order or contract, it is imperative that the information requested herein be supplied in a timely manner to facilitate payment of invoices. In order to process your payments, we need the enclosed information regarding your account. **Please review and complete the information identified on the following pages, remember to sign all documents for our files, and return them as soon as possible to the address below:**

**Attention: Accounts Payable, Accounting Department
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4178**

If you do not return this information, we will not be able to establish you as a vendor. This will delay any payments and would still necessitate your submittal of the enclosed information to our Accounting department before payment could be initiated. Completion of this document and enclosed forms would ensure that your payments are processed timely and accurately.

If you have any questions or need assistance in completing this information, please contact Accounting at (909) 396-3777. We appreciate your cooperation in completing this necessary information.

Sincerely,

Sujata Jain
Chief Financial Officer

DH:nd

Enclosures: Business Information Request
Disadvantaged Business Certification
W-9
Form 590 Withholding Exemption Certificate
Federal Contract Debarment Certification
Campaign Contributions Disclosure



South Coast Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4178

(909) 396-2000 • www.aqmd.gov

BUSINESS INFORMATION REQUEST

Business Name	
Division of	
Subsidiary of	
Website Address	
Type of Business <i>Check One:</i>	<input type="checkbox"/> Individual <input type="checkbox"/> DBA, Name _____, County Filed in _____ <input type="checkbox"/> Corporation, ID No. _____ <input type="checkbox"/> LLC/LLP, ID No. _____ <input type="checkbox"/> Other _____

REMITTING ADDRESS INFORMATION

Address			
City/Town			
State/Province		Zip	
Phone	() - Ext	Fax	() -
Contact		Title	
E-mail Address			
Payment Name if Different			

All invoices must reference the corresponding Purchase Order Number(s)/Contract Number(s) if applicable and mailed to:

Attention: Accounts Payable, Accounting Department
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4178

BUSINESS STATUS CERTIFICATIONS

Federal guidance for utilization of disadvantaged business enterprises allows a vendor to be deemed a small business enterprise (SBE), minority business enterprise (MBE) or women business enterprise (WBE) if it meets the criteria below.

- is certified by the Small Business Administration or
- is certified by a state or federal agency or
- is an independent MBE(s) or WBE(s) business concern which is at least 51 percent owned and controlled by minority group member(s) who are citizens of the United States.

Statements of certification:

As a prime contractor to South Coast AQMD, _____ (name of business) will engage in good faith efforts to achieve the fair share in accordance with 40 CFR Section 33.301, and will follow the six affirmative steps listed below **for contracts or purchase orders funded in whole or in part by federal grants and contracts.**

1. Place qualified SBEs, MBEs, and WBEs on solicitation lists.
2. Assure that SBEs, MBEs, and WBEs are solicited whenever possible.
3. When economically feasible, divide total requirements into small tasks or quantities to permit greater participation by SBEs, MBEs, and WBEs.
4. Establish delivery schedules, if possible, to encourage participation by SBEs, MBEs, and WBEs.
5. Use services of Small Business Administration, Minority Business Development Agency of the Department of Commerce, and/or any agency authorized as a clearinghouse for SBEs, MBEs, and WBEs.
6. If subcontracts are to be let, take the above affirmative steps.

Self-Certification Verification: Also for use in awarding additional points, as applicable, in accordance with South Coast AQMD Procurement Policy and Procedure:

Check all that apply:

Small Business Enterprise/Small Business Joint Venture
Local business
Minority-owned Business Enterprise

Women-owned Business Enterprise
Disabled Veteran-owned Business Enterprise/DVBE Joint Venture
Most Favored Customer Pricing Certification

Percent of ownership: _____%

Name of Qualifying Owner(s): _____

State of California Public Works Contractor Registration No. _____.
MUST BE INCLUDED IF BID PROPOSAL IS FOR PUBLIC WORKS PROJECT.

I, the undersigned, hereby declare that to the best of my knowledge the above information is accurate. Upon penalty of perjury, I certify information submitted is factual.

NAME

TITLE

TELEPHONE NUMBER

DATE

Definitions

Disabled Veteran-Owned Business Enterprise means a business that meets all of the following criteria:

- is a sole proprietorship or partnership of which is at least 51 percent owned by one or more disabled veterans, or in the case of any business whose stock is publicly held, at least 51 percent of the stock is owned by one or more disabled veterans; a subsidiary which is wholly owned by a parent corporation but only if at least 51 percent of the voting stock of the parent corporation is owned by one or more disabled veterans; or a joint venture in which at least 51 percent of the joint venture's management and control and earnings are held by one or more disabled veterans.
- the management and control of the daily business operations are by one or more disabled veterans. The disabled veterans who exercise management and control are not required to be the same disabled veterans as the owners of the business.
- is a sole proprietorship, corporation, partnership, or joint venture with its primary headquarters office located in the United States and which is not a branch or subsidiary of a foreign corporation, firm, or other foreign-based business.

Joint Venture means that one party to the joint venture is a DVBE and owns at least 51 percent of the joint venture. In the case of a joint venture formed for a single project this means that DVBE will receive at least 51 percent of the project dollars.

Local Business means a business that meets all of the following criteria:

- has an ongoing business within the boundary of South Coast AQMD at the time of bid application.
- performs 90 percent of the work within South Coast AQMD's jurisdiction.

Minority-Owned Business Enterprise means a business that meets all of the following criteria:

- is at least 51 percent owned by one or more minority persons or in the case of any business whose stock is publicly held, at least 51 percent of the stock is owned by one or more minority persons.
- is a business whose management and daily business operations are controlled or owned by one or more minority person.
- is a business which is a sole proprietorship, corporation, partnership, joint venture, an association, or a cooperative with its primary headquarters office located in the United States, which is not a branch or subsidiary of a foreign corporation, foreign firm, or other foreign business.

"Minority" person means a Black American, Hispanic American, Native American (including American Indian, Eskimo, Aleut, and Native Hawaiian), Asian-Indian American (including a person whose origins are from India, Pakistan, or Bangladesh), Asian-Pacific American (including a person whose origins are from Japan, China, the Philippines, Vietnam, Korea, Samoa, Guam, the United States Trust Territories of the Pacific, Northern Marianas, Laos, Cambodia, or Taiwan).

Small Business Enterprise means a business that meets the following criteria:

- a. 1) an independently owned and operated business; 2) not dominant in its field of operation; 3) together with affiliates is either:
 - a. **A service, construction, or non-manufacturer with 100 or fewer employees, and average annual gross receipts of ten million dollars (\$10,000,000) or less over the previous three years, or**
 - b. A manufacturer with 100 or fewer employees.
- b. Manufacturer means a business that is both of the following:
 - 1) Primarily engaged in the chemical or mechanical transformation of raw materials or processed substances into new products.
 - 2) Classified between Codes 311000 to 339000, inclusive, of the North American Industrial Classification System (NAICS) Manual published by the United States Office of Management and Budget, 2007 edition.

Small Business Joint Venture means that one party to the joint venture is a Small Business and owns at least 51 percent of the joint venture. In the case of a joint venture formed for a single project this means that the Small Business will receive at least 51 percent of the project dollars.

Women-Owned Business Enterprise means a business that meets all of the following criteria:

- is at least 51 percent owned by one or more women or in the case of any business whose stock is publicly held, at least 51 percent of the stock is owned by one or more women.
- is a business whose management and daily business operations are controlled or owned by one or more women.
- is a business which is a sole proprietorship, corporation, partnership, or a joint venture, with its primary headquarters office located in the United States, which is not a branch or subsidiary of a foreign corporation, foreign firm, or other foreign business.

Most Favored Customer as used in this policy means that the South Coast AQMD will receive at least as favorable pricing, warranties, conditions, benefits and terms as other customers or clients making similar purchases or receiving similar services.

Form
(Rev. October 2018)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

► Go to www.irs.gov/FormW9 for instructions and the latest information.

Give Form to the
requester. Do not
send to the IRS.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.

2 Business name/disregarded entity name, if different from above

3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only **one** of the following seven boxes.

☐ Individual/sole proprietor or single-member LLC

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ►

☐ Other (see instructions) ►

☐ C Corporation

☐ S Corporation

☐ Partnership

☐ Trust/estate

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any) _____

Exemption from FATCA reporting code (if any) _____

(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.) See instructions.

6 City, state, and ZIP code

7 List account number(s) here (optional)

8 Requester's name and address (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number

____ - ____ - _____

or

Employer identification number

____ - _____

Part II Certification

Under penalties of perjury, I certify that:

- The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
- I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
- I am a U.S. citizen or other U.S. person (defined below); and
- The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here

Signature of
U.S. person ►

Date ►

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to www.irs.gov/FormW9.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (Interest earned or paid)

- Form 1099-DIV (dividends, including those from stocks or mutual funds)
 - Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
 - Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
 - Form 1099-S (proceeds from real estate transactions)
 - Form 1099-K (merchant card and third party network transactions)
 - Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
 - Form 1099-C (canceled debt)
 - Form 1099-A (acquisition or abandonment of secured property)
- Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See *What Is backup withholding*, later.

By signing the filled-out form, you:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting*, later, for further information.

Note: If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien;
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States;
- An estate (other than a foreign estate); or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

In the cases below, the following person must give Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States.

- In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the entity;
- In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the trust; and
- In the case of a U.S. trust (other than a grantor trust), the U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

Foreign person. If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person, do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Pub. 515, Withholding of Tax on Nonresident Aliens and Foreign Entities).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items.

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.
2. The treaty article addressing the income.
3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.
4. The type and amount of income that qualifies for the exemption from tax.
5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China Income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity, give the requester the appropriate completed Form W-8 or Form 8233.

Backup Withholding

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 24% of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, payments made in settlement of payment card and third party network transactions, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester,
2. You do not certify your TIN when required (see the Instructions for Part II for details),
3. The IRS tells the requester that you furnished an incorrect TIN,
4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or
5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See *Exempt payee code*, later, and the separate instructions for the Requester of Form W-9 for more information.

Also see *Special rules for partnerships*, earlier.

What is FATCA Reporting?

The Foreign Account Tax Compliance Act (FATCA) requires a participating foreign financial institution to report all United States account holders that are specified United States persons. Certain payees are exempt from FATCA reporting. See *Exemption from FATCA reporting code*, later, and the Instructions for the Requester of Form W-9 for more information.

Updating Your Information

You must provide updated information to any person to whom you claimed to be an exempt payee if you are no longer an exempt payee and anticipate receiving reportable payments in the future from this person. For example, you may need to provide updated information if you are a C corporation that elects to be an S corporation, or if you no longer are tax exempt. In addition, you must furnish a new Form W-9 if the name or TIN changes for the account; for example, if the grantor of a grantor trust dies.

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of \$50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a \$500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Line 1

You must enter one of the following on this line; **do not** leave this line blank. The name should match the name on your tax return.

If this Form W-9 is for a joint account (other than an account maintained by a foreign financial institution (FFI)), list first, and then circle, the name of the person or entity whose number you entered in Part I of Form W-9. If you are providing Form W-9 to an FFI to document a joint account, each holder of the account that is a U.S. person must provide a Form W-9.

a. **Individual.** Generally, enter the name shown on your tax return. If you have changed your last name without informing the Social Security Administration (SSA) of the name change, enter your first name, the last name as shown on your social security card, and your new last name.

Note: ITIN applicant: Enter your individual name as it was entered on your Form W-7 application, line 1a. This should also be the same as the name you entered on the Form 1040/1040A/1040EZ you filed with your application.

b. **Sole proprietor or single-member LLC.** Enter your individual name as shown on your 1040/1040A/1040EZ on line 1. You may enter your business, trade, or "doing business as" (DBA) name on line 2.

c. **Partnership, LLC that is not a single-member LLC, C corporation, or S corporation.** Enter the entity's name as shown on the entity's tax return on line 1 and any business, trade, or DBA name on line 2.

d. **Other entities.** Enter your name as shown on required U.S. federal tax documents on line 1. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on line 2.

e. **Disregarded entity.** For U.S. federal tax purposes, an entity that is disregarded as an entity separate from its owner is treated as a "disregarded entity." See Regulations section 301.7701-2(c)(2)(iii). Enter the owner's name on line 1. The name of the entity entered on line 1 should never be a disregarded entity. The name on line 1 should be the name shown on the income tax return on which the income should be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a single owner that is a U.S. person, the U.S. owner's name is required to be provided on line 1. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity's name on line 2, "Business name/disregarded entity name." If the owner of the disregarded entity is a foreign person, the owner must complete an appropriate Form W-8 instead of a Form W-9. This is the case even if the foreign person has a U.S. TIN.

Line 2

If you have a business name, trade name, DBA name, or disregarded entity name, you may enter it on line 2.

Line 3

Check the appropriate box on line 3 for the U.S. federal tax classification of the person whose name is entered on line 1. Check only one box on line 3.

IF the entity/person on line 1 is a(n) . . .	THEN check the box for . . .
• Corporation	Corporation
• Individual • Sole proprietorship, or • Single-member limited liability company (LLC) owned by an individual and disregarded for U.S. federal tax purposes.	Individual/sole proprietor or single-member LLC
• LLC treated as a partnership for U.S. federal tax purposes, • LLC that has filed Form 8832 or 2553 to be taxed as a corporation, or • LLC that is disregarded as an entity separate from its owner but the owner is another LLC that is not disregarded for U.S. federal tax purposes.	Limited liability company and enter the appropriate tax classification. (P= Partnership; C= C corporation; or S= S corporation)
• Partnership	Partnership
• Trust/estate	Trust/estate

Line 4, Exemptions

If you are exempt from backup withholding and/or FATCA reporting, enter in the appropriate space on line 4 any code(s) that may apply to you.

Exempt payee code.

- Generally, individuals (including sole proprietors) are not exempt from backup withholding.
- Except as provided below, corporations are exempt from backup withholding for certain payments, including interest and dividends.
- Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions.
- Corporations are not exempt from backup withholding with respect to attorneys' fees or gross proceeds paid to attorneys, and corporations that provide medical or health care services are not exempt with respect to payments reportable on Form 1099-MISC.

The following codes identify payees that are exempt from backup withholding. Enter the appropriate code in the space in line 4.

- 1—An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2)
- 2—The United States or any of its agencies or instrumentalities
- 3—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities
- 4—A foreign government or any of its political subdivisions, agencies, or instrumentalities
- 5—A corporation
- 6—A dealer in securities or commodities required to register in the United States, the District of Columbia, or a U.S. commonwealth or possession
- 7—A futures commission merchant registered with the Commodity Futures Trading Commission
- 8—A real estate investment trust
- 9—An entity registered at all times during the tax year under the Investment Company Act of 1940
- 10—A common trust fund operated by a bank under section 584(a)
- 11—A financial institution
- 12—A middleman known in the investment community as a nominee or custodian
- 13—A trust exempt from tax under section 664 or described in section 4947

The following chart shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 13.

IF the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt payees except for 7
Broker transactions	Exempt payees 1 through 4 and 6 through 11 and all C corporations. S corporations must not enter an exempt payee code because they are exempt only for sales of noncovered securities acquired prior to 2012.
Barter exchange transactions and patronage dividends	Exempt payees 1 through 4
Payments over \$600 required to be reported and direct sales over \$5,000 ¹	Generally, exempt payees 1 through 5 ²
Payments made in settlement of payment card or third party network transactions	Exempt payees 1 through 4

¹ See Form 1099-MISC, Miscellaneous Income, and its instructions.

² However, the following payments made to a corporation and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, gross proceeds paid to an attorney reportable under section 6045(f), and payments for services paid by a federal executive agency.

Exemption from FATCA reporting code. The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements. A requester may indicate that a code is not required by providing you with a Form W-9 with "Not Applicable" (or any similar indication) written or printed on the line for a FATCA exemption code.

A—An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37)

B—The United States or any of its agencies or instrumentalities

C—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

D—A corporation the stock of which is regularly traded on one or more established securities markets, as described in Regulations section 1.1472-1(c)(1)(i)

E—A corporation that is a member of the same expanded affiliated group as a corporation described in Regulations section 1.1472-1(c)(1)(i)

F—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state

G—A real estate investment trust

H—A regulated investment company as defined in section 851 or an entity registered at all times during the tax year under the Investment Company Act of 1940

I—A common trust fund as defined in section 584(a)

J—A bank as defined in section 581

K—A broker

L—A trust exempt from tax under section 664 or described in section 4947(a)(1)

M—A tax exempt trust under a section 403(b) plan or section 457(g) plan

Note: You may wish to consult with the financial institution requesting this form to determine whether the FATCA code and/or exempt payee code should be completed.

Line 5

Enter your address (number, street, and apartment or suite number). This is where the requester of this Form W-9 will mail your information returns. If this address differs from the one the requester already has on file, write NEW at the top. If a new address is provided, there is still a chance the old address will be used until the payor changes your address in their records.

Line 6

Enter your city, state, and ZIP code.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN.

If you are a single-member LLC that is disregarded as an entity separate from its owner, enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

Note: See *What Name and Number To Give the Requester*, later, for further clarification of name and TIN combinations.

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local SSA office or get this form online at www.SSA.gov. You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at www.irs.gov/Businesses and clicking on Employer Identification Number (EIN) under Starting a Business. Go to www.irs.gov/Forms to view, download, or print Form W-7 and/or Form SS-4. Or, you can go to www.irs.gov/OrderForms to place an order and have Form W-7 and/or SS-4 mailed to you within 10 business days.

If you are asked to complete Form W-9 but do not have a TIN, apply for a TIN and write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note: Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Caution: A disregarded U.S. entity that has a foreign owner must use the appropriate Form W-8.

Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if item 1, 4, or 5 below indicates otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). In the case of a disregarded entity, the person identified on line 1 must sign. Exempt payees, see *Exempt payee code*, earlier.

Signature requirements. Complete the certification as indicated in items 1 through 5 below.

1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983. You must give your correct TIN, but you do not have to sign the certification.

2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983. You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.

3. Real estate transactions. You must sign the certification. You may cross out item 2 of the certification.

4. Other payments. You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments made in settlement of payment card and third party network transactions, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), ABLE accounts (under section 529A), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions. You must give your correct TIN, but you do not have to sign the certification.

What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account) other than an account maintained by an FFI	The actual owner of the account or, if combined funds, the first individual on the account ¹
3. Two or more U.S. persons (joint account maintained by an FFI)	Each holder of the account
4. Custodial account of a minor (Uniform Gift to Minors Act)	The minor ²
5. a. The usual revocable savings trust (grantor is also trustee)	The grantor-trustee ¹
b. So-called trust account that is not a legal or valid trust under state law	The actual owner ¹
6. Sole proprietorship or disregarded entity owned by an individual	The owner ³
7. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulations section 1.671-4(b)(2)(i)(A))	The grantor ⁴
For this type of account:	Give name and EIN of:
8. Disregarded entity not owned by an individual	The owner
9. A valid trust, estate, or pension trust	Legal entity ⁴
10. Corporation or LLC electing corporate status on Form 8832 or Form 2553	The corporation
11. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
12. Partnership or multi-member LLC	The partnership
13. A broker or registered nominee	The broker or nominee

For this type of account:	Give name and EIN of:
14. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity
15. Grantor trust filing under the Form 1041 Filing Method or the Optional Form 1099 Filing Method 2 (see Regulations section 1.671-4(b)(2)(i)(B))	The trust

¹ List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

² Circle the minor's name and furnish the minor's SSN.

³ You must show your individual name and you may also enter your business or DBA name on the "Business name/disregarded entity" name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

⁴ List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships*, earlier.

***Note:** The grantor also must provide a Form W-9 to trustee of trust.

Note: If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

Secure Your Tax Records From Identity Theft

Identity theft occurs when someone uses your personal information such as your name, SSN, or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,
- Ensure your employer is protecting your SSN, and
- Be careful when choosing a tax preparer.

If your tax records are affected by identity theft and you receive a notice from the IRS, respond right away to the name and phone number printed on the IRS notice or letter.

If your tax records are not currently affected by identity theft but you think you are at risk due to a lost or stolen purse or wallet, questionable credit card activity or credit report, contact the IRS Identity Theft Hotline at 1-800-908-4490 or submit Form 14039.

For more information, see Pub. 5027, Identity Theft Information for Taxpayers.

Victims of identity theft who are experiencing economic harm or a systemic problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

Protect yourself from suspicious emails or phishing schemes.

Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to phishing@irs.gov. You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration (TIGTA) at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at spam@uce.gov or report them at www.ftc.gov/complaint. You can contact the FTC at www.ftc.gov/idtheft or 877-IDTHEFT (877-438-4338). If you have been the victim of identity theft, see www.IdentityTheft.gov and Pub. 5027.

Visit www.irs.gov/IdentityTheft to learn more about identity theft and how to reduce your risk.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons (including federal agencies) who are required to file information returns with the IRS to report interest, dividends, or certain other income paid to you; mortgage interest you paid; the acquisition or abandonment of secured property; the cancellation of debt; or contributions you made to an IRA, Archer MSA, or HSA. The person collecting this form uses the information on the form to file information returns with the IRS, reporting the above information. Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation and to cities, states, the District of Columbia, and U.S. commonwealths and possessions for use in administering their laws. The information also may be disclosed to other countries under a treaty, to federal and state agencies to enforce civil and criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism. You must provide your TIN whether or not you are required to file a tax return. Under section 3406, payers must generally withhold a percentage of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to the payer. Certain penalties may also apply for providing false or fraudulent information.

TAXABLE YEAR

CALIFORNIA FORM

2021 Withholding Exemption Certificate**590**

The payee completes this form and submits it to the withholding agent. The withholding agent keeps this form with their records.

Withholding Agent Information

Name

Payee Information

Name

☐ SSN or ITIN ☐ FEIN ☐ CA Corp no. ☐ CA SOS file no.

Address (apt./ste., room, PO box, or PMB no.)

City (If you have a foreign address, see instructions.)

State

ZIP code

Exemption Reason**Check only one box.**

By checking the appropriate box below, the payee certifies the reason for the exemption from the California income tax withholding requirements on payment(s) made to the entity or individual.

☐ **Individuals — Certification of Residency:**

I am a resident of California and I reside at the address shown above. If I become a nonresident at any time, I will promptly notify the withholding agent. See instructions for General Information D, Definitions.

☐ **Corporations:**

The corporation has a permanent place of business in California at the address shown above or is qualified through the California Secretary of State (SOS) to do business in California. The corporation will file a California tax return. If this corporation ceases to have a permanent place of business in California or ceases to do any of the above, I will promptly notify the withholding agent. See instructions for General Information D, Definitions.

☐ **Partnerships or Limited Liability Companies (LLCs):**

The partnership or LLC has a permanent place of business in California at the address shown above or is registered with the California SOS, and is subject to the laws of California. The partnership or LLC will file a California tax return. If the partnership or LLC ceases to do any of the above, I will promptly inform the withholding agent. For withholding purposes, a limited liability partnership (LLP) is treated like any other partnership.

☐ **Tax-Exempt Entities:**

The entity is exempt from tax under California Revenue and Taxation Code (R&TC) Section 23701 (insert letter) or Internal Revenue Code Section 501(c) (insert number). If this entity ceases to be exempt from tax, I will promptly notify the withholding agent. Individuals cannot be tax-exempt entities.

☐ **Insurance Companies, Individual Retirement Arrangements (IRAs), or Qualified Pension/Profit-Sharing Plans:**

The entity is an insurance company, IRA, or a federally qualified pension or profit-sharing plan.

☐ **California Trusts:**

At least one trustee and one noncontingent beneficiary of the above-named trust is a California resident. The trust will file a California fiduciary tax return. If the trustee or noncontingent beneficiary becomes a nonresident at any time, I will promptly notify the withholding agent.

☐ **Estates — Certification of Residency of Deceased Person:**

I am the executor of the above-named person's estate or trust. The decedent was a California resident at the time of death. The estate will file a California fiduciary tax return.

☐ **Nonmilitary Spouse of a Military Servicemember:**

I am a nonmilitary spouse of a military servicemember and I meet the Military Spouse Residency Relief Act (MSRRA) requirements. See instructions for General Information E, MSRRA.

CERTIFICATE OF PAYEE: Payee must complete and sign below.To learn about your privacy rights, how we may use your information, and the consequences for not providing the requested information, go to ftb.ca.gov/forms and search for **1131**. To request this notice by mail, call 800.852.5711.

Under penalties of perjury, I declare that I have examined the information on this form, including accompanying schedules and statements, and to the best of my knowledge and belief, it is true, correct, and complete. I further declare under penalties of perjury that if the facts upon which this form are based change, I will promptly notify the withholding agent.

Type or print payee's name and title

Telephone

Payee's signature ►

Date

2021 Instructions for Form 590

Withholding Exemption Certificate

References in these instructions are to the California Revenue and Taxation Code (R&TC).

General Information

California Revenue and Taxation Code (R&TC) Section 18662 requires withholding of income or franchise tax on payments of California source income made to nonresidents of California. For more information, See General Information B, Income Subject to Withholding.

Registered Domestic Partners (RDPs) – For purposes of California income tax, references to a spouse, husband, or wife also refer to a California RDP unless otherwise specified. For more information on RDPs, get FTB Pub. 737, Tax Information for Registered Domestic Partners.

A Purpose

Use Form 590, Withholding Exemption Certificate, to certify an exemption from nonresident withholding.

Form 590 does not apply to payments of backup withholding. For more information, go to ftb.ca.gov and search for **backup withholding**.

Form 590 does not apply to payments for wages to employees. Wage withholding is administered by the California Employment Development Department (EDD). For more information, go to edd.ca.gov or call 888.745.3886.

Do not use Form 590 to certify an exemption from withholding if you are a **seller of California real estate**. Sellers of California real estate use Form 593, Real Estate Withholding Statement, to claim an exemption from the real estate withholding requirement.

The following are excluded from withholding and completing this form:

- The United States and any of its agencies or instrumentalities.
- A state, a possession of the United States, the District of Columbia, or any of its political subdivisions or instrumentalities.
- A foreign government or any of its political subdivisions, agencies, or instrumentalities.

B Income Subject to Withholding

Withholding is required on the following, but is not limited to:

- Payments to nonresidents for services rendered in California.
- Distributions of California source income made to domestic nonresident partners, members, and S corporation shareholders and allocations of California source income made to foreign partners and members.
- Payments to nonresidents for rents if the payments are made in the course of the withholding agent's business.
- Payments to nonresidents for royalties from activities sourced to California.

- Distributions of California source income to nonresident beneficiaries from an estate or trust.
- Endorsement payments received for services performed in California.
- Prizes and winnings received by nonresidents for contests in California.

However, withholding is optional if the total payments of California source income are \$1,500 or less during the calendar year.

For more information on withholding, get FTB Pub. 1017, Resident and Nonresident Withholding Guidelines. To get a withholding publication, see Additional Information.

C Who Certifies this Form

Form 590 is certified (completed and signed) by the payee. California residents or entities exempt from the withholding requirement should complete Form 590 and submit it to the withholding agent before payment is made. The withholding agent is then relieved of the withholding requirements if the agent relies in good faith on a completed and signed Form 590 unless notified by the Franchise Tax Board (FTB) that the form should not be relied upon.

An incomplete certificate is invalid and the withholding agent should not accept it. If the withholding agent receives an incomplete certificate, the withholding agent is required to withhold tax on payments made to the payee until a valid certificate is received. In lieu of a completed exemption certificate, the withholding agent may accept a letter from the payee as a substitute explaining why they are not subject to withholding. The letter must contain all the information required on the certificate in similar language, including the under penalty of perjury statement and the payee's taxpayer identification number (TIN).

The certification does not need to be renewed annually. The certification on Form 590 remains valid until the payee's status changes. The withholding agent must retain a copy of the certification or substitute for at least five years after the last payment to which the certification applies. The agent must provide it to the FTB upon request.

If an entertainer (or the entertainer's business entity) is paid for a performance, the entertainer's information must be provided. **Do not** submit the entertainer's agent or promoter information.

The grantor of a grantor trust shall be treated as the payee for withholding purposes. Therefore, if the payee is a grantor trust and one or more of the grantors is a nonresident, withholding is required. If all of the grantors on the trust are residents, no withholding is required. Resident grantors can check the box on Form 590 labeled "Individuals — Certification of Residency."

D Definitions

For California nonwage withholding purposes:

- **Nonresident** includes all of the following:
 - Individuals who are not residents of California.
 - Corporations not qualified through the California Secretary of State (CA SOS) to do business in California or having no permanent place of business in California.
 - Partnerships or limited liability companies (LLCs) with no permanent place of business in California.
 - Any trust without a resident grantor, beneficiary, or trustee, or estates where the decedent was not a California resident.
- **Foreign** refers to non-U.S.

For more information about determining resident status, get FTB Pub. 1031, Guidelines for Determining Resident Status. Military servicemembers have special rules for residency. For more information see General Information E, Military Spouse Residency Relief Act (MSRRA), and FTB Pub. 1032, Tax Information for Military Personnel.

Permanent Place of Business:

A corporation has a permanent place of business in California if it is organized and existing under the laws of California or it has qualified through the CA SOS to transact intrastate business. A corporation that has not qualified to transact intrastate business (e.g., a corporation engaged exclusively in interstate commerce) will be considered as having a permanent place of business in California only if it maintains a permanent office in California that is permanently staffed by its employees.

E Military Spouse Residency Relief Act (MSRRA)

Generally, for tax purposes you are considered to maintain your existing residence or domicile. If a military servicemember and nonmilitary spouse have the same state of domicile, the MSRRA provides:

- A spouse shall not be deemed to have lost a residence or domicile in any state solely by reason of being absent to be with the servicemember serving in compliance with military orders.
- A spouse shall not be deemed to have acquired a residence or domicile in any other state solely by reason of being there to be with the servicemember serving in compliance with military orders.

Domicile is defined as the one place:

- Where you maintain a true, fixed, and permanent home.
- To which you intend to return whenever you are absent.

A military servicemember's nonmilitary spouse is considered a nonresident for tax purposes if the servicemember and spouse have the same domicile outside of California and the spouse is in California solely to be with the servicemember who is serving in compliance with Permanent Change of Station orders.

California may require nonmilitary spouses of military servicemembers to provide proof that they meet the criteria for California personal income tax exemption as set forth in the MSRR.

Income of a military servicemember's nonmilitary spouse for services performed in California is not California source income subject to state tax if the spouse is in California to be with the servicemember serving in compliance with military orders, and the servicemember and spouse have the same domicile in a state other than California.

For additional information or assistance in determining whether the applicant meets the MSRR requirements, get FTB Pub. 1032.

The payee must notify the withholding agent if any of the following situations occur:

- The individual payee becomes a nonresident.
- The corporation ceases to have a permanent place of business in California or ceases to be qualified to do business in California.
- The partnership ceases to have a permanent place of business in California.
- The LLC ceases to have a permanent place of business in California.
- The tax-exempt entity loses its tax-exempt status.

If any of these situations occur, then withholding may be required. For more information, get Form 592, Resident and Nonresident Withholding Statement, Form 592-B, Resident and Nonresident Withholding Tax Statement, [Form 592-PTE](#), Pass-Through Entity Annual Withholding Return, Form 592-Q, Payment Voucher for Pass-Through Entity Withholding, and Form 592-V, Payment Voucher for Resident or Nonresident Withholding.

Internet and Telephone Assistance

Website: ftb.ca.gov

Telephone: 800.852.5711 from within the United States
916.845.6500 from outside the United States

TTY/TDD: 800.822.6268 for persons with hearing or speech disability
711 or 800.735.2929 California relay service

Asistencia Por Internet y Teléfono

Sitio web: ftb.ca.gov

Teléfono: 800.852.5711 dentro de los Estados Unidos
916.845.6500 fuera de los Estados Unidos

TTY/TDD: 800.822.6268 para personas con discapacidades auditivas o del habla
711 ó 800.735.2929 servicio de relevo de California

Specific Instructions

Payee Instructions

Enter the withholding agent's name.

Enter the payee's information, including the TIN and check the appropriate TIN box.

You must provide a valid TIN as requested on this form. The following are acceptable TINs: social security number (SSN); individual taxpayer identification number (ITIN); federal employer identification number (FEIN); California corporation number (CA Corp no.); or CA SOS file number.

Private Mail Box (PMB) – Include the PMB in the address field. Write "PMB" first, then the box number. Example: 111 Main Street PMB 123.

Foreign Address – Follow the country's practice for entering the city, county, province, state, country, and postal code, as applicable, in the appropriate boxes. Do not abbreviate the country name.

Exemption Reason – Check the box that reflects the reason why the payee is exempt from the California income tax withholding requirement.

Withholding Agent Instructions

Do not send this form to the FTB. The certification on Form 590 remains valid until the payee's status changes. The withholding agent must retain a copy of the certificate or substitute for at least five years after the last payment to which the certificate applies. The agent must provide it to the FTB upon request.

Additional Information

Website: For more information, go to ftb.ca.gov and search for nonwage.

MyFTB offers secure online tax account information and services. For more information, go to ftb.ca.gov and login or register for **MyFTB**.

Telephone: 888.792.4900 or 916.845.4900, Withholding Services and Compliance phone service

Fax: 916.845.9512

Mail: WITHHOLDING SERVICES AND COMPLIANCE MS F182
FRANCHISE TAX BOARD
PO BOX 942867
SACRAMENTO CA 94267-0651

For questions unrelated to withholding, or to download, view, and print California tax forms and publications, or to access the TTY/TDD numbers, see the Internet and Telephone Assistance section.

**Certification Regarding
Debarment, Suspension, and Other Responsibility Matters**

The prospective participant certifies to the best of its knowledge and belief that it and the principals:

- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- (b) Have not within a three year period preceding this proposal been convicted of or had a civil judgement rendered against them or commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction: violation of Federal or State antitrust statute or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- (c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (b) of this certification; and
- (d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Sec. 1001, a false statement may result in a fine of up to \$10,000 or imprisonment for up to 5 years, or both.

Typed Name & Title of Authorized Representative _____

Signature of Authorized Representative Date _____

☐ I am unable to certify to the above statements. My explanation is attached.



CAMPAIGN CONTRIBUTIONS DISCLOSURE: PROJECT PARTICIPANTS

In accordance with California law, a person or entity with a financial interest in a proceeding or particular governmental decision, who is not a party but who actively supports or opposes a particular decision, qualifies as a “participant” in that proceeding for purposes of California Code of Regulations Section 84308. Participants are prohibited from contributing more than \$250 to an officer of the agency while the proceeding is pending and for 12 months thereafter. A “financial interest” in a proceeding generally means that it is reasonably foreseeable that the proceeding or governmental decision within the proceeding, will have a material financial effect (of a positive or negative nature) on one or more of your economic interests. Relevant economic interests include your interest in business entities, real property, sources of income, sources of gifts, and personal finances. A material financial effect may include a change in revenue or expenses, or it may achieve, defeat, aid, or hinder a purpose or goal of the source of income and the participant or their spouse receives or is promised the income for achieving the purpose or goal. For additional information, please consult the Fair Political Practices Commission. See [Parties, Participants, Agents, and Section 84308 \(ca.gov\)](#) and [Informal Advice \(ca.gov\)](#). A participant has both a financial interest in the proceeding and communicates with the agency or an officer of the agency for purposes of influencing the proceeding.

In addition, SCAQMD Board Members or members/alternates of the MSRC or MSRC-TAC must abstain from voting on a contract or permit if they have received a campaign contribution from a party or participant to the proceeding, or agent, totaling more than \$250 in the 12-month period prior to the consideration of the item by the Governing Board or the MSRC or MSRC-TAC.

Gov’t Code §84308(c).1

The list of current SCAQMD Governing Board Members can be found at the SCAQMD website (www.aqmd.gov). The list of current MSRC or MSRC-TAC members/alternates can be found at the MSRC website (<http://www.cleantransportationfunding.org>).

SECTION I.

Contractor (Legal Name): _____

DBA, Name _____, County Filed in _____

Corporation, ID No. _____

LLC/LLP, ID No. _____

List any parent, subsidiaries, or otherwise affiliated business entities of Contractor:
(See definition below).

¹ The information provided on this form does not, and is not intended to, constitute legal advice. To the extent that you may have questions regarding any case law, citations, or legal interpretations provided above please seek the guidance of your own independent counsel.

SECTION II.

Has Contractor and/or any parent, subsidiary, or affiliated company, or agent thereof, or persons who direct or control campaign contributions for these entities, made a campaign contribution(s) totaling \$250 or more in the aggregate to a current member of the South Coast Air Quality Management Governing Board or member/alternate of the MSRC or MSRC-TAC in the 12 months preceding the date of execution of this disclosure?

☐ Yes ☐ No **If YES, complete Section II below and then sign and date the form.
If NO, sign and date below. Include this form with your submittal.**

Name(s) of Contributor(s) or Person(s) who Directed or Controlled this Contribution:

Governing Board Member or MSRC or MSRC-TAC Member/Alternate	Amount of Contribution	Date of Contribution
---	------------------------	----------------------

Name(s) of Contributor(s) or Person(s) who Directed or Controlled this Contribution:

Governing Board Member or MSRC or MSRC-TAC Member/Alternate	Amount of Contribution	Date of Contribution
---	------------------------	----------------------

Name(s) of Contributor(s) or Person(s) who Directed or Controlled this Contribution:

Governing Board Member or MSRC or MSRC-TAC Member/Alternate	Amount of Contribution	Date of Contribution
---	------------------------	----------------------

Name(s) of Contributor(s) or Person(s) who Directed or Controlled this Contribution:

Governing Board Member or MSRC or MSRC-TAC Member/Alternate	Amount of Contribution	Date of Contribution
---	------------------------	----------------------

I declare the foregoing disclosures to be true and correct.

By:_____

Title:_____

Date:_____

DEFINITIONS

Parent, Subsidiary, or Otherwise Related Business Entity (2 Cal. Code of Regs., §18703.1(d).)

- (1) Parent subsidiary. A parent subsidiary relationship exists when one corporation directly or indirectly owns shares possessing more than 50 percent of the voting power of another corporation.
- (2) Otherwise related business entity. Business entities, including corporations, partnerships, joint ventures and any other organizations and enterprises operated for profit, which do not have a parent subsidiary relationship are otherwise related if any one of the following three tests is met:
 - (A) One business entity has a controlling ownership interest in the other business entity.
 - (B) There is shared management and control between the entities. In determining whether there is shared management and control, consideration should be given to the following factors:
 - (i) The same person or substantially the same person owns and manages the two entities;
 - (ii) There are common or commingled funds or assets;
 - (iii) The business entities share the use of the same offices or employees, or otherwise share activities, resources or personnel on a regular basis;
 - (iv) There is otherwise a regular and close working relationship between the entities; or
 - (C) A controlling owner (50% or greater interest as a shareholder or as a general partner) in one entity also is a controlling owner in the other entity.

BOARD MEETING DATE: June 7, 2024

AGENDA NO. 7

PROPOSAL: Appropriate Funds from the General Fund Undesignated (Unassigned) Fund Balance for Administrative and Human Resources Related Expenditures, and Approve Amending Contracts with Outside Labor and Employment Counsel

SYNOPSIS: This action is to appropriate \$800,000 from the General Fund Undesignated (Unassigned) Fund Balance to the District General – Administrative and Human Resources FY 2023-24 and/or FY 2024-25 Budget in the amount of \$625,000, and the Administrative and Human Resources FY 2023-24 and/or FY 2024-25 division budget in the amount of \$175,000. This action is also to approve amending contracts with prequalified labor and employment counsel to add funds, up to \$200,000, as necessary.

COMMITTEE: Administrative, May 9, 2024; Recommended for Approval

RECOMMENDED ACTIONS:

1. Appropriate \$625,000 from the General Fund Undesignated (Unassigned) Fund Balance to District General – Administrative and Human Resources’ FY 2023-24 and/or FY 2024-25 Budget, Services and Supplies Major Object as follows:
 - a. Insurance Account in the amount of \$425,000; and
 - b. Professional and Special Services Account in the amount of \$200,000.
2. Appropriate \$175,000 from the General Fund Undesignated (Unassigned) Fund Balance to the Administrative and Human Resources FY 2023-24 and/or FY 2024-25 Budget, Services and Supplies Major Object; and
3. Authorize the Executive Officer to amend contracts with employment and labor relations legal counsel to add funding up to \$200,000 from the District General – Administrative and Human Resources Professional and Special Services Account, as necessary.

Wayne Nastri
Executive Officer

Background

The FY 2023-24 Budget for District General – Administrative and Human Resources (DG-AHR), Services and Supplies Major Object, Insurance Account provides funding for general South Coast AQMD overhead expenses. Accounts associated with general operations of South Coast AQMD are budgeted and tracked in District General.

Expenses paid from these accounts include such items as retirement payouts, principal and interest payments, insurance, utilities, taxes, housekeeping, security, and building maintenance and improvements.

Division budgets are allocated for expenditures specific to the operations and programs of the division. For Administrative and Human Resources (AHR), the division budget covers items relating to training, recruitment, safety measures, and specialized services contractors.

Due to unanticipated labor and employment related expenses and increased costs for ongoing items, such as insurance premiums, there is a need to transfer budget funds in order to pay for expenses incurred or to be incurred before the end of FY 2023-24.

Proposal

This item requests a transfer of \$625,000 from the General Fund Undesignated (Unassigned) Fund Balance to District General – Administrative and Human Resources' FY 2023-24 and/or FY 2024-25 Budget, Services and Supplies Major Object. Part of the transfer (\$200,000) will be directed to the Professional and Special Services Account to cover outside legal counsel expenses for employment and labor relations matters. These expenses provide South Coast AQMD with legal advice and counsel on labor negotiations, workplace issues, and new laws and regulations. To implement this allocation of funding, staff seeks authority for the Executive Officer to amend existing contracts with previously Board-approved law firms to add funding.

The remainder of the transfer amount (\$425,000) will go to the Insurance Account of District General – Administrative and Human Resources' FY 2023-24 and/or FY 2024-25 Budget, Services and Supplies Major Object. These funds will be used to cover increased costs for liability insurance premiums and for payments related to ongoing workers' compensation claims.

This action is also to appropriate \$175,000 from the General Fund Undesignated (Unassigned) Fund Balance to AHR's FY 2023-24 and/or FY 2024-25 Budget, Services and Supplies Major Object. For FY 2023-24, expenditures from this account include implementing new training programs (such as, de-escalation and situational awareness), adding employee development resources (LinkedIn Learning, for example), initiating engagement events, and continuing costs related to the implementation of South Coast AQMD's Covid Prevention Plan. In order to cover costs to be incurred for similar

employee resources for the remainder of the fiscal year, a budget transfer is requested for funding of additional training, services for health and safety services providers, recruitment software, and temporary employee costs to cover employees out on long-term medical leave.

Resource Impacts

Sufficient funds are available from the General Fund Undesignated (Unassigned) Fund Balance.

 [Back to Agenda](#)

BOARD MEETING DATE: June 7, 2024

AGENDA NO. 8

PROPOSAL: Appoint Regular and Alternate Attorney and Engineer Members to South Coast AQMD Hearing Board for July 1, 2024 to June 30, 2027

SYNOPSIS: The terms of office for the Hearing Board Attorney and Engineer Members, as well as their alternates, expire on June 30, 2024. In November 2023, a recruitment was opened to seek candidates for the new term of July 1, 2024 through June 30, 2027. As required by state law, a Hearing Board Advisory Committee appointed by five members of the Governing Board is responsible to review and make recommendations to the Administrative Committee in making appointments to the Hearing Board. On April 19, 2024, the Advisory Committee recommended that the Administrative Committee interview three candidates for the Regular and Alternate Attorney Member positions, two candidates for the Regular Engineer Member position, and two candidates for the Alternate Member Engineer position. The Administrative Committee interviewed the candidates at its meeting on May 9, 2024 and made final recommendations to the Governing Board.

COMMITTEE: Administrative, May 9, 2024; Recommended for Approval

RECOMMENDED ACTION:

Reappoint the incumbents, Robert Pearman (Attorney Member); Adrienne Konigar Macklin (Alternate Attorney Member); Mohan Balagopalan (Engineer Member); and Dr. Maria Slaughter (Alternate Engineer Member) to the South Coast AQMD Hearing Board for the terms commencing July 1, 2024 and ending June 30, 2027.

Wayne Nastri
Executive Officer

Background

The Hearing Board is a quasi-judicial body comprised of five members appointed by, but acting independently of, the Governing Board to provide relief from South Coast AQMD regulations under certain circumstances. The five members include one attorney, one engineer, one medical doctor and two public members. Each member, as well as their alternates, serve a term of three years. The terms have staggered start dates to ensure continuity on the Hearing Board.

The current term for the Attorney Member and Engineer Member expires on June 30, 2024. A recruitment was opened from November 15, 2023 to January 10, 2024 to seek candidates for the new term that commences July 1, 2024 through June 30, 2027. At the close of the recruitment period, there were eight candidates for the attorney member position and eight candidates for the engineer member position who met the minimum qualifications. The incumbents for these positions are seeking reappointment.

Health and Safety Code Section 40501.1(b) requires that five members of the South Coast AQMD Governing Board appoint an Advisory Committee responsible for reviewing candidates for Hearing Board appointments and providing recommendations through the appropriate Governing Board committee, which is the Administrative Committee. The Hearing Board Advisory Committee is composed of one representative appointed by each of the Governing Board members representing the Counties of Los Angeles, Orange, Riverside and San Bernardino, and the City of Los Angeles.

The Advisory Committee individually scored the applicants, using an evaluation criteria they reviewed and approved. At the request of the Advisory Committee, a three-member panel of South Coast AQMD executive staff members individually evaluated the applicants, which the Advisory Committee used only for cross reference and comparison. The scores from each Advisory Committee member were compiled and used to rank the applicants. On April 19, 2024, three members of the Advisory Committee met to discuss the scores and rankings. The following is the Advisory Committee's unanimous recommendation regarding which candidates move forward for interviews with the Administrative Committee.

Regular and Alternate Attorney Members

The three top-ranking applicants were recommended to be interviewed. The three candidates listed in alphabetical order are: Adrienne Konigar Macklin, (incumbent alternate member), Robert Pearman, (incumbent regular member) and Anne Shultz. These candidates expressed an interest in serving as either the regular or alternate member.

Regular Engineer Member

Of the three top-ranking candidates, two were selected to be interviewed for the regular member position: Mohan Balagopalan (incumbent regular member) and Robert Pease. Both candidates expressed their interest only for the regular position. The third ranked candidate, Dr. Maria Slaughter (incumbent alternate member), is interested only in the alternate position.

Alternate Engineer Member

Dr. Maria Slaughter and Qinling Jenny Lu were recommended to be interviewed for the Alternate Engineer Member. Although Ms. Lu applied to serve as either the regular or alternate member, it was recommended that she be interviewed for the alternate position.

Proposal

On May 9, 2024, the Administrative Committee conducted interviews. Robert Pearman was the only candidate interviewed for the Regular and Alternate Attorney Member positions because Adrienne Konigar Macklin and Anne Shultz were not available for the interviews. Mohan Balagopalan and Robert Pease were interviewed for the Regular Engineer Member position, and Qinling Jenny Lu and Dr. Maria Slaughter were interviewed for the Alternate Engineer Member position. After interviewing the five candidates, the Administrative Committee recommended reappointing Mr. Pearman as the Regular Attorney Member; reappointing Ms. Konigar Macklin, based on her experience and service on the Hearing Board since July 2021, as the Alternate Attorney Member; reappointing Mr. Balagopalan as the Regular Engineer Member; and reappointing Dr. Slaughter as the Alternate Engineer Member for the terms commencing July 1, 2024 and ending June 30, 2027.

Fiscal Impacts

Sufficient funds are budgeted each year to compensate those who serve on the Hearing Board.

Attachments

Resumes

ADRIENNE KONIGAR-MACKLIN

January 4, 2024

Department Administrator
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, California, 91765

Re: Hearing Board Member (Attorney and Engineer Appointments)

Dear Administrator:

I am writing in response to the opening for a Hearing Board Member (permanent and alternate) with the Air Quality Management District in Diamond Bar, California, posted on your website. I have an extensive and solid legal background, highlighted on the attached resume, which I believe illustrates that I have the skill, experience, and knowledge to serve and that I would be an excellent choice for you to consider for this position.

For more than three decades, I have served as a lawyer, general counsel, hearing officer and certified mediator/dispute resolution professional. I have served as an Administrative Law Judge for the State of California, and as a hearing officer for numerous public agencies, including the City of Los Angeles. I am a graduate of U.C. San Francisco College of Law (formerly Hastings College of Law), and I am licensed to practice law in the State of California, the United States Central District Court and before the United States Supreme Court.

In my capacity as an Administrative Law Judge II, I routinely ascertained and reviewed and weighed pertinent evidence, prepared summaries of fact, and rendered decisions. I was also assigned to analyze difficult and complex legal problems in state taxation cases and applied legal principles and precedents to particular sets of facts concerning federal and state law, regulations to render a decision and adopt a decisive course of action.

Prior to my work as an Administrative Law Judge, I served as a hearing officer and settlement officer for various public agencies, presiding over quasi-judicial hearings as provided under the Administrative Procedure Act and other state and federal statutes. I was responsible for conducting fair and impartial hearings while controlling the course of the hearing in a manner that would secure confidence and respect. I was also responsible for applying principles of law, ruling on the relevance or admissibility of evidence as provided by law, issuing subpoenas, receiving, and reviewing evidence, examining testimony, preparing decisions containing findings of facts and conclusions of law and advising administrative agencies on the application of law, policies, and regulatory compliance with issued decisions.

As the General Counsel for several public agencies, I have experience handling environmental legal issues as well as significant experience in establishing and maintaining cooperative relations with those with whom I work. My former position(s) allowed me to develop an administrative skill set applicable to developing and ensuring levels of efficiency. In addition to my legal and adjudication skills, I have served as a school board president and member for over 11 years. This position is also relevant to the skill set needed to serve as an Attorney Board Member, as I am often required to interface with the public, hear issues and complaints and administer opinions while working in concert with other board members.

I have the temperament, communication skills and patience to interact with members of the public who appear. My strong work ethic is evidenced by my work history and references which are indicated on the application as requested. As a dedicated public servant, I believe I would make a solid addition to the board as the Attorney Member or Alternate.

I welcome the opportunity to further discuss the possibility of becoming the newest attorney board member (or alternate) and I am available for an interview at your convenience. Thank you for your time and attention.

Sincerely,

Adrienne Konigar-Macklin
Adrienne Konigar Macklin, Esq.

ADRIENNE KONIGAR-MACKLIN, ESQ.

BAR MEMBERSHIP

California State Bar 1987
United States District Court, Central District 1987
United States Supreme Court 2005

EDUCATION

University of California, San Francisco Hastings College of Law	J.D., 1984
University of California, Irvine/Dartmouth College Social Ecology/Political Science	B.A., 1981
Pepperdine University, School of Law Strauss Institute for Dispute Resolution	Certification 1997

ELECTED BOARD OFFICES

Pomona Unified School District Board of Education-Appointed 5/2008
Pomona Unified School District Board of Education-Elected 11/2009/President 2010
Pomona Unified School District Board of Education-Elected 11/2013/President 2015
Pomona Unified School District Board of Education-Elected 11/2018/President 2020

BOARD OFFICES

Pomona Unified School District, Member , Past-President, 2008-2022
California State University Dominguez Hills/ Mervyn L. Dymally Political Policy Advisory Institute, President 2020-Present
California State University Dominguez Hills/ Mervyn L. Dymally Political Policy Advisory Institute, Vice President, 2018-2020
California State University Dominguez Hills/ Mervyn L. Dymally Political Policy Advisory Institute, Member 2017
Los Angeles County Commission on Children and Families, 2nd Supervisorial District, 2013-2016

Board of Directors, Serra Catholic High School, 2012

California Association of African American Superintendents and Administrators, 2006-Present

Salvation Army Pomona, Board of Directors 1996-1998

House of Ruth Board of Directors- 1993-1996

EMPLOYMENT

Law Offices of Adrienne Konigar & Associates
Managing Partner
9/2022-Present

Advise school district and educational corporations on policy, laws and contract provisions; Serve as lead counsel to the district board and staff; advise Board of Education on application of the Fair Political Practices Act, the Ralph M. Brown Act, the Radda Act, and public employment labor law and policy; advise Board of Education and staff on legal issues pertaining to the Charter School Act, the IDEA, special education law, worker's compensation, civil rights, constitutional law, collective bargaining of union contracts.

San Diego County Office of Education
Firm General Counsel
Law Offices of Adrienne Konigar & Associates
2/2018-8/2022

Served as lead counsel to the Superintendent and staff; advise and represent county office executive level officers and administrators, in the development, adherence and implementation of public policy and legislation; advise Board of Education on application of the Fair Political Practices Act, the Ralph M. Brown Act, the Radda Act, boardsmanship, public employment labor law and policy; advise Board of Education and staff on legal issues pertaining to the Charter School Act, the IDEA, special education law, worker's compensation, civil rights, constitutional law, collective bargaining of union contracts, student expulsion, public construction funding, territory annexation, public facility modernization and funding, public contracting, school construction and administrative law; provide in-service training on sexual harassment, special education and Section 504 compliance; special education and affirmative action; monitor and assure District's legal compliance with state and federal workplace and funding regulations; represent District in proceedings before the Public Employment Relations Board, the State Department of Education and other state agencies; represent county office in arbitration of employee grievances in state and federal litigation; supervise outside counsel in litigation; coordinate legal services with insurance providers; initiate and defend litigation; review and provide direction on pleadings, legal strategies; maintain costs and oversee efficient case management; develop and monitor legal expenditures; prepare written opinions and conduct independent investigations; provide general legal advice; manage coordination of legal services between Office of the General Counsel and Human Resources. Serve as Special Counsel on school improvement; develop and implement legal infrastructure and legal policies; oversee administration of legal services; coordinate provision of legal services for county school district.

Lynwood Unified School District
General Counsel and Assistant Superintendent of Human Resources
1/2013 to 1/2017

Serve as lead counsel to the Board of Education and elected officials; advise and represent school district executive level officers and district administrators, in the development, adherence and implementation of public policy and legislation; advise Board of Education on application of the Fair Political Practices Act, the Ralph M. Brown Act, the Radda Act, and public employment labor law and policy; advise Board of Education and staff on legal issues pertaining to the Charter School Act, the IDEA, special education law, worker's compensation, civil rights, constitutional law, collective bargaining of union contracts, student expulsion, public construction funding, territory annexation, public facility modernization and funding, public contracting, school construction and administrative law; provide in-service training on sexual harassment, special education and Section 504 compliance; special education and affirmative action; monitor and assure District's legal compliance with state and federal workplace and funding regulations; represent District in proceedings before the Public Employment Relations Board, the Commission on Professional Competence and other state agencies; represent Adult School; represent District in arbitration of employee grievances in

state and federal litigation; supervise outside counsel in litigation; coordinate legal services with insurance providers; initiate and defend litigation; review and provide direction on pleadings, legal strategies; maintain costs and oversee efficient case management; develop and monitor legal expenditures; prepare written opinions and conduct independent investigations; serve as counsel to the Personnel Commission; supervise and manage legal and non-legal staff; provide general legal advice; manage coordination of legal services and Office of the General Counsel and Human Resources. Serve as Special Counsel on school improvement.

California Unemployment Insurance Appeals Board

Administrative Law Judge II

9/2010 to 12/2013

Presides over quasi-judicial hearings on complex, and sensitive matters, as provided under the Administrative Procedure Act, State tax law and other state and federal statutes; control the course of the hearing, secure its reasonable expedition and orderly conduct throughout; apply legal principles, evidence, and precedents to issues of law; question witnesses; rules on the relevancy or admissibility of evidence as provided by law; issue subpoenas; receive and review evidence; examine testimony; prepare proposed decisions containing findings of facts and conclusions of law; advise administrative agencies on application of law and complying with issued decisions; prepare reports to supplement findings; opine on matters of policy, procedure, and interpretation of laws and administrative regulations; assist in research programs in connection with the study of administrative law and procedure including their relationship to effective public administration; assist with the preparation of reports on the research program for the Governor and the State Legislature.

Aleshire & Wydner, LLP

Partner- Education/Litigation

12/2008 to 8/2010

Serve as counsel/city attorney to various municipal corporations and entities; initiate and defend litigation; review and provide direction on pleadings, legal strategies and prepare written opinions and conduct independent investigations. Litigate in state and federal court; supervise litigation and associates in the handling of litigation and transactional matters; counsel to elected officials on application of labor and employment laws and regulations, the Fair Political Practices Act, the Ralph M. Brown Act, the Radda Act, and public employment labor law and policy; represent school districts and cities before the EEOC, DFEH and Public Employees Relations Board; represent agencies in administrative law matters; advise and represent school district executive level officers and district administrators; provide advice on the Charter School Act, worker's compensation, civil rights, constitutional law, collective bargaining of union contracts, public construction funding, territory annexation, public facility modernization and funding, public contracting, school construction and administrative law.

Inglewood Unified School District

General Counsel

8/2003 to 9/2008

Serve as lead counsel to the Board of Education and elected officials; advise and represent school district executive level officers and district administrators, in the development, adherence and implementation of public policy and legislation; advise Board of Education on application of the Fair Political Practices Act, the Ralph M. Brown Act, the Radda Act, and public employment labor law and policy; advise Board of Education and staff on legal issues pertaining to the Charter School Act, the IDEA, special education law, worker's compensation, civil rights, constitutional law, collective bargaining of union contracts, student expulsion, public construction funding, territory annexation, public facility modernization and funding, public contracting, school

construction and administrative law; provide in-service training on sexual harassment, special education and Section 504 compliance; special education and affirmative action; monitor and assure District's legal compliance with state and federal workplace and funding regulations; represent District in proceedings before the Public Employment Relations Board, the Commission on Professional Competence and other state agencies; represent Adult School; represent District in arbitration of employee grievances in state and federal litigation; supervise outside counsel in litigation; coordinate legal services with insurance providers; initiate and defend litigation; review and provide direction on pleadings, legal strategies; maintain costs and oversee efficient case management; develop and monitor legal expenditures; prepare written opinions and conduct independent investigations; serve as counsel to the Personnel Commission; supervise and manage legal and non-legal staff; provide general legal advice; manage coordination of legal services and Office of the General Counsel.

Los Angeles Unified School District

Associate General Counsel II, Field/General Services Legal Division Chief

11/2001 to 8/2003

Represented and supervised the provision of legal services to 1100 school sites, administrators and instructional divisions within the Los Angeles Unified School District on issues concerning implementation of instructional policy, preventative policies and compliance with law; advised administrators on student constitutional and civil rights, emergency response procedures, educational equity, child abuse and compliance; represented District in class action lawsuits; supervised and directed work of staff attorneys assigned to Field Services; advised administrators and executives on matters of administrative law; advised dependency court on application and interpretation of special education laws and legal requirements; advised Board of Education, Superintendent, Assistant and Associate Superintendents, Local District Superintendents and staff on instructionally relevant legal issues; represented Adult School division; assisted in the development and negotiation of educational policies; served as liaison to the City of Los Angeles on inter-governmental relations; assisted in the development and formulation of inter-agency schools; developed Charter School review process, advised on policies and provided advice on Charter School Act; provided advice on Section 504 compliance and special education; provided and directed the preparation and provision of legal opinions, drafting and revision of district policies; represented District before state and federal regulatory agencies; directed and supervised litigation and litigation strategies; supervised, managed and directed staff; monitored and supervised litigation budgets and expenses; served as General Counsel upon request of District General Counsel.

Los Angeles Unified School District/Barbosa Garcia LLP

Supervising Staff Counsel, Special Education

5/1996 to 11/2001

Represented the Los Angeles Unified School District in the 83,000 plaintiff *Chanda Smith* special education class action lawsuit and in all special education legal matters; drafted and advised Board and staff on issues of state and federal special education policy and law; supervised and directed the work of special education staff attorneys; represented District in due process hearings, state and federal courts and before consent decree special masters; negotiated and advised on implementation of special education legal corrective action plans; served as a liaison to Barbosa Garcia LLP on case

management; supervised and directed outside counsel; prepared litigation budgets and case management reports.

Pomona Unified School District

**General Counsel/Legal Advisor
8/1987 to 4/1996**

Advised and represented District in drafting, negotiation and maintenance of employee collective bargaining agreements; advised Board of Education and staff on issues of labor, contract, education, and administrative law; implemented and monitored Affirmative Action Plan; monitored and assured District's legal compliance with state and federal workplace and funding regulations; drafted and implemented District policies on employee relations; represented District in proceedings before the Public Employment Relations Board and the Commission on Professional Competence, specifically litigating unfair labor practice charges and in the dismissal and suspension of classified and certificated employees; represented District in arbitration of employee grievances; consulted and contracted with outside counsel on issues of land acquisition, eminent domain, and certificates of participation; developed and implemented Board policy on assessment and implementation of developer fees; represented District in state and federal litigation; advised Board on implementation of District policy concerning open meeting laws and conflict of interest provisions; represented District before other state agencies; coordinated work of and supervised outside counsel; initiated and defended litigation.

ARBITRATION/MEDIATION

- Judge Pro-Tem Los Angeles and San Bernardino Superior Courts
- Dispute Resolution Services
- Los Angeles County Superior Court Mediation and Settlement Officer
- City of Los Angeles Personnel Commission Hearing Officer
- Centinela Valley School District Personnel Commission Special Counsel/Hearing Officer
- Ontario- Montclair Personnel Hearing Officer
- City of Los Angeles Department of Disability Hearing Officer
- Chino Unified School District Hearing Officer
- Mountainview School District Hearing Officer
- Pomona Unified School District
- ASCIP Insurance Cooperative
- Corona-Norco School District Hearing Officer
- Hawthorne School District-Hearing Officer
- Adelanto School District-Special Counsel/Board Advisor/Investigations
- Lucerne Valley School District-Hearing Officer
- City of Carson-Special Counsel- Risk Management/Personnel Investigations
- Apple Valley Union High School District
- 100 Black Men, Riverside

PROFESSIONAL ORGANIZATION AFFILIATION

- Advisory Board Cal State Dominguez Hills/ Mervyn L. Dymally Institute, Vice President 2018-2020
- Los Angeles County Commission on Children and Families, 2nd Supervisorial District, 2013-2016
- Board of Directors, Serra Catholic High School, 2012
- President, Pomona Unified School District Board of Education, 2010, 2015, 2020
- General Counsel, California Association of African American Administrators and

Superintendents (2005-2011)

- Life Member, California Association of Black Lawyers/President, (2008-2009)
- Life Member, Black Women Lawyers of Los Angeles, Inc./ President (2002-2003)
- Board of Directors, John Langston Bar Association Education Committee Chair, (2005-2007),
- California State Bar Association, Public Law Section Executive Committee Member, (1990-1993)
- Member, School Law Attorneys Association
- Member, Editorial Board (1997-1998), Los Angeles Lawyer Magazine
- Member, National School Boards Association Council of Attorneys
- Board of Directors (1990-1993), House of Ruth Women's Shelter
- Mt. Zion Church, Financial Advisory Board (2017-2018)
- Board of Directors (1987-2003), First Baptist Church of Greater Los Angeles
- Board of Directors, Treasurer, (2004-2007) Diamond Bar/ Pomona Youth Basketball Association
- Board of Directors (2006) Salvation Army Pomona Valley
- Member, University of California Hastings Alumni Association
- Board Member, (2008- 2013) Pomona Unified School District
- Member, Alpha Kappa Alpha Sorority, Incorporated
- Member, The Links, Incorporated
- Member, Chums, Inc.
- The Links Inc., Western Area Ethics Chair, The Links, Inc. (2014-2019)
- The Links, Inc., Western Area Organization Effectiveness Chair (2019-Present)
- University of California, Irvine, Alumni Association
- University of California Hastings College of Law, Alumni Association

GUEST LECTURER/TEACHER/SPEAKER

- Ventura County Non-Profit Association, Ethical Leadership
- California School Board Association- Education 2012 and the Federal Education Act- "Why We Can't Wait."
- "Taming the Tongue" Mt. Zion Church, Bible Teaching Series
- "Bag Lady", Letting Go to Grab On"- Women of the Word, MZ 2016
- Mervyn Dymally/ Cal State Dominguez Hills, "Aging Symposium" Seniors STILL Have It"
- CSEA Area 14- Anatomy of Collective Bargaining and Administrative Law
- CAAASA - Administrative and Legislative Law- Accessing the Court System
- California State University Los Angeles, "The Business of Education"
- School Employees Association of California- SEAC's School Management Negotiators Certificate Program

HONORS

A complete list of honors and awards is available upon request

PUBLICATIONS

H.E.L.P. Handbook of Emergency Legal Procedures-Los Angeles Unified School District,
1985. Revision Author.

Article: "The Business of Education, Issues That Arise During Board Meetings: Anatomy of a Board Meeting", April 1998, National School Boards Association (NSBA) Counsel of School Attorneys

"Ethically Speaking...Ethically Leading" Webinar Series (2014-2018)

Available Upon Request

ROBERT PEARMAN

HEARING BOARD MEMBER - ATTORNEY APPLICATION

ROBERT C. PEARMAN

Supplemental Information: Dispute Resolution/Administrative Hearings Practice

American Arbitration Association, Roster of Neutrals – Commercial, Construction, Government Contracts, Health Care panels. Sole or panelist Arbitrator in dozens of disputes since 2005.

Certified Member of the State of California Public Works Contract Arbitration Panel. This is a statewide panel for arbitrations for state public works contract disputes, and certain local agency public works disputes, under the State Contract Act and related regulations.

Member of Caltrans Dispute Resolution Board (DRB). Caltrans utilizes DRB members on panels to facilitate dispute resolution on significant projects and as Dispute Resolution Advisors.

FINRA Arbitrator Roster (Public)

Appointed by Speaker Atkins of the California Assembly to the California Architects Board (2016-2018). Appointed by the California Senate to the California Architects Board (2018-). The Board is a regulatory body charged with protecting public health and safety through licensing and oversight of the profession. In his role, Mr. Pearman makes important decisions on agency policies, and approves regulations and helps guide licensing, enforcement, public education and consumer protection activities. The Board handles disciplinary actions against professionals who violate state consumer protection laws – various cost sanctions, license suspension, probation and revocation options are considered after administrative hearing processes.

In appointments to the Assessment Appeals Boards in two southern California counties - adjudicated appeals of disputed county property tax assessments, including value allocation, appraisal reviews, new construction and exemption issues. Adjudicated 100s of matters dealing with a variety of commercial, industrial, and residential properties. Experience chairing three-person panels. Some appeals were multiple day presentations. Written findings and rationale were often required. Taxpayers presented cases with accounting, finance, real estate and legal personnel, and the county assessor and county counsel represented the taxing agency.

Contracted as a County Hearing Officer: adjudicate various administrative actions involving real property owners (e.g., nuisance abatement, illegal uses) and businesses (e.g., licensing decisions, marijuana dispensary uses), and governmental cost recovery actions. Hearings involve sworn testimony; legal counsel; evidentiary rulings; consideration of asserted violations in the context of applicable County codes and State law; mitigating factors and corrective measures; and the

affect on the public of alleged nuisances. Also was selected as a City Administrative Appeals Hearing Officer (2018 - 9) engaged to preside over parking citation and other appeal hearings pursuant to California Vehicle Code and City Municipal Code.

Former Vice Chair of a municipality's Transportation Commission, hearing issues related to traffic signals and devices, municipal airport, and transportation engineering and sciences.

Counsel for parties involved in arbitrating public works disputes regarding the compliance with certain technical traffic engineering equipment and software and its compliance with plans and specifications, and in mediating construction management and inspection services in public works.

Selected AAA arbitration matters handled:

Design, landscaping and administrative services for a large housing development (276-unit residential apartment project), issues of cost of completion, delay damages and diminution in value were involved.

Dispute between an owner and contractor regarding breach of construction contract and non-payment re petroleum project facilities.

Claims of payment for services, and counterclaims for professional negligence, surveying and utility line mapping errors. The defective engineering and surveying work allegedly resulted in the need for relocation of improvements including utility facilities

Grading/excavation subcontractor and a general contractor dispute involving payment issues, grading, footings and soil removal issues, and interpretation of geologic soils reports, costs to complete allegedly defective or incomplete work.

Training Courses include:

2023 Air Pollution Control District Variance and Hearing Board Training - ARB

2015 and 2016 American Arbitration Association Arbitrator II Training - Advanced Case Management Issues Workshop.

American Arbitration Association - Arbitration Awards: Safeguarding, Deciding & Writing Awards

2017 Caltrans Dispute Resolution Advisor and Dispute Resolution Board Training



ROBERT C. PEARMAN

PRACTICE AREAS:

Public Works, Real Estate, Transportation, Construction, Arbitration, Litigation

EDUCATION:

Yale Law School - Juris Doctor

Univ. of Pennsylvania, Wharton School - B.S. Economics (cum laude)

LEGAL ASSOCIATIONS RECORD:

State Bar of California: Executive Committee - Public Law Section

Executive Committee - Real Property Law Section

Los Angeles County Bar Association:

Real Property Law Section - Executive Committee

L.A. Lawyer Magazine Editorial Board, Editor of Annual Real Estate Issue

PUBLIC SERVICE EXPERIENCE:

SCAQMD -Attorney Member of Hearing Board, Vice-Chair (2021-)

California Architects Board (2016-)

Tri-City HealthCare District – Audit, Compliance and Ethics Committee

L.A. and San Diego County Assessment Appeals Boards

Neighborhood Planning Board, L.A. City Council District

Board Member, Los Angeles Neighborhood Initiative/Leimert Park

City and County Hearing Officer

State of California Inspection Maintenance & Review Committee

Board Member (1994-2019), National Housing Law Project – Chairman

DISPUTE RESOLUTION ROLES:

American Arbitration Association, Roster of Neutrals - Commercial and Construction Law, Government Contracts, Health Care panels

Certified Member of the State of California Public Works Contract Arbitration Panel

Member of Caltrans Dispute Resolution Board

FINRA Arbitrator Roster (Public)

**SIGNIFICANT
PROJECTS &
CLIENTS:**

Montebello Unified School District, Center for Natural Lands Management, Los Angeles Housing Department, Housing Authority of the City of Los Angeles, LACTC/MTA Metro Rail, MTA Union Station Gateway Headquarters Project, City of Fresno/BNSF Franchise and Grade Crossing, California High-Speed Rail Authority, Metro Gold Line Foothill Extension Construction Authority, Exposition Metro Line Construction Authority, LAX Security Enhancement Program and Advanced Master Plan, Community Redevelopment Agency/Los Angeles, San Diego Gas & Electric

**EXEMPLAR
ENVIRONMENTAL/
PUBLIC AGENCY
LAW WORK:**

Member of the State Inspection & Maintenance Review Committee. IMRC advised the Air Resources Board, the Bureau of Automotive Maintenance, and the Legislature on the vehicular smog check program in California, focusing on mobile source emissions (passenger cars and light duty trucks). In that capacity I participated in reviews of the progress toward goal attainment in the State Implementation Plan, and those plans for regional air districts such as SCAQMD and their strategies for mobile source and consumer products. IMRC also examined, inter alia, new technologies, emission reduction credits, retrofitting of vehicles, and accelerated retirement of older polluting sources. Participated in AQMD Ultrafine Particles Conference.

Advised the Los Angeles County Metropolitan Transportation Authority on a variety of environmental matters including liability issues concerning leaking underground storage tanks, and handling, transporting, storage and disposal of hazardous waste on the Metro Rail Project; and ADA issues, environmental remediation, groundwater basins.

As special counsel to the MTA Permit desk, tasks included examining local and state law and regulation. The issues pertained to the interface of existing and planned projects with local land use controls and with existing development. Examined local permitting processes and authorities, authority of the agency--a state created organization with countywide responsibilities, and specific Government Code exemptions from certain local building and zoning ordinances, State Government Code sections dealing with zoning, development, fees and exactions, etc

Represented the MTA in construction claims litigation involving the Union Station terminus for the Metro Red Line Subway, including work performed by an asbestos abatement subcontractor.

Assisted the LA Housing Dept. in disputes and contracts regarding asbestos and lead abatement, related funding and construction contracts and disposal issues.

Represented the Union Oil Company of California; activity included representing the client with respect to claims involving soil remediation work at its oil refinery.

In the capacity of special counsel to the Gold Line, and deputy counsel to the

Exposition Line, led the firm's work with respect to the EIRs applicable to those projects. This work included agreements with third parties for implementation of required mitigation measures, comprehension of the EIR statements with respect to subsequent real property activity, and analysis of the EIR material in connection with litigation involving the projects.

General Counsel to public agencies -advise on Brown Act, contracts, risk assessment, and penalties, among others.

Robert C. Pearman, Esq.

Attorney at Law

Facsimile

12/27/23

Cover Letter to SCAQMD Hearing Board-Attorney Member Position

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21865 Copley Drive
Diamond Bar, CA. 91765
Attn.: Faye Thomas, Clerk of the Boards

Dear Ms. Thomas:

The responsibilities and qualifications for the Attorney Member of the SCAQMD hearing board panel dovetail with my experiences and interests.

I am nearing the end of my initial term as the Attorney Member of the hearing board. I've also been the vice chair for two years. In those roles I've gained valuable experience and understanding of the workings of the board, knowledge of the history of matters that may be ongoing, and played a role in developing and updating the board rules and policies. I assisted the chair in pre hearing conferences designed to afford more efficient hearings. I would like to pursue another term - to provide more transparency on our proceedings, to the public and participants, allow more efficient and effective hearings minimizing board and staff time, and continuing the board role in ensuring a cleaner and healthier environment for all within its jurisdiction.

Prior to my appointment, I gained knowledge of the subject matter within the SQAQMD jurisdiction from my legal practice, which included environmental, permitting and licensing, and land use work, as well as related litigation, for over 35 years. Furthermore, my service on the State of California Inspection and Maintenance Review Committee provided a wealth of relevant experience. As a gubernatorial appointee to that Committee, issues examined were: analysis of emissions, vehicle inspection and testing, measures to curb efforts to avoid the inspection process, and advising on Air Resources Board methodologies for emissions reductions calculations, among other things.

During my initial term as attorney member, I've taken training seminars on procedural and substantive aspects of the work of the District.

As the attached material demonstrates, I have substantial experience in the public agency hearing and due process environment. This includes dealing with abatement, nuisances, disciplinary action,

regulatory violations, and monetary sanctions. My roles as a member of the California Architects Board, Assessment Appeals Boards and as a local hearing officer evidence my skills in those areas.

These hearings involve the presentation of evidence by a respondent/applicant and the public body, often with attorney involvement; sworn testimony; consideration of asserted violations in the context of applicable law and regulation; mitigation and corrective measures; and the affect on the public.

I also understand the geographic breadth of the District, as I have worked on matters over the years on the Metro Rail system including Metrolink and its multi-county reach, and had construction and real estate clients from Orange County to the Inland Empire.

I am adept at conducting hearings, rendering decisions and issuing findings in complex situations. I have arbitrated dozens of matters for the American Arbitration Association since 2005, some as a solo decision-maker, some on a three-person panel. Cases arbitrated have involved various forms of requested relief – injunctive, interim and final awards. I am also a member of the State's Public Works Contract Appeals Board which deals with public agency construction contracts, and am on various other recognized dispute resolution panels.

I have a proven hearing tribunal style: fair, impartial, examine each matter with a clean slate; can absorb new issues quickly; emphasis on focused evidence on key points needed for efficient decision-making.

I have provided a number of references who know me from varied circles, that can provide more evidence of my suitability for this position.

My record shows a history of Public Service appointments and volunteering, as I believe that commitment is something that members of the legal profession should do as a matter of course.

I appreciate your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert C. Pearman". The signature is fluid and cursive, with a large initial "R" and a stylized "P".

Robert C. Pearman, Esq.

RCP:rp

ANNE SHULTZ

December 20, 2023

Human Resources Department
South Coast Air Quality
Management District
21865 E. Copley Drive
Diamond Bar, California 91765

Re: Application for Hearing Board Attorney Member

To Whom It May Concern:

Enclosed herewith please find my application for the position of SCAQMD Hearing Board Attorney Member. As detailed in my application, I most recently worked for the SCAQMD as Principal Deputy District Counsel with the District Prosecutor's Office. I greatly enjoyed my work for the SCAQMD and found my position to be incredibly rewarding. I am very proud of the work I completed for the SCAQMD and for the relationships I forged within the Prosecutor's Office, the Hearing Board (including Hearing Board clerks Rosalinda Diaz and Altheresa Rothschild), and District staff. Unfortunately, when I became pregnant with twins and my pregnancy was deemed high-risk, I opted to resign my position. I subsequently took time off to raise my daughters and now feel driven to return to the work I found so incredibly rewarding.

Prior to joining the SCAQMD, I worked for six years as an environmental attorney specializing in air and water quality compliance matters. Throughout my practice, I worked extensively with the SCAQMD in a variety of different contexts including rule development work, Hearing Board matters (including permit appeals, enforcement actions, and more than 100 variance requests), and air permitting matters.

As a result of my extensive experience in working with the SCAQMD, I learned a great deal about the goals, policies, and procedures of the agency. I believe I have the legal skills and agency knowledge required to serve as the Attorney Member of the Hearing Board. I am extremely enthusiastic about the position and look forward to the opportunity for a formal interview.

Respectfully,

Anne Martorano Shultz

Anne Martorano Shultz

Hearing Board Attorney Member

Experience

South Coast Air Quality Management District

Principal Deputy District Prosecutor

November 2003 - August 2005

- Tasked with assisting the Chief Prosecutor in the daily management of the Prosecutor's Office.
- Reviewed the terms and conditions of variance and abatement orders prepared by District Prosecutors and advised on especially consequential cases.
- Attended meetings of the Governing Board and reported back to the Chief Prosecutor on important action items.
- Coordinated with District Counsel on important rule-making matters and anticipated rule changes.
- Represented the District Prosecutor's Office in public hearings and panel discussions throughout the SCAQMD.

Weston, Benshoof, Rochefort, Rubalcava, & MacCuish (now Alston and Bird)

Associate

January 1999 - November 2003

- Counseled public entities and private industry clients on compliance with air quality rules and regulations and assisted clients in the SCAQMD rule-making process.
- Represented public entities and private industry clients before the SCAQMD Hearing Board. Specific responsibilities included counseling clients as to the particular type of coverage required, drafting variance petitions, and attending hearings before the SCAQMD Hearing Board.
- Counseled clients in obtaining necessary air and water permits.
- Counseled clients concerning hazardous release reporting and property remediation matters.
- Counseled clients in connection with Proposition 65 compliance and litigation.

Parker, Milliken, Clark, O'Hara & Samuelian

Associate

January 1997 - November 1999

Summer Associate

Summer 1996

- Assisted in the defense and prosecution of several Superfund and common law cost recovery actions. Participated in all phases of litigation from inception through trial and related appellate work.
- Environmental compliance work included assistance in the cleanup of two separate properties suffering from environmental contamination; also counseled regulated clients concerning hazardous release reporting.



The Honorable Peter A. Nowinski, Federal Magistrate Judge for the Eastern District of California

Judicial Extern

Summer 1995

- Conducted research in a variety of areas including contract and labor law. Attended court hearings, discussed proceedings with Judge Nowinski, and prepared draft opinions.

Education

University of California, Davis School of Law

- *Juris Doctor*: May 1997
- Honors: Received American Jurisprudence Award in Criminal Procedure and Federal Taxation
- Activities: Published article for Environs, the UC Davis Environmental Law & Policy Journal entitled “Protecting Natural Resources Under Scalia’s Incidental Effects Test.”

University of California, Santa Barbara

- *Bachelor of Arts*: June 1994, Graduated with High Honors
- *Majors*: Double major, Business Economics (with an Emphasis in Accounting), and Law & Society

Admitted

- State Bar of California and United States District Court for the Central District of California, December 1997



MOHAN BALAGOPALAN

Mohan Balagopalan

January 5, 2024

Ms. Thomas
Clerk of the Board
South Coast Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765

Dear Ms. Thomas:

I am writing to express my interest in being considered for reappointment as a full-time Hearing Board (HB) Engineering member. Having had the privilege of serving in this position for the past two terms, (2018-2021, & 2021-2024), I am eager to continue contributing my skills and expertise to uphold the principles of justice and fairness following the procedures of the California Health & Safety Code and the Rules and Regulations of South Coast AQMD.

Over the course of my tenure (2018-2024), I have presided over a wide range of cases, including Orders of Abatement, Permit Appeals and Variances (Interim, Short and Regular). My commitment to impartiality, thorough understanding of administrative law and the Rules and Regulations, the permitting process and dedication to upholding the highest standards of ethical conduct have allowed me to make fair and well-informed decisions that respect the rights of all parties involved.

I meet the desirable qualifications to serve as I have an undergraduate degree in Mechanical Engineering and over 37 years of practical engineering experience, 32 years at South Coast AQMD in the Permitting Division, prior to my retirement in 2017. The last four years prior to my retirement, I served as the Senior Permitting Manager for the Mechanical and Chemical teams, and Permit Streamlining & Administration Team. I have also taught classes on air pollution permitting and dispersion modeling at UC Riverside Extension program and at Loma Linda University, School of Public Health.

In my 32 years as a permit engineer/manager I worked with and helped different businesses to understand and comply with SCAQMD's Rules and Regulations. I continue to update my skills and knowledge by attending seminars, webinars, and online courses. I have also taken several courses with the National Judicial College on Ethics and Biases. Lastly, I would like to thank the Governing Board for giving me the opportunity to serve.

Sincerely,

Mohan Balagopalan

Mohan Balagopalan

Encl: Resume

Mohan Balagopalan

Professional Summary

Hearing Board Engineering Member, South Coast AQMD, (July 2018- June 2024). A solid foundation in engineering principles, relevant administrative law, a keen understanding of relevant statutes and rules and regulations and 32 years of permitting experience at South Coast AQMD. Passionate about sharing knowledge and information on air quality issues.

Key attributes that I bring to this role include:

Engineering Expertise: Ability to understand and relate to various engineering issues and problems faced by Petitioners in the cases brought before the Hearing Board.

Analytical Skills: Proven ability to analyze complex issues, weigh evidence objectively, and deliver well-reasoned and impartial decisions.

Communication Skills: Demonstrated ability to listen, ask relevant questions and make motions to grant or deny an Order of Abatement, Variance, or Appeal cases. Responsible for training new board members on the hearing board process and procedures.

Professionalism: A commitment to maintaining the highest standards of professionalism, ethics, and integrity in all aspects of the hearing process, and to render impartial and fair decisions.

WORK EXPERIENCE

Hearing Board Engineering Member, South Coast AQMD, 2018-2024.

Instructor, UCLA Labor Occupational Safety & Health Program-2021-2022.
Modified and updated the online course on Computer-Aided Management of Emergency Operations (CAMEO®).

National Air Compliance Training (NACT) April 2017-June 2018.
Instructor-Air Quality Permitting and Controls at different air pollution agencies outside California.

South Coast Air Quality Management (SCAQMD) 1985 to 2017
Senior Permitting Manager. Worked for 32 years on air quality permitting related activities, of which the last 4 years as a Senior Permitting Manager for the Mechanical and Chemical Permitting teams, Permit Streamlining & Administration teams. Participated in Permit Streamlining Task Force meetings and offered solutions and developed workflows and templates to improve Permit Streamlining.

Instructor, University of California Riverside (UCR), Extension Program, Air Quality Permitting for the Certified Permitting Professionals (CPP) Program, 1989-2018

Education

- ❖ Bachelor of Mechanical Engineering, National Institute of Technology (NIT), Madras University, India, 1978.
- ❖ Master's Business Administration (MBA), Azusa Pacific University, 1985.
- ❖ Certificate, Hazardous Materials Management University of California Riverside, 1987.
- ❖ Certificate in Six Sigma-Yellow Belt, California State University Fullerton.
- ❖ Certificate in Geographic Information System (GIS), ongoing, .University of California Riverside,
- ❖ Online Courses, The National Judicial College, Ethics for Administrative Law Judge and Role of Administrative Law Judge and other courses.

Additional Qualifications/Skills

- ❖ Engineer-in-training license (EIT), 1984.
- ❖ Clinical Instructor, School of Public Health, Loma Linda University, 2012- 2023
- ❖ USEPA Certified instructor on Computer Aided Management of Emergency Operations (CAMEO).
- ❖ University of California, Riverside Extension Design Thinking Advisory Board, 2020
- ❖ Ham Radio Operator, Technician, General, & Amateur Extra licenses, AJ6XF
- ❖ Community Emergency Response Team/Auxiliary Communication Services, City of Rancho Cucamonga. 2019 Ready RC Volunteer of the Year, City of Rancho Cucamonga
- ❖ Climate Realty Leadership Training, Pittsburgh 2017
- ❖ OSHA 40-hour Hazmat Training and 8-hour Supervisory Training, 2017.
- ❖ Board Member & Past President of West Coast Section of Air & Waste Management Association (A&WMA).
- ❖ Past President of Southern California Society of Risk Analysis (SCSRA).
- ❖ Proficient in Microsoft office (Word, Excel, PowerPoint).
- ❖ Working with Geographic Information System (GIS) for mapping and geocoding.

Mohan Balagopalan- List of References

<p>Mr. Ben Sehgal Manager, Compliance & Enforcement, Bay Area AQMD, [REDACTED]</p>	<p>Ms. Jenny Lu, P.E. Environmental Manager (ret'd), Sanmina Corporation [REDACTED]</p>
<p>Finis Carleton Carleton Engineers & Consultants Inc [REDACTED]</p>	

QUINGLING JENNY LU

Qingling Jenny Lu

January 9, 2024

Ms. Thomas
Clerk of the Board
South Coast Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765

Dear Ms. Thomas:

I am interested in serving as the Hearing Board (HB) Engineering Member. I meet the desirable qualifications to serve as I have over 26 years' engineering experience in the environmental field and I have a chemical engineering degree from California State Polytechnic University, Pomona. I worked as a Regulatory Compliance Manager at Sanmina Corporation before I retired in 2018. I am very familiar with SCAQMD rules and regulations. I was a Certified Permitting Profession from SCAQMD and a Professional Engineer when I worked at Sanmina Corporation.

I believe that my 26 years as a regulatory compliance manager understanding and complying with SCAQMD's Rules and Regulations should make me an effective member of the HB. I had participated in SCAQMD rule making process. As a result, my suggestion was adopted into Rule 219 by SCAQMD engineers.

I believe in fairness. From the business / public point of view, I understand that we need to comply with rules and regulations. Yet, the rules and regulations should be reasonable and feasible. I also understand from the regulator point of view that rules and regulations are made for the good of the public and businesses should comply with them. Because my experience working with SCAQMD staffs and understanding both business and SCAQMD point of view, I believe that I could be a fair HB member.

My enclosed resume will give you a better understanding of my background and skills.

Sincerely,

Qingling Lu

Qingling Jenny Lu

Encl: Resume

QINGLING JENNY LU

OBJECTIVE

To utilize my experience and special skills towards a challenging position.

KEYWORD SUMMARY

Highly motivated, more than 26 years engineering experience in environmental field, work well with people, have very good working relationship with regulatory agencies, excellent communication skills, extensive knowledge and experience in environmental and safety management, and computer savvy.

- Established and managed worldwide ISO14001 system (50 facilities);
- Experienced in managing the environmental and safety department;
- Familiarization with the South Coast Air Quality Management District's Rules and Regulations and applying them into the daily practice;
 - Assisted in development of Rule 219;
- Analyze Federal, State and Local regulations;
- Work with attorneys regarding real estate transitions and ground water issues.

EXPERIENCE

Southern California SCUT Alumni

03/06 – present

Board Director

- Organize and attend events;
- Work at the events;
- Attend board member meetings;
- Assist alumni with their needs when needed

Sanmina-SCI Corporation, Costa Mesa, CA

08/91 – 03/18

Regulatory Compliance Manager

Responsible for environmental and safety compliance

- Managed the environmental and safety department.
- Prepared and submit all air quality permit applications to South Coast Air Quality Management District;
- Obtained all other necessary regulatory permits from the city, county, state and federal agencies;
- Successfully interfaced with all regulatory agencies to build a friendly working relationship with their representatives to insure ease of process;
- Prepared and submitted air emission reports, waste waster discharge reports, waste disposal reports and all other environmental regulatory reports;
- Engineering designed air emission control equipment and wastewater treatment systems and seeing projects through installation;
- Established, implemented and managed ISO 14001 Environmental Management System worldwide (more than 50 facilities):
 - ISO 14001 Certification in less than a year;
 - Provided on-going trainings and guidance to all facilities.

Managing facility closure and ground water clean-up projects.

- Oversaw facility closure projects, managing contractors during building demolition, obtaining necessary permits, and hazardous waste disposal;
- Strategized with consultants in ground water clean up project, including meetings with the Water Quality Control Board, site visits, and clean-up approval;

EDUCATION

- Bachelor of Science, Chemical Engineering from California State Polytechnic University, Pomona, CA (1991)
- Certificate of Hazardous Material Management from University of California, Irvine, CA (1994)
- Numerous environmental and safety management trainings, including extensive air pollution control trainings.

AFFILIATIONS

Board Member of Southern California SCUT Alumni.

ROBERT PEASE

15 November 2023

Clerk of the Boards
SCAQMD
21865 Copley Drive
Diamond Bar, CA 91765

Good Day,

Attached is my resume and application for the regular Engineer position on the SCAQMD Hearing Board. My unique portfolio of air quality experience, planning and government experience, and education make me an ideal candidate for this position. My education includes a Bachelor's and Master's Degree in Chemical Engineering as well as an MBA Degree. I am also a licensed professional Chemical Engineer in the state of California.

Prior to joining the SCAQMD in 1983 as an Engineer I, I worked in private consulting writing research reports for the Electric Power Research Institute, leading field source test teams, and directing laboratory testing on new and innovative technology. My SCAQMD experience includes positions in permitting, compliance, rule development, small business assistance, technology advancement, air toxics, and planning. I managed the original contract on market-based approaches that led to the RECLAIM program. While directing the small business assistance group, I established satellite field locations to facilitate the permitting requirements for small businesses. My rule development work included developing and amending command and control, fee, and NSR rules. My permitting experience included reviewing applications and managing permit processing teams. I also helped prepare cases for and testified before the SCAQMD Hearing Board.

As the Chairman of the City of Yorba Linda Planning Commissioner, I participate in and chair public meetings, events, and workshops; serve as an ambassador for the city; and facilitate community input and involvement in formal public hearings. As part of a five-member body, I work collaboratively with my fellow commissioners on our review of proposed projects. Through my affiliation, I have received additional training and experience in land use issues, planning, and CEQA requirements. Serving on the commission requires community outreach, research, and detailed preparation for and review of each item on our agenda.

My responsibilities as the Renewable Energy Program Manager for the County of Orange, Orange County Waste and Recycling, encompassed air quality permitting and compliance activities at the landfills. Moreover, I prepared and filed variance petitions, as well as testified before the SCAQMD Hearing Board in support of the variance applications. Further, I developed and managed renewable energy projects to ensure the beneficial use of landfill gas while minimizing the environmental footprint. These efforts required a deep technical and engineering background as well as an in-depth knowledge of the SCAQMD permitting process, current and proposed rules, and hearing board procedures.

My background and experience have provided me with an excellent platform to perform successfully as the Engineer member of the Hearing Board. I'm excited at the possibility of applying my considerable expertise and experience to help the Hearing Board work through its complex cases.

Thank you for your consideration of my application and I look forward to hearing from you.

Sincerely,



Robert R. Pease II

Education:

- MBA, Cal Poly Pomona, June 2006 (overall GPA 3.90)
- Master of Engineering, Cal Poly Pomona
- B.S. (Cum Laude) Chemical Engineering, Cal Poly Pomona
- Additional professional education in land use planning, CEQA, tax, ethics, accounting, supervision, management, and communication

Selected Accomplishments:

- Responsible for air quality permitting and rule compliance including variances for County of Orange Landfills. Developed Renewable Energy Guidelines for County of Orange Landfills.
- Responsible for budget projections, contract monitoring and performance, development of project parameters and timelines, and preparation of contracting documents for County of Orange Landfills.
- Supervised/Managed staff responsible for air quality permitting, compliance, and rule development relating to resource recovery projects including LFG-to-energy projects
- Performed legislative outreach/lobbying with local and state elected officials, consultants, and lobbyists on behalf of a public agency on pending and proposed legislation. Testified before state senate subcommittees.
- Managed SCAQMD Small Business Assistance Office. Successfully created and opened small business assistance satellite offices in Los Angeles, Downey, and Palm Desert.
- Developed innovative inventory technique for quantifying area source emissions using statistical analysis methods. Protocol maximized data collection and minimized staff requirements.
- Researched, investigated and reported on new technology that can be applied to industrial sources. Investigation included foreign travel, cost estimation, cost/benefit analysis, PV/NPV/DCF and industry outreach.
- Published over 20 articles in professional journals.

Experience:

Consultant
April 2015 to August 2019
& August 2021 to present

Robert R. Pease II
Yorba Linda, CA

Renewable Energy Development Manager
February 2020 to August 2021

County of Orange
Orange County Waste & Recycling
Santa Ana, CA

Tax Auditor
August 2019 to February 2020

State of California
Irvine, CA

Planning Commissioner
January 2014 to present

City of Yorba Linda
Yorba Linda, CA

Program Supervisor
May 1983 to April 2015

South Coast Air Quality Management District
Diamond Bar, CA

Professional Affiliations:

Beta Alpha Psi
Beta Gamma Sigma
Tau Beta Pi

MARIA SLAUGHTER

DR. MARIA WILLIAMS-SLAUGHTER



PROFESSIONAL OVERVIEW

Results-oriented executive with several years of demonstrated success in operational administration. Possesses the vision necessary to develop and implement action plans, the experience to build and lead effective teams, and the drive and dedication to ensure successful and sustainable outcomes. Characterized as a creative, intuitive, and decisive leader with excellent problem solving, communication, negotiation, and team-building skills. Interacts well with diverse individuals and groups. Combines exceptional technical qualifications with outstanding administrative capabilities to effectively direct and continuously improve varied and critical functions.

EDUCATION

Doctor of Education

California State University Long Beach

Major Field: Educational Leadership

Dissertation Title: Engaging in Synergy: Translating the Blue Skies of Effective Administrative Resource Management into Sustainable Implementation and Continuous Improvement

Master of Business Administration

Pepperdine University

Major Field: Business

Master of Science

Loyola Marymount University

Major Field: Civil Engineering

Bachelor of Science

California State University Northridge

Major Field: Mechanical Engineering

CERTIFICATIONS

California SB-Micro

Federal DBE

Local MBE and SBE

Certified Energy Manager

Six Sigma Black Belt

Six Sigma Green Belt

Educational Facilities Professional

5S Champion

Apprentice Craft Instructor

Project Management Professional

AWARDS, DISTINCTIONS AND RECOGNITION

LACBPE Phenomenal Woman in Science, Technology, Engineering and Mathematics (STEM) Award

W.E. Deming Institute Annual Conference Scholarship Award

Goldman Sachs 10,000 Small Businesses Program Scholar

YWCA Leadership Award

State of California 2020 Citizen's Redistricting Commission Finalist

County of Los Angeles 2020 Citizen's Redistricting Commission Finalist

CAREER SYNOPSIS

I have long had a passion for listening and learning, an appreciation of connectedness, and a boundless curiosity. These traits, coupled with the importance that I place on professionalism, honesty and integrity have guided my non-traditional career path and have been instrumental in the successes I have attained across a wide variety of functions within a broad spectrum of organizations.

I have acquired several years of experience leading organizations operating under for-profit and non-profit fiscal parameters, holding responsibility for accounting, budget, construction, customer service, environmental health and safety, facility maintenance, fleet, grounds, human resources, information technology, maintenance and operations, park services, payroll, public works, purchasing, sustainability, traffic / transportation, utilities, and warehouse operations. I have also personally overseen hundreds of technical, administrative, salary and hourly employees, and managed general and special fund budgets in excess of \$200 million.

As I reflect on my career, the accomplishments that I am most proud of fall into three categories: Resource Management, Building High Performance Organizations, and Innovation/Collaboration.

Resource Management points to my ability to understand the current state, determine the needs and wants of an organization, develop priorities and action plans to address deficiencies, and ensure the availability and stewardship of resources.

Building High Performance Organizations describes my focus on expanding the capabilities of an organization by providing a challenging yet supportive work environment; fostering cooperation and alignment among various partners, encouraging development and career advancement; and supporting a diverse work force.

Innovation and collaboration highlight my strength in identifying connections; thinking outside the box to improve processes; anticipating and responding to opportunities created by change; establishing approaches that are designed to ensure continuous improvement.

ADMINISTRATIVE EXPERIENCE

Hearing Board Engineer Member Alternate (3-year appointment, July 2021 – June 2024)
South Coast Air Quality Management District

The South Coast Air Quality Management District (SCAQMD) South Coast AQMD is the regulatory agency responsible for improving air quality for more than 17 million people across Los Angeles, Orange County, Riverside and San Bernardino counties. The Hearing Board is a quasi-judicial panel authorized to provide relief from SCAQMD regulations under certain circumstances.

Founder / Owner (November 2015 – Present)
MWS & Associates

MWS & Associates is a California certified Small Business (SB-Micro) and a Federally certified Disadvantaged Business Enterprise (DBE) that provides a wide range of B2B and B2G consulting services.

Selected Accomplishments

- Secured more than \$750,000 in additional revenue for peer small businesses
- Develop business plans and facilitated a variety of certifications for Socially and Economically Disadvantaged Individual (SEDI) Businesses
- Increased the productivity of manufacturing facilities in California, Connecticut and Rhode Island by 30%
- Provided Six Sigma Training, Certification and Support to the Department of Transportation

Special Consultant (January 2012 – Present)
California State University System, Office of the Chancellor

The Office of the Chancellor is the oversight body for the 23 campuses within the California State University System that educates 470,000 students with a budget totaling \$5 billion.

Responsibilities and Selected Accomplishments

- Handle a myriad of tasks in a variety of arenas including but not limited to evaluating issues and determining the optimal strategies that should be implemented in order to improve resource utilization
- Developed the Strategic Plan for the Council of Police Chiefs
- Developed curriculum and facilitated several 2-day Process Improvement Workshops for administrative employees working in the California higher education system (CSU, UC and CCC)
- Assisted with the systemwide GAAP Audit and the budget allocation process
- Member, Quality Improvement Consortium
- Member, Procure to Pay / Shared Services Task Force

OPERATIONAL EXPERIENCE

Deputy Director, Operations & Maintenance (2021 - present)

Long Beach Community College District

Long Beach Community College is one of the largest colleges in the California Community College System. The two-campus district has a student population of over 34,000, a 2020/2021 budget of approximately \$305 million and a \$850 million bond program.

Responsibilities and Select Accomplishment

- Responsible for ensuring efficient academic and administrative operations by managing the resources associated with the security, maintenance and repair of District facilities, grounds, and equipment
- Oversees Special Events and Stadium Operations
- Oversees Business Services (Human Resources and Budget)
- Provides high level support to the Senior Director, Bond Management Team and Facilities Projects Team.
- Co-Chair, Inclusive and Culturally Affirming Campus Art Workgroup
- Secured over \$1.1 million in grant funds focused on sustainability and enhancing infrastructure

Director of Public Works (January 2015 – March 2020)

City of Carson, California

The City of Carson, California is a community of approximately 93,000 located within an area of 19 square miles. Carson contains 263 lane miles, is essentially bound by 4 freeways, and impacts 3 watersheds. Carson is governed by the Mayor and four Council members and operated under general law from 1968 until 2019 when it became a Charter City. The City's 2019/20 annual budget was approximately \$94 million.

Responsibilities and Selected Accomplishments

- Responsible for providing the community with a safe, clean, and healthy environment through the design, construction, maintenance, and management of the vital municipal infrastructure system
- Oversaw 140 employees (45% of the City's full-time staff)
- Responsible for Business Services (Human Resources, Payroll, Contracts, Budget)
- Provided high level support to the City Manager's Office.
- Developed a new fee structure for the pipeline franchise, increasing annual revenue by 100%
- Transitioned the community to a new 15-year comprehensive solid waste franchise agreement
- Assisted in structuring the City's initial Development Impact Fee
- Initiated Citywide participation in the Clean Power Alliance Community Choice Aggregation at 35%renewables
- Completed a \$22 million downtown revitalization project
- Selected and implemented a new Computerized Maintenance Management System
- Attained SCE Energy Leadership Program Platinum status
- Received Cool Planet Award
- Developed and facilitated PW Compendium training
- Secured more than \$30 million dollars in state and federal grants within a two-year period
- Oversaw the Public Works Commission and the Beautification Commission
- Established infrastructure baseline metrics (Pavement Management Study, Sidewalk Assessment)
- Instituted first ever Environmental Resources Fair

- Implemented A/E contractor pools
- Completed reclaim water installations at two parks
- Transitioned over 2,000 streetlights and park lights to LED
- Initiated bulk fuel gas cards
- Created sustainability administrator positions
- Secured an SCAQMD MRSC grant for 5 Electric Vehicles and two charging stations
- Initiated a fleet audit and replacement plan
- Secured a Cal Fire Grant to plant 1,200 new trees
- Established a deferred maintenance surcharge on building rental fees
- Presenter, “Greater South Los Angeles Water Tour,” Our Water LA
- Presenter, “GPS Your Future,” International Trade Education Program
- Presenter, “Strategies for Success,” American Public Works Association, Institute
- Presenter, Quality in Practice, Carson Toastmasters
- Member, Community Facilities District Formation Team
- Member, Legislative Advocacy and Grant Writing Team
- Member, Measure M and R Bond Financing Team
- Member, South Bay Council of Governments (SBCOG) Infrastructure Working Group
- Member, South Santa Monica Bay Watershed Area Steering Committee
- Member, LA Metropolitan Transportation Authority (LA Metro) Technical Advisory Committee

Director, Physical Planning and Facilities Management (January 2010 – January 2015)

Associate Director, Physical Planning and Facilities Management (January 2008 – December 2009)

Assistant Director, Physical Planning and Facilities Management (January 2007 – December 2007)

California State University Long Beach

California State University Long Beach is one of the 23 campuses within the CSU System. It is a 322-acre campus, serving 36,000 students, staff and faculty with a budget exceeding \$150 Million.

Responsibilities and Selected Accomplishments

- Oversaw Physical Planning and Facilities Management - the largest non-academic department
- Involved with capital projects from concept through construction, operations, and maintenance
- Responsible for the Central Plant
- Managed sustainability
- Served in dual Director roles for two years (Director of PPFM and Director of Environmental Health and Safety).
- Oversaw Business Services (IT, Purchasing, Payroll, Budget and Human Resources)
- Established the campus wide chargeback methodology for utilities and non-routine services
- Developed and initiated a groundbreaking Apprenticeship program
- Enhanced Temporary to Permanent tracking methodology to ensure equity
- Initiated the first departmental ESL class to promote diversity and inclusion
- Revamped the budgeting process to ensure accountability
- Conducted initial shop safety assessment
- Developed campus tree removal and replacement program
- Oversaw daily operations and all short- and long-term maintenance and construction at the Miller House / President’s residence
- Initiated a key control process that led to increased public safety
- Systemwide Quality Award
- Presenter, “Selecting a Computerized Maintenance Management System,” Synergy by the Bay

- Panel Moderator, CSU Annual Compliance Conference
- Member, Campus Planning Committee
- Member, Utility Optimization Task Force
- Member, Information Technology Task Force

Operations and Maintenance Director (November 1998 - January 2007)

Environmental Manager (November 1997 – November 1998)

RR Donnelley & Sons

RR Donnelley & Sons was the nation's largest printing company. Customers included Sports Illustrated, Time, and People Magazine. The plant had 500 employees and operated 24 hours per day, 7 days per week.

Responsibilities and Selected Accomplishments

- Led the Technical Resources Team which included Engineering, Warehouse, Building Maintenance, Utilities, and Environmental Health and Safety.
- Saved \$1 million in potential remediation costs
- Conceptualized, planned, and successfully executed an Open House and Awareness Fair for over 1,500 customers, co-workers, and their families
- Facilitated a 40% reduction in solid waste generation which was the impetus for nine consecutive awards from the California Integrated Waste Management Board
- Implemented the Shadow an Engineer Program
- Developed a utilities strategic plan
- Managed the Cogeneration Plant
- Managed a \$15 million dollar equipment replacement project that was completed on time and under budget
- Mentor, Reserve Development Committee
- Panel Moderator, Printing Industries of America Annual Conference
- Regular Contributor, "The Printers Point"
- Inclusion Ambassador
- Member, Diversity Council
- Member, Safety Committee

Member of the Technical Staff (1993 – 1997)

Environmental Health and Safety Intern (1992-1993)

Rockwell International, Rocketdyne Division

Rockwell International was a major American manufacturing conglomerate that was involved in aircraft, the space industry, both defense-oriented and commercial electronics, automotive and truck components, printing presses, power tools, valves and meters, and industrial automation. Rocketdyne was an American rocket engine design and production company that was part of Rockwell International from 1967 through 1997.

Responsibilities and Selected Accomplishments

- Responsible for ensuring air quality compliance
- Received a Special Achievement Award for asbestos remediation at two campuses
- Reduced OSHA recordable rate by 5% and lost time incidents by 25%
- Successfully led the compliance efforts for all air quality programs in two compliance districts
- Wrote the operating manual for the Canoga Wastewater Treatment Plant
- Member, Rockwell Organization for Women

Junior Electrical Estimator (1991-1992)

Transpac Fiber Optics & Telecommunication

Transpac was a company focused on designing, engineering, and implementing cabling media and supporting hardware in the field of telecommunications.

I was responsible for quantifying resource needs associated with construction bids specifically related to CSU Los Angeles and the Staples Center.

Construction Project Management Intern (1990-1991)

Motion Picture and Television Fund

The Motion Picture and Television Fund is a charitable organization that aids those in the industry by way of a retirement community, a long-term care facility and an acute-care hospital.

I was responsible for managing grounds and maintenance, serving as a liaison to external agencies and supporting the Construction Manager.

Production Intern (1988-1990)

Union Oil Company (Unocal)

Unocal was a major petroleum explorer and marketer from the late 19th century, through the early 21st century.

I worked in the oil fields and offshore and was responsible for developing electrical allocation factors, measuring casing pressure for vapor recovery systems, pulling pipes to refresh wells, inventorying equipment, and developing a restart plan for Platform Edith.

BOARD MEETING DATE: June 7, 2024

AGENDA NO. 9

PROPOSAL: Approve Contract Award as Approved by MSRC

SYNOPSIS: As part of their FYs 2016-18 Work Program, the MSRC approved a contract with the City of Paramount under their Local Government Partnership Program. The MSRC seeks Board approval of the contract award as part of the FYs 2016-18 Work Program.

COMMITTEE: Mobile Source Air Pollution Reduction Review, May 16, 2024;
Recommended for Approval

RECOMMENDED ACTIONS:

1. Approve a contract with the City of Paramount, in an amount not to exceed \$42,686, to complete installation of publicly accessible electric vehicle charging infrastructure under the Local Government Partnership Program, using funds previously awarded to the City, as part of approval of the FYs 2016-18 Work Program, as described in this letter; and
2. Authorize the Chair of the Board (or by the Board Chair's designation, the Executive Officer) to execute the contract under the FYs 2016-18 Work Program, as described above and in this letter.

Larry McCallon
Chair, MSRC

AK:CR

Background

In September 1990, Assembly Bill 2766 (AB 2766) was signed into law under Health & Safety Code Sections 44220-44247, authorizing an annual \$4 motor vehicle registration fee to fund the implementation of programs exclusively to reduce air pollution from motor vehicles. AB 2766 provides that 30 percent of the annual \$4 vehicle registration fee subvented to the South Coast AQMD be placed into an account to be allocated pursuant to a work program developed and adopted by the MSRC and approved by the Board.

Proposals

At its May 16, 2024 meeting, the MSRC considered recommendations from the MSRC Technical Advisory Committee (MSRC-TAC) and approved the following:

FYs 2016-18 Local Government Partnership Program

As part of the FYs 2016-18 Local Government Partnership Program, the MSRC originally awarded \$72,580 to the City of Paramount to install a total of five charging stations: two public-access stations and three limited-access stations. The City subsequently requested to reduce the project's scope, decreasing the number of stations from five to three and making all three stations publicly accessible, with a corresponding value reduction to \$64,675. The City completed installation of two stations. However, the contract was terminated prior to the City submitting a final report and invoice. The MSRC considered and approved a six-month contract for the two stations in an amount not to exceed \$42,686 as part of the FYs 2016-18 Work Program, using a portion of the funds from the earlier contract. The other \$21,989 will revert to the AB 2766 Discretionary Fund.

At this time, the MSRC requests the South Coast AQMD Board approve the contract award as part of approval of the FYs 2016-18 Work Program as outlined above.

Resource Impacts

South Coast AQMD acts as fiscal administrator for the AB 2766 Discretionary Fund Program (Health & Safety Code Section 44243). Money received for this program is recorded in a special revenue fund (Fund 23) and the contract specified herein will be drawn from this fund.

[↑ Back to Agenda](#)

BOARD MEETING DATE: June 7, 2024

AGENDA NO. 10

REPORT: Legislative, Public Affairs and Media Report

SYNOPSIS: This report highlights the April 2024 outreach activities of the Legislative, Public Affairs and Media Office, which includes Major Events, Community Events/Public Meetings, Environmental Justice Update, Speakers Bureau/Visitor Services, Communications Center, Public Information Center, Small Business Assistance, Media Relations, and Outreach to Community Groups and Federal, State and Local Governments.

COMMITTEE: No Committee Review

RECOMMENDED ACTION:
Receive and file.

Wayne Natri
Executive Officer

AL:DS:cb:bel:sr

Background

This report summarizes the activities of the Legislative, Public Affairs and Media Office for April. The report includes Major Events, Community Events/Public Meetings, Environmental Justice (EJ) Update, Speakers Bureau/Visitor Services, Communications Center, Public Information Center, Small Business Assistance, Media Relations, and Outreach to Community Groups and Governments.

Major Events (Hosted and Sponsored)

Each year, staff engage in hosting and sponsoring several major events throughout South Coast AQMD's four-county jurisdiction to promote, educate, and provide important information to the public regarding reducing air pollution, protecting public health, and improving air quality while minimizing economic impacts.

34th Annual Clean Air Awards

On April 5, South Coast AQMD hosted the 34th Annual Clean Air Awards to honor community leaders, organizations and businesses who have made outstanding clean air contributions to improve the health of our communities and the economy. Spectrum News 1 Meteorologist Autumn Robertson served as the emcee.

This year's awardees included:

- S. Roy Wilson Memorial Award for Leadership in Government – Los Angeles City Council President Paul Krekorian
- Robert M. Zweig, M.D. Memorial Award – Congressman Raul Ruiz, M.D.
- Dr. William A. Burke Award for Leadership in Environmental Justice – California Attorney General Rob Bonta
- John J. and Ben J. Benoit Award for Innovative Clean Air Technology – Schneider National, Inc.
- Leadership in Air Quality Award – Center for Environmental Research & Technology at University of California, Riverside,
- Leadership in Air Quality Award – Los Angeles City Councilmember Monica Rodriguez
- Youth Leadership in Air Quality Award – Emily Ng, Los Angeles County Youth Climate Commission

Earth Day Webinars

On April 19, staff held Clean Air Program for Elementary Students (CAPES) and Why Healthy Air Matters (WHAM) Earth Day webinars for approximately 520 students in South Coast AQMD's region. A total of 14 elementary schools with 17 classrooms, and nine high schools with nine classrooms, registered to participate in the educational events.

Community Events/Public Meetings

Staff engaged with residents and stakeholders of diverse communities to provide information about the agency, incentive programs, and ways individuals can help reduce air pollution, through events and meetings sponsored by South Coast AQMD or in partnership with others. Attendees typically receive information regarding the following:

- Tips on reducing their exposure to smog and its negative health effects;
- How to file a complaint;
- Clean air technologies and their deployment;
- Invitations to or notices of conferences, seminars, workshops, and other public events;
- South Coast AQMD incentive programs;
- Funding/grant opportunities by South Coast AQMD and partner agencies;
- Ways to participate in South Coast AQMD's rules and policy development; and
- Assistance in resolving air pollution-related problems.

Staff attended and/or provided information and updates at the following April events and meetings:

San Gabriel Valley Council of Governments

On April 2, staff provided program updates at the San Gabriel Valley Council of Governments, Energy, Environment & Natural Resources Committee meeting on the Volkswagen (VW) Mitigation Trust fund opportunities, CEC Communities in Charge Program, and the 34th Annual Clean Air Awards.

Arroyo Verdugo Communities Joint Powers Authority

On April 2, staff attended Arroyo Verdugo Communities Joint Powers Authority's Governing Board meeting to provide information on the VW Mitigation Trust fund opportunities, 34th Annual Clean Air Awards, CAPES, and WHAM programs, and Earth Day virtual events.

San Bernardino County Transportation Authority

On April 4, staff participated in the San Bernardino County Transportation Authority's City Manager Technical Advisory Committee meeting extending an invitation to attendees to the 34th Annual Clean Air Awards, and to provide information on the VW Mitigation Trust fund opportunities.

Discovery Cube Science Museum

On April 6, staff hosted a booth at Discovery Cube Los Angeles' Earth Day event, to share information on South Coast AQMD, air quality, tips on how to help clean the air, CAPES and WHAM programs, how to file complaints, the South Coast AQMD Mobile App, and residential incentive programs.

South Pasadena Sustainability Fair

On April 6, staff participated in the South Pasadena Sustainability Fair, to provide community members information on South Coast AQMD and air quality, tips on how to help clean the air, CAPES and WHAM programs, how to file complaints, the South Coast AQMD Mobile App, and residential incentive programs.

Orange County Business Council

On April 9, staff attended the Orange County Business Council's Infrastructure Committee meeting, to thank the organization for providing a letter of support for South Coast AQMD's Climate Pollution Reduction Grant (CPRG) application, submitted to U.S EPA, and to share the latest South Coast AQMD Advisor newsletter.

South Pasadena Chamber of Commerce

On April 10, staff participated in the South Pasadena Chamber of Commerce's Legislative Affairs Committee meeting, to thank the organization for providing a letter of support for South Coast AQMD's CPRG application submitted to U.S EPA, and to share the latest Advisor newsletter.

Upland Chamber of Commerce

On April 11, staff participated virtually in the Upland Chamber of Commerce's Government Affairs Committee meeting, to provide information on the Commercial Electric Lawn and Garden Equipment Incentive and Exchange program.

Riverside Chamber of Commerce

On April 12, staff participated virtually in Riverside Chamber of Commerce's Government Affairs Committee meeting, to present updates regarding the VW Mitigation Trust Fund opportunities and the CEC Communities in Charge Program.

Earth to Table

On April 17, staff hosted a booth at Rialto's Earth to Table event, to provide information on South Coast AQMD and air quality, how to file complaints, the South Coast AQMD Mobile App, and current incentive programs.

Whittier Transportation Fair

On April 17, staff attended the Whittier Transportation Fair, to share information on Replace Your Ride, how to file complaints, the South Coast AQMD Mobile App, and incentive programs for vehicles.

Harbor Association of Industry and Commerce

On April 18, staff attended the Harbor Association of Industry and Commerce's Government Affairs Committee meeting to conduct outreach for the PM2.5 Plan regional public hearings.

Inland Empire Utilities Agency

On April 18, staff hosted a booth at the Inland Empire Utilities Agency's Earth Day event, to share information on South Coast AQMD and air quality, tips on how to help clean the air, how to file air complaints, Replace Your Ride, and the residential Electric Lawn Mower Rebate program.

Diamond Bar Earth Day Celebration

On April 20, staff participated in Diamond Bar's Earth Day Celebration, to provide information on South Coast AQMD and air quality, tips on how to help clean the air, how to file complaints, Replace Your Ride, and residential Electric Lawn Mower Rebate program.

Earth Day Everyday

On April 20, staff participated in the Citizen's Climate Lobby Earth Day Everyday event in Cerritos, to provide information including tips on how to help clean the air, Replace Your Ride, residential Electric Lawn Mower Rebate program, and the South Coast AQMD Mobile App.

7th Annual Eco-Friendly Fair

On April 20, staff hosted a booth at Paramount's 7th Annual Eco-Friendly Fair, to provide information on how to file complaints, tips on how to help clean the air, Replace Your Ride, and residential Electric Lawn Mower Rebate program.

Earth Day Celebration

On April 20, staff participated in Moreno Valley's Earth Day Celebration, to share information on how to file complaints, Replace Your Ride, residential Electric Lawn Mower Rebate program, and the South Coast AQMD Mobile App.

Bolsa Chica Conservancy

On April 21, staff hosted a booth at the Bolsa Chica Conservancy's Earth Day event, to provide information on South Coast AQMD and air quality, how to file complaints, tips on how to help clean the air, the South Coast AQMD Mobile App, Replace Your Ride, and residential Lawn Mower Rebate program.

California State University, Dominguez Hills

On April 23, staff hosted a booth at California State University, Dominguez Hills' Earth Day Festival, to provide information on South Coast AQMD and air quality, how to file complaints, tips on how to help clean the air, the South Coast AQMD Mobile App, Replace Your Ride, and other programs.

Fullerton College

On April 24, staff participated in California State University, Fullerton's Earth Day event, to provide information on South Coast AQMD and air quality, how to file complaints, tips on how to help clean the air, the South Coast Mobile App, Replace Your Ride, and other programs.

South Bay Cities Council of Governments

On April 25, staff participated in the South Bay Cities Council of Governments' Board of Directors meeting, to provide updates on the upcoming Wilmington/Carson/West Long Beach AB617 Community Steering Committee meeting, and regional hearings for the PM2.5 Plan.

Orange County Council of Governments

On April 25, staff provided an update at the Orange County Council of Governments' Board of Directors meeting, with regard to an \$8 million state grant for a zero-emission technology demonstration project in partnership with Balboa Island Ferry.

Chino Corn Feed Run

On April 27, staff attended the Chino Corn Feed Run car show, hosting a booth and display of a clean air vehicle. Staff shared information on Replace Your Ride, how to file complaints, and Small Business Assistance.

Echo Park Earth Day Fest

On April 27, staff participated in the Echo Park Earth Day Fest in Los Angeles, to share information on how to file complaints, Replace Your Ride, and the residential Electric Lawn Mower Rebate program.

Greater Wilshire Neighborhood Earth Day

On April 27, staff participated in the Greater Wilshire Neighborhood Earth Day in Los Angeles. Staff provided a booth to share information on South Coast AQMD and air quality, how to file complaints, the South Coast AQMD Mobile App, Replace Your Ride, and the residential Electric Lawn Mower Rebate program.

Active Streets

On April 28, staff participated in Active Streets: Mission-to-Mission event hosted by LA Metro, San Gabriel Valley Council of Governments and the cities of Alhambra, San Gabriel and South Pasadena. Staff hosted a booth to provide information on South Coast AQMD and air quality, how to file complaints, the South Coast AQMD Mobile App, Replace Your Ride, and the residential Electric Lawn Mower Rebate program.

Spheres of Sustainability Summit

On April 30, staff participated in the Hispanic Coalition of Small Businesses Spheres of Sustainability Summit, to provide information on SBA services, the Commercial Electric Lawn and Garden Equipment Incentive and Exchange program, and other incentive programs.

Environmental Justice Update

The following are key EJ-related activities that staff participated in during April. These events and meetings involve communities affected disproportionately from adverse air quality impacts.

Pacoima Community Initiative

On April 12, staff participated in the Pacoima Community Initiative's monthly meeting held at the Serra Medical Center in Sun Valley. Staff shared information on the CAPES and WHAM programs, how to report complaints, the South Coast AQMD Mobile app, and other programs.

9th Annual Environmental Justice and Enforcement Symposium

On April 24, staff participated in the 9th Annual Environmental Justice and Enforcement Symposium. This year's focus was on environmental laws and practices that reduce pollution, and protect overburdened communities, including a presentation on South Coast AQMD's Rule 2305: Warehouse Actions and Investments to Reduce Emissions.

Speakers Bureau/Visitor Services

South Coast AQMD regularly receives requests for staff to speak on air quality-related issues from a wide variety of organizations, such as trade associations, chambers of commerce, community-based groups, schools, hospitals, and health-based organizations. South Coast AQMD also hosts visitors from around the world who meet with staff on a wide range of air quality issues.

Hope International University

On April 11, staff presented an overview on South Coast AQMD and air quality issues to Hope International University students. The students also toured the laboratory and a display of electric vehicles, as well as charging and fueling stations.

California State Polytechnic University

On April 12, staff hosted a laboratory tour for students from California State Polytechnic University, Pomona. Students also learned about South Coast AQMD, air quality issues, and potential career opportunities.

Chinese Ministry of Ecology and Environment

On April 12, staff presented to a delegation from the Chinese Ministry of Ecology and Environment on South Coast AQMD's AQMP, MATES VI, and an overview of the permit process. Staff also hosted a tour of the laboratory.

Energize SoCal 2024

On April 24, staff participated in a panel at the Energize SoCal 2024: Sustainable Energy and Mobility Summit organized by the Chino Valley Chamber of Commerce. Topics presented included incentive programs and the path to an energy efficient economy.

Communication Center Statistics

The Communication Center handles calls on South Coast AQMD's main line, 1-800-CUT-SMOG®, the Spanish line, and after-hours calls to those lines. Total calls received in the month of April are summarized below:

Calls to South Coast AQMD's Main Line and 1-800-CUT-SMOG®	2,777
Calls to South Coast AQMD's Spanish Line	21
Clean Air Connections	2
Total Calls	2,800

Public Information Center Statistics

The Public Information Center (PIC) handles phone calls and assists individuals who walk in for general information. Email advisories provide information on upcoming meetings and events, program announcements and alerts on time-sensitive issues.

Information for the month of April is summarized below:

Calls Received by PIC	26
Calls to Automated System	163
Total Calls	189
Visitor Transactions	135
Email Advisories Sent	17,043

Small Business Assistance

South Coast AQMD notifies local businesses of proposed regulations so they can participate in the agency's rule development process. South Coast AQMD works with other agencies and governments to identify efficient, cost-effective ways to reduce air pollution and shares that information broadly. Staff provided personalized assistance to small businesses over the telephone, at South Coast AQMD headquarters and via virtual on-site consultation, as summarized below for April.

- Provided permit application assistance to 259 companies.
- Processed 138 Air Quality Permit Checklists.

Types of businesses assisted:

Auto Body Shops	Dry Cleaners
Manufacturing Facilities	Warehouses
Beauty Salons	Construction, Architecture, Engineering
Offices	Restaurants

Media Relations

The Media Office handles all South Coast AQMD outreach and communications with television, radio, newspapers and all other publications, and media operations. The April report is listed below:

Major Media Interactions	115
Press Releases	12
News Carousel	3

Major Media Topics:

- **State of the Air Report (SOTA):** Staff participated in an interview with ABC7 to discuss air quality improvements. KVCR requested information on emissions reductions in light of the SOTA report. Response was provided.
- **U.S. EPA Emission Standards:** The Press-Telegram requested a statement on U.S. EPA's new emission standards for trucks and other heavy-duty vehicles. Response was provided.
- **EPA Contingency Measure Plan (CMP) Deadline:** Bloomberg Law requested a comment on U.S. EPA's proposed disapproval of CMP. Response was provided.
- **Warehouse Indirect Source Rule (ISR):** Babaco News requested a quote for a newsletter article on the Warehouse ISR. Response was provided.
- **Dust in La Quinta:** The Coachella Valley Independent asked questions about a construction site known as Talus Development in La Quinta. Response was provided.
- **Quemetco/Ecobat:** Public Health Watch requested details on the facility's Title V permit. Response was provided. Reporter followed up with questions about Quemetco's 2015 Health Risk Assessment. Reporter was directed to submit a public records request.
- **Southern California Landfills:** Los Angeles Times requested a list of regional landfills with a copy of their quarterly reports and source tests. Reporter was directed to submit a public records request.
- **Residential Purifiers:** Desert Sun requested information on the availability of residential air purifiers, and whether outreach events are scheduled in Eastern Coachella Valley, particularly in Spanish. Response was provided.
- **Warehouse Indirect Source Rule:** Inside EPA asked whether U.S. EPA has finalized its approval of the Warehouse ISR as part of the State Implementation Plan. Response was provided.
- **Lead Pollution:** A freelance reporter from Seal Beach is looking for information about potential lead pollution surrounding the Long Beach Airport and a nearby elementary school. Research is in progress.
 - **State of the Air Statement:** Pitched release to media outlets resulting in media coverage.
- **Windblown Dust Advisory (4/3, 4/13, 4/23 & 4/25):** Pitched to media outlets resulting in media coverage.
- **Windblown Dust Advisory Extension (4/4):** Pitched to media outlets resulting in media coverage.

News Releases:

- **South Coast AQMD Issues Windblown Dust Advisory for the San Geronio Pass area, the Coachella Valley, and Eastern Riverside County – April 3, 4 and 14th, 2024 (English and Spanish)** – Informed the public of a PM10 Dust Advisory caused by high winds.

- **South Coast AQMD Issues Windblown Dust Advisory for Portions of Riverside County – April 23, 2024 (English and Spanish)** – Informed the public of a PM10 Dust Advisory caused by high winds.
- **South Coast AQMD Statement on the American Lung Association's 25th State of the Air Report – April 24, 2024 (English and Spanish)** – Informed the public of our implementing the Indirect Source Rule for warehouses, and developing proposals for additional rules for railyards and ports.
- **Windblown Dust Advisory Updated: Portions of Riverside County could see Hazardous Air Quality Levels – April 25, 2024 (English and Spanish)** – Informed the public of an update to the PM10 Dust Advisory caused by high winds.

Social Media Posts:

[AQ Forecast \(4/9\)](#): 4,193 Twitter Impressions

--RT by @CodeRed001Blue, @NWSSanDiego, @AIRNow

[AQ Forecast \(4/14\)](#): 1,294 Twitter Impressions

--RT by @CodeRed001Blue, @LAFDtalk

[AQ Forecast \(4/22\)](#): 1,050 Twitter Impressions

--RT by @AirNOW, @LAFDtalk

News Carousel:

- **Keep Up with the Latest News from South Coast AQMD (4/10)** – Linked to Advisor Newsletter webpage.
- **Participate in a Regional Public Hearing on the Draft South Coast Air Basin Attainment Plan for the 2012 Annual PM2.5 Standard (4/17)** – Linked to Notice of Regional Public Hearings.
- **Earth Day is April 22nd – Here's how to Celebrate it All Spring Long! (4/19)** - Linked to Earth Day Flier.

Outreach to Community Groups and Federal, State and Local Governments

Communication was conducted in April with elected officials and/or staff from the following state and federal offices:

- U.S. Senator Laphonza Butler
- U.S. Senator Alex Padilla
- U.S. Representative Pete Aguilar
- U.S. Representative Nanette Barragán
- U.S. Representative Ken Calvert
- U.S. Representative Tony Cardenas
- U.S. Representative Judy Chu
- U.S. Representative Robert Garcia
- U.S. Representative Mark Takano
- U.S. Representative Norma Torres
- Senator Bob Archuleta
- Senator Josh Becker
- Senator Catherine Blakespear
- Senator Brian Dahle
- Senator Bill Dodd
- Senator Maria Elena Durazo
- Senator Lena Gonzalez
- Senator Monique Limón
- Senator Josh Newman
- Senator Janet Nguyen
- Senator Roger Niello
- Senator Anthony Portantino
- Senator Susan Rubio
- Senator Kelly Seyarto
- Senator Tom Umberg
- Assemblymember Rebecca Bauer-Kahan
- Assemblymember Isaac Bryan
- Assemblymember Wendy Carrillo
- Assemblymember Mike Fong
- Assemblymember Laura Friedman
- Assemblymember Eloise Gómez Reyes
- Assemblymember Chris Holden
- Assemblymember Josh Hoover
- Assemblymember Corey Jackson
- Assemblymember Ash Kalra
- Assemblymember Josh Lowenthal
- Assemblymember Devon Mathis
- Assemblymember Al Muratsuchi
- Assemblymember Gail Pellerin
- Assemblymember Anthony Rendon
- Assemblymember Freddie Rodriguez
- Assemblymember Blanca Rubio
- Assemblymember Miguel Santiago
- Assemblymember Buffy Wicks
- Assemblymember Jim Wood

Outreach was conducted personally and virtually in April to communicate with elected officials or staff from the following cities:

Agoura Hills	Bell	Calimesa
Alhambra	Bell Gardens	Canyon Lake
Anaheim	Bellflower	Carson
Arcadia	Beverly Hills	Cerritos
Artesia	Big Bear Lake	Chino
Avalon	Bradbury	Chino Hills
Azusa	Brea	Claremont
Baldwin Park	Buena Park	Colton
Banning	Burbank	Commerce
Beaumont	Calabasas	Compton

Corona
Covina
Cudahy
Culver City
Dana Point
Diamond Bar
Downey
Duarte
Eastvale
El Monte
El Segundo
Fontana
Fullerton
Gardena
Glendale
Glendora
Hawaiian Gardens
Hawthorne
Hemet
Hermosa Beach
Hidden Hills
Highland
Huntington Beach
Huntington Park
Industry
Inglewood
Irvine
Irwindale
Jurupa Valley
La Canada Flintridge
La Habra
La Habra Heights
La Mirada
La Puente
La Verne

Lake Elsinore
Lake Forest
Lakewood
Lawndale
Loma Linda
Lomita
Long Beach
Los Alamitos
Los Angeles
Lynwood
Malibu
Manhattan Beach
Maywood
Menifee
Mission Viejo
Monrovia
Montebello
Monterey Park
Moreno Valley
Murrieta
Newport Beach
Norco
Norwalk
Ontario
Orange
Palos Verdes Estates
Paramount
Pasadena
Perris
Pico Rivera
Pomona
Rancho Palos Verdes
Redlands
Redondo Beach
Rialto

Riverside
Rolling Hills
Rolling Hills Estates
Rosemead
San Bernardino
San Dimas
San Fernando
San Gabriel
San Jacinto
San Marino
Santa Fe Springs
Santa Ana
Santa Clarita
Santa Monica
Seal Beach
Sierra Madre
Signal Hill
South El Monte
South Gate
South Pasadena
Stanton
Temecula
Temple City
Torrance
Upland
Vernon
Walnut
West Covina
West Hollywood
Westlake Village
Whittier
Wildomar

Staff represented South Coast AQMD in April and/or provided updates or a presentation to the following governmental agencies and business organizations:

Association of California Cities, Orange County
Alhambra Chamber of Commerce
Arcadia Chamber of Commerce
Building Industry Association of Southern California, Orange County
California Department of Transportation
Chino Valley Chamber of Commerce
Coachella Valley Economic Partnership
County of Los Angeles
Echo Park Chamber of Commerce
El Monte - South El Monte Chamber of Commerce
Foothill Transit
Gateway Cities Council of Governments
Glendora Chamber of Commerce
Gold Line Foothill Extension Construction Authority
Greater Irvine Chamber of Commerce
Greater Ontario Business Council
Greater Wilshire Neighborhood Council
Harbor Association of Industry and Commerce
Hispanic Coalition of Small Businesses
Inland Action
Inland Empire Health Plan
Inland Empire Regional Chamber of Commerce
Inland Empire Resource Conservation District
Inland Empire Utilities Agency
Inland Valley Development Agency
Kaiser Permanente
League of California Cities, Los Angeles, Orange County & San Bernardino Divisions
Los Angeles Area Chamber of Commerce
Los Angeles County Economic Development Corporation
Los Angeles County Sanitation Districts
METRO
Metropolitan Water District of Southern California
Monterey Park Chamber of Commerce
Mountain Transit
Newport Beach Chamber of Commerce
Omnitrans
Ontario International Airport Authority
Orange County Business Council
Orange County Council of Governments
Orange County Transportation Authority

Port of Long Beach
Port of Los Angeles
Riverside Transit Authority
San Bernardino County Transportation Authority
San Bernardino International Airport Authority
San Fernando Valley Council of Governments
San Gabriel and Lower Los Angeles Rivers Mountains Conservancy
San Gabriel Basin Water Quality Authority
San Gabriel Valley Council of Governments
San Gabriel Valley Economic Partnership
San Gabriel Valley Mosquito & Vector Control District
Santa Ana Chamber of Commerce
South Bay Associations of Chambers of Commerce
South Bay Cities Council of Governments
South Pasadena Chamber of Commerce
SCAG
U.S. Chamber of Commerce
U.S. National Park Service
Upland Chamber of Commerce
Upper San Gabriel Valley Municipal Water District
Valley Industry Commerce Association
West Valley Water District

In April, staff represented South Coast AQMD and/or provided updates or a presentation to the following community and educational groups and organizations:

Active San Gabriel Valley
AltaMed
Bolsa Chica Conservancy
Chino Kiwanis
City of Hope
Clean Power Alliance
Climate Mayors
California State Polytechnic University, Pomona
California State University, Dominguez Hills
California State University, Long Beach
Cesar Chavez Foundation
Coachella Valley Unified School District
Del Amo Action Committee
Discovery Cube, Los Angeles
Downtown Pasadena Neighborhood Association
El Centro del Pueblo
El Sol Neighborhood Educational Center

Elizabeth Learning Center
Foundation for Early Childhood Education
Fullerton College
Glendale Environmental Coalition
Habitat for Humanity
Hacienda Heights Improvement Association
Hope International University
Inland Empire Electric Vehicle Association
Loma Linda University
Los Angeles Unified School District
Nature for All, Los Angeles
Pasadena City College
Redlands Unified School District
San Bernardino Valley College
San Gabriel Mountains Community Collaborative
San Gabriel Valley Conservation Corps
Santa Ana Unified School District
Sustainable Claremont
The Energy Coalition
Trust for Public Land
University of Redlands
Vision y Compromiso

 [Back to Agenda](#)

BOARD MEETING DATE: June 7, 2024

AGENDA NO. 11

REPORT: Hearing Board Report

SYNOPSIS: This reports the actions taken by the Hearing Board during the period of March 1 through March 31, 2024 and April 1 through April 30, 2024.

COMMITTEE: No Committee Review

RECOMMENDED ACTION:
Receive and file.

Cynthia Verdugo-Peralta
Hearing Board Chair

ft

Attached are the following summaries: **March 2024 and April 2024 Hearing Board Cases, and Rules From Which Variances and Orders for Abatement Were Requested from January 1, 2024 Through April 30, 2024.** The applicable South Coast AQMD Rules for 2024 are also attached.

There were no appeals filed during the period of March 1, 2024 to April 30, 2024.

Report of March 2024 Hearing Board Cases

Case Name and Case No. (South Coast AQMD Attorney)	Rules	Reason for Petition/Hearing	South Coast AQMD Position/Hearing Board Action	Type and Length of Variance or Order	Excess Emissions
1. Goodrich Corporation Case No. 6253-1 (M. Reichert)	203(b)	Gas was inadvertently flared, due to a malfunctioning solenoid valve in a carbon ceramic vapor deposition (CVD) furnace. Exceeding Limit in Emergency Flare Permit.	Not Opposed/Granted	IV granted commencing 3/7/24 and continuing for 90 days or until the RV hearing scheduled for 4/30/24, whichever comes first.	NOx: 0.4 lb/day
2. Innovative Baking Co dba Venice Baking Company Case No. 6144-2 (M.Reichert)	203(b)	The Regenerative Thermal Oxidizer (RTO) completion date was delayed due to delivery problems w/essential components, which are crucial to the RTO.	Not Opposed/Granted	SV granted commencing 3/18/24 and continuing through 5/31/24.	VOC: 6.9 lbs/day
3. County of San Bernardino – Fleet Management Case No. 6070-12 (M. Reichert)	203(b)	Due to the Governor's SOE-Atmospheric River weather cond., an unforeseen loss of power for 8.5 days triggered the ICE to potentially go over the allotted annual 200 hrs.	Not Opposed/Granted	IV granted commencing 3/14/24 and continuing for 90 days or until the RV hearing scheduled for 4/23/24, whichever comes first.	TBD
4. Torrance Refining Company Case No. 6060-20 (Consent Calendar)	203(b) 1150.1(e)(2)(A) 1150.1(e)(2)(E) 2004(f)(1) 3002(c)(1)	To Modify Cond. #1 of the Short Var. & AOCs granted on 01/11/24. All other Variance conditions & AOCs granted to remain in full force and effect.	Not Opposed/Granted	RV & AOC granted commencing 3/14/24 and continuing through 4/29/24, the FCD.	None

Case Name and Case No. (South Coast AQMD Attorney)	Rules	Reason for Petition/Hearing	South Coast AQMD Position/Hearing Board Action	Type and Length of Variance or Order	Excess Emissions
5. Tesoro Marketing & Refining Company LLC Case No. 4982-135 (S. Pruitt)	203(b) 1173(g)(1) 2004(f)(1) 3002(c)(1)	On 3/20/24, the flange was observed leaking liquid. Repairs are still needed due to VOC measurements above 25,000 ppm.	Not Opposed/Granted	Ex Parte EV granted commencing 3/22/24 and continuing for 30 days, 4/22/24, or until final compliance, whichever comes first.	VOC: 3.6 lbs/day
6. South Coast AQMD vs. Chiquita Canyon LLC Case No. 6177-4 (K. Roberts, M. Reichert & R. Mansell)	203(b) 402 431.1(c)(2) 1150(b)(2) H&S §41700	Another regulatory agency's requirements conflict with AQMD's Stipulated O/A Condition #49 re: notification required re: compliance & leachate concerns.	Stipulated/Issued	Mod. O/A issued; the Board shall continue to retain jurisdiction over this matter until 9/6/24.	N/A
7. Colton Power LP Case No. 6167-3 (Consent Calendar)	203(b) 1134(e)(2)(C)(iii) 2004(f)(1) 3002(c)(1)	Petitioner in violation of permit conditions due to lack of annual ammonia source (slip) test due to unit inoperability.	Not Opposed/Granted	RV granted commencing 3/26/24 and continuing through 7/30/24, the FCD.	None
8. Colton Power LP Case No. 6167-4 (Consent Calendar)	203(b) 1134(e)(2)(C)(iii) 2004(f)(1) 3002(c)(1)	Petitioner will still be out of compliance due to the new SCR catalyst not arriving on time to conduct the req. ammonia slip test.	Not Opposed/Granted	RV granted commencing 3/26/24 and continuing through 7/30/24, the FCD.	None

Acronyms

AOC: Alternative Operating Condition
 EV: Emergency Variance
 FCD: Final Compliance Date
 IV: Interim Variance
 Mod. O/A: Modification Order for Abatement
 N/A: Not Applicable
 NOx: Oxides of Nitrogen
 RV: Regular Variance
 SV: Short Variance
 TBD: To Be Determined
 VOC: Volatile Organic Compound

Report of April 2024 Hearing Board Cases

Case Name and Case No. (South Coast AQMD Attorney)	Rules	Reason for Petition/Hearing	South Coast AQMD Position/Hearing Board Action	Type and Length of Variance or Order	Excess Emissions
1. Beta Offshore Operating, LLC Case No. 5855-7 (Consent Calendar)	N/A	An unforeseen pipeline rupture by 3 rd parties, resulted in an oil spill. All production was shut down for 18 mos. Petitioner needs more time and clarification to come into compliance w/all conditions.	Not Opposed/Granted	The Board modified and/or clarified Conditions Nos. 5, 9 and 12.d of the regular variance granted to petitioner on 12/7/23.	N/A
2. Chevron Products Company Case No. 831-400 (Consent Calendar)	203(b) 464(b)(1)(A) 464(b)(2) 464(b)(3) 1176(e)(1) 1176(e)(2) 2004(f)(1) 3002(c)(1)	Petitioner needs to remove permanent covers and open equipment for maintenance to ensure proper operation of equipment to achieve compliance by performing maintenance within 56 days to remove materials from #4 separator then replace permanent covers.	Not Opposed/Granted	SV granted commencing 4/10/24 and continuing through 6/4/24.	VOC: 2.6 lbs./total for variance period
3. Chevron Products Company Case No. 831-401 (Consent Calendar)	203(b) 2004(f)(1) 3002(c)(1)	Need for emergency repair of Caustic Solution Flow Meter in C—2180 Caustic Scrubber to ensure continuous monitoring of caustic solution flow per Title V permit conditions.	Not Opposed/Granted	EV granted commencing 4/18/24 and continuing through 5/18/24.	None
4. Chiquita Canyon Landfill, LLC Case No. 6177-4 (K. Roberts & M. Reichert)	203(b) 402 431.1(c)(2) 1150(b)(2) 3002(c)(1) H&S §41700	The Leachate problem continues to be of major concern. Other regulatory agencies requirements still conflict with AQMD's Stipulated O/A Condition #49. More time is needed.	Stipulated/Issued	Mod. O/A issued commencing 4/24/24; the Hearing Board shall retain jurisdiction over this matter until 12/31/25.	N/A

Case Name and Case No. (South Coast AQMD Attorney)	Rules	Reason for Petition/Hearing	South Coast AQMD Position/Hearing Board Action	Type and Length of Variance or Order	Excess Emissions
5. County of San Bernardino – Fleet Management Case No. 6070-12 (M. Reichert)	203(b)	Due to atmospheric river conditions causing loss of power for 8.5 days - Big Bear Electric, triggered Emergency ICE. Will exceed Annual allotted hours.	Not Opposed/Granted	RV granted commencing 4/23/24 and continuing through 12/31/24, the FCD.	CO: 0.3 lb./hr. NOx: 0.003 lb./hr. RHC: 0.13 lb./hr. SOx: 0.35 lb./hr. PM10: 5 lbs./hr.
6. Goodrich Corporation Case No. 6253-1 (Consent Calendar)	203(b)	Due to an unanticipated & temporary undetected malfunction of solenoid valve in a carbon ceramic vapor deposition furnace resulting in production gas bypassing the process boilers resulting in emergency flare.	Not Opposed/Granted	RV granted commencing 4/30/24 and continuing through 1/31/25, the FCD.	NOx: 0.4 lb./day
7. Monarch Orange Crematory Case No. 6254-1 (J. Lee)	1147(h)(13)(A)	Due to a last-minute delay in materials, Petitioner was unable to conduct testing on time to comply with permit conditions.	Not Opposed/Granted	EV granted commencing 4/23/24 and continuing through 5/14/24.	None
8. Sentinel Energy Center LLC Case No. 6141-2 (Consent Calendar)	203(b) 2004(f)(1) 3002(c)	Staff's view of permit Condition D29.4 testing requirements differed with Petitioner's. Condition D29.4 must be in effect at the time of the CO catalyst replacement. Unable to conduct that test due to the outage.	Not Opposed/Granted	IV granted commencing 4/10/24 and continuing for 90 days or until the RV hearing scheduled for 5/14/24, whichever comes first.	None

Acronyms

CO: Carbon Monoxide
EV: Emergency Variance
FCD: Final Compliance Date
IV: Interim Variance
N/A: Not Applicable
NOx: Oxides of Nitrogen

Mod. O/A: Modification Order for Abatement
PM10: Particulate Matter ≤ 10 microns
RHC: Reactive HydroCarbons
RV: Regular Variance
SOx: Oxides of Nitrogen
SV: Short Variance
VOC: Volatile Organic Compound

Rules from which Variances and Orders for Abatement were Requested in 2024

Rules	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total Actions
203(b)	7	8	8	6									29
402	2		1	1									4
431.1(c)(2)	1	1		1									3
464(b)(1)(A)				1									1
464(b)(2)				1									1
464(b)(3)				1									1
1105.1(e)(2)(A)	1	1	1										3
1105.1(e)(2)(E)	1	1											2
1124(c)(1)		1											1
1124(c)(4)		1											1
1134(d)(3)	1												1
1134(e)(2)(C)	1												1
1134(e)(2)(C)(iii)			2										2
1146(c)(1)		1											1
1146(e)(1)		1											1
1147(h)(13)(A)				1									1
1150(b)(2)			1	1									2
1150.1(e)(2)(A)			1										1
1150.1(e)(2)(E)			1										1
1150.1(f)(2)(A)	1												1
1173(g)(1)			1										1
1176(e)(1)				1									1
1176(e)(2)				1									1
1470(c)(4)(A)	1												1
2004(f)(1)	5	5	4	3									17
3002(c)				1									1
3002(c)(1)	7	7	4	3									21
CA H&S Code 41700	1		1	1									3

**SOUTH COAST AQMD RULES AND REGULATIONS INDEX
FOR 2024 HEARING BOARD CASES AS OF APRIL 30, 2024**

REGULATION II – PERMITS

Rule 203 Permit to Operate

REGULATION IV – PROHIBITIONS

Rule 402 Nuisance
Rule 431.1 Sulfur Content of Gaseous Fuels
Rule 464 Wastewater Separators

REGULATION XI - TOXICS AND OTHER NON-CRITERIA POLLUTANTS

Rule 1105.1 Reduction of PM10 and Ammonia Emissions from Fluid Catalytic Cracking Units
Rule 1124 Aerospace Assembly and Component Manufacturing Operations.
Rule 1134 Emissions of Oxides of Nitrogen from Stationary Gas Turbines
Rule 1146 Emissions of Oxides of Nitrogen (NOx) from Industrial, Institutional, and Commercial Boilers, Steam
 Generators, and Process Heaters
Rule 1147 NOx Reductions from Miscellaneous Sources
Rule 1150 Excavation of Landfill Sites
Rule 1150.1 Control of Gaseous Emissions from Municipal Solid Waste Landfills
Rule 1173 Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities
 and Chemical Plants
Rule 1176 VOC Emissions from Wastewater Systems

REGULATION XIV - TOXICS AND OTHER NON-CRITERIA POLLUTANTS

Rule 1470 Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines

REGULATION XX – REGIONAL CLEAN AIR INCENTIVES MARKET (RECLAIM)

Rule 2004 Requirements

REGULATION XXX – TITLE V PERMITS

3002 – Requirements

CALIFORNIA HEALTH AND SAFETY CODE

§41700 Prohibited Discharges

[↑ Back to Agenda](#)

BOARD MEETING DATE: June 7, 2024

AGENDA NO. 12

REPORT: Civil Filings and Civil Penalties Report

SYNOPSIS: This report summarizes monthly penalties and legal actions filed by the General Counsel's Office from April 1 through April 30, 2024. An Index of South Coast AQMD Rules is attached with the penalty report.

COMMITTEE: Stationary Source, May 17, 2024, Reviewed

RECOMMENDED ACTION:
Receive and file.

Bayron T. Gilchrist
General Counsel

BTG:cr

	<u>Civil Filings</u>	<u>Violations</u>
1. Arad Oil, Inc.		1
County of Los Angeles Superior Court – Small Claims		
Case No.: 24CMSC00256; Filed 4.02.24 (CL)		
NOV No.: P75725		
R. 203 – Permit to Operate		
California Health and Safety Code § 42402		
		1 Violations

Attachments

April 2024 Penalty Report

Index of South Coast AQMD Rules and Regulations

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
General Counsel's Office
Settlement Penalty Report (04/01/2024 - 04/30/2024)

Total Penalties

Civil Settlement: \$501,240.00

MSPAP Settlement: \$169,909.00

No-Burn Day Settlement: \$50.00

Total Cash Settlements: \$671,199.00

Total SEP Value: \$0.00

Fiscal Year through 04/30/2024 Cash Total: \$4,943,692.46

Fiscal Year through 04/30/2024 SEP Value Only Total: \$668,125.00

Fac ID	Company Name	Rule Number	Settled Date	Init	Notice Nbrs	Total Settlement
Civil						
193645	04 PAN CONSTRUCTION	1403	04/17/2024	JL	P74226	\$7,000.00
82207	ALL AMERICAN ASPHALT	402,403, 1402, 2004, 3002, 3003, H&S 41700	04/12/2024	RM	P68595, P68599, P68600, P68668, P73821, P74016, P74606, P74623, P75232, P76413, P76416, P76417	\$100,000.00
16642	ANHEUSER-BUSCH, LLC (LA BREWERY)	2004, 2011, 2012 Appendix A, 3002	04/09/2024	KER	P66224, P67387, P74610, P74622, P74633	\$9,068.00
190467	APPLIED COMPOSITES	203	04/19/2024	KCM	P69760, P69788	\$7,500.00
190474	BALDWIN & SONS	403	04/17/2024	ND	P56749, P68593, P68779, P69918	\$21,078.00
132068	BIMBO BAKERIES-USA, INC.	2004	04/04/2024	KCM	P69795, P69798	\$16,500.00
193846	BROADMOOR EXCLUSIVES (C/O VINTAGE MANAGEMENT)	1403, 40 CFR 61.145	04/03/2024	JL	P73630, P73631, P73634, P73635	\$3,500.00
138568	CALIFORNIA DROP FORGE, INC	1430, 2004	04/16/2024	SH	P66885, P66888	\$3,500.00
169721	CIRCLE K STORES, INC. (#2709470)	461	04/17/2024	JJ	P69889	\$1,000.00
169537	CIRCLE K STORES, INC. (#2709480)	461	04/17/2024	JJ	P70190	\$1,000.00
54952	CIRCLE K STORES, INC. (#1922)	461	04/17/2024	JJ	P69897, P78772	\$3,000.00
178111	CIRCLE K STORES, INC. (#2709500)	203, 461	04/11/2024	RL	P66025, P70372, P76154, P76162, P76177, P78752	\$17,526.00

Fac ID	Company Name	Rule Number	Settled Date	Init	Notice Nbrs	Total Settlement
114484	CITY OF SANTA ANA POLICE DEPARTMENT	203, 1146.1, 1415	04/17/2024	JL	P73958	\$3,500.00
63013	COOPER AND BRAIN, INC.	203, 463, 1148.1, 1173, 2004	04/25/2024	KCM	P66537, P66845, P67707, P69272, P73263, P74357, P74378, P74537, P75507, P75508, P75662, P75670, P75677	\$90,000.00
62467	COUNTY OF RIVERSIDE	203, 461, 1146.2	04/03/2024	RL	P73054, P74122, P74167, P74168	\$20,000.00
122691	DEIST	203, 463, 1173	04/25/2024	JL	P74367, P74370, P74371, P74373	\$29,300.00
190126	DESCANSO GARDENS GUILD, INC.	402, H&S 41700	04/03/2024	JL	P79182	\$3,500.00
172363	EAGLE CONTRACTING, INC.	1403	04/24/2024	ND	P73503, P73505	\$4,836.00
800369	EQUILON ENTER.LLC (DBA "SHELL OIL PROD. U S")	462, 3002	04/18/2024	EC	P73285	\$6,150.00
193800	ERAN GURION	1403	04/04/2024	KCM	P74427	\$500.00
142267	FS PRECISION TECH, LLC	2004, 2012, 2012 Appendix A	04/02/2024	NS	P66872, P66880, P66896	\$22,834.50
198121	H7 CONTRACTING & ENGINEERING	403	04/03/2024	CL	P75211	\$2,050.00
188395	I 405 IMPROVEMENT PROJECT	403	04/16/2024	NS	P63880, P68573, P68576, P68780	\$46,840.00
190860	NEW ODYSSEY SHIPPING CO.	1142	04/10/2024	JJ	P68212	\$3,500.00
47046	O'DONNELL OIL CO.	203, 463	04/16/2024	EC	P66844, P69258, P74392, P74394	\$10,700.00
187040	PEMACO METAL PROCESSING	1469	04/03/2024	SH	P67528, P78609	\$3,000.00
159758	PETRO BRASS	461, H&S 41960.2	04/25/2024	ND	P70482	\$1,813.50
185588	PHOENIX SERVICES, LLC	301, 1155, 3002	04/10/2024	ND	P70142, P76113	\$3,000.00
191746	PRECISION WORKS, INC.	1403	04/18/2024	RM	P74561, P74564	\$2,450.00
20061	RAINBOW ENVIRONMENTAL SERVICES	402, H&S 41700	04/03/2024	KCM	P74792, P75806, P75807	\$4,560.00
58044	SAN BERNARDINO COUNTY SOLID WASTE MANAGEMENT - COLTON	3002	04/09/2024	EC	P72901, P76114, P76115	\$2,400.00
194478	SELECT ELECTRIC, INC.	402, H&S 41700	04/25/2024	EC	P69288	\$3,300.00
193861	SEUNGIL HA	1403	04/10/2024	JL	P74227, P74228	\$7,000.00
196898	SHUNDE ROOFING, INC.	1403	04/10/2024	JL	P75874	\$4,700.00
148521	SUKUT CONSTRUCTION	1403, 40 CFR 61.145	04/02/2024	EC	P74442	\$2,400.00
135491	TREND TECHNOLOGIES, LLC	402	04/17/2024	JL	P73931	\$4,800.00
194997	TRUST BUILDERS CONSTRUCTION	1403	04/19/2024	SH	P74568	\$500.00

Fac ID	Company Name	Rule Number	Settled Date	Init	Notice Nbrs	Total Settlement
71160	U.S. BATTERY MANUFACTURING CO.	203	04/24/2024	JL	P77570	\$2,400.00
800026	ULTRAMAR, INC.	1173, 1176, 2004, 3002	04/04/2024	DH	P63388, P63389, P66094, P75057, P75058, P75059	\$13,174.00
191608	UP2 HOLDINGS, LLC (#0209)	461, H&S 41960.2	04/17/2024	JL	P75463	\$2,400.00
137722	VOPAK TERMINAL LONG BEACH, INC.	203	04/17/2024	ND	P74068	\$6,460.00
193904	YSK CONSTRUCTION GROUP	1403, 40 CFR 61.145	04/04/2024	KCM	P72938, P72939	\$2,500.00
Total Civil Settlements: \$501,240.00						
MSPAP						
200988	310 S. ALVARADO STREET, LLC	1403, 40 CFR 61.145	04/12/2024	CL	P78611	\$1,813.00
171896	5555 HOLLYWOOD LP.	203	04/12/2024	CL	P76513	\$971.00
39813	ACCURATE STEEL TREATING, INC.	203	04/19/2024	VB	P73891	\$2,118.00
148762	AGOURA OIL (DBA "SHELL")	461	04/19/2024	VB	P79090	\$2,117.00
177857	APRO, LLC (DBA "UNITIED OIL #101")	201	04/12/2024	VB	P80606	\$1,535.00
181809	APRO, LLC (DBA "UNITED PACIFIC #5742")	461	04/05/2024	VB	P78770	\$3,834.00
115200	ARLETA MOBIL - PETRO ENTERPRISES	203, 461	04/05/2024	VB	P66050	\$1,990.00
8865	C. J. SEGERSTROM & SONS	461	04/05/2024	VB	P76415	\$2,342.00
106812	CALIFORNIA HIGHWAY PATROL BEAUMONT GROUP	461	04/12/2024	VB	P79318	\$460.00
183891	CAMBRIA SUITES, FC (EL SEGUNDO)	203	04/05/2024	VB	P75608	\$4,514.00
137244	CLEMENT PAPPAS CA, INC.	1146	04/05/2024	VB	P75419	\$5,105.00
174774	COLKER'S UNION OIL, LLC	461	04/05/2024	VB	P77738	\$5,269.00
128297	DEEPZ INVESTMENTS, INC.	203, 461	04/12/2024	CL	P77721	\$1,444.00
188048	DIMAR ENTERPRISES	1403	04/12/2024	CL	P76244	\$2,913.00
112292	FLETCHER JONES MOTORCARS	461	04/12/2024	CL	P78577	\$1,844.00
132002	GEN AND SONS, INC. (NEW AVALON AUTOBODY)	109, 203	04/26/2024	VB	P76279	\$8,000.00
195506	GT COLLISION CENTER	203	04/19/2024	CL	P73827	\$15,430.00
800003	HONEYWELL INTERNATIONAL, INC.	2004	04/26/2024	CL	P68674	\$6,826.00
146937	HUBBARD CHEVRON (#9-5063)	461, H&S 41960.2	04/05/2024	VB	P79082	\$1,454.00
162584	JACOB'S UNION SERVICE	203, 461, H&S 41960.2	04/12/2024	CL	P77739, P77740, P79074	\$7,376.00
198245	JAVIER AND IRMA PEREZ	1403	04/05/2024	VB	P76119	\$5,534.00
198078	KOHANOFF MISSION, INC.	201	04/26/2024	CL	P78681	\$782.00
161523	LOU'S UNION 76	203	04/05/2024	VB	P75749	\$1,429.00

Fac ID	Company Name	Rule Number	Settled Date	Init	Notice Nbrs	Total Settlement
117518	MODION & SONS, INC.	461	04/26/2024	VB	P79358	\$1,588.00
139027	CHUCK MERCIER'S UNION (DBA "76")	461, H&S 41960	04/05/2024	VB	P75708	\$2,603.00
184727	OIL LEE, INC.	203, 461, H&S 41960.2	04/05/2024	VB	P78658	\$4,284.00
33018	ORANGE CITY CORP YARD	461, 1470	04/12/2024	CL	P80751	\$2,427.00
99964	ORANGE COUNTY BOAT REPAIR	109, 203	04/05/2024	VB	P77607	\$2,043.00
193475	PARAMOUNT FUEL, INC.	461	04/05/2024	VB	P75727	\$1,756.00
195955	PASTA PICCININI, INC.	201, 203, 1146	04/19/2024	CL	P76512	\$4,369.00
183658	PENA DEMOLITION	1403, 40 CFR 61.145	04/05/2024	VB	P78602	\$1,656.00
134102	QUEST DIAGNOSTICS (VALENCIA)	1146.1	04/12/2024	CL	P68601	\$17,867.00
155346	RAINN C POWDER COATING, INC.	203, 1147	04/26/2024	VB	P74465	\$2,300.00
181441	RASHID'S, INC.(DBA "UNIVERSITY MOBIL")	203, 461	04/26/2024	VB	P73128	\$6,400.00
158151	ROBERT F. KENNEDY COMMUNITY OF SCHOOLS	203, 1146.1	04/12/2024	CL	P76509	\$5,826.00
58670	SAN JUAN SERVICE	461	04/12/2024	CL	P69881	\$1,124.00
180175	SEPAND INVESTMENT, INC.	203	04/05/2024	VB	P79064	\$5,819.00
123730	SHADOW RIDGE RESORT (MARRIOTT)	461	04/12/2024	CL	P79319	\$1,454.00
186908	SHENANDOAH - HALLMARK DISTRIBUTION CENTER	203	04/19/2024	CL	P79702	\$2,913.00
156040	SOFIJON, INC.	203, 461	04/12/2024	CL	P74836	\$910.00
152122	TERRIBLE HERBST INC. (#285)	461	04/05/2024	VB	P69877	\$3,513.00
191386	THE NEWARK GROUP, INC. (DBA "GREIF, INC.")	2012	04/12/2024	CL	P63843	\$1,009.00
18400	TORRANCE UNIFIED SCHOOL DISTRICT	461	04/19/2024	CL	P78316	\$2,677.00
131448	TORRANCE UNIFIED SCHOOL DISTRICT	203	04/19/2024	VB	P78319	\$971.00
196043	TRILOGY MEDWASTE WEST	1146	04/12/2024	CL	P78425	\$6,447.00
17275	TUSTIN (CITY OF TUSTIN)	461, 1470	04/12/2024	VB	P77814	\$2,250.00
146819	WHITE OAK SHELL	461, H&S 41960.2	04/12/2024	CL	P79075	\$2,603.00
Total MSPAP Settlements: \$169,909.00						
No-Burn Day						
202505	RESIDENT, IRVINE	445	04/09/2024	CL	W15009	\$50.00
Total No-Burn Day Settlements: \$50.00						

SOUTH COAST AQMD'S RULES AND REGULATIONS INDEX FOR APRIL 2024 PENALTY REPORT

REGULATION I - GENERAL PROVISIONS

Rule 109 Recordkeeping for Volatile Organic Compound Emissions

REGULATION II - PERMITS

Rule 201 Permit to Construct

Rule 203 Permit to Operate

REGULATION III - FEES

Rule 301 Permitting and Associated Fees

REGULATION IV - PROHIBITIONS

Rule 402 Nuisance

Rule 403 Fugitive Dust

Rule 445 Wood-Burning Devices

Rule 461 Gasoline Transfer and Dispensing

Rule 462 Organic Liquid Loading

Rule 463 Storage of Organic Liquids

REGULATION XI - SOURCE SPECIFIC STANDARDS

Rule 1142 Marine Tank Vessel Operations

Rule 1146 Emissions of Oxides of Nitrogen from Industrial, Institutional and Commercial Boilers, Steam Generators,
and Process Heaters

Rule 1146.1 Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators,
and Process Heaters

Rule 1146.2 Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers

Rule 1147 NO_x Reductions from Miscellaneous Sources

Rule 1148.1 Oil and Gas Production Wells

Rule 1155 Particulate Matter Control Devices

Rule 1173 Fugitive Emissions of Volatile Organic Compounds

Rule 1176 Sumps and Wastewater Separators

REGULATION XIV - TOXICS

Rule 1402 Control of Toxic Air Contaminants from Existing Sources

SOUTH COAST AQMD'S RULES AND REGULATIONS INDEX FOR APRIL 2024 PENALTY REPORT

Rule 1403	Asbestos Emissions from Demolition/Renovation Activities
Rule 1415	Reduction of Refrigerant Emissions from Stationary Air Conditioning Systems
Rule 1430	Control of Emissions from Metal Grinding Operations at Metal Forging Facilities
Rule 1469	Hexavalent Chromium Emissions from Chrome Plating and Chromic Acid Anodizing Operations
Rule 1470	Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines

REGULATION XX - REGIONAL CLEAN AIR INCENTIVES MARKET (RECLAIM)

Rule 2004	Requirements
Rule 2011	Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Sulfur (SOx) Emissions
Rule 2012	Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NOx) Emissions
Rule 2012	
Appendix A	Protocol for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NOx) Emissions

REGULATION XXX - TITLE V PERMITS

Rule 3002	Requirements
Rule 3003	Applications

CODE OF FEDERAL REGULATIONS

40 CFR 61.145	Standard for Demolition and Renovation
---------------	--

CALIFORNIA HEALTH AND SAFETY CODE

41700	Prohibited Discharges
41960	Certification of Gasoline Vapor Recovery System
41960.2	Gasoline Vapor Recovery

BOARD MEETING DATE: June 7, 2024

AGENDA NO. 13

REPORT: Intergovernmental Review of Environmental Documents and CEQA Lead Agency Projects

SYNOPSIS: This report provides a listing of environmental documents prepared by other public agencies seeking review by South Coast AQMD between April 1, 2024 and April 30, 2024, and proposed projects for which South Coast AQMD is acting as lead agency pursuant to CEQA.

COMMITTEE: Mobile Source, May 17, 2024, Reviewed

RECOMMENDED ACTION:
Receive and file.

Wayne Nastri
Executive Officer

SR:MK:BR:SW:HK

Background

The California Environmental Quality Act (CEQA) Statute and Guidelines require public agencies, when acting in their lead agency role, to provide an opportunity for other public agencies and members of the public to review and comment on the analysis in environmental documents prepared for proposed projects. A lead agency is a public agency that has the greatest responsibility for supervising or approving a proposed project and is responsible for the preparation of the appropriate CEQA document. A responsible agency is a public agency other than the lead agency who has discretionary approval authority over the project.

Each month, South Coast AQMD receives environmental documents, which include CEQA documents, for proposed projects that could adversely affect air quality. South Coast AQMD fulfills its intergovernmental review responsibilities, in a manner that is consistent with the Board's 1997 Environmental Justice Guiding Principles and Environmental Justice Initiative #4, by reviewing and commenting on the adequacy of the air quality analysis in the environmental documents prepared by other public agencies, who are acting in their capacity as a lead agency.

The status of these intergovernmental review activities is provided in this report in two sections: 1) Attachment A lists all of the environmental documents prepared by other public agencies seeking review by South Coast AQMD that were received during the reporting period; and 2) Attachment B lists the active projects for which South Coast AQMD has reviewed or is continuing to conduct a review of the environmental documents prepared by other public agencies. Further, as required by the Board's October 2002 Environmental Justice Program Enhancements for fiscal year (FY) 2002-03, each attachment includes notes for proposed projects which indicate when South Coast AQMD has been contacted regarding potential air quality-related environmental justice concerns. The attachments also identify for each proposed project, as applicable: 1) the dates of the public comment period and the public hearing date; 2) whether staff provided written comments to a lead agency and the location where the comment letter may be accessed on South Coast AQMD's website; and 3) whether staff testified at a hearing.

In addition, the South Coast AQMD will act as lead agency for a proposed project when the South Coast AQMD has primary discretionary authority over the approvals. Attachment C lists the proposed air permit projects for which South Coast AQMD is lead agency under CEQA.

Attachment A – Log of Environmental Documents Prepared by Other Public Agencies and Status of Review, and Attachment B – Log of Active Projects with Continued Review of Environmental Documents Prepared by Other Public Agencies

Attachment A contains a list of all environmental documents prepared by other public agencies seeking review by South Coast AQMD that were received pursuant to CEQA or other regulatory requirements. Attachment B provides a list of active projects, which were identified in previous months' reports, and which South Coast AQMD staff is continuing to evaluate or prepare comments relative to the environmental documents prepared by other public agencies. The following table provides statistics on the status of review¹ of environmental documents for the current reporting period for Attachments A and B combined²:

¹ The status of review reflects the date when this Board Letter was prepared. Therefore, Attachments A and B may not reflect the most recent updates.

² Copies of all comment letters sent to the lead agencies are available on South Coast AQMD's website at: <http://www.aqmd.gov/home/regulations/ceqa/commenting-agency>.

Statistics for Reporting Period from April 1, 2024 to April 30, 2024	
Attachment A: Environmental Documents Prepared by Other Public Agencies and Status of Review	86
Attachment B: Active Projects with Continued Review of Environmental Documents Prepared by Other Public Agencies (which were previously identified in the March 2024 report)	8
Total Environmental Documents Listed in Attachments A & B	94
<i>Comment letters sent</i>	<i>17</i>
<i>Environmental documents reviewed, but no comments were made</i>	<i>73</i>
<i>Environmental documents currently undergoing review</i>	<i>4</i>

Staff focuses on reviewing and preparing comments on environmental documents prepared by other public agencies for proposed projects: 1) where South Coast AQMD is a responsible agency under CEQA (e.g., when air permits are required but another public agency is lead agency); 2) that may have significant adverse regional air quality impacts (e.g., special event centers, landfills, goods movement); 3) that may have localized or toxic air quality impacts (e.g., warehouse and distribution centers); 4) where environmental justice concerns have been raised; and 5) where a lead or responsible agency has specifically requested South Coast AQMD review.

If staff provided written comments to a lead agency, then a hyperlink to the “South Coast AQMD Letter” is included in the “Project Description” column which corresponds to a notation in the “Comment Status” column. In addition, if staff testified at a hearing for a proposed project, then a notation is included in the “Comment Status” column. Copies of all comment letters sent to lead agencies are available on South Coast AQMD’s website at: <http://www.aqmd.gov/home/regulations/ceqa/commenting-agency>. Interested parties seeking information regarding the comment periods and scheduled public hearings for projects listed in Attachments A and B should contact the lead agencies for further details as these dates are occasionally modified.

In January 2006, the Board approved the Clean Port Initiative Workplan (Workplan). One action item of the Workplan was to prepare a monthly report describing CEQA documents for projects related to goods movement and to make full use of the process to ensure the air quality impacts of such projects are thoroughly mitigated. In accordance with this action item, Attachments A and B organize the environmental documents received according to the following categories: 1) goods movement projects; 2) schools; 3) landfills and wastewater projects; 4) airports; and 5) general land use projects. In response to the action item relative to mitigation, staff maintains a compilation of mitigation measures presented as a series of tables relative to off-road engines; on-road engines; harbor craft; ocean-going vessels; locomotives; fugitive dust; and greenhouse gases which are available on South Coast AQMD’s website at: <http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mitigation-measures-and-control-efficiencies>. Staff will continue compiling tables of mitigation measures for other emission sources such as ground support equipment.

Attachment C – Proposed Air Permit Projects for Which South Coast AQMD is CEQA Lead Agency

The CEQA lead agency is responsible for determining the type of environmental document to be prepared if a proposal requiring discretionary action is considered to be a “project” as defined by CEQA. South Coast AQMD periodically acts as lead agency for its air permit projects and the type of environmental document prepared may vary depending on the potential impacts. For example, an Environmental Impact Report (EIR) is prepared when there is substantial evidence that the project may have significant adverse effects on the environment. Similarly, a Negative Declaration (ND) or Mitigated Negative Declaration (MND) may be prepared if a proposed project will not generate significant adverse environmental impacts, or the impacts can be mitigated to less than significance. The ND and MND are types of CEQA documents which analyze the potential environmental impacts and describe the reasons why a significant adverse effect on the environment will not occur such that the preparation of an EIR is not required.

Attachment C of this report summarizes the proposed air permit projects for which South Coast AQMD is lead agency and is currently preparing or has prepared environmental documentation pursuant to CEQA. As noted in Attachment C, South Coast AQMD is lead agency for three air permit projects during April 2024.

Attachments

- A. Environmental Documents Prepared by Other Public Agencies and Status of Review
- B. Active Projects with Continued Review of Environmental Documents Prepared by Other Public Agencies
- C. Proposed Air Permit Projects for Which South Coast AQMD is CEQA Lead Agency

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
Warehouse & Distribution Centers ORC240402-11 5665 Plaza Drive Project	The project consists of demolishing a 150,626 square foot office building and constructing a 191,394 square foot industrial building with 181,061 square foot of warehouse space and 10,333 square foot of office space on 8.53 acres. The project is located north of the intersection of Plaza Drive and Douglas Drive at 5665 Plaza Drive. Reference ORC240221-03 https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2024/april-2024/ORC240402-11.pdf	Notice of Intent to Adopt a Mitigated Negative Declaration	City of Cypress	Comment letter sent on 4/30/2024
	Comment Period: 4/2/2024 - 5/1/2024 Public Hearing: N/A			
Warehouse & Distribution Centers ORC240416-02 Design Review (DR) 2023-0009: Platform Tustin Project	The project consists of demolishing three buildings and a parking structure and constructing two buildings for industrial and warehouse use on 6.17 acres. Building 1 is 49,552 square feet with 5 dock doors and building 2 is 93,372 square feet with 11 dock doors. The project is located on the corner of Bell Avenue and Red Hill Avenue.	Notice of Intent to Adopt a Mitigated Negative Declaration	City of Tustin	Document reviewed - No comments sent
	Comment Period: 4/11/2024 - 5/1/2024 Public Hearing: N/A			
Warehouse & Distribution Centers ORC240424-10 Enterprise Business Center LLC Project: Notice of Extension of the Comment Period for the Notice of Preparation and Scheduling of a Second Scoping Meeting	The project consists of demolishing a 144,906 square foot building and constructing and operating a 165,803 square foot warehouse on 8.83 acres. The project is located at 26200 Enterprise Way. Off-site improvements are located at five intersections to enhance public safety and address concerns related to large truck turning movements: Bake Parkway/Commercentre Drive, Bake Parkway/Dimension Drive, Dimension Drive/Commercentre Drive/Enterprise Way, Lake Forest Drive/Dimension Drive, and Lake Forest Drive/Rancho Parkway. Reference ORC240326-05	Other	City of Lake Forest	Document reviewed - No comments sent
	Comment Period: 4/24/2024 - 5/15/2024 Public Hearing: 4/24/2024			
Warehouse & Distribution Centers RVC240404-02 Plot Plan No. 220024	The project consists of a plot plan application (PPT 220024) to allow the development and construction of a 105,371 square foot warehouse on 5.06 acres. The project is located at 19587 Patterson Avenue, southwest of the corner of Patterson Avenue and Cajalco Road. Reference RVC220601-05	Notice of Intent to Adopt a Mitigated Negative Declaration	County of Riverside	Document reviewed - No comments sent
	Comment Period: 4/1/2024 - 5/2/2024 Public Hearing: 5/6/2024			

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Warehouse & Distribution Centers</i> RVC240409-03 Beaumont Heights	The project consists of subdividing 382.29 acres into eight numbered parcels and seven lettered lots, constructing 5,275,306 square feet of industrial development distributed among four warehouse and distribution buildings, and annexing 383.74 acres. The project is located south of East 1st Street and Beaumont Avenue (Highway 79). https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2024/april-2024/RVC240409-03.pdf Comment Period: 4/9/2024 - 4/30/2024 Public Hearing: 4/25/2024	Site Plan	City of Beaumont	Comment letter sent on 4/30/2024
<i>Warehouse & Distribution Centers</i> RVC240410-03 Brew Harley Knox Warehouse Project	The project consists of amending the site designation from Commercial to Light Industrial and constructing a 58,974 square foot warehouse on 4.01 acres. The project is located north of the Flood Channel and the Home Depot warehouse, east of Indian Avenue, south of Harley Knox Boulevard, and west of Perris Boulevard. Reference RVC240221-20 Comment Period: 4/5/2024 - 5/6/2024 Public Hearing: N/A	Notice of Intent to Adopt a Mitigated Negative Declaration	City of Perris	Document reviewed - No comments sent
<i>Warehouse & Distribution Centers</i> RVC240411-03 PLAN2024-0030 Inland Harbor Annexation and Industrial	The project consists of an annexation, General Plan Amendment, and a Zoning Ordinance Amendment in two phases. Phase 1 is building three warehouses and Phase 2 is building three more warehouses totaling 2,084,820 square feet on a total of 110 acres. The project is located on the northwest corner of Beaumont Avenue and California Avenue. Reference RVC230906-01 https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2024/april-2024/RVC240411-03.pdf Comment Period: 4/11/2024 - 4/25/2024 Public Hearing: 4/25/2024	Site Plan	City of Beaumont	Comment letter sent on 4/25/2024
<i>Warehouse & Distribution Centers</i> RVC240416-01 Menifee Valley Business Park (Plot Plan No. PLN 24-0067)	The project consists of building three warehouses totaling 2,626,302 square feet on 127.15 acres. The project is located north of McLaughlin Road, east of Menifee Road, south of Highway 74, and west of Briggs Road. https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2024/may-2024/RVC240416-01.pdf Comment Period: 4/12/2024 - 5/10/2024 Public Hearing: N/A	Site Plan	City of Menifee	Comment letter sent on 5/10/2024

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
PREPARED BY OTHER PUBLIC AGENCIES
April 01, 2024 to April 30, 2024

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Warehouse & Distribution Centers</i>	The project consists of demolishing and removing existing improvements within APN 405-230-010 and 405-230-006 and constructing a new mini-warehouse facility with 11 buildings (totaling 107,495 square feet), 5 detached canopies, and 150 covered RV storage spaces (totaling 81,334 square feet) on 8.28 acres. The project is located on the northeast corner of the intersection of Brookside Avenue and Oak View Drive, in the unincorporated area of Cherry Valley.	Initial Study	County of Riverside	Document reviewed - No comments sent
RVC240416-06 Conditional Use Permit No. 230006				
	Comment Period: 4/17/2024 - 5/7/2024 Public Hearing: N/A			
<i>Warehouse & Distribution Centers</i>	The project consists of constructing five warehouses totaling 1,280,183 square feet on 70.37 acres. The project is located on four separate plot plan applications within Mead Valley: the northwest corner of Martin Street and Harvill Avenue, the northwest corner of Perry Street and Harvill Avenue, the northeast corner of Harvill Avenue and America's Tire Drive, and the southwest corner of Peregrine Way and Harvill Avenue. Reference RVC230905-01 and RVC220803-01	Final Environmental Impact Report	County of Riverside	Document reviewed - No comments sent
RVC240419-06 Majestic Freeway Business Center Phase II - Plot Plan 220003 (Building 18), Plot Plan 220008 (Building 13), Plot Plan 220009 (Building 17), and Plot Plan 220015 (Buildings 14A and 14B)				
	Comment Period: 4/19/2024 - 4/30/2024 Public Hearing: 5/1/2024			
<i>Warehouse & Distribution Centers</i>	The project consists of constructing a 404,200 square foot warehouse with a total of 70 truck dock doors on 20.06 acres. The project is located at 853 East 3rd Street, at the southeast corner of East 3rd Street and Palm Avenue. Reference RVC231003-02 and RVC230721-01 Staff previously provided comments on the Site Plan for the project, which can be accessed at: https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/august-2023/RVC230721-01.pdf	Notice of Preparation	City of Beaumont	Document reviewed - No comments sent
RVC240424-06 79 North Logistics Center Project				
	Comment Period: 4/18/2024 - 5/17/2024 Public Hearing: 5/1/2024			

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
PREPARED BY OTHER PUBLIC AGENCIES
April 01, 2024 to April 30, 2024

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
Warehouse & Distribution Centers	The project consists of demolishing and removing existing improvements within APN 405-230-010 and 405-230-006 and constructing a new mini-warehouse facility with 11 buildings (totaling 107,495 square feet), 5 detached canopies, and 150 covered RV storage spaces (totaling 81,334 square feet) on 8.27 acres. The project is located on the northeast corner of the intersection of Brookside Avenue and Oak View Drive, in the unincorporated area of Cherry Valley.	Notice of Intent to Adopt a Mitigated Negative Declaration	County of Riverside	Document reviewed - No comments sent
RVC240424-11 Conditional Use Permit No. 230006 - Intent to Adopt a Mitigated Negative Declaration				
	Comment Period: 4/18/2024 - 5/8/2024 Public Hearing: 6/5/2024			
Warehouse & Distribution Centers	The project consists of building a 357,610 warehouse and demolishing remaining concrete paving and k-rails, the remains of former amusement park attractions, and landscaping left from prior development. The project is located at 1101 California Street, at the southwest corner of Lugonia Avenue and California Street. https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2024/april-2024/SBC240402-03.pdf	Notice of Intent to Adopt a Mitigated Negative Declaration	City of Redlands	Comment letter sent on 4/17/2024
SBC240402-03 1101 California Street Warehouse (Lot Merger No. 8; Planned Development No.7)				
	Comment Period: 3/28/2024 - 4/29/2024 Public Hearing: N/A			
Warehouse & Distribution Centers	The project consists of constructing a 197,397 square foot warehouse building with 25 truck loading doors, 242 automobile parking stalls, and other related improvements such as driveways, landscaping, lighting, utilities, and drainage improvements all on 11 acres. The project is located at 360 Kansas Street and 301 Tennessee Street, on the northwest corner of West State Street and Tennessee Street. Reference SBC230510-08	Other	City of Redlands	Document reviewed - No comments sent
SBC240418-05 310 Tennessee Warehouse Project				
	Comment Period: N/A Public Hearing: 4/23/2024			
Industrial and Commercial	The project consists of subdividing 1,414.66 acres, amending the General Plan land use designation, annexing 1,431.66 acres into the city limits, and pre-zoning for 1,431.66 acres. The project also consists of a Specific Plan to allow for 12,192,480 square feet of industrial use, 134,200 square feet of commercial use, and 542.3 acres of open space on 1,366.5 acres. The project is located near the southeast corner of State Route 60 and Potrero Boulevard. Reference RVC230927-09, RVC221115-09, RVC220913-04, RVC220809-07 and RVC220601-06 https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2024/may-2024/RVC240409-02.pdf	Site Plan	City of Beaumont	Comment letter sent on 5/7/2024
RVC240409-02 Legacy Highlands Specific Plan				
	Comment Period: 4/9/2024 - 5/7/2024 Public Hearing: 5/2/2024			

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Industrial and Commercial</i>	The project consists of constructing a 310 square foot guard house with restroom facilities and establishing a parking facility for trucks, trailers, and cabs on 4-acres. The project is located at 2407 West Lugonia Avenue within the Special Development District of the East Valley Corridor Specific Plan.	Site Plan	City of Redlands	Document reviewed - No comments sent
SBC240419-05 Planned Development No. 9	Comment Period: N/A Public Hearing: 4/23/2024			
<i>Waste and Water-related</i>	The project consists of an amendment to an existing permit to allow 10 years of continued operations use of the site as a scrap metal recycling facility (with up to 5 additional years for non-operational use to allow for closure and restoration of the property). The project is located at 901 New Dock Street on Terminal Island in Los Angeles, within the designated AB 617 Wilmington, Carson, and West Long Beach community. Reference LAC240104-01 and LAC230329-01	Final Subsequent Environmental Impact Report	City of Los Angeles Harbor Department	Document reviewed - No comments sent
LAC240402-08 SA Recycling Amendment to Permit No. 750 Project#	Staff previously provided comments on the Notice of Preparation for the project, which can be accessed at: https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/april-2023/LAC230329-01.pdf Comment Period: 3/29/2024 - 4/11/2024 Public Hearing: 4/11/2024			
<i>Waste and Water-related</i>	The project consists of the excavation and cleanup of contaminated soil and groundwater beneath the on-site point of release where three former gasoline underground storage fuel tanks (USTs) were located. The remediation is estimated to cover 590 cubic yards. The project is located at 1736 Chapin Road in Montebello, on the northeast corner of Chapin Road and Slauson Avenue.	Site Plan	California Water Boards	Comment letter sent on 4/4/2024
LAC240403-03 Notice of Opportunity to Comment Environmental Investigation and Cleanup Belmont Fibers	https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2024/april-2024/LAC240403-03.pdf Comment Period: 4/3/2024 - 4/5/2024 Public Hearing: N/A			

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

- Disposition may change prior to Governing Board Meeting
- Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Waste and Water-related</i> LAC240410-05 Tesoro Carson Refinery Class 3 Permit Modification#	The project consists of a public notice to inform the community of a Class 3 permit modification (constructing a new concrete floor above the existing floor within the West Retention Basin) to the Hazardous Waste Facility Post-Closure Permit for the Tesoro Carson Refinery. The project is located at 1801 East Sepulveda Boulevard in Carson, within the designated AB 617 Wilmington, Carson, and West Long Beach community. Comment Period: 4/10/2024 - 4/16/2024 Public Hearing: 4/16/2024	Permit Modification	Department of Toxic Substances Control	Document reviewed - No comments sent
<i>Waste and Water-related</i> LAC240410-11 Crosby & Overton, Inc. Class 2 Permit Modification#	The project consists of modifying the current permit to complete container unit modifications within Unit 12 and technological advancements in Unit 9. The project is located at 1630 West 17th Street in Long Beach, within the designated AB 617 Wilmington, Carson, and West Long Beach community. Reference LAC240207-10. Comment Period: 3/28/2024 - 5/26/2024 Public Hearing: 4/23/2024	Permit Modification	Department of Toxic Substances Control	Document reviewed - No comments sent
<i>Waste and Water-related</i> LAC240417-04 U.S. Ecology Vernon, Inc. - Notice of Class 1 Permit Modification#	The project consists of modifications to an existing hazardous waste facility permit to replace Tank 49A, PMT1, PMT2, and PMT3 portable media vessels with functionality equivalent vessels and to replace Emergency Coordinator and Assistant Emergency Coordinator contact information. The project is located at 5375 South Boyle Avenue on the northwest corner of East 54th Street and South Boyle Avenue in the City of Vernon, within the designated AB 617 Southeast Los Angeles community. Reference LAC210218-03 and LAC200204-13 Comment Period: N/A Public Hearing: N/A	Permit Modification	Department of Toxic Substances Control	Document reviewed - No comments sent
<i>Waste and Water-related</i> LAC240424-07 UPRR Site Adjacent to Proposed Greenway Trail Extension	The project consists of a cleanup plan to address soil contaminated with arsenic and lead. The project is located near the intersection of Lambert Road and Leffingwell Creek Crossing, east of Scott Avenue, and adjacent to the Greenway Trail Extension Project in Whittier. Comment Period: 5/1/2024 - 5/30/2024 Public Hearing: N/A	Draft Removal Action Workplan	Department of Toxic Substances Control	Document reviewed - No comments sent

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Waste and Water-related</i> LAC240424-08 Revised Soil Remedial Action Plan: 1600 and 1606 West 135th Street, Gardena, California 90249	The project consists of a Revised Soil Remedial Action Plan (RAP) to clean up and mitigate volatile organic compounds (VOCs), including tetrachloroethene (PCE) and trichloroethene (TCE) impacts at the HITCO II Site. The project is located at 1600 and 1606 West 135th Street, bounded by West 135th Street to the north, Normandie Avenue to the east, 139th Street to the south, and South Western Street to the west, in Gardena. Reference LAC230301-02 Comment Period: 5/2/2024 - 6/1/2024 Public Hearing: N/A	Other	California Water Boards	Under review, may submit comments
<i>Waste and Water-related</i> ODP240403-08 Southern California Edison (SCE) – San Onofre Nuclear Generating Station (SONGS)	The project consists of modifications to existing hazardous waste facility permits - Class 1 (2024-01) and Class 2 (2024-02) - to include administrative and information changes, correction of typographical errors, operational changes, and changes to the closure plan. The project is located at 5000 Old Pacific Highway near the southeast corner of Old Pacific Highway and Beach Club Road in the Marine Corps Base Camp Pendleton within San Diego County. Reference ODP210406-08, ODP200922-11, and ODP191203-04 Comment Period: 3/28/2024 - 5/31/2024 Public Hearing: 4/18/2024	Permit Modification	Department of Toxic Substances Control	Document reviewed - No comments sent
<i>Waste and Water-related</i> ORC240403-06 Smith Reservoir Replacement Project	The project consists of replacing the 6-million-gallon Smith Reservoir and Pump Station with two below grade cast-in-place concrete tanks of the same size and a pump station with increased maximum pumping capacity from 7,400 gallons per minute (gpm) to 8,400 gpm all on 1.7 acres. The project is located southwest of the intersection of Taft Avenue and Sycamore Street in the city of Villa Park. Reference ORC231213-01 Comment Period: 4/3/2024 - 4/23/2024 Public Hearing: 4/23/2024	Notice of Availability of a Final Mitigated Negative Declaration	Serrano Water District	Document reviewed - No comments sent
<i>Waste and Water-related</i> ORC240410-12 Environmental Investigation Sher Lane Retail Center - Huntington Beach, CA	The project consists of providing the community with a fact sheet of the environmental investigations, remedial, and cleanup activities at the Sher Lane Retail Center. The project is located at 7682-7746 Edinger Avenue, at the southeast corner of Edinger Avenue and Sher Lane in Huntington Beach. Comment Period: N/A Public Hearing: N/A	Community Fact Sheet	Santa Ana Water Board	Document reviewed - No comments sent

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Waste and Water-related</i> ORC240424-05 Rancho Santa Margarita Recycled Water System Project	The project consists of installing 95,000 linear feet (18 miles) of 8-inch through 18-inch diameter pipes in four or five phases, constructing a new aboveground reservoir tank to store recycled water, and adding two new pump stations. The project is located east of Interstate 5 and is bisected by State Route 241 in the city of Rancho Santa Margarita and the unincorporated areas of Coto de Caza and Las Flores, within southeastern Orange County. One small component is in the city of Mission Viejo. https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2024/may-2024/ORC240424-05.pdf Comment Period: 4/18/2024 - 5/17/2024 Public Hearing: N/A	Notice of Intent to Adopt a Mitigated Negative Declaration	Santa Margarita Water District	Comment letter sent on 5/16/2024
<i>Waste and Water-related</i> RVC240404-01 Best Cleaners Project	The project consists of updating the public on the investigations, cleanup activities, and land use requirements of the site. The project is located at 11875 Pigeon Pass Road, at the northwest corner of Ironwood Avenue and Pigeon Pass Road in Moreno Valley. Comment Period: 4/4/2024 - 4/19/2024 Public Hearing: N/A	Other	Department of Toxic Substances Control	Document reviewed - No comments sent
<i>Waste and Water-related</i> RVC240416-05 Annexation No. 109 (AX109)	The project consists of a concurrent annexation of 10.43 acres to Rancho Water, Eastern Municipal Water District (EMWD), and the Metropolitan Water District of Southern California (MWD). The project is located south of Murrieta Valley Pony Baseball Fields and southeast of Fig Street and Adams Avenue in Murrieta. Comment Period: 4/17/2024 - 5/20/2024 Public Hearing: N/A	Notice of Intent to Adopt a Mitigated Negative Declaration	Rancho California Water District	Document reviewed - No comments sent
<i>Waste and Water-related</i> RVC240417-03 Goetz Road Sewer Backbone Extension Project	The project consists of constructing a new 15-inch diameter trunk sewer and a new 8-inch sewer pipeline, extending the trunk sewer south to north, starting from the intersection of Goetz Road and Rock Canyon Drive to the intersection of Avenida Roble and Goetz Road, approximately 2,911 linear feet. The project also consists of relocating an existing 8-inch waterline within Goetz Road five feet west of its current alignment. The project is located along a portion of Goetz Road in Quail Valley, bounded by Palm Drive to the north, Rock Canyon Drive to the south, and Canyon Heights Drive to the west. Comment Period: 4/11/2024 - 5/13/2024 Public Hearing: N/A	Notice of Intent to Adopt a Mitigated Negative Declaration	Eastern Municipal Water District	Document reviewed - No comments sent

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Waste and Water-related</i> RVC240423-01 Salton Sea Management Program Update - April 2024#	The project consists of providing an April 2024 update on the Salton Sea Management Program: 1) Partners visited and toured the Species Conservation Habitat and Vegetation Enhancement Projects and SSMP's Vegetation Enhancement Clubhouse project, 2) SSMP and the Imperial Irrigation District (IID) welcomed new staff members from Federal and Utah State Agencies, 3) IID provided a detailed presentation of the science behind the Salton Sea Air Quality Mitigation Program and Proactive Dust Control Plan, and 4) SSMP Community Meetings are set for May 8, 9, and 10. The project is bounded by Mecca to the north, State Route 111 to the east, State Route 78 to the south, and State Route 86 to the west, within the designated AB 617 Eastern Coachella Valley community. Reference RVC240326-06, RVC240321-02, and RVC230103-09 Comment Period: 4/23/2024 - 5/8/2024 Public Hearing: 5/8/2024	Other	California Natural Resources Agency and the Salton Sea Authority	Document reviewed - No comments sent
<i>Waste and Water-related</i> RVC240424-04 Extension of Sewer to Highway 74 Project	The project consists of upsizing, constructing, and operating sewer lines that will serve customers in Riverside County Planning Area 6 using two alternatives. The project is located east of East 7th Street bounded by East 2nd Street and Case Road, on Highway 74 from West Ellis Avenue north through Navajo Road to Kruse Street, and on West Ellis Avenue from Highway 74 in the west to B Street in the east. Comment Period: 4/11/2024 - 5/13/2024 Public Hearing: N/A	Notice of Intent to Adopt a Mitigated Negative Declaration	Eastern Municipal Water District	Document reviewed - No comments sent
<i>Utilities</i> LAC240416-08 Avocet Energy Storage System Project#	The project consists of the development of a 200-megawatt battery energy storage system (BESS) located within the 6.96-acre site. The project is located at 23320 Alameda Street, northeast of the corner of Alameda Street and East Sepulveda Boulevard, within the designated AB 617 Wilmington, Carson, and West Long Beach community. Comment Period: 4/16/2024 - 5/16/2024 Public Hearing: N/A	Notice of Intent to Adopt an Initial Study/Mitigated Negative Declaration	City of Carson	Document reviewed - No comments sent

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Utilities</i> LAC240419-07 Commerce Energy Storage 2023 Project#	The project consists of adding a battery energy storage facility at 6920 East Slauson Avenue, modify the previously approved battery energy storage facility at 6904 East Slauson Avenue, and make related modifications at the Southern California Edison substation located at 6319-6337 Garfield Avenue. The project is located at 6904 and 6920 East Slauson Avenue and 6319-6337 Garfield Avenue, within the designated AB 617 East Los Angeles, Boyle Heights, West Commerce, and Southeast Los Angeles communities. Comment Period: 4/19/2024 - 5/10/2024 Public Hearing: 5/22/2024	Notice of Intent to Adopt a Mitigated Negative Declaration	City of Commerce City of Commerce	Document reviewed - No comments sent
<i>Utilities</i> LAC240424-03 Wireless Communication Facility Ordinance Update (No. 484): Local Coastal Program Amendment No. 16-007 and Zoning Text Amendment No. 16-005	The project consists of the Local Coastal Program Amendment No. 16-007 and Zoning Text Amendment No. 16-005 to consider California Coastal Commission recommended modifications to the City Council approved Ordinance No. 484 for a comprehensive regulatory system for the placement of wireless communications facilities. The project is located citywide in the city of Malibu. Comment Period: 4/24/2024 - 5/13/2024 Public Hearing: 5/13/2024	Other	City of Malibu	Document reviewed - No comments sent
<i>Utilities</i> ORC240419-01 Compass Battery Energy Storage (24-OPT-02)	The project consists of constructing, owning, and operating a 250-megawatt (MW) battery energy storage system (BESS) on 13-acres. The project is located within the northern portion of San Juan Capistrano, adjacent to Camino Capistrano and Interstate-5 to the east. Comment Period: N/A Public Hearing: N/A	Other	California Energy Commission	Document reviewed - No comments sent

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

- Disposition may change prior to Governing Board Meeting
- Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Utilities</i>	The project consists of upgrades, modifications, and/or replacements of insulators and hardware on 1,740 existing transmission towers that span 162 miles from Boulder City, Nevada to the Victorville Switching Station in Victorville, California. The project is in Clark County, Nevada and San Bernardino County, California - the McCullough-Victorville Transmission Lines 1 and 2 run northeast/southwest, parallel to each other, for 162 miles from Boulder City, Nevada to Victorville, California.	Notice of Preparation	Los Angeles Department of Water and Power	Document reviewed - No comments sent
SBC240403-07 McCullough-Victorville Transmission Lines 1 and 2 Upgrade Project	Comment Period: 4/1/2024 - 5/1/2024 Public Hearing: 4/17/2024			
<i>Transportation</i>	The project consists of addressing transportation and land use challenges, leveraging opportunities to support attainment of applicable federal air quality standards, and achieving emissions reduction targets. The project is located within six counties: Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The project also includes six designated AB 617 communities: 1) East Los Angeles, Boyle Heights, and West Commerce; 2) Eastern Coachella Valley; 3) San Bernardino and Muscoy; 4) Southeast Los Angeles; 5) South Los Angeles; and 6) Wilmington, Carson, and West Long Beach. Reference ALL231109-01, ALL231107-01 and ODP231107-01	Other	Southern California Association of Governments	Document reviewed - No comments sent
ALL240416-07 Connect SoCal 2024#	Comment Period: N/A Public Hearing: N/A			
<i>Transportation</i>	The project consists of construction of a light rail transit line that will extend approximately 14.5 miles from southeast Los Angeles County to a southern terminus in the City of Artesia. The Project will include 12.1 miles of at-grade and 2.4 miles of aerial alignment, 9 stations and 1 in-fill station, and 5 transit parking facilities. The project is located between the Interstate 101 and State Route 110 interchange in the City of Los Angeles and the Pioneer Boulevard and 183rd Street interchange in the City of Artesia. The project traverses through cities of Los Angeles, Vernon, Maywood, Huntington Park, Commerce, Bell, Cudahy, Bell Gardens, South Gate, Lynwood, Compton, Downey, Paramount, Bellflower, Long Beach, Lakewood, Norwalk, Artesia, Cerritos, and Hawaiian Gardens, as well as portions of unincorporated Los Angeles County. The project is also located within the following AB 617 communities: East Los Angeles, Boyle Heights, West Commerce, Southeast Los Angeles, Wilmington, Carson, West Long Beach, and South Los Angeles. Reference LAC210803-11, LAC180720-05, LAC180712-02, LAC180711-05, LAC180301-10, LAC170809-07, LAC170614-08, LAC170608-01, and LAC170606-04	Final Environmental Impact Report	Los Angeles County Metropolitan Transportation Authority	Document reviewed - No comments sent
LAC240402-06 West Santa Ana Branch Transit Corridor Project#	Comment Period: 3/29/2024 - 4/29/2024 Public Hearing: N/A			

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

- Disposition may change prior to Governing Board Meeting
- Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
Transportation LAC240416-03 State Route 39 Reopening Project (EA 07-34770)	The project consists of rehabilitating and reopening a 4.4-mile segment of State Route 39 from post mile 40.0 to 44.4. The project is bounded by State Route 2 to the north, Crystal Lake to the east, Burro Canyon Shooting Park to the south, and Angeles National Forest to the west in Los Angeles County. Reference LAC230111-09 Comment Period: 3/13/2024 - 5/11/2024 Public Hearing: 4/16/2024	Notice of Availability of a Draft Environmental Impact Report	California Department of Transportation	Document reviewed - No comments sent
Transportation LAC240416-04 Vincent Thomas Bridge Deck Replacement Project#	The project consists of replacing the entire bridge deck, seismic sensors, the median concrete barriers, and the bridge railing of the Vincent Thomas Bridge. The project is located on State Route 47 (Bridge #53-1471) in Los Angeles, within the designated AB 617 Wilmington, Carson, and West Long Beach community. Reference LAC230606-09, and LAC230418-09 Comment Period: 4/16/2024 - 7/15/2024 Public Hearing: 5/1/2024	Notice of Availability of a Draft Environmental Impact Report	California Department of Transportation	Under review, may submit comments
Transportation LAC240417-06 The Old Road over Santa Clara River and the Southern Pacific Transportation Company Bridge, et al. Project [Project No. BRLS-5953(601), STPL-5953(682)]	The project consists of reconstructing and widening three roads, replacing two bridges, and reconfiguring an intersection to accommodate for future traffic projections. The project is bounded by Newhall Ranch Road to the north, Interstate 5 to the east, Magic Mountain Parkway to the south, and Santa Clara River to the west. Reference LAC240306-01 and LAC230308-01 Comment Period: 2/27/2024 - 4/18/2024 Public Hearing: N/A	Revised Notice of Availability of a Draft Environmental Impact Report	County of Los Angeles Department of Public Works	Document reviewed - No comments sent
Transportation LAC240418-02 Long Beach-East Los Angeles (LB-ELA) Corridor Mobility Investment Plan#	The project consists of providing transportation projects and programs that foster safe, quality, multimodal options for moving people and goods while promoting clean air, healthy and sustainable communities, and economic empowerment for residents, communities, and users in the Corridor. The project is located along a stretch of Interstate 710 (I-710), from East Los Angeles to Long Beach. The project is also located within the designated AB 617 East Los Angeles, Boyle Heights, West Commerce, Southeast Los Angeles, South Los Angeles, Wilmington, Carson, and West Long Beach communities. Comment Period: N/A Public Hearing: 4/25/2024	Other	Los Angeles County Metropolitan Transportation Authority	Under review, may submit comments

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
Transportation ORC240402-07 Stonehill Drive Improvement Project	The project consists of improvements to Stonehill Drive within the project site boundaries, including proposed addition of a third eastbound lane in order to mitigate significant and unavoidable transportation impacts resulting from the nearby Ganahl Lumber Project in the City of San Juan Capistrano. The project site is a 0.4-mile segment of Stonehill Drive between Palo Alto Street and San Juan Creek. The project site is bound by residential, recreational, and commercial uses, as well as the San Juan Creek bridge overcrossing. Comment Period: 3/29/2024 - 4/29/2024 Public Hearing: N/A	Notice of Intent to Adopt an Initial Study/Mitigated Negative Declaration	City of Dana Point	Document reviewed - No comments sent
Transportation ORC240425-01 Cleo Street Beach Access Rehabilitation Project - CIP 21-9525	The project consists of improving, removing, replacing, and rehabilitating various parts of the sidewalk, beach access stairs, pump house and pump station, rock slope, abandoned steel pipe, concrete plugs and grouted riprap, and irrigation. The construction is expected to commence in 2024 and be completed in 2025. The project is located at the western terminus of Cleo Street by the Pacific Ocean, near the intersection of Cleo Street and South Coast Highway. Comment Period: 4/24/2024 - 5/24/2024 Public Hearing: N/A	Notice of Intent to Adopt an Initial Study/Mitigated Negative Declaration	City of Laguna Beach	Document reviewed - No comments sent
Transportation RVC240402-05 Interstate 215/McCall Boulevard Interchange Improvements Project	The project consists of the widening of McCall Boulevard and the existing structure over I-215, adding a bike/Neighborhood Electric Vehicle (NEV) lane on both sides of the road/bridge, adding sidewalk on the north side of the road/bridge, modifying the associated on- and off-ramps, and improving the nearby intersections of McCall Boulevard/Bradley Road and McCall Boulevard/Encanto Drive in the City of Menifee. The project begins at Post Mile 20.1 and extends along I-215 to Post Mile 21.5. The project also extends along McCall Boulevard from Encanto Drive to Bradley Road. Comment Period: 3/29/2024 - 5/1/2024 Public Hearing: 4/30/2024	Notice of Preparation	California Department of Transportation	Document reviewed - No comments sent
Transportation RVC240409-01 Connect Coachella#	The project consists of the addition of two non-motorized bicycle routes and numerous improvements to intersections and roadways throughout the routes. The project is located on Grapefruit Boulevard, between Avenue 48 and Avenue 54; and Avenue 54 between Van Buren Street and the Coachella Valley Stormwater Channel. The project is also within the designated AB 617 Eastern Coachella Valley community. Comment Period: 4/8/2024 - 4/29/2024 Public Hearing: N/A	Notice of Intent to Adopt a Mitigated Negative Declaration	City of Coachella	Document reviewed - No comments sent

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
Transportation SBC240418-03 Interstate 15 Replace Rock Slope Protection for 6 Bridges	The project consists of removing the existing rock slope protection (RSP) and installing partially grouted or traditional RSP, upgrading four Metal Beam Guardrail (MBGR) to Midwest Guardrail System (MGS) and constructing vegetation control underneath those guardrails. In addition, re-striping would occur from Mescal Ditch Bridge to Ivanpah Bridge. The project is located on Interstate 15 (I-15) at post mile (PM) R110.4, PM 166.8, PM 172.1L and PM 179.4 in San Bernardino County Comment Period: 4/17/2024 - 5/17/2024 Public Hearing: N/A	Notice of Intent to Adopt a Mitigated Negative Declaration	California Department of Transportation	Document reviewed - No comments sent
Institutional (schools, government, etc.) LAC240409-04 California State Polytechnic University, Pomona Campus Master Plan Update	The project consists of a 940-acre Master Plan to renovate, demolish, and construct 600,000 square feet of new buildings to support a planned growth of 30,000 students by 2040. The project is located northwest of West Temple Avenue and South Campus Drive. Comment Period: 4/8/2024 - 5/8/2024 Public Hearing: 4/24/2024	Notice of Preparation	California State University, Pomona	Document reviewed - No comments sent
Institutional (schools, government, etc.) LAC240410-02 Pre-application 24-03 Don Bosco New Academic Classroom Building	The project consists of a pre-application requesting to construct a 26,018 square foot building on 30 acres, which will replace a 16,000 square foot building. The project is located at 1151 San Gabriel Boulevard, south of the intersection of Delta Street and San Gabriel Boulevard. Comment Period: 4/4/2024 - 4/18/2024 Public Hearing: N/A	Other	City of Rosemead	Document reviewed - No comments sent
Institutional (schools, government, etc.) LAC240418-04 James A. Garfield High School Major Modernization Project#	The project consists of the demolition of two permanent buildings and two portable buildings, demolition of a second-story pedestrian bridge, construction of a staff parking lot, and construction of a new permanent building that provides adequate learning spaces and support areas. The project is located at 5101 East Sixth Street, northeast of the corner of East Sixth Street and Fraser Avenue in East Los Angeles, within the designated AB 617 East Los Angeles, Boyle Heights, and West Commerce community. Comment Period: 4/17/2024 - 5/17/2024 Public Hearing: 5/8/2024	Notice of Intent to Adopt a Mitigated Negative Declaration	Los Angeles Unified School District	Document reviewed - No comments sent

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

- Disposition may change prior to Governing Board Meeting
- Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Institutional (schools, government, etc.)</i> ORC240417-05 Concordia University Conditional Use Permit Modification	The project consists of updating the previously approved campus build-out from 2017 to shift certain square footage and residential units between the various approved development phases. The project is located at 1530 Concordia West on the southwest corner of Ridgeline Drive and University Drive. Reference ORC240221-23, ORC170411-02, ORC170303-03, ORC160802-04 and ORC150911-01 Comment Period: 4/17/2024 - 5/2/2024 Public Hearing: 5/2/2024	Other	City of Irvine	Document reviewed - No comments sent
<i>Institutional (schools, government, etc.)</i> RVC240417-02 Conditional Use Permit (PEN21-0175)	The project consists of a request for the approval of the Conditional Use Permit PEN21-0175 for the development of the Gerldine Gibson Community Center (approximately 3,874 square feet) on 1.78 acres within the Residential 15 (R15) district. The project is located east of Elsworth Street, south of Cottonwood Avenue, and west of Arvella Way. Comment Period: 4/17/2024 - 4/25/2024 Public Hearing: 4/25/2024	Other	City of Moreno Valley	Document reviewed - No comments sent
<i>Institutional (schools, government, etc.)</i> RVC240424-02 KC-46A Main Operating Base 5 (MOB 5) Final Environmental Impact Statement (FEIS)	The project consists of analyzing the potential environmental impacts associated with the proposal to beddown KC-46A tanker aircraft, associated infrastructure, and manpower for the Main Operating Base (MOB 5) where the Air Force Command (ARFC) leads a global refueling mission. The project is located near the southeast corner of Cactus Avenue and Heacock Street in Riverside. Reference RVC240124-05, RVC230712-10, and RVC221201-05 Comment Period: 4/19/2024 - 5/20/2024 Public Hearing: N/A	Final Environmental Impact Statement	Department of Defense, Department of the Air Force	Document reviewed - No comments sent

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

- Disposition may change prior to Governing Board Meeting
- Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
PREPARED BY OTHER PUBLIC AGENCIES
April 01, 2024 to April 30, 2024

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
Institutional (schools, government, etc.) SBC240410-08 Ontario Regional Sports Complex Environmental Impact Report	<p>The project consists of constructing 540,750 square feet of commercial building space, 450,000 square feet of stadium space, and 272,000 square feet of parking structures on 199.01 acres. The project is located near the northeast corner of Vineyard Avenue and Chino Avenue. Reference SBC231122-15 and SBC230920-10</p> <p>Staff previously provided comments on the Notice of Preparation for the project, which can be accessed at: https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/october-2023/SBC230920-10.pdf</p> <p>Comment Period: 4/4/2024 - 5/20/2024 Public Hearing: N/A</p>	Notice of Availability of a Draft Environmental Impact Report	City of Ontario	Document reviewed - No comments sent
Medical Facility RVC240411-02 AHC Skilled Nursing Facility	<p>The project consists of constructing a 42,526 square foot nursing facility on 5.75 acres with a proposed 5,000 to 10,000 square foot medical office building to be developed in the future. The project is located at the northeast corner of Bob Hope Drive and Gerald Ford Drive.</p> <p>Comment Period: 4/12/2024 - 5/11/2024 Public Hearing: N/A</p>	Notice of Intent to Adopt a Mitigated Negative Declaration	City of Rancho Mirage	Document reviewed - No comments sent
Retail LAC240424-01 Conditional Use Permit No. 341 and Variance No. 172 - Heavy Equipment Rental and Sales & Reduction in Required Parking	<p>The project consists of the Conditional Use Permit No. 341 and Variance No. 172 to establish and operate a heavy equipment rental and sales facility for landscaping equipment and vehicles with accessory office space and maintenance to reduce the amount of required on-site parking. The project is located at 14575 Firestone Boulevard, east of the corner of Firestone Boulevard and Phoebe Avenue.</p> <p>Comment Period: 4/24/2024 - 5/9/2024 Public Hearing: 5/16/2024</p>	Other	City of La Mirada	Document reviewed - No comments sent

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
Retail RVC240403-05 Beaumont Village Shopping Center Project; TPM 37440, PP2019-0222, CUP2017-0010, CUP2019-0037, CUP2019-0038, and PM2019-0006	The project consists of subdividing 2 accessor's parcels totaling 10 acres into eight parcels. Seven of the eight parcels (7.16 acres) will be for commercial uses as the Beaumont Village Shopping Center and the eighth parcel is to remain undeveloped. The project also consists of 3 fast-food restaurants with drive-throughs, a multi-tenant building with a drive-through, a retail building, a car wash, and a six-island/12 fuel dispenser fueling station (with two 20,000-gallon underground storage tanks (USTs)) with a convenience store. The project is located at 11867 Beaumont Avenue, on the northwest corner of Oak Valley Parkway and Beaumont Avenue. Reference RVC231024-03 Comment Period: 4/4/2024 - 5/3/2024 Public Hearing: 5/8/2024	Notice of Intent to Adopt a Mitigated Negative Declaration	City of Beaumont	Document reviewed - No comments sent
Retail RVC240410-07 Walmart Fuel Beaumont Project	The project consists of construction of a gasoline service station with 16 pumps on 1.29 acres. The project is located at 1540 East Second Street near the northeast corner of East Second Street and Commerce Way. Reference RVC220802-07 and RVC220503-01 Comment Period: 4/5/2024 - 5/6/2024 Public Hearing: 5/22/2024	Notice of Intent to Adopt an Initial Study/Mitigated Negative Declaration	City of Beaumont	Document reviewed - No comments sent
Retail RVC240424-09 Appeals (PLN24-0068 and PLN24-0069) of Planning Commission Decision of the Mister Car Wash and Day Care Project (Major Plot Plan No. PLN22-0289 and Major Conditional Use Permit No. PLN22-0288)	The project consists of the construction of a 5,434 square foot car wash and an 11,992 square foot day care with a 21,300 square foot play area. The project is located on the southeast corner of Newport Road and Menifee Road. Comment Period: 4/24/2024 - 5/1/2024 Public Hearing: 5/1/2024	Other	City of Menifee	Document reviewed - No comments sent

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
Retail SBC240419-03 Commission Sign Review No. 493	The project consists of constructing a 12-foot-high pedestal sign with a total sign face area of 23.95 square feet for a Nick's Burgers fast food restaurant. The project is located at 1626 West Redlands Boulevard. The sign will be placed in the southeast corner of the property. Comment Period: N/A Public Hearing: 4/23/2024	Other	City of Redlands	Document reviewed - No comments sent
General Land Use (residential, etc.) LAC240403-01 The Bloc	The project consists of constructing 466 residential units on 4.2 acres. The project is located at 700 South Flower Street, 700 West 7th Street, and 711 South Hope Street, on the western corner of 7th Street and South Hope Street. Reference LAC221220-08 Comment Period: 3/28/2024 - 5/13/2024 Public Hearing: N/A	Notice of Availability of a Draft Environmental Impact Report	City of Los Angeles	Document reviewed - No comments sent
General Land Use (residential, etc.) LAC240404-03 5700 Hannum Avenue Residential and Commercial Mixed-Use Project	The project consists of demolishing a 30,672 square foot building and constructing a mixed-use building with 309 residential units and 5,600 square feet of retail space on 2.23 acres. The project is located at 5700 Hannum Avenue, near the southwest corner of Buckingham Parkway and Hannum Avenue. Reference LAC230901-11 Comment Period: 4/4/2024 - 5/20/2024 Public Hearing: 4/30/2024	Notice of Availability of a Draft Environmental Impact Report	City of Culver City	Document reviewed - No comments sent
General Land Use (residential, etc.) LAC240410-09 Westminster Gardens Specific Plan Update	The project consists of repealing the existing Specific Plan and replacing it with a new Specific Plan to construct approximately 625,492 square feet of residential buildings with approximately 84,337 square feet of non-residential areas to address the long-term demand for senior housing over a 15-to-20-year span. The project is located northwest of the corner of Bradbourne Avenue and Central Avenue. https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2024/may-2024/LAC240410-09.pdf Comment Period: 4/4/2024 - 5/6/2024 Public Hearing: 4/30/2024	Notice of Preparation	City of Duarte	Comment letter sent on 5/6/2024

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
PREPARED BY OTHER PUBLIC AGENCIES
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	<u>PROJECT DESCRIPTION</u>	<u>TYPE OF DOC.</u>	<u>LEAD AGENCY</u>	<u>COMMENT STATUS</u>
PROJECT TITLE				
<i>General Land Use (residential, etc.)</i>	The project consists of constructing four residential units each ranging from 4,114 to 4,186 square feet on four existing vacant lots. The project is located at 24937 Mulholland Highway in Calabasas, northwest of the corner of Cold Canyon Road and Mulholland Highway.	Notice of Intent to Adopt a Mitigated Negative Declaration	Los Angeles County Department of Regional Planning	Document reviewed - No comments sent
LAC240416-09 2019-000010-(3): Green Hills Mulholland				
	Comment Period: 4/25/2024 - 5/28/2024			
<i>General Land Use (residential, etc.)</i>	The project consists of minor adjustments to the 2019 previously approved project (constructing 19,333 units for residential, warehouse, commercial, education and medical uses on 12,323 acres) which includes (1) allowing utility-scale battery storage and microgrids to improve the resilience of the Specific Plan's onsite renewable energy electricity program in support of the Net Zero GHG program, and (2) modifying the Specific Plan's internal roadway design standards to improve evacuation capacity for future project residents. The project is located near the northeast corner of State Route 138 and Interstate Highway 5 in the vicinity of Quail Lake south of the Kern County and Los Angeles County boundary line. Reference LAC180522-12, LAC180425-03, LAC180313-03, LAC180220-08, LAC170705-01 and LAC151001-10	Notice of Preparation	County of Los Angeles	Document reviewed - No comments sent
ODP240402-10 Centennial Specific Plan Project No. 02-232				
	Comment Period: 3/29/2024 - 4/27/2024			
<i>General Land Use (residential, etc.)</i>	The project consists of building 15 three-story residential buildings on 0.88 acres. The project is located at 12828 Newhope Street, at the southeast corner of Newhope Street and Zeta Street.	Notice of Intent to Adopt an Initial Study/Mitigated Negative Declaration	City of Garden Grove	Document reviewed - No comments sent
ORC240402-09 Newhope and Garden Grove Residential Project				
	Comment Period: 3/29/2024 - 4/17/2024			

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>General Land Use (residential, etc.)</i> RVC240402-01 Valley Reseda Silverbeach Grand (TTM 38066) (P21-010)	The project consists of building 206 residential units on 37.87 acres. The project is located northeast of the corner of North Ramona Boulevard and North Sanderson Avenue. Comment Period: 3/19/2024 - 4/18/2024 Public Hearing: N/A	Notice of Intent to Adopt a Mitigated Negative Declaration	City of San Jacinto	Document reviewed - No comments sent
<i>General Land Use (residential, etc.)</i> RVC240403-02 Mulberry Gardens Apartment	The project consists of a cleanup plan and alternatives to address areas of soil and soil vapor contaminated with pesticides, arsenic, lead, PCE, and petroleum hydrocarbons. The project is located at 2524 Mulberry Street in Riverside. Reference RVC240207-02 Comment Period: 3/27/2024 - 4/29/2024 Public Hearing: N/A	Draft Removal Action Workplan	Department of Toxic Substances Control	Document reviewed - No comments sent
<i>General Land Use (residential, etc.)</i> RVC240403-09 PR-2022-001252, Tentative Parcel Map (TPM-38638)	The project consists of constructing 388 residential units and 25,320 square feet of commercial retail space on 17.37 acres. The project is located at 5261 Arlington Avenue, northeast of the intersection of Arlington Avenue and Streeter Avenue. Comment Period: 3/29/2024 - 4/25/2024 Public Hearing: 4/25/2024	Other	City of Riverside	Document reviewed - No comments sent
<i>General Land Use (residential, etc.)</i> RVC240403-10 DP-2022-00047 (COA), DP-2022-00048 (EIR)	The project consists of the demolition of a 192,139 square foot building and all appurtenances. The project is located at 5229 Arlington Avenue, northwest of the intersection of Arlington Avenue and Capistrano Way. Comment Period: 3/21/2024 - 4/17/2024 Public Hearing: 4/17/2024	Other	City of Riverside	Document reviewed - No comments sent

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
PREPARED BY OTHER PUBLIC AGENCIES
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>General Land Use (residential, etc.)</i>	The project consists of constructing a 10,800 square foot residential building on 1.05 acres. The project is located at 5730 Jurupa Avenue, east of Sheppard Street and south of Jurupa Avenue.	Site Plan	City of Riverside	Document reviewed - No comments sent
RVC240410-06 PR-2024-001658 Design Review (DR)				
	Comment Period: 4/3/2024 - 4/15/2024 Public Hearing: N/A			
<i>General Land Use (residential, etc.)</i>	The project consists of constructing a 79-unit residential development on 8.31 acres. The project is located at 7394 Central Avenue, west of the corner of Central Avenue and 11th Street.	Site Plan	City of Highland	Document reviewed - No comments sent
SBC240403-04 Conditional Use Permit (CUP 23-010), Design Review Application (DRA 24-003)				
	Comment Period: 4/3/2024 - 4/17/2024 Public Hearing: N/A			
<i>General Land Use (residential, etc.)</i>	The project consists of a request for a one-year (2025) time extension for TPM No. 20475 and CUP No. 1138 to construct an apartment building with 131 units and 3 restaurant buildings on a vacant 3.8-acre site. The project is located at 212 and 216 Brookside Avenue.	Other	City of Redlands	Document reviewed - No comments sent
SBC240419-02 Tentative Parcel Map No. 20475 and Conditional Use Permit No. 1138				
	Comment Period: N/A Public Hearing: 4/23/2024			
<i>General Land Use (residential, etc.)</i>	The project consists of demolishing an existing parking lot and constructing a 20,351 square foot residential building with onsite parking, open areas, landscaping, and related site improvements on 0.39 acres. The project is located at 211 East Olive Avenue in the Village Corridor District of the Transit Villages Specific Plan.	Site Plan	City of Redlands	Document reviewed - No comments sent
SBC240419-04 Commission Review and Approval No. 960				
	Comment Period: N/A Public Hearing: 4/23/2024			

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
PREPARED BY OTHER PUBLIC AGENCIES
April 01, 2024 to April 30, 2024

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Plans and Regulations</i>	The project consists of revisions made to the 2021-2029 Housing Element which assess housing needs, densities, and development standards with a planning horizon of 2029. The project encompasses 5.71 square miles and is bounded by unincorporated areas of Los Angeles County to the north and west, City of West Hollywood to the east, and City of Culver City to the south. Reference LAC210907-09	Addendum to Mitigated Negative Declaration	City of Beverly Hills	Document reviewed - No comments sent
LAC240402-02 City of Beverly Hills 2021-2029 Housing Element Update				
	Comment Period: N/A			
<i>Plans and Regulations</i>	The project consists of the adoption and implementation of a comprehensive update to the Culver City General Plan and amendments to the City's Zoning Code to implement the General Plan Update to serve as a framework and guide for future planning-related decisions and development with a planning horizon of 2045. The project encompasses 5 square miles and is bounded by the City of Los Angeles to the north, south and west and unincorporated areas of Los Angeles County to the east. The project is also within the designated AB 617 South Los Angeles community. Reference LAC240221-15 and LAC220308-06 https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2024/may-2024/LAC240402-04.pdf	Notice of Availability of a Draft Program Environmental Impact Report	City of Culver City	Comment letter sent on 5/2/2024
LAC240402-04 Picture Culver City: General Plan 2045 and Zoning Code Update#				
	Comment Period: 3/28/2024 - 5/13/2024			
<i>Plans and Regulations</i>	The project consists of the rehabilitation and adaptive reuse of the Saks Fifth Avenue Women's Building, the retention of an existing commercial building for commercial use, and the construction of new residential, retail, office, and other related uses in the Specific Plan Area. The project is located on the southeast corner of Wilshire Boulevard and South Bedford Avenue. Reference LAC230316-02	Notice of Availability of a Draft Environmental Impact Report	City of Beverly Hills	Document reviewed - No comments sent
LAC240405-01 9600 Wilshire Boulevard Specific Plan				
	Comment Period: 4/5/2024 - 5/20/2024			
<i>Plans and Regulations</i>	The project consists of an Action Plan prepared by the City of Glendale Community Services and Parks Department for the fiscal year 2024-2025 Community Development Block Grant (CDBG), Emergency Shelter Grant (ESG), and HOME programs. The project is located in Glendale, California, which is s bounded by the cities of Burbank, Pasadena, La Canada Flintridge, and the Los Angeles neighborhoods of Tujunga, Eagle Rock, and Los Feliz.	Notice of Intent to Adopt a Negative Declaration	City of Glendale	Document reviewed - No comments sent
LAC240409-05 Fiscal Year 2024-2025 CDBG, ESG, and HOME Programs				
	Comment Period: 4/11/2024 - 5/1/2024			

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Plans and Regulations</i>	The project consists of subdividing 1.23 acres of land into three residential lots. The project is located at 20630 Gartel Drive, north of the corner of La Puente Road and Pierre Road.	Site Plan	City of Walnut	Document reviewed - No comments sent
LAC240410-01 Tentative Parcel Map (TTM) No. 83728	Comment Period: 4/10/2024 - 5/1/2024 Public Hearing: N/A			
<i>Plans and Regulations</i>	The project consists of adopting the General Plan Environmental Justice (EJ) Element to address and minimize the adverse effects of environmental hazards to create a healthy environment for all people. The project is located throughout the city of Bell Gardens, within the designated AB 617 Southeast Los Angeles community.	Notice of Intent to Adopt a Negative Declaration	City of Bell Gardens	Document reviewed - No comments sent
LAC240411-01 The City of Bell Gardens Environmental Justice Element#	Comment Period: 4/9/2024 - 5/9/2024 Public Hearing: 5/13/2024			
<i>Plans and Regulations</i>	The project consists of amending the urgency ordinance (No. 1693) related to single-family residential developments and urban lot splits pursuant to Senate Bill 9 within specified single-family residential zones (chapter 25.95). The project is located throughout the city of Laguna Beach.	Other	City of Laguna Beach	Document reviewed - No comments sent
ORC240410-04 Public Hearing for the Extension of Urgency Ordinance No. 1693	Comment Period: N/A Public Hearing: 4/9/2024			
<i>Plans and Regulations</i>	The project consists of amending the Laguna Beach Municipal Code Chapter 25.16 (Artists' Work/Live) to streamline the review of artist occupancy permit applications for artists proposing to occupy working and living units. The project is located throughout the city of Laguna Beach.	Other	City of Laguna Beach	Document reviewed - No comments sent
ORC240410-10 Zoning Ordinance Amendment 24-0519 and Local Coastal Program Amendment 24-0520	Comment Period: 3/20/2024 - 4/17/2024 Public Hearing: 4/17/2024			

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Plans and Regulations</i>				
ORC240417-07 Irvine 2045 General Plan Update	The project consists of updating the General Plan to accommodate the construction of 57,656 residential units in three focus areas. The boundaries of the first focus area are Barranca Parkway to the north, San Diego Creek to the east, Campus Drive to the south, and State Route 55 to the west. The boundaries of the second focus area are Barranca Parkway to the north, Alton Parkway to the east, Interstate 405 to the south, and Sand Canyon Avenue to the west. The boundaries of the third focus area are State Route 241 to the north, Alton Parkway to the east, Interstate 405 to the south, and State Route 133 to the west. Reference ORC240319-01 and ORC230801-01 Comment Period: N/A Public Hearing: 4/23/2024	Other	City of Irvine	Document reviewed - No comments sent
<i>Plans and Regulations</i>				
ORC240418-01 City of Newport Beach General Plan 2021-2029 6th Cycle Housing Element Implementation Program Amendment (PA2022-0245)	The project consists of amendments to the City's 2021-2029 Housing Element plan to establish programs, policies, and actions for future construction of all income housing in six areas of Newport Beach: Airport Area, West Newport Mesa, Dover-Westcliff, Newport Center, Coyote Canyon, and Banning Ranch. The project is bounded by Interstate 405 to the North, State Route 73 to east, and the Pacific Ocean to the south and west. Reference ORC240214-11 and ORC230705-06 Comment Period: N/A Public Hearing: 4/18/2024	Notice of Availability of Draft Local Coastal Program Amendment	City of Newport Beach	Document reviewed - No comments sent
<i>Plans and Regulations</i>				
RVC240417-01 March JPA Environmental Justice Element (GP 23-02)	This project consists of including the Environmental Justice Element as part of the March Joint Powers Authority General Plan. The project is located between the Cities of Moreno Valley, Perris, Riverside and the County of Riverside. Reference RVC240207-11, RVC240110-01, and RVC231212-05 Comment Period: 4/17/2024 - 4/24/2024 Public Hearing: 4/24/2024	Other	March Joint Powers Authority	Document reviewed - No comments sent

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT B
ACTIVE PROJECTS WITH CONTINUED REVIEW OF ENVIRONMENTAL DOCUMENTS PREPARED BY
OTHER PUBLIC AGENCIES

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Utilities</i>	The project consists of developing and constructing a 250-megawatt (MW) alternating current (AC) solar photovoltaic (PV) energy generating project and a 5.9-mile-long, 230 kV generation tie (gen-tie) line to the approved Arica and Victory Pass substation on 3,487 acres. The Project is located on federal lands in Chuckwalla Valley in Riverside County, and 8.5 miles east of the unincorporated area of Desert Center.	Site Plan	United States Department of the Interior Bureau of Land Management California Desert District	Under review, may submit comments
RVC240327-01 Redonda Solar Project CACA 059387				
	Comment Period: N/A Public Hearing: 4/15/2024			
<i>Warehouse & Distribution Centers</i>	The project consists of demolishing a 144,906 square foot building and constructing and operating a 165,803 square foot warehouse on 8.83 acres. The project is located at 26200 Enterprise Way. Off-site improvements are located at five intersections to enhance public safety and address concerns related to large truck turning movements: Bake Parkway/Commercentre Drive, Bake Parkway/Dimension Drive, Dimension Drive/Commercentre Drive/Enterprise Way, Lake Forest Drive/Dimension Drive, and Lake Forest Drive/Rancho Parkway. https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2024/april-2024/ORC240326-05.pdf	Notice of Preparation	City of Lake Forest	Comment letter sent on 4/18/2024
ORC240326-05 IPT Enterprise Business Center LLC Project				
	Comment Period: 3/20/2024 - 4/18/2024 Public Hearing: 4/3/2024			
<i>Warehouse & Distribution Centers</i>	The project consists of construction of a 700,037 square foot warehouse on 40.03 acres. The project is located on the southeast corner of Ethanac Road and Wheat Street. Reference RVC220503-10 https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2024/april-2024/RVC240313-05.pdf	Notice of Availability of a Draft Environmental Impact Report	City of Menifee	Comment letter sent on 4/17/2024
RVC240313-05 CADO Menifee Industrial Warehouse Project, Tentative Parcel Map (TPM) No. PLN22-0041, and Plot Plan No. PLN 21-0370				
	Comment Period: 3/13/2024 - 4/27/2024 Public Hearing: N/A			
<i>Industrial and Commercial</i>	The project consists of soil vapor extraction, in-situ chemical oxidation, and reductive bioremediation activities on a 0.32-acre site to reduce various volatile organic compounds in soil and groundwater. The project is located at 8325 Hindry Avenue in Los Angeles. https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2024/april-2024/LAC240320-05.pdf	Public Notice	Department of Toxic Substances Control	Comment letter sent on 4/18/2024
LAC240320-05 Charles Caine Company, Inc.				
	Comment Period: 3/18/2024 - 4/17/2024 Public Hearing: N/A			

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County

Notes:

- Disposition may change prior to Governing Board Meeting
- Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT B
ACTIVE PROJECTS WITH CONTINUED REVIEW OF ENVIRONMENTAL DOCUMENTS PREPARED BY
OTHER PUBLIC AGENCIES

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Waste and Water-related</i>	<p>The project consists of a cleanup plan which proposes a combination of Alternatives 2 (Soil Vapor Extraction (SVE) with monitoring and 4 (SVE including installation of a Vapor Intrusion Mitigation System (VIMS) with monitoring to address soil and soil vapor contaminated with residual volatile organic compounds (VOCs). The project is located at the southeast corner of the intersection of Union Street and Park Street (formerly South Chris Lane) in Anaheim.</p> <p>https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2024/april-2024/ORC240326-04.pdf</p> <p>Comment Period: 3/18/2024 - 4/18/2024 Public Hearing: N/A</p>	Draft Removal Action Workplan	Department of Toxic Substances Control	Comment letter sent on 4/18/2024
ORC240326-04 Lennar Parcel F				
<i>Waste and Water-related</i>	<p>The project consists of the installation and operation of a 612,000-gallon water storage reservoir tank that will replace the existing 100,000-gallon Wolf Reservoir. The project also includes the replacement of the existing pump station and the improvement of a portion of the existing access road within the project site. The project is located at the northeast corner of the intersection of Wolf Road and Coyote Court.</p> <p>https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2024/april-2024/SBC240313-01.pdf</p> <p>Comment Period: 3/7/2024 - 4/6/2024 Public Hearing: N/A</p>	Notice of Intent to Adopt a Mitigated Negative Declaration	City of Big Bear Lake	Comment letter sent on 4/4/2024
SBC240313-01 Wolf Reservoir and Booster Replacement Project				
<i>General Land Use (residential, etc.)</i>	<p>The project consists of constructing 223 residential units, a church, and 982,232 square feet of business park uses on 110.2 acres. The project is located northeast of Interstate 10 and Calimesa Boulevard, southeast of Singleton Road, and south of Beckwith Avenue.</p> <p>Reference RVC230817-02</p> <p>https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2024/may-2024/RVC240328-01.pdf</p> <p>Comment Period: 3/22/2024 - 5/6/2024 Public Hearing: N/A</p>	Notice of Availability of a Draft Environmental Impact Report	City of Calimesa	Comment letter sent on 5/2/2024
RVC240328-01 Oak Valley North (OVN) Project				
<i>Plans and Regulations</i>	<p>The project consists of updating the General Plan to accommodate the construction of 57,656 residential units in three focus areas. The boundaries of the first focus area are Barranca Parkway to the north, San Diego Creek to the east, Campus Drive to the south, and State Route 55 to the west. The boundaries of the second focus area are Barranca Parkway to the north, Alton Parkway to the east, Interstate 405 to the south, and Sand Canyon Avenue to the west. The boundaries of the third focus area are State Route 241 to the north, Alton Parkway to the east, Interstate 405 to the south, and State Route 133 to the west.</p> <p>Reference ORC230801-01</p> <p>https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2024/april-2024/ORC240319-01.pdf</p> <p>Comment Period: 3/15/2024 - 4/29/2024 Public Hearing: N/A</p>	Notice of Availability of a Draft Program Environmental Impact Report	City of Irvine	Comment letter sent on 4/26/2024
ORC240319-01 Irvine 2045 General Plan Update				

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County

Notes:

- Disposition may change prior to Governing Board Meeting
- Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT C
PROPOSED AIR PERMIT PROJECTS FOR
WHICH SOUTH COAST AQMD IS CEQA
LEAD AGENCY THROUGH APRIL 30, 2024

PROJECT DESCRIPTION	PROPONENT	TYPE OF DOCUMENT	STATUS	CONSULTANT
Quemetco is proposing to modify existing South Coast AQMD permits to allow the facility to recycle more batteries and to eliminate the existing daily idle time of the furnaces. The proposed project will increase the rotary feed drying furnace feed rate limit from 600 to 750 tons per day and increase the amount of total coke material allowed to be processed. In addition, the project will allow the use of petroleum coke in lieu of or in addition to calcined coke and remove one existing emergency diesel-fueled internal combustion engine (ICE) and install two new emergency naturalgas-fueled ICEs.	Quemetco	Environmental Impact Report (EIR)	<p>The Draft EIR was released for a 124-day public review and comment period from October 14, 2021 to February 15, 2022 and approximately 200 comment letters were received.</p> <p>South Coast AQMD held two community meetings, on November 10, 2021 and February 9, 2022, which presented an overview of the proposed project, the CEQA process, detailed analysis of the potentially significant environmental topic areas, and the existing regulatory safeguards. Response to written comments submitted relative to the Draft EIR and oral comments made at the community meetings are currently being prepared by the consultant.</p> <p>After the Draft EIR public comment and review period closed, Quemetco submitted additional applications for other permit modifications. South Coast AQMD staff is evaluating the effect of these new applications on the EIR process.</p>	Trinity Consultants
Sunshine Canyon Landfill is proposing to modify its South Coast AQMD permits for its active landfill gas collection and control system to accommodate the increased collection of landfill gas. The proposed project will: 1) install two new low emission flares with two additional 300-horsepower electric blowers; and 2) increase the landfill gas flow limit of the existing landfill gas collection system.	Sunshine Canyon Landfill	Subsequent Environmental Impact Report (SEIR)	South Coast AQMD staff reviewed and provided comments on the preliminary air quality analysis, health risk assessment (HRA), and Preliminary Draft SEIR which are currently being addressed by the consultant.	Castle Environmental Consulting
Tesoro is proposing to modify its Title V permit to: 1) add gas oil as a commodity that can be stored in three of the six new crude oil storage tanks at the Carson Crude Terminal (previously assessed in the May 2017 Final EIR); and 2) drain, clean and decommission Reservoir 502, a 1.5-million-barrel concrete lined, wooden-roof topped reservoir used to store gasoil.	Tesoro Refining & Marketing Company, LLC (Tesoro)	Addendum to the Final Environmental Impact Report (EIR) for the May 2017 Tesoro Los Angeles Refinery Integration and Compliance Project (LARIC)	South Coast AQMD staff received a revised Preliminary Draft Addendum, which is currently being reviewed.	Environmental Audit, Inc.

 [Back to Agenda](#)

BOARD MEETING DATE: June 7, 2024

AGENDA NO. 14

REPORT: Rule and Control Measure Forecast

SYNOPSIS: This report highlights South Coast AQMD rulemaking activities and public hearings scheduled for 2024.

COMMITTEE: No Committee Review

RECOMMENDED ACTION:
Receive and file.

Wayne Nastri
Executive Officer

SLR:MK:IM:JA:ZS

2024 MASTER CALENDAR

The 2024 Master Calendar provides a list of proposed or proposed amended rules for each month, with a brief description, and a notation in the third column indicating if the rulemaking is for an AQMP, either the 2016 AQMP or 2022 AQMP, when adopted, Toxics, AB 617 (for BARCT) or measures identified in an AB 617 Community Emission Reduction Plan (CERP), SIP to address comments or actions from U.S. EPA for a rule that is in an approved SIP, or Other. Rulemaking efforts that are noted for implementation of the 2016 AQMP or 2022 AQMP when adopted, Toxics, and AB 617 are either statutorily required and/or are needed to address a public health concern. Projected emission reductions will be determined during rulemaking.

The following symbols next to the rule number indicate if the rulemaking will be a potentially significant hearing, will reduce criteria pollutants, or is part of the RECLAIM transition. Symbols have been added to indicate the following:

- * *This rulemaking may have a substantial number of public comments.*
- + *This rulemaking will reduce criteria air contaminants and assist toward attainment of ambient air quality standards.*
- # *This rulemaking is part of the transition of RECLAIM to a command-and-control regulatory structure.*

The following table provides a list of changes since the previous Rule Forecast Report.

1135	Emissions of Oxides of Nitrogen from Electricity Generating Facilities
Proposed Amended Rule 1135 is being moved from August to October 2024 to allow time to complete the CEQA analysis.	
1165	Control of Emissions from Municipal Solid Waste Incinerators
Proposed Rule 1165 is being moved from Fourth Quarter to September 2024 as BARCT assessment has been completed ahead of schedule.	
1173	Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants
Proposed Amended Rule 1173 is being moved from September to October 2024 to allow additional time to conduct the BARCT assessment.	

2024 MASTER CALENDAR

Month	Title and Description	Type of Rulemaking
August		
1148.1* ⁺	Oil and Gas Production Wells Proposed Amendments to Rule 1148.1 are needed to further reduce emissions from operations and implement early leak detection, odor minimization plans, and enhanced emissions and chemical reporting from oil and drilling sites. <i>Michael Morris 909.396.3282; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AQMP / AB 617 CERP
2306* ⁺ 316.2	Freight Rail Yards Fees for Rule 2306 Proposed Rule 2306 will establish requirements to reduce emissions from new and existing freight rail yards and the mobile sources attracted to these facilities. Proposed Rule 316.2 will establish fees to recover the South Coast AQMD's anticipated cost of implementing Proposed Rule 2306 <i>Elaine Shen 909.396.2715; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AQMP / AB 617 CERP
September		
1165	Control of Emissions from Municipal Solid Waste Incinerators Proposed Rule 1165 will establish emission standards, source testing, and monitoring, recordkeeping, and reporting requirements for incinerators. <i>Michael Morris 909.396.3282; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AQMP / Other
1445*	Control of Toxic Emissions from Laser Arc Cutting Proposed Rule 1445 will establish requirements to reduce hexavalent chromium and other metal toxic air contaminant particulate emissions from laser arc cutting. <i>Kalam Cheung 909.396.3281; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics / AB 617 CERP
October		
1135 ⁺	Emissions of Oxides of Nitrogen from Electricity Generating Facilities Proposed Amended Rule 1135 will modify provisions for electricity generating units at Santa Catalina Island to reflect a revised BARCT assessment. <i>Michael Morris 909.396.3282; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AQMP / AB 617 BARCT

* Potentially significant hearing

⁺ Reduce criteria air contaminants and assist toward attainment of ambient air quality standards

[#] Part of the transition of RECLAIM to a command-and-control regulatory structure

2024 MASTER CALENDAR *(Continued)*

Month	Title and Description	Type of Rulemaking
October (Continued)		
1173 ⁺	Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants Proposed Amended Rule 1173 will further reduce emissions from petroleum, include contingency provisions, and chemical plants by requiring early leak detection approaches. <i>Michael Morris 909.396.3282; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AQMP / AB 617 CERP
November		
1159.1 [#]	Control of NOx Emissions from Nitric Acid Tanks Proposed Rule 1159.1 will establish requirements to reduce NOx emissions from nitric acid units that will apply to RECLAIM, former RECLAIM, and non-RECLAIM facilities. <i>Kalam Cheung 909.396.3281; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AQMP / AB 617 BARCT
1401	New Source Review of Toxic Air Contaminants Proposed Amended Rule 1401 will amend Table 1 to include new toxic air contaminants identified by California Office of Environmental Health Hazard Assessment (OEHHA). <i>Kalam Cheung 909.396.3281; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics / Other
December		
1111	Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces Proposed Amended Rule 1111 will implement the 2022 AQMP control measure R-CMB-02 requiring zero emission residential space heating. <i>Heather Farr 909.396.3672; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AQMP
1121 [*]	Control of Nitrogen Oxides from Residential Type, Natural-Gas-Fired Water Heaters Proposed amendments may be needed to further reduce NOx emissions from water heaters. <i>Heather Farr 909.396.3672; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AQMP

^{*} Potentially significant hearing

⁺ Reduce criteria air contaminants and assist toward attainment of ambient air quality standards

[#] Part of the transition of RECLAIM to a command-and-control regulatory structure

2024 MASTER CALENDAR *(Continued)*

Month	Title and Description	Type of Rulemaking
December (Continued)		
Regulation XIII* [#]	New Source Review Proposed Amended Regulation XIII will revise New Source Review provisions to address facilities that are transitioning from RECLAIM to a command-and-control regulatory structure and to address comments from U.S. EPA. Additional rules under Regulation XIII may be needed to address offsets and other provisions under Regulation XIII. <i>Michael Morris 909.396.3282; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AQMP
Regulation XX* [#]	RECLAIM Proposed Amended Regulation XX will address the transition of NOx RECLAIM facilities to a command-and-control regulatory structure. <i>Michael Morris 909.396.3282; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AQMP
2304* ⁺ 316.1	Commercial Marine Ports – Container Terminals Fees for Rule 2304 Proposed Rule 2304 will establish requirements to reduce emissions from container terminals located at commercial marine ports and the mobile sources attracted to these facilities. Proposed Rule 316.1 will establish fees to recover the South Coast AQMD’s anticipated cost of implementing Proposed Rule 2304. <i>Elaine Shen 909 396. 2715; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AQMP / AB 617 CERP

* *Potentially significant hearing*

+ *Reduce criteria air contaminants and assist toward attainment of ambient air quality standards*

Part of the transition of RECLAIM to a command-and-control regulatory structure

2024 To-Be-Determined

2024	Title and Description	Type of Rulemaking
102	Definition of Terms Proposed amendments may be needed to update and add definitions, and potentially modify exemptions. <i>TBD; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Other
103	Definition of Geographical Areas Proposed amendments are needed to update geographic areas to be consistent with state and federal references to those geographic areas. <i>TBD; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Other
209	Transfer and Voiding of Permits Proposed amendments may be needed to clarify requirements for change of ownership and permits and the assessment of associated fees. <i>Kalam Cheung 909.396.3281; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Other
223	Emission Reduction Permits for Large Confined Animal Facilities Proposed Amended Rule 223 will seek additional ammonia emission reductions from large, confined animal facilities by lowering the applicability threshold. Proposed amendments will implement BCM-04 in the 2016 AQMP. <i>TBD; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AQMP
403	Fugitive Dust Proposed Amended Rule 403 will seek to remove outdated provisions and clarify existing provisions to enhance compliance. <i>TBD; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Other
403.1	Supplemental Fugitive Dust Control Requirements for Coachella Valley Sources Proposed Amended Rule 403.1 will clarify existing requirements for dust control and remove outdated provisions contained in supporting documents for Rule 403.1. <i>TBD; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Other
407 [#]	Liquid and Gaseous Air Contaminants Proposed Amended Rule 407 will update SO _x emission limits to reflect Best Available Retrofit Control Technology, if needed, remove exemptions for RECLAIM facilities, and update monitoring, reporting, and recordkeeping requirements. <i>TBD; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AB 617 BARCT

* Potentially significant hearing

+ Reduce criteria air contaminants and assist toward attainment of ambient air quality standards

Part of the transition of RECLAIM to a command-and-control regulatory structure

2024 To-Be-Determined (*Continued*)

2024	Title and Description	Type of Rulemaking
410	Odors from Transfer Stations and Material Recovery Facilities Proposed Amended Rule 410 will clarify existing provisions. Additional provisions may be needed to address activities associated with diversion of food waste to transfer stations or material recovery facilities. <i>TBD; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Other
425	Odors from Cannabis Processing Proposed Rule 425 will establish requirements for control of odors from cannabis processing. <i>TBD; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Other
430	Breakdown Provisions Amendments to Rule 430 will be needed to remove exemptions for facilities that exit the RECLAIM program and update references to CEMS rules. Other amendments may be needed to address current policies from U.S. EPA regarding startup, shutdown, and malfunction requirements. <i>TBD; CEQA and Socio: Barbara Radlein 909.396.2716</i>	RECLAIM / Other
431.1 [#]	Sulfur Content of Gaseous Fuels Proposed Amended Rule 431.1 will assess exemptions, including RECLAIM, and update other provisions, if needed. <i>Heather Farr 909.396.3672; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AB 617 BARCT / AB 617 CERP
431.2 [#]	Sulfur Content of Liquid Fuels Proposed Amended Rule 431.2 will assess exemptions, including RECLAIM, and update other provisions, if needed. <i>Heather Farr 909.396.3672; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AB 617 BARCT / AB 617 CERP
431.3 [#]	Sulfur Content of Fossil Fuels Proposed Amended Rule 431.3 will assess exemptions, including RECLAIM, and update other provisions, if needed. <i>Heather Farr 909.396.3672; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AB 617 BARCT / AB 617 CERP
444	Open Burning Amendments may be needed to clarify existing provisions. <i>TBD; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Other
445 [*]	Wood Burning Devices Proposed Amended Rule 445 will address additional U.S. EPA requirements for Best Available Control Measures, including lowering the curtailment threshold. <i>TBD; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AQMP

* Potentially significant hearing

+ Reduce criteria air contaminants and assist toward attainment of ambient air quality standards

Part of the transition of RECLAIM to a command-and-control regulatory structure

2024 To-Be-Determined (*Continued*)

2024	Title and Description	Type of Rulemaking
461	Gasoline Transfer and Dispensing Amendments to Rule 461 may be needed to address potential regulatory gaps. <i>TBD; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Other
462	Organic Liquid Loading Proposed Amended Rule 462 will incorporate the use of advanced techniques to detect fugitive emissions and Facility Vapor Leak. Other amendments may be needed to streamline implementation and add clarity. <i>TBD; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Other
468 [#]	Sulfur Recovery Units Proposed Amended Rule 468 will update SO _x emission limits to reflect Best Available Retrofit Control Technology, if needed, remove exemptions for RECLAIM facilities, and update monitoring, reporting, and recordkeeping requirements. <i>TBD; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AB 617 BARCT
469 [#]	Sulfuric Acid Units Proposed Amended Rule 469 will update SO _x emission limits to reflect Best Available Retrofit Control Technology, if needed, remove exemptions for RECLAIM facilities, and update monitoring, reporting, and recordkeeping requirements. <i>TBD; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AB 617 BARCT
1101 [#]	Secondary Lead Smelters/Sulfur Oxides Proposed Amended Rule 1101 will update SO _x emission limits to reflect Best Available Retrofit Control Technology, if needed, remove exemptions for RECLAIM facilities, and update monitoring, reporting, and recordkeeping requirements. <i>TBD; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AB 617 BARCT
1102	Dry Cleaners Using Solvent Other Than Perchloroethylene Proposed amendments may be needed to address certain exempt compounds, VOC limits for certain applications, and other amendments to improve clarity. <i>Michael Morris 909.396.3282; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AB 617 CERP
1105 [#]	Fluid Catalytic Cracking Units SO_x Proposed Amended Rule 1105 will update SO _x emission limits to reflect Best Available Retrofit Control Technology, if needed, remove exemptions for RECLAIM facilities, and update monitoring, reporting, and recordkeeping requirements. <i>TBD; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AB 617 BARCT / AB 617 CERP

* Potentially significant hearing

+ Reduce criteria air contaminants and assist toward attainment of ambient air quality standards

[#] Part of the transition of RECLAIM to a command-and-control regulatory structure

2024 To-Be-Determined (*Continued*)

2024	Title and Description	Type of Rulemaking
1107	Coating of Metal Parts and Products Proposed amendments may be needed to address certain exempt compounds, VOC limits for certain applications, and other amendments to improve clarity. <i>Heather Farr 909.396.3672; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics / Other
1108	Cutback Asphalt Proposed amendments may be needed to address certain exempt compounds, VOC limits for certain applications, and other amendments to improve clarity. <i>Heather Farr 909.396.3672; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics / Other
1108.1	Emulsified Asphalt Proposed amendments may be needed to address certain exempt compounds, VOC limits for certain applications, and other amendments to improve clarity. <i>Heather Farr 909.396.3672; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics/ Other
1110.2*+ #	Emissions from Gaseous- and Liquid-Fueled Engines Proposed amendments will address use of emergency standby engines, incorporate possible comments by U.S. EPA for approval into the SIP, and address monitoring provisions for new engines. <i>Michael Morris 909.396.3282; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AQMP / AB 617 BARCT
1110.4	Emissions from Emergency Generators Proposed Rule 1110.4 will establish and revise rule provisions to reduce NOx, CO, and PM emissions from emergency generators. <i>Michael Morris 909.396.3282; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Other / AQMP
1113	Architectural Coatings Proposed amendments may be needed to address delisted compounds and other amendments to improve clarity and to remove obsolete provisions. <i>Heather Farr 909.396.3672; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Other
1114	Petroleum Refinery Coking Operations Proposed Amended Rule 1114 will seek to add notification requirements when coke particles, liquid and/or gas is ejected from the coke drum during cutting. <i>TBD; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Other

* Potentially significant hearing

+ Reduce criteria air contaminants and assist toward attainment of ambient air quality standards

Part of the transition of RECLAIM to a command-and-control regulatory structure

2024 To-Be-Determined (*Continued*)

2024	Title and Description	Type of Rulemaking
1119 [#]	Petroleum Coke Calcining Operations – Oxides of Sulfur Proposed Amended Rule 1119 will update SOx emission limits to reflect Best Available Retrofit Control Technology, if needed, remove exemptions for RECLAIM facilities, and update monitoring, reporting, and recordkeeping requirements. <i>TBD; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AB 617 BARCT / AB 617 CERP
1122	Solvent Degreasers Proposed amendments may be needed to address certain exempt compounds, VOC limits for certain applications, and other amendments to improve clarity. <i>Heather Farr 909.396.3672; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics / Other
1124	Aerospace Assembly and Component Manufacturing Operations Proposed amendments may be needed to address certain exempt compounds, VOC limits for certain applications, and other amendments to improve clarity. <i>Heather Farr 909.396.3672; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics / Other
1125	Metal Container, Closure, and Coil Coating Operations Proposed amendments may be needed to address certain exempt compounds, VOC limits for certain applications, and other amendments to improve clarity. <i>Heather Farr 909.396.3672; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics / Other
1126	Magnet Wire Coating Operations Proposed amendments may be needed to address certain exempt compounds, VOC limits for certain applications, and other amendments to improve clarity. <i>Heather Farr 909.396.3672; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics / Other
1128	Paper, Fabric, and Film Coating Operations Proposed amendments may be needed to address certain exempt compounds, VOC limits for certain applications, and other amendments to improve clarity. <i>Heather Farr 909.396.3672; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics / Other
1130	Graphic Arts Proposed amendments may be needed to address certain exempt compounds, VOC limits for certain applications, and other amendments to improve clarity. <i>Heather Farr 909.396.3672; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics / Other

* *Potentially significant hearing*

+ *Reduce criteria air contaminants and assist toward attainment of ambient air quality standards*

Part of the transition of RECLAIM to a command-and-control regulatory structure

2024 To-Be-Determined (*Continued*)

2024	Title and Description	Type of Rulemaking
1130.1	Screen Printing Operations Proposed amendments may be needed to address certain exempt compounds, VOC limits for certain applications, and other amendments to improve clarity. <i>Heather Farr 909.396.3672; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics / Other
1133.3	Emission Reductions from Greenwaste Composting Operations Proposed Amended Rule 1133.3 will seek additional VOCs and ammonia emission reductions from greenwaste and foodwaste composting. Proposed amendments will implement BCM-10 in the 2016 AQMP. <i>Michael Morris 909.396.3282; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AQMP
1136	Wood Products Coatings Proposed amendments may be needed to address certain exempt compounds, VOC limits for certain applications, and other amendments to improve clarity. <i>Heather Farr 909.396.3672; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics / Other
1138 ⁺	Control of Emissions from Restaurant Operations Proposed Amended Rule 1138 will further reduce emissions from underfired charboilers. <i>Heather Farr 909.396.3672; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AQMP
1142	Marine Tank Vessel Operations Proposed Amended Rule 1142 will address VOC and hydrogen sulfide emissions from marine tank vessel operations, applicability, noticing requirements, and provide clarifications. <i>TBD; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Other
1143	Consumer Paint Thinners and Multi-Purpose Solvents Proposed amendments may be needed to address certain exempt compounds, VOC limits for certain applications, and other amendments to improve clarity. <i>Heather Farr 909.396.3672; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics / Other
1144	Metalworking Fluids and Direct-Contact Lubricants Proposed amendments may be needed to address certain exempt compounds, VOC limits for certain applications, and other amendments to improve clarity. <i>Heather Farr 909.396.3672; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics / Other
1145	Plastic, Rubber, Leather, and Glass Coatings Proposed amendments may be needed to address certain exempt compounds, VOC limits for certain applications, and other amendments to improve clarity. <i>Heather Farr 909.396.3672; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics / Other

* *Potentially significant hearing*

+ *Reduce criteria air contaminants and assist toward attainment of ambient air quality standards*

Part of the transition of RECLAIM to a command-and-control regulatory structure

2024 To-Be-Determined (*Continued*)

2024	Title and Description	Type of Rulemaking
1146	Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters Proposed amendments to Rule 1146 may be needed to incorporate comments from U.S. EPA. <i>TBD; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Other
1146.1 [#]	Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters Proposed amendments to Rule 1146.1 may be needed to clarify provisions for industry-specific categories and to incorporate comments from U.S. EPA. <i>Heather Farr 909.396.3672; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Other
1151	Motor Vehicle and Mobile Equipment Non-Assembly Line Coating Operations Proposed Amended Rule 1151 will provide clarifications of current requirements and amend provisions to address implementation issues. <i>Heather Farr 909.396.3672; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Other / AB 617 CERP
1162	Polyester Resin Operations Proposed amendments may be needed to address certain exempt compounds, VOC limits for certain applications, and other amendments to improve clarity. <i>Heather Farr 909.396.3672; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics / Other
1166	Volatile Organic Compound Emissions from Decontamination of Soil Proposed Amended Rule 1166 will update requirements, specifically concerning notifications and usage of mitigation plans (site specific versus various locations). <i>Michael Morris 909.396.3282; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Other
1171	Solvent Cleaning Operations Proposed Amendments to Rule 1171 may be needed to address certain exempt chemicals and compliance issues. <i>Michael Morris 909.396.3282; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics / Other
1174	Control of Volatile Organic Compound Emissions from the Ignition of Barbecue Charcoal Proposed amendments may be needed to address certain exempt compounds, VOC limits for certain applications, and other amendments to improve clarity. <i>Heather Farr 909.396.3672; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AQMP / Other

* *Potentially significant hearing*

+ *Reduce criteria air contaminants and assist toward attainment of ambient air quality standards*

Part of the transition of RECLAIM to a command-and-control regulatory structure

2024 To-Be-Determined (*Continued*)

2024	Title and Description	Type of Rulemaking
1176	VOC Emissions from Wastewater Systems Proposed Amended Rule 1176 will clarify the applicability of the rule to include bulk terminals under definition of “Industrial Facilities,” and streamline and clarify provisions. <i>TBD; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Other / AB 617 CERP
1186.1, 1191, 1192, 1193, 1194, 1195, 1196* +	Fleet Rules Proposed amendments to Rules 1186.1, 1191, 1192, 1193, 1194, 1195, 1196 will seek to align South Coast AQMD fleet rules with CARB’s final Advanced Clean Fleets regulation should it be adopted. <i>Vicki White 909.396.3436; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AQMP / Other
1403*	Asbestos Emissions from Demolition/Renovation Activities Proposed Amended Rule 1403 will enhance implementation, improve rule enforceability, update provisions, notifications, exemptions, and align provisions with the applicable U.S. EPA National Emission Standard for Hazardous Air Pollutants (NESHAP) and other state and local requirements as necessary. <i>Kalam Cheung 909.396.3281; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics
1404	Hexavalent Chromium Emissions from Cooling Towers Amendments may be needed to provide additional clarifications regarding use of process water that is associated with sources that have the potential to contain chromium in cooling towers and address VOC emissions. <i>TBD; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics / AQMP
1411	Recovery or Recycling of Refrigerants from Motor Vehicle Air Conditioners Proposed Amended Rule 1411 seeks amendments to coincide with Section 609 of the Clean Air Act. <i>TBD; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics
1415 1415.1	Reduction of Refrigerant Emissions from Stationary Air Conditioning Systems, and Reduction of Refrigerant Emissions from Stationary Refrigeration Systems Proposed Amended Rules 1415 and 1415.1 will align requirements with the proposed CARB Refrigerant Management Program and U.S. EPA’s Significant New Alternatives Policy Rule provisions relative to prohibitions on specific hydrofluorocarbons. <i>TBD; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Other

* Potentially significant hearing

+ Reduce criteria air contaminants and assist toward attainment of ambient air quality standards

Part of the transition of RECLAIM to a command-and-control regulatory structure

2024 To-Be-Determined (*Continued*)

2024	Title and Description	Type of Rulemaking
1420	Emissions Standard for Lead Proposed Amended Rule 1420 will update requirements to address arsenic emissions to close a regulatory gap between Rule 1420 and Rule 1407 - Control of Emissions of Arsenic, Cadmium, and Nickel from Non-Ferrous Metal Melting Operations. Other provisions may be needed to address storage and handling requirements, and revise closure requirements. <i>Michael Morris 909.396.3282; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics
1420.1	Emission Standards for Lead and Other Toxic Air Contaminants from Large Lead-Acid Battery Recycling Facilities Proposed Amendments are needed to update applicable test methods and provide clarifications regarding submittal of a source-test protocol. Additional amendments may be needed to address monitoring and post closure requirements. <i>Michael Morris 909.396.3282; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics
1420.2	Emission Standards for Lead from Metal Melting Facilities Proposed Amended Rule 1420.2 will update requirements to address arsenic emissions to close a regulatory gap between Rule 1420 and Rule 1407 - Control of Emissions of Arsenic, Cadmium, and Nickel from Non-Ferrous Metal Melting Operations. Additional amendments may be needed to address monitoring and post closure requirements. <i>Kalam Cheung 909.396.3281; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics
1420.3	Emissions Standards for Lead from Firing Ranges Proposed Rule 1420.3 will establish requirements to address lead emissions from firing ranges. <i>Kalam Cheung 909.396.3281; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics / Other
1426.1	Hexavalent Chromium Emissions from Metal Finishing Operations Proposed Rule 1426.1 will reduce hexavalent chromium emissions from heated chromium tanks used at facilities with metal finishing operations that are not subject to Rule 1469. <i>Kalam Cheung 909.396.3281; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics

* *Potentially significant hearing*

+ *Reduce criteria air contaminants and assist toward attainment of ambient air quality standards*

Part of the transition of RECLAIM to a command-and-control regulatory structure

2024 To-Be-Determined (*Continued*)

2024	Title and Description	Type of Rulemaking
1435*	Control of Toxic Air Contaminant Emissions from Metal Heating Operations Proposed Rule 1435 will establish requirements to reduce point source and fugitive toxic air contaminants including hexavalent chromium emissions from heat treating processes. Proposed Rule 1435 will also include monitoring, reporting, and recordkeeping requirements. <i>Kalam Cheung 909.396.3281; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AQMP / AB 617 CERP
1450*	Control of Methylene Chloride Emissions Proposed Rule 1450 will reduce methylene chloride emissions from furniture stripping and establish monitoring, reporting, and recordkeeping requirements. <i>Michael Morris 909.396.3282; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics
1455	Control of Hexavalent Chromium Emissions from Torch Cutting and Welding Proposed Rule 1455 will establish requirements to reduce hexavalent chromium emissions from torch cutting and welding of chromium alloys. <i>Kalam Cheung 909.396.3281; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics / AB 617 CERP
1466	Control of Particulate Emissions from Soils with Toxic Air Contaminants Amendments may be needed for residential cleanup projects. <i>Michael Morris 909.396.3282; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics
1466.1	Control of Particulate Emissions from Demolition of Buildings Proposed Rule 1466.1 will establish requirements to minimize PM emissions during the demolition of buildings that housed equipment and processes with metal toxic air contaminants and pollution control equipment. <i>Michael Morris 909.396.3282; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics

* *Potentially significant hearing*

+ *Reduce criteria air contaminants and assist toward attainment of ambient air quality standards*

Part of the transition of RECLAIM to a command-and-control regulatory structure

2024 To-Be-Determined (*Continued*)

2024	Title and Description	Type of Rulemaking
1469	Hexavalent Chromium Emissions from Chromium Electroplating and Chromic Acid Anodizing Operations Amendments to Rule 1469 may be needed to address potential changes with the CARB's Hexavalent Chromium Airborne Toxic Control Measure for Chrome Plating and Chromic Acid Anodizing Operations. <i>Kalam Cheung 909.396.3281; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics
1470	Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines Proposed Amended Rule 1470 seeks to reduce NOx emissions from stationary internal combustion engines (ICEs) by replacing older ICEs with alternative cleaner technology. <i>Michael Morris 909.396.3282; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AQMP / Toxics
1470.1	Emissions from Emergency Standby Diesel-Fueled Engines Proposed Rule 1470.1 seeks to reduce NOx emissions from emergency standby internal combustion engines (ICEs) by replacing older ICEs and requiring the use of commercially available lower emission fuels, such as renewable diesel. <i>Michael Morris 909.396.3282; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AQMP / Toxics
1472	Requirements for Facilities with Multiple Stationary Emergency Standby Diesel-Fueled Internal Combustion Engines Proposed Amended Rule 1472 will remove provisions that are no longer applicable, update and streamline provisions to reflect the latest OEHHA Health Risk Assessment Guidelines and assess the need for Compliance Plans. <i>Michael Morris 909.396.3282; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics
1480.1	Ambient Monitoring and Sampling of Gaseous Toxic Air Contaminants Proposed Rule 1480.1 will establish requirements to conduct monitoring and sampling for those facilities identified as significant high-risk level. <i>Heather Farr 909.396.3672; CEQA and Socio: Barbara Radlein 909.396.2716</i>	Toxics
1901	General Conformity Proposed Amended Rule 1901 will establish a new General Conformity determination process for applicable projects receiving federal funding or approval. <i>TBD; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AQMP

* Potentially significant hearing

+ Reduce criteria air contaminants and assist toward attainment of ambient air quality standards

Part of the transition of RECLAIM to a command-and-control regulatory structure

2024 To-Be-Determined (*Continued*)

2024	Title and Description	Type of Rulemaking
Regulation XX	RECLAIM - Requirements for Oxides of Sulfur (SO_x) Emissions Amendments to Regulation XX rules to address SO _x requirements at RECLAIM facilities if there is consideration to transition SO _x RECLAIM to command-and-control regulatory structure. <i>Michael Morris 909.396.3282; CEQA and Socio: Barbara Radlein 909.396.2716</i>	RECLAIM / Other
Regulation XXIII* ⁺	Facility-Based Mobile Sources Proposed rules within Regulation XXIII would reduce emissions from indirect sources and the mobile sources attracted to these facilities. <i>Elaine Shen 909.396.2715; CEQA and Socio: Barbara Radlein 909.396.2716</i>	AQMP / AB 617 CERP
Regulation II, III, IV, V, VIII, XI, XIV, XIX, XXIII, XXIV, XXX and XXXV	Various rule amendments may be needed to meet the requirements of state and federal laws; implement OEHHA's latest risk assessment guidance; incorporate changes from OEHHA to new or revised toxic air contaminants or their risk values; address variance issues, emission limits, technology-forcing emission limits, and conflicts with other agency requirements; abate substantial endangerment to public health; apply additional reductions to meet SIP short-term measure commitments; address issues raised by U.S. EPA or CARB for the SIP or for a rule that was submitted into the SIP; and address compliance issues raised by the Hearing Board. In addition, administrative changes could be necessary for Hearing Board procedures, filings, petitions, noticing, etc. Amendments to existing rules may be needed to address use of materials that contain chemicals of concern. The associated rule development or amendments include, but are not limited to, South Coast AQMD existing, or new rules to implement measures in the 2012, 2016 or 2022 AQMP. This includes measures in the 2016 AQMP to reduce toxic air contaminants or reduce exposure to air toxics from stationary, mobile, and area sources. Rule adoption or amendments may include updates to provide consistency with CARB Statewide Air Toxic Control Measures, U.S. EPA's National Emission Standards for Hazardous Air Pollutants, or to address the lead National Ambient Air Quality Standard. Rule adoption or amendments may be needed to implement AB 617 including but not limited to BARCT rules, Community Emission Reduction Plans prepared pursuant to AB 617, or new or amended rules to abate a public health issue identified through emissions testing or ambient monitoring.	Other / AQMP/ Toxics / AB 617 BARCT / AB 617 CERP

* Potentially significant hearing

⁺ Reduce criteria air contaminants and assist toward attainment of ambient air quality standards

[#] Part of the transition of RECLAIM to a command-and-control regulatory structure

BOARD MEETING DATE: June 7, 2024

AGENDA NO. 15

PROPOSAL: Report of RFQs/RFPs Scheduled for Release in June

SYNOPSIS: This report summarizes the RFQs/RFPs for budgeted services over \$100,000 scheduled to be released for advertisement for the month of June.

COMMITTEE: Administrative, May 9, 2024, Reviewed

RECOMMENDED ACTION:

Approve the release of RFQs/RFPs for the month of June.

Wayne Nastri
Executive Officer

SJ:gp

Background

In January 2020, the Board approved a revised Procurement Policy and Procedure. Under the revised policy, RFQs/RFPs for budgeted items over \$100,000 that follow the Procurement Policy and Procedure would no longer be required to obtain individual Board approval. However, a monthly report of all RFQs/RFPs over \$100,000 is included as part of the Board agenda package and the Board may, if desired, take individual action on any item. The attached report provides the title and synopsis of the RFQ/RFP, the budgeted funds available, and the name of the Deputy Executive Officer/Assistant Deputy Executive Officer responsible for that item. Further detail including closing dates, contact information, and detailed proposal criteria will be available online at <http://www.aqmd.gov/grants-bids> following the Board's approval on June 7, 2024.

Outreach

In accordance with South Coast AQMD's Procurement Policy and Procedure, a public notice advertising the RFQs/RFPs and inviting bids will be published in the Los Angeles Times, the Orange County Register, the San Bernardino Sun, and Riverside County's Press Enterprise newspapers to leverage the most cost-effective method of outreach to the South Coast Basin.

Additionally, potential bidders may be notified utilizing South Coast AQMD's own electronic listing of certified minority vendors. Notice of the RFQs/RFPs will be emailed to the Black and Latino Legislative Caucuses and various minority chambers of commerce and business associations and placed on South Coast AQMD's website (<http://www.aqmd.gov>), where it can be viewed by making the selection "Grants & Bids."

Proposal Evaluation

Proposals received will be evaluated by applicable diverse panels of technically qualified individuals familiar with the subject matter of the project or equipment and may include outside public sector or academic community expertise.

Attachment

Report of RFQs/RFPs Scheduled for Release in June 2024

**June 7, 2024 Board Meeting
Report on RFQs/RFPs Scheduled for Release on June 7, 2024**

(For detailed information visit South Coast AQMD's website at
<http://www.aqmd.gov/nav/grants-bids>
following Board approval on June 7, 2024)

SPECIAL TECHNICAL EXPERTISE

RFP #P2024-12 Issue RFP to Establish a Prequalified list of GILCHRIST/3459
Outside Counsel

From time to time the South Coast AQMD requires the assistance of outside litigation counsel having expertise and experience in areas including, but not limited to, the California Environmental Quality Act, air quality laws, administrative law, the Brown Act, representation of government agencies, constitutional issues, Clean Air Act issues, and complex environmental litigation. This RFP has two purposes: to solicit qualified law firms or sole practitioners in order to establish a prequalified list that General Counsel may use to represent the South Coast AQMD in ongoing and possible future litigation where outside counsel is required in environmental matters; and, to solicit qualified law firms or sole practitioners in order to establish a prequalified list that General Counsel may use to represent the South Coast AQMD in ongoing and possible future litigation where outside counsel is required for general governmental matters. The list will be valid for a three-year period. Funding for this contract will be requested in the FY 2024-25 budget and in subsequent fiscal year budgets annually for up to three years.

 [Back to Agenda](#)

BOARD MEETING DATE: June 7, 2024

AGENDA NO. 16

REPORT: Status Report on Major Ongoing and Upcoming Projects for Information Management

SYNOPSIS: Information Management is responsible for data systems management services in support of all South Coast AQMD operations. This action is to provide the monthly status report on major automation contracts and planned projects.

COMMITTEE: Administrative, May 10, 2024, Reviewed

RECOMMENDED ACTION:
Receive and file.

Wayne Nastri
Executive Officer

RMM:XC:DD:HL:dc

Background

Information Management (IM) provides a wide range of information systems and services in support of all South Coast AQMD operations. IM's primary goal is to provide automated tools and systems to implement rules and regulations, and to improve internal efficiencies. The annual Budget and Board-approved amendments to the Budget specify projects planned during the fiscal year to develop, acquire, enhance, or maintain mission-critical information systems.

Summary of Report

The attached report identifies the major projects/contracts or purchases that are ongoing or expected to be initiated within the next six months. Information provided for each project includes a brief project description and the schedule associated with known major milestones (issue RFP/RFQ, execute contract, etc.).

Attachment

Information Management Status Report on Major Ongoing and Upcoming Projects During the Next Six Months

ATTACHMENT
June 7, 2024 Board Meeting
Status Report on Ongoing and Upcoming Projects for
Information Management

AQ-SPEC Cloud Platform Phase 2	
Brief description	Integrate separate data systems into the AQ-SPEC cloud-based platform to manage data and build interactive data visualizations and data dashboards for web-based viewing
Estimated project cost	\$313,350
Overall project status	In Progress
Est. date of completion	7/19/24
Percentage complete	65%
LAST 30 days	<ul style="list-style-type: none"> Internal Validation Project schedule extended due to addition of project scope
NEXT 30 days	<ul style="list-style-type: none"> User Acceptance Testing

Warehouse Indirect Source Rule Online Reporting Portal Phase 4	
Brief description:	Development of online reporting portal for Rule 2305 –Warehouse Indirect Source
Estimated project cost	\$250,000
Overall project status	In Progress
Est. date of completion	7/12/24
Percentage complete	85%
LAST 30 days	<ul style="list-style-type: none"> System Development in progress Project schedule extended due to addition of project scope
NEXT 30 days	<ul style="list-style-type: none"> User Acceptance Testing

Agenda Tracking System	
Brief description	Develop new Agenda Tracking System for submittal, review, and approval of Governing Board meeting agenda items
Estimated project cost	\$250,000
Overall project status	In Progress
Est. date of completion	09/12/24
Percentage complete	90%
LAST 30 days	<ul style="list-style-type: none"> User Acceptance Testing and Training Project schedule extended due to additional testing efforts
NEXT 30 days	<ul style="list-style-type: none"> User Acceptance Testing

Online Application Filing	
Brief description	Enhanced Web application to automate filing of permit applications, Rule 222 equipment and registration for IC engines; implement electronic permit folder and workflow for staff
Estimated project cost	\$525,000
Overall project status	In Progress
Est. date of completion	09/27/24
Percentage complete	90%
LAST 30 days	<ul style="list-style-type: none"> User Acceptance Testing of Phase 1 of the project (first ten 400-E-XX forms) User Acceptance Testing of next set of Rule 222 forms
NEXT 30 days	<ul style="list-style-type: none"> User Acceptance Testing of Phase 1 of the project (first ten 400-E-XX forms) User Acceptance Testing of next set of Rule 222 forms

Website Upgrade	
Brief description	Upgrade the Website Content Management System to latest version
Estimated project cost	\$100,000
Overall project status	In Progress
Est. date of completion	8/30/24
Percentage complete	95%
LAST 30 days	<ul style="list-style-type: none"> User Acceptance Testing and Training Project schedule extended due to addition of project scope
NEXT 30 days	<ul style="list-style-type: none"> User Acceptance Testing and Training

Compliance System	
Brief description	Develop new Compliance System to help streamline the compliance business process. The new system will provide full integration of incident management, inspection process, field operations and operations dashboard
Estimated project cost	\$450,000
Overall project status	In Progress
Est. date of completion	11/8/24
Percentage complete	45%
LAST 30 days	<ul style="list-style-type: none"> System Development in progress
NEXT 30 days	<ul style="list-style-type: none"> System Development in progress

Source Test Tracking System (STTS)	
Brief description	Online STTS will keep track of timelines and quantify the number of test protocols and reports received. The system will provide an external online portal to submit source testing protocols and reports, track the review process, and provide integration to all other business units. It will also provide an external dashboard to review the status of a submittal
Estimated project cost	\$250,000
Overall project status	In Progress
Est. date of completion	7/30/24
Percentage complete	95%
LAST 30 days	<ul style="list-style-type: none"> Working on going live Project go-live date extended awaiting on-boarding documents
NEXT 30 days	<ul style="list-style-type: none"> Working on going live

Renewal of OnBase Software Support	
Brief description	Authorize the sole source purchase of OnBase software subscription and support for one year
Estimated project cost	\$200,000
Overall project status	In Progress
Est. date of completion	7/30/2024
Percentage complete	40%
LAST 30 days	
NEXT 30 days	<ul style="list-style-type: none"> Request Board Approval June 7, 2024 Execute purchase July 30, 2024

IT Service Management	
Brief description	IT Service Management will help improve user experience and gain more productivity from IT infrastructure. IT Service Management will align IT service with the organizational goals and streamline delivery of services
Estimated project cost	\$90,000
Overall project status	In Progress
Est. date of completion	7/26/2024
Percentage complete	50%
LAST 30 days	<ul style="list-style-type: none"> Implementation in Progress
NEXT 30 days	<ul style="list-style-type: none"> Implementation in Progress

Projects that have been completed within the last 12 months are shown below	
COMPLETED PROJECTS	
PROJECT	DATE COMPLETED
PeopleSoft HCM Labor Agreement Implementation	April 30, 2024
PeopleSoft Electronic Requisition	April 30, 2024
Volkswagen Environmental Mitigation Trust Program GMS Enhancement	March 5, 2024
Email Gateway Replacement	March 1, 2024
Prequalify Vendor List for PCs, Network Hardware, etc.	February 2, 2024
WAIRE Program Online Portal (ISR) - Enhancement for Reporting Year 2024	December 28, 2023
Annual Emissions Reporting 2024	December 28, 2023
PeopleSoft HCM (Human Capital Management) Upgrade	October 24, 2023
Carl Moyer Program GMS	October 4, 2023
Legal Office System – Phase 2	August 31, 2023
Oracle PeopleSoft Software Support	August 31, 2023
PeopleSoft E-Requisition deployment for IM Division	August 22, 2023
Renewal of OnBase Software Support	July 31, 2023

 [Back to Agenda](#)

BOARD MEETING DATE: June 7, 2024

AGENDA NO. 17

REPORT: Administrative Committee

SYNOPSIS: The Administrative Committee held a hybrid meeting on Thursday, May 9, 2024. The following is a summary of the meeting.

RECOMMENDED ACTION:
Receive and file.

Vanessa Delgado, Chair
Administrative Committee

SN:cb

Committee Members

Present: Chair Vanessa Delgado, Committee Chair
Vice Chair Michael Cacciotti
Board Member Gideon Kracov
Supervisor V. Manuel Perez

Call to Order

Chair Delgado called the meeting to order at 10:45 a.m.

For additional details of the Administrative Committee Meeting, please refer to the [Webcast](#).

DISCUSSION ITEMS:

1. **Board Members' Concerns:** No Board Members' concerns were reported.
2. **Chair's Report of Approved Travel:** Travel reported for Supervisor Curt Hagman to attend the ACT Expo in Las Vegas, Nevada.
3. **Report of Approved Out-of-Country Travel:** Out-of-country travel reported for Dr. Sarah Rees to travel to Denmark for American Council for an Energy Efficient Economy from June 22 through June 29, 2024.

4. **Review June 7, 2024 Governing Board Agenda:** Executive Officer Wayne Nastri confirmed Public Hearings for Proposed Rule 317.1 for non-attainment fees and Proposed Amended Rule 1146.2 for boilers and heaters. Mr. Nastri also added that there will be several Set Hearings for August on the following: Proposed Amended Rule 1135 which pertains to emissions of NOx from electricity generating facilities, Proposed Amended Rule 1148.1 which pertains to oil and gas production wells, and Proposed Rule 2306 which pertains to the Rail Indirect Source Rule. For additional information please refer to the [Webcast at 5:51](#).
5. **Approval of Compensation for Board Member Assistant(s)/Consultant(s):** This item was moved to Action Items as approval from the Administrative Committee is needed. For additional information please refer to the [Webcast at 6:47](#).
6. **South Coast AQMD's FY 2023-24 Third Quarter Ended March 31, 2024 Budget vs. Actual (Unaudited):** Sujata Jain, Chief Financial Officer, presented the third quarter budget information that ended on March 30, 2024. Ms. Jain provided a summary which included revenue and expenditure comparisons, fund balance and the five-year projection. For additional information please refer to the [Webcast at 7:15](#).
7. **Report of RFQs/RFPs Scheduled for Release in June:** Ms. Jain reported on the release of an RFP to establish a pre-qualified list of outside counsel for Legal. For additional information please refer to the [Webcast at 12:54](#).
8. **Status Report on Major Ongoing and Upcoming Projects for Information Management:** Ron Moskowitz, Chief Information Officer, reported on the status of various projects and projects that have been completed. For additional information please refer to the [Webcast at 13:21](#).

ACTION ITEMS:

5. **Approval of Compensation for Board Member Assistant(s)/Consultant(s):** There were 25 proposals for the compensation of the Board Member Assistant(s)/Consultant(s) for new fiscal year 2024-2025. The contracts will be effective from July 1, 2024 through June 30, 2025. For additional information please refer to the [Webcast at 6:47](#).

Moved by Cacciotti; seconded by Perez, unanimously approved.

Ayes: Cacciotti, Delgado, Kracov, Perez

Noes: None

9. **Appoint Regular and Alternate Attorney and Engineer Members to South Coast AQMD Hearing Board for July 1, 2024 to June 30, 2027:** Faye Thomas, Clerk of the Boards, reported that the current terms for Hearing Board Attorney and Engineer Members, as well as their Alternates is expiring at the end of the month. The item is to recommend appointments for the next three-year term which begins on July 1, 2024. Ms. Thomas summarized the recommendations from the Hearing Board Advisory Committee and also informed the Administrative Committee that two of the candidates for the Attorney member position, Adrienne Konigar-Macklin and Anne Shultz were unavailable for the interview.

The Administrative Committee interviewed one Attorney member candidate: Robert Pearman, who is currently serving as the regular Attorney member on the Hearing Board.

The Administrative Committee interviewed two Engineer member candidates: Mohan Balagopalan, who is currently serving as the regular Engineer member on the Hearing Board; and Robert Pease.

The Administrative Committee interviewed two Alternate Engineer member candidates Jenny Lu; and Dr. Maria Slaughter, who is currently serving as the Alternate Engineer member on the Hearing Board

After interviewing the candidates and discussion amongst Administrative Committee members, Board Member Kracov moved to re-appoint the candidates currently serving on the Hearing Board: Attorney member, Robert Pearman; Alternate Attorney member, Adrienne Konigar-Macklin; Engineer member Mohan Balagopalan; and Alternate Engineer member, Dr. Maria Slaughter. Board Member Kracov's motion was seconded by Vice Chair Cacciotti. The motion was unanimously approved. For additional information please refer to the [Webcast at 14.18.](#)

Moved by Kracov; seconded by Cacciotti, unanimously approved.

Ayes: Cacciotti, Delgado, Kracov, Perez

Noes: None

10. **Authorize Purchase of OnBase Software Support:** Mr. Moskowitz recommended approval for a sole-source purchase of OnBase Software and support for one year in the amount, not to exceed \$200,000, which funding is available in the budget. For additional information please refer to the [Webcast at 1:12:03.](#)

Moved by Cacciotti; seconded by Perez, unanimously approved.

Ayes: Cacciotti, Delgado, Kracov, Perez

Noes: None

11. **Issue RFP for Legislative Representation in Washington, D.C.:** Lisa Tanaka, Assistant Deputy Executive Officer/Legislative & Public Affairs & Media, reported that this item is to issue an RFP for federal legislative representation for South Coast AQMD for 2025. The amount is not to exceed \$665,000, which funding is available in the budget. The contracts could be extended for up to two additional one-year terms upon Board approval and the current contracts expire on January 20, 2025. For additional information please refer to the [Webcast at 1:13:04](#).

Moved by Cacciotti; seconded by Kracov, unanimously approved.

Ayes: Cacciotti, Delgado, Kracov, Perez

Noes: None

12. **Recognize Revenue, Appropriate Funds and Issue Solicitation and Purchase Order for Laboratory Equipment:** Dr. Jason Low, Deputy Executive Officer, Monitoring & Analysis, reported that this item is to recognize revenue of about \$200,000 from U.S. EPA for the NATTS program, appropriate the funds to the Monitoring & Analysis budget and purchase a piece of laboratory equipment. For additional information please refer to the [Webcast at 1:14:09](#).

Moved by Kracov; seconded by Cacciotti, unanimously approved.

Ayes: Cacciotti, Delgado, Kracov, Perez

Noes: None

13. **Appropriate Funds, Issue Solicitation and Purchase Orders to Meet Operational Needs for Rule 1180 Air Monitoring Program:** Dr. Low reported that this item is to appropriate funds of about \$200,000 into the Monitoring & Analysis budget and issue solicitation and purchase orders for some supporting needs for the operation of the Rule 1180 projects. For additional information please refer to the [Webcast at 1:14:53](#).

Moved by Kracov; seconded by Cacciotti, unanimously approved.

Ayes: Cacciotti, Delgado, Kracov, Perez

Noes: None

14. **Appropriate Funds from the General Fund Undesignated (Unassigned) Fund Balance for Administrative and Human Resources Related Expenditures, and Approve Amending Contracts with Outside Labor and Employment Counsel:** John Olvera, Deputy Executive Officer/Administrative & Human Resources, reported that this item is to transfer funds from the Undesignated (Unassigned) Fund Balance in the amount of \$800,000 to the District General – Administrative & Human Resources budget accounts to cover costs for labor and employment law services, increases in worker's compensation payments, liability insurance premiums and other items for safety and training programs for employees. This

item is also to authorize the Executive Officer to amend contracts with outside counsel as needed. For additional information please refer to the [Webcast at 1:15:36](#).

Moved by Kracov; seconded by Cacciotti, unanimously approved.

Ayes: Cacciotti, Delgado, Kracov, Perez

Noes: None

WRITTEN REPORT:

None.

OTHER MATTERS:

15. **Next Meeting Date:** The next regular Administrative Committee meeting is scheduled for Friday, June 14, 2024 at 10:00 a.m.

Adjournment

The meeting was adjourned at 11:58 a.m.

 [Back to Agenda](#)

BOARD MEETING DATE: June 7, 2024

AGENDA NO. 18

REPORT: Legislative Committee

SYNOPSIS: The Legislative Committee held a hybrid meeting on Thursday, May 9, 2024. The following is a summary of the meeting.

Agenda Item	Recommendation/Action
AB 2851 (Bonta) – Metal shredding facilities: fence-line air quality monitoring,	Support if Amended
SB 1054 (Rubio) – Climate Pollution Reduction in Homes Initiative: natural gas: customer credit.	Support
SB 1095 (Becker) – Cozy Home Clean Up Act: building standards: gas-fuel-burning, appliances.	Support
SB 1298 (Cortese) – Certification of thermal powerplants: data centers.	Oppose

RECOMMENDED ACTION:

Receive and file this report and approve agenda items as specified in this letter.

Michael A. Cacciotti, Committee Chair
Legislative Committee

DJA:LTO:PFC:DPG:ar:mc

Committee Members

Present: Councilmember Michael A. Cacciotti, Committee Chair
Mayor Patricia Lock Dawson
Supervisor V. Manuel Perez
Councilmember Nithya Raman
Mayor José Luis Solache
Absent: Supervisor Curt Hagman

Call to Order

Chair Michael Cacciotti called the meeting to order at 10:02 a.m.

ACTION/DISCUSSION ITEMS:

1. Update on 2024 South Coast AQMD Sponsored State Bills

Derrick Alatorre, Deputy Executive Officer/Legislative, Public Affairs & Media, presented on the 2024 South Coast AQMD sponsored state bills as described below:

- AB 2522 (W. Carrillo) would increase compensation for local air district board members by doubling the current limit. The bill was referred to the Senate Environmental Quality and Local Government Committees.
- AB 2958 (Calderon) would provide board members, who represent local air districts, with the same level of compensation as other voting CARB board members. The bill is in the Assembly Appropriations Suspense File.
- SB 1158 (Archuleta) would update the Carl Moyer program by extending the liquidation time for funding from 4 to 6 years. The bill was ordered to the Senate Floor's consent calendar.

For additional information, please refer to the Webcast beginning at 00:[01](#).

There was no public comment.

2. Recommend Position on State Bills

Philip Crabbe, Senior Public Affairs Manager/Legislative, Public Affairs & Media, presented AB 2851 (Bonta) – Metal shredding facilities: fenceline air quality monitoring. The bill would require the Department of Toxic Substances Control (DTSC), in consultation with local air districts, to develop and implement facility-wide fenceline air quality monitoring at metal shredding facilities.

Staff recommended a support if amended position on AB 2851 to:

- Add provisions that require local air districts to be reimbursed by DTSC or metal shredding facilities for implementation costs.
- Establish a longer timeframe to initiate air monitoring.
- Provide an off-ramp if air monitoring shows that respirable metal particles are below a specified threshold.
- Delete light fibrous material from the list of items to be included in the facility fenceline monitoring requirements.

Moved by: Solache, Seconded by: Lock Dawson

Ayes: Cacciotti, Dawson, Raman, Solache

Noes: None

For additional information, please refer to the Webcast beginning at [1:17](#).

Denise Peralta Gailey, Public Affairs Manager/Legislative, Public Affairs & Media, presented on SB 1054. The bill would, until January 1, 2029, establish the Climate Pollution Reduction in Homes Initiative to provide financial assistance to low-income households for the purchase of zero-carbon-emitting appliances.

Councilmember Raman inquired about the funding source for the program. Ms. Gailey responded that the initiative would be generated through the climate credit, which requires power plants, natural gas providers, and other industries to buy carbon pollution permits. The program would reallocate funds used by a program that expired in 2023. For additional information, please refer to the Webcast beginning at [3:45](#).

Staff recommended a support position on SB 1054.

Moved by: Solache, Seconded by: Lock Dawson
Ayes: Cacciotti, Dawson, Raman, Solache
Noes: None

Mr. Crabbe presented SB 1095 (Becker) – Cozy Homes Cleanup Act: building standards: gas-fuel-burning appliances. The bill would update ambiguities and issues in existing law to ensure that individuals can switch from gas to electric appliances, thereby allowing Californians to opt for healthier zero-emission homes.

Staff recommended a support position on SB 1095.

Moved by: Lock Dawson, Seconded by: Raman
Ayes: Cacciotti, Dawson, Raman, Solache
Noes: None

For additional information, please refer to the Webcast beginning at [5:47](#).

Ms. Gailey presented SB 1298 (Cortese) – Certification of thermal powerplants: data center. The bill would authorize the California Energy Commission to exempt a thermal powerplant with generation capacity up to 150 megawatts from their siting review process.

Staff recommended an opposed position on SB 1298.

Moved by: Raman, Seconded by: Solache
Ayes: Cacciotti, Dawson, Raman, Solache
Noes: None

For additional information, please refer to the Webcast beginning at [6:44](#).

There was no public comment.

DISCUSSION ITEMS:

3. Update and Discussion on Federal Legislative Issues

South Coast AQMD's federal legislative consultants (Cassidy & Associates, Kadesh & Associates, and Carmen Group) provided written reports on key Washington, D.C. issues.

Gary Hoitsma, Carmen Group, reported action on major bills may occur after the November General Election such as fiscal year (FY) 2025 appropriations and annual authorization bills for defense, agriculture, aviation, and water.

Jed Dearborn Morales, Cassidy & Associates, reported that staff is working with Senator Alex Padilla's office on FY 2025 appropriations bills to support investment in research and development projects related to oceangoing vessels.

Mark Kadesh, Kadesh & Associates, reported that staff is in the process of obtaining signatures for a Congressional letter of support for South Coast AQMD's regional Climate Pollution Reduction grant application. Senator Padilla and Representatives Pete Aguilar and Tony Cardenas have agreed to lead the letter.

Chair Cacciotti inquired about the Federal Railroad Administration's Consolidated Rail Infrastructure and Safety Improvement (CRISI) grant program. Lisa Tanaka, Assistant Deputy Executive Officer, Legislative, Public Affairs & Media, replied that staff is tracking and evaluating grant programs.

Dr. Aaron Katzenstein, Deputy Executive Officer/Technology Advancement Office, added that staff is aware that CARB may be applying for CRISI funding and South Coast AQMD is not competing with the state for funding. For additional information, please refer to the Webcast beginning at [11:45](#).

There was no public comment.

4. Update and Discussion on State Legislative Issues

South Coast AQMD's state legislative consultants (California Advisors, LLC, Joe A. Gonsalves & Son, and Resolute) provided written reports on key issues in Sacramento.

David Quintana, Resolute, reported that the Governor will be releasing the Revised Budget Plan (May Revise) on May 10. Tax receipts have been lower than the Governor projected.

Ross Buckley, California Advisors, LLC, reported that the Department of Finance was granted the authority to freeze one-time funding from previous years for General Fund allocations exceeding \$1 million.

Paul Gonsalves, Joe A. Gonsalves & Son, provided an overview of upcoming legislative deadlines. The legislature is mid-way through this year's legislative session. The budget must be passed by June 15.

Committee Chair Cacciotti requested an update on the budget estimates. Mr. Quintana replied that the Legislative Analyst's Office estimates a budget shortfall of \$5.8 billion.

Committee Chair Cacciotti asked if South Coast AQMD has received any letters regarding the halting of or delay of state funds. Executive Officer Wayne Natri responded that staff has been working to ensure state funds are encumbered following the receipt of a letter from CARB indicating that unencumbered funds may be subject to withholding by the legislature. Staff is also closely monitoring any potential budget impacts to the AB 617 Program.

Mayor Solache inquired about the cost-of-living adjustment (COLA) in the May Revise. Mr. Gonsalves replied that an update on COLA could be provided following the release of the May Revise. For additional information, please refer to the Webcast beginning at [16:50](#).

There was no public comment.

OTHER MATTERS:

5. Other Business

There was no other business to report.

6. Public Comment Period

There was no public comment.

7. Next Meeting Date

The next regular Legislative Committee meeting is scheduled for Friday, June 14, 2024, at 9:00 a.m.

Adjournment

The meeting was adjourned at 10:30 a.m.

Attachments

1. Attendance Record
2. Recommend Position on State Bills
3. Update on Federal Legislative Issues – Written Reports
4. Update on State Legislative Issues – Written Reports

ATTACHMENT 1

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT SPECIAL LEGISLATIVE COMMITTEE MEETING ATTENDANCE RECORD – May 9, 2024

Council Member Michael Cacciotti	South Coast AQMD Board Member
Mayor Lock Dawson	South Coast AQMD Board Member
Supervisor V. Manuel Perez	South Coast AQMD Board Member
Council Member Nithya Raman	South Coast AQMD Board Member
Council Member José Luis Solache	South Coast AQMD Board Member

William Glazier	Board Consultant (Cacciotti)
Guillermo Gonzalez	Board Consultant (Perez)
Tom Gross	Board Consultant (Raman)
Uduak-Joe Ntuk	Board Consultant (Solache)
Michael Miller	Board Consultant (Hagman)
Marisela Santana	Board Consultant (Solache)
Ben Wong	Board Consultant (Cacciotti)

Ross Buckley	California Advisors, LLC
Paul Gonsalves	Joe A. Gonsalves & Son
Gary Hoitsma	Carmen Group, Inc.
Jed Dearborn	Cassidy & Associates
Mark Kadesh	Kadesh & Associates
David Quintana	Resolute

Alan Abbs	Public Member
Mark Abramowitz	Public Member
Vanessa Bautista	Public Member
Sam Emmersen	Public Member
Bill La Marr	Public Member
Debra Mendelsohn	Public Member
Fred Minassian	Public Member
Peter Okurowski	Public Member
Naomi Padron	Public Member

Derrick Alatorre	South Coast AQMD Staff
Debra Ashby	South Coast AQMD Staff
John Aspell	South Coast AQMD Staff
Barbara Baird	South Coast AQMD Staff
Cathy Bartels	South Coast AQMD Staff
Cindy Bustillos	South Coast AQMD Staff
Lara Brown	South Coast AQMD Staff
Maria Corralejo	South Coast AQMD Staff
Philip Crabbe	South Coast AQMD Staff
Denise Gailey	South Coast AQMD Staff
Bayron Gilchrist	South Coast AQMD Staff
Scott Gallegos	South Coast AQMD Staff
De Groeneveld	South Coast AQMD Staff
Alex Han	South Coast AQMD Staff
Sheri Hanizavareh	South Coast AQMD Staff

Sujata Jain	South Coast AQMD Staff
Anissa Cessa Heard-Johnson	South Coast AQMD Staff
Angela Kim	South Coast AQMD Staff
Aaron Katzenstein	South Coast AQMD Staff
Howard Lee	South Coast AQMD Staff
Mike Krause	South Coast AQMD Staff
Alicia Lizarraga	South Coast AQMD Staff
Brisa Lopez	South Coast AQMD Staff
Jason Low	South Coast AQMD Staff
Ian MacMillan	South Coast AQMD Staff
Terrence Mann	South Coast AQMD Staff
Karin Manwaring	South Coast AQMD Staff
Nahal Mogharabi	South Coast AQMD Staff
Ron Moskowitz	South Coast AQMD Staff
Susan Nakamura	South Coast AQMD Staff
Wayne Nastri	South Coast AQMD Staff
John Olvera	South Coast AQMD Staff
Robert Paud	South Coast AQMD Staff
Andrea Polidori	South Coast AQMD Staff
Sarah Rees	South Coast AQMD Staff
Catherine Rodriguez	South Coast AQMD Staff
Nicholas Sanchez	South Coast AQMD Staff
Lisa Tanaka O'Malley	South Coast AQMD Staff
Penny Shaw Cedillo	South Coast AQMD Staff
Diana Thai	South Coast AQMD Staff
Faye Thomas	South Coast AQMD Staff
Brian Tomasovic	South Coast AQMD Staff
Mei Wang	South Coast AQMD Staff
Daniel Wong	South Coast AQMD Staff
Jillian Wong	South Coast AQMD Staff
Victor Yip	South Coast AQMD Staff
Chris Yu	South Coast AQMD Staff

ATTACHMENT 2A

South Coast Air Quality Management District
Legislative Analysis Summary – AB 2851 (Bonta)
Version: As Amended – 4/4/24
Analyst: PC

AB 2851 (Bonta)

Metal shredding facilities: fence-line air quality monitoring.

Summary: This bill would require the Department of Toxic Substances Control (DTSC), in consultation with local air districts, to develop and implement facility-wide fence-line air quality monitoring at metal shredding facilities.

Background: According to the author, most scrap metal in California comes from old vehicles, appliances, construction and demolition materials, and manufacturing. Metal shredding facilities process the scrap to separate metals by type and separate out non-metal material. The metal shredding process has environmental impacts on communities. These include improper hazardous waste storage, soil contamination, and release of hazardous waste into surrounding communities. The Department of Toxic Substances Control (DTSC) has limited ability to regulate metal shredding facilities. Under existing law, the metal shredding industry is not required to submit a permit for operating, therefore DTSC is unable to withhold permitting when violations and penalties are cited.

Status: 4/23/24 – Passed Assembly Natural Resources Committee. Re-referred to Assembly Appropriations Committee.

Specific Provisions: Specifically, this bill would:

- 1) Require, on or before July 1, 2025, DTSC, in consultation with affected local air districts, to develop requirements for facility-wide fence-line air quality monitoring at metal shredding facilities.
- 2) Provide that the requirements developed pursuant to this bill include, but are not limited to, the following:
 - a. Monitoring of light fibrous material, lead, zinc, cadmium, nickel, and any other substance required to be monitored by DTSC;
 - b. Monitoring at prescribed frequencies of the substances that are required to be monitored;
 - c. Reporting on the results of the monitoring required pursuant to this bill to DTSC, the local air district, and the local public health department; and,
 - d. A requirement on the local public health department, if the monitoring required pursuant to this bill indicates a potential adverse impact on air quality or public health, to issue a community notification to the public for the area in which the metal shredding facility is located that informs the public that the facility is causing the potential adverse impact on air quality or public health.
- 3) Require all metal shredding facilities, subject to the Hazardous Waste Control Law (HWCL), to implement the bill's facility-wide fence-line air quality monitoring requirements.

- 4) Require, on or before December 31, 2025, DTSC to oversee and enforce the implementation of the facility-wide fence-line air quality monitoring requirements developed pursuant to this bill.
- 5) Authorize DTSC to be reimbursed for any regulatory costs incurred in implementing the provisions of this bill through the existing fee that DTSC can impose on metal shredding facilities under the HWCL.

Impacts on South Coast AQMD’s Mission, Operations or Initiatives: South Coast AQMD passed a recent metal shredding rule and this bill will have an impact on the agency’s regulatory activities relating to this sector. South Coast AQMD Rule 1460 applies to an owner or operator of a metal recycling facility or metal shredding facility within the South Coast region. The rule focuses on minimizing fugitive dust emissions from these operations and includes registration, housekeeping, best management practices, signage, and recordkeeping requirements. Rule 1460 does not apply to recycling centers where the primary business is processing empty beverage containers for California Redemption Value (CRV). Metal recycling and metal shredding facilities have also been subject to South Coast AQMD Rule 403 which applies to any activity capable of generating fugitive dust.

Staff have concerns that the bill’s timelines is too short to implement and the bill and is too broad as currently drafted. It is also a concern that DTSC is the agency that is required to do the fence-line monitoring, as this is not their primary area of expertise.

If air districts were to be more involved in the monitoring efforts, then it would take substantial air district resources to implement, including possible rulemaking and monitoring planning, prior to full implementation. A methodology for multimetals would need to be developed, with an additional focus on monitoring of respirable particles. However, any larger sized metal pieces that are captured on a filter that are not respirable would skew the results (typically these operations result in larger coarse particles). There are also questions as to how to monitor for “light fibrous material”.

South Coast AQMD proposed amendments:

- 1) Add provisions to the bill that require local air districts to be reimbursed by DTSC or the metal shredding facility for any costs air districts incur in implementing the provisions of this bill.
- 2) Establish a longer timeframe to initiate air monitoring.
- 3) Provide an off-ramp if air monitoring shows that respirable metal particles are below a specified threshold.

- 4) Delete light fibrous material from the list of items to be included in the facility fence-line monitoring requirements.

Recommended Position: SUPPORT IF AMENDED

Support:

A Voice for Choice
California League of Conservation Voters - Environmental Voters
Center on Race, Poverty & the Environment
Cleanearth4kids.org
Natural Resources Defense Council (NRDC)
West Oakland Cultural Action Network
West Oakland Environmental Indicators Project
West Oakland Neighbors

Opposition:

West Coast Chapter - Institute of Scrap Recycling Industries

ATTACHMENT 2B

AMENDED IN ASSEMBLY APRIL 4, 2024

AMENDED IN ASSEMBLY MARCH 21, 2024

CALIFORNIA LEGISLATURE—2023–24 REGULAR SESSION

ASSEMBLY BILL

No. 2851

Introduced by Assembly Member Bonta

February 15, 2024

An act to add Section 25150.87 to the Health and Safety Code, relating to air pollution.

LEGISLATIVE COUNSEL'S DIGEST

AB 2851, as amended, Bonta. Metal shredding facilities: fence-line *air quality* monitoring.

~~Existing law imposes various limitations on emissions of air contaminants for the control of air pollution from vehicular and nonvehicular sources. Existing law generally designates the State Air Resources Board as the state agency with the primary responsibility for the control of vehicular air pollution and air pollution control and air quality management districts with the primary responsibility for the control of air pollution from all sources other than vehicular sources.~~

Existing law defines a “fence-line monitoring system,” for purposes of specified laws requiring the monitoring of toxic air contaminants from nonvehicular sources, to mean monitoring equipment that measures and records air pollutant concentrations at or adjacent to a stationary source that may be useful for detecting or estimating emissions of pollutants from the source, including the quantity of fugitive emissions, and in supporting enforcement efforts.

Existing law requires the Department of Toxic Substances Control to adopt, and revise when appropriate, standards and regulations for the

management of hazardous wastes to protect against hazards to the public health, to domestic livestock, to wildlife, or to the environment, including the operation of metal shredding facilities for appliance recycling. *Existing law authorizes the department to collect an annual fee from all metal shredding facilities that are subject to the requirements of the hazardous waste control laws, and to deposit those fees into a subaccount in the Hazardous Waste Control Account. Existing law makes those moneys available to the department, upon appropriation by the Legislature, to reimburse the department's costs to implement the hazardous waste control laws applicable to metal shredder facilities.*

This bill would require, on or before July 1, 2025, the department, in consultation with ~~the state board and~~ affected local air pollution control and air quality management districts, to develop ~~standards~~ requirements for facilitywide fenceline air quality monitoring at metal shredding facilities. ~~The bill would require the standards to require monitoring of specified substances, such as lead and zinc.~~ *facilities. Those requirements would include, among other things, monitoring light fibrous material, lead, zinc, cadmium, and any other substance required to be monitored by the department, and a requirement that, if the monitoring indicates a potential adverse impact on air quality or public health, the local public health department issue a community notification, as provided.* The bill would also require ~~each local public health department to issue a community notification regarding the adverse impacts on air quality and public health as a result of the operation of metal shredding facilities in that jurisdiction, as provided, and to provide a biannual assessment to the local governmental entity for the jurisdiction in which the metal shredding facility is located.~~ *all metal shredding facilities that are subject to the hazardous waste control laws to implement the fenceline air quality monitoring requirements.* The bill would require the department to ~~ensure the successful~~ *oversee and enforce the* implementation of ~~those the~~ fenceline air quality monitoring ~~standards~~ requirements on or before December 31, 2025. *The bill would also authorize any regulatory costs incurred by the department in implementing the bill's requirements to be reimbursed from the subaccount in the Hazardous Waste Control Account.* By imposing new duties on local public health departments, the bill would impose a state-mandated local program.

The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that, if the Commission on State Mandates determines that the bill contains costs mandated by the state, reimbursement for those costs shall be made pursuant to the statutory provisions noted above.

Vote: majority. Appropriation: no. Fiscal committee: yes.
State-mandated local program: yes.

The people of the State of California do enact as follows:

1 SECTION 1. Section 25150.87 is added to the Health and
2 Safety Code, to read:
3 25150.87. (a) On or before July 1, 2025, the department, in
4 consultation with ~~the State Air Resources Board~~ and affected local
5 air pollution control and air quality management districts, shall
6 develop ~~standards~~ *requirements* for facilitywide fenceline air
7 quality monitoring at metal shredding facilities, as defined in
8 Section 25150.82, that are subject to this chapter.
9 (b) The ~~standards~~ *requirements* developed pursuant to
10 subdivision (a) shall ~~do~~ *include, but not be limited to*, all of the
11 following:
12 (1) ~~Require monitoring of the following substances previously~~
13 ~~identified by the department: Monitoring of light fibrous material,~~
14 ~~lead, zinc, cadmium, and nickel. These standards may also require~~
15 ~~the monitoring of additional substances: nickel, and any other~~
16 ~~substance required to be monitored by the department.~~
17 (2) ~~Require each local public health department to issue a~~
18 ~~community notification regarding the adverse impacts on air quality~~
19 ~~and public health as a result of the operation of metal shredding~~
20 ~~facilities in that jurisdiction and assist in identifying the underlying~~
21 ~~causes of the air pollution.~~
22 (3) ~~Require each local public health department to provide a~~
23 ~~biannual assessment to the local governmental entity for the~~
24 ~~jurisdiction in which the metal shredding facility is located.~~
25 (2) *Monitoring at prescribed frequencies of substances*
26 *monitored pursuant to paragraph (1).*
27 (3) *Reporting on the results of the monitoring required pursuant*
28 *to this subdivision to the department, the local air district or local*

1 *air quality management district, and the local public health*
2 *department.*

3 *(4) If the monitoring required pursuant to this subdivision*
4 *indicates a potential adverse impact on air quality or public health,*
5 *requiring the local public health department to issue a community*
6 *notification to the public for the area in which the metal shredding*
7 *facility is located that informs the public that the facility is causing*
8 *the potential adverse impact on air quality or public health.*

9 *(c) All metal shredding facilities subject to this chapter shall*
10 *implement the facilitywide fenceline air quality monitoring*
11 *requirements developed pursuant to this section.*

12 ~~(e)~~

13 *(d) The department shall ~~ensure the successful~~ oversee and*
14 *enforce the implementation of the facilitywide fenceline air quality*
15 *monitoring ~~standards~~ requirements developed pursuant to this*
16 *section on or before December 31, 2025.*

17 *(e) Any regulatory costs incurred by the department in*
18 *implementing this section may be reimbursed by the fee on metal*
19 *shredding facilities imposed pursuant to subdivision (a) of Section*
20 *25150.84.*

21 SEC. 2. If the Commission on State Mandates determines that
22 this act contains costs mandated by the state, reimbursement to
23 local agencies and school districts for those costs shall be made
24 pursuant to Part 7 (commencing with Section 17500) of Division
25 4 of Title 2 of the Government Code.

ATTACHMENT 2C

South Coast Air Quality Management District
Legislative Analysis Summary – SB 1054 (Rubio)
Version: Amended – 4/30/24
Analyst: DPG

SB 1054 (Rubio)

Climate Pollution Reduction in Homes Initiative: natural gas: customer credit.

Summary: This bill would establish the Climate Pollution Reduction in Homes Initiative to provide financial assistance to low-income households for the purchase of zero-carbon-emitting appliances.

Background: Existing law requires the Energy Commission to prescribe, by regulation, among other things, lighting, insulation, climate control system, and other building design and construction standards, energy and water conservation design standards, and appliance efficiency standards to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy and to manage energy loads to help maintain electrical grid reliability.

Existing law vests the Public Utilities Commission (PUC) with regulatory authority over public utilities, including gas corporations. The California Global Warming Solutions Act of 2006 designates CARB as the state agency charged with monitoring and regulating sources of emissions of greenhouse gases and the authority to include the use of market-based compliance mechanisms in regulating those emissions. The implementing regulations adopted by CARB provide for the direct allocation of greenhouse gas allowances to electrical corporations and gas corporations pursuant to a market-based compliance mechanism.

Status: 4/30/24 - Read second time and amended. Re-referred to Senate Appropriations Committee.

Specific Provisions: Specifically, this bill would:

- 1) Require the Energy Commission, in consultation with the Department of Community Services and Development, to develop and supervise the Climate Pollution Reduction in Homes Initiative to require gas corporations to jointly award grants for local service providers, nonprofit organizations, and regional collections of local governments to provide financial assistance to low-income households for the purchase of zero-carbon-emitting appliances.
- 2) Require the Energy Commission, as part of developing and administering the initiative, to develop guidelines and authorize local service providers, nonprofit organizations, and regional collections of local governments to use those grant moneys for outreach and technical assistance, rebates, loans, installation, educational information, and other support services to assist low-income households.

- 3) Repeal the above-described provisions on January 1, 2029.
- 4) Require the Energy Commission, on March 1 of every year from 2026 to 2030, inclusive, to submit a report to the relevant policy committees of the Legislature on the implementation of the initiative.
- 5) Require the PUC to direct the balance of revenues received by a gas corporation, as a result of their allocation of greenhouse gas allowances being auctioned off as part of the state’s cap-and-trade program, to be credited directly to the residential customers of the gas corporation,
 - a. except that, until January 1, 2029, the bill would authorize the PUC to require gas corporations to annually use up to 15% of revenues received as a result of that allocation to fund the Climate Pollution Reduction in Homes Initiative.
- 6) Require the PUC to annually direct gas corporations to distribute the credit, derived from revenues received by a gas corporation as a result of their greenhouse gas allowances being auctioned off, to residential customers of the gas corporation.

Impacts on South Coast AQMD’s Mission, Operations or Initiatives:

As part of the 2022 State Strategy for the State Implementation Plan, CARB has proposed a statewide zero GHG emissions standard for residential and commercial building appliances, which would have criteria pollutant co-benefits. South Coast AQMD has also developed multiple building-related control measures to address emissions from residential and commercial combustion equipment for space heating, water heating, cooking, and others. This bill aligns with South Coast AQMD’s goals of reducing harmful emissions and protecting public health.

Recommended Position: SUPPORT

Support:

California Apartment Association
Central Coast Energy Alliance
Climate Reality Project, California Coalition
Climate Reality Project, Los Angeles Chapter
Climate Reality Project, San Fernando Valley Chapter
Community Resources Project, Inc.
San Francisco Peninsula Energy Services
U.S. Green Building Council
U.S. Green Building Council - CA
U.S. Green Building Council - Los Angeles

South Coast Air Quality Management District
Legislative Analysis Summary – SB 1054 (Rubio)
Version: Amended – 4/30/24
Analyst: DPG

Opposition:

N/A

ATTACHMENT 2D

AMENDED IN SENATE APRIL 30, 2024

AMENDED IN SENATE MARCH 20, 2024

SENATE BILL

No. 1054

Introduced by Senator Rubio

February 8, 2024

An act to add *and repeal* Chapter 8.65 (commencing with Section 25760) ~~to~~ *of* Division 15 ~~of~~ *of*, and to repeal Section 25760 *of*, the Public Resources Code, and to add Section 748.7 to the Public Utilities Code, relating to energy.

LEGISLATIVE COUNSEL'S DIGEST

SB 1054, as amended, Rubio. Climate Pollution Reduction in Homes Initiative: natural gas: customer credit.

Existing law requires the State Energy Resources Conservation and Development Commission (Energy Commission) to prescribe, by regulation, among other things, lighting, insulation, climate control system, and other building design and construction standards, energy and water conservation design standards, and appliance efficiency standards to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy and to manage energy loads to help maintain electrical grid reliability, as specified.

This bill would require the Energy Commission, in consultation with the Department of Community Services and Development, to develop and supervise the Climate Pollution Reduction in Homes Initiative to require gas corporations to jointly award grants for local service providers, as defined, nonprofit organizations, and regional collections of local governments to provide financial assistance to low-income households for the purchase of zero-carbon-emitting appliances. The bill would require the Energy Commission, as part of developing and

administering the initiative, to develop guidelines, as specified, and authorize local service providers, nonprofit organizations, and regional collections of local governments to use those grant moneys for outreach and technical assistance, rebates, loans, installation, educational information, and other support services to assist low-income households. *The bill would repeal the above-described provisions on January 1, 2029. The bill would also require the Energy Commission, on March 1 of every year from 2026 to 2030, inclusive, to submit a report to the relevant policy committees of the Legislature on the implementation of the initiative, as specified.*

Existing law vests the Public Utilities Commission (PUC) with regulatory authority over public utilities, including gas corporations. The California Global Warming Solutions Act of 2006 designates the State Air Resources Board as the state agency charged with monitoring and regulating sources of emissions of greenhouse gases. The act authorizes the state board to include the use of market-based compliance mechanisms in regulating those emissions. The implementing regulations adopted by the state board provide for the direct allocation of greenhouse gas allowances to electrical corporations and gas corporations pursuant to a market-based compliance mechanism.

This bill would require the PUC to direct the balance of the revenues received by a gas corporation as a result of that allocation to be credited directly to the residential customers of the gas corporation, except that, until January 1, 2029, the bill would authorize the PUC to require gas corporations to annually use up to 15% of the revenues received as a result of that allocation of allowances to fund the Climate Pollution Reduction in Homes Initiative, and would require the PUC to direct the balance of those revenues, including any accrued interest, received by a gas corporation to be credited directly to the residential customers of the gas corporation. The bill would require the PUC to annually direct gas corporations to distribute the credit, as specified. Initiative, as specified.

Under existing law, a violation of the Public Utilities Act or any order, decision, rule, direction, demand, or requirement of the PUC is a crime.

Because certain of the above-described provisions would be part of the act and a violation of a PUC action implementing this bill's requirements would be a crime, the bill would impose a state-mandated local program.

The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that no reimbursement is required by this act for a specified reason.

Vote: majority. Appropriation: no. Fiscal committee: yes.

State-mandated local program: yes.

The people of the State of California do enact as follows:

1 SECTION 1. The Legislature finds and declares all of the
2 following:

3 (a) The state is a global leader in greenhouse gas emissions
4 reduction targets, including establishing state policies to return to
5 1990 greenhouse gas emissions levels by 2020, to reduce
6 greenhouse gas emissions levels to 40 percent below 1990 levels
7 by 2030, and to achieve carbon neutrality by 2045.

8 (b) Energy use in buildings is responsible for 25 percent of all
9 emissions of greenhouse gases in the state and contributes to indoor
10 and outdoor air pollution.

11 (c) Low-income communities across the state have
12 disproportionately shouldered high energy costs and the burdens
13 of poor air quality.

14 (d) Reducing home energy use through energy efficiency
15 measures and retrofitting appliances simultaneously reduces
16 residential energy expenses and harmful emissions, thereby
17 improving economic security and indoor air quality, particularly
18 in low-income communities.

19 SEC. 2. Chapter 8.65 (commencing with Section 25760) is
20 added to Division 15 of the Public Resources Code, to read:

21
22 CHAPTER 8.65. CLIMATE POLLUTION REDUCTION IN HOMES
23 INITIATIVE
24

25 25760. (a) For purposes of this chapter, the following
26 definitions apply:

27 (1) "Department" means the Department of Community Services
28 and Development.

29 (2) "Initiative" means the Climate Pollution Reduction in Homes
30 Initiative.

1 (3) “Local service provider” has the same meaning as defined
2 in Section 16367.5 of the Government Code.

3 (4) “Low-income household” means a person or family with a
4 household income at or below 60 percent of the area median
5 income, including such a person or family in a multiunit dwelling.

6 (b) (1) The commission, in consultation with the department,
7 shall develop and supervise the Climate Pollution Reduction in
8 Homes Initiative to require gas corporations to jointly award grants
9 for local service providers, nonprofit organizations, and regional
10 collections of local governments to provide financial assistance to
11 low-income households for the purchase of zero-carbon-emitting
12 appliances.

13 (2) For purposes of supervising the initiative, the commission
14 shall act as third-party administrator.

15 (3) Moneys allocated pursuant to Section 748.7 of the Public
16 Utilities Code shall be available to the commission, as the
17 third-party administrator, for allocation consistent with this section.

18 (c) As part of developing and administering the initiative, the
19 commission shall develop guidelines that do all of the following:

20 (1) Provide for the expenditure of grant funds to ensure
21 expeditious delivery of financial assistance to low-income
22 households.

23 (2) Specify criteria for which appliances, which may include
24 water heaters, stoves and cooking appliances, home heating and
25 cooling systems, refrigerators and freezers, and washers and dryers,
26 are eligible for financial assistance.

27 (3) Ensure the initiative provides safe and reliable appliances
28 that stabilize the utility bills of low-income households.

29 (4) Provide funding for single-family and multifamily residential
30 buildings.

31 (5) Provide preference to projects that are receiving or
32 combining funding from other sources, including, but not limited
33 to, the Energy Efficiency Low-Income Weatherization Program
34 established pursuant to Section 12087.5 of the Government Code.

35 (6) Provide tenant protections for rental properties, where
36 appropriate.

37 (7) Maximize community-based outreach and education for the
38 initiative through collaboration with local service providers,
39 nonprofit organizations, or regional collections of local
40 governments that have demonstrated ties to the local community

1 at the neighborhood, city, or county level and have experience
2 delivering energy incentives.

3 (8) Ensure that moneys from each gas corporation for the
4 initiative are used for grants located in the service territory of the
5 gas corporation from which the moneys are received.

6 (d) (1) A local service provider, nonprofit organization, or
7 regional collection of local governments may use grant moneys
8 for outreach and technical assistance, rebates, loans, installation,
9 educational information, and other support services to assist
10 low-income households.

11 (2) A local service provider, nonprofit organization, or regional
12 collection of local governments may authorize up to 20 percent of
13 the financial assistance provided to a low-income household to be
14 used on electrical upgrades to the low-income household's property
15 to support the installation of a zero-carbon-emitting appliance.

16 (e) *This section shall remain in effect only until January 1, 2029,*
17 *and as of that date is repealed.*

18 25761. (a) *On March 1, 2026, and each March 1 thereafter,*
19 *the commission shall submit a report to the relevant policy*
20 *committees of the Legislature on the implementation of this chapter*
21 *that details all of the following:*

22 (1) *The amount of funding received.*

23 (2) *The grants awarded.*

24 (3) *The number and location of projects funded.*

25 (4) *The number of completed projects.*

26 (5) *Any challenges and lessons learned.*

27 (b) *A report to be submitted pursuant to subdivision (a) shall*
28 *be submitted in compliance with Section 9795 of the Government*
29 *Code.*

30 25762. *This chapter shall remain in effect only until January*
31 *1, 2031, and as of that date is repealed.*

32 SEC. 3. Section 748.7 is added to the Public Utilities Code, to
33 read:

34 748.7. (a) Except as provided in subdivision (c), the
35 commission shall require revenues, including any accrued interest,
36 received by a gas corporation as a result of the direct allocation of
37 greenhouse gas allowances to gas utilities pursuant to subdivision
38 (a) and paragraphs (2) and (3) of subdivision (d) of Section 95893
39 of Title 17 of the California Code of Regulations to be credited
40 directly to the residential customers of the gas corporation.

(b) Each year, the commission shall direct each gas corporation to distribute the credit described in subdivision (a) ~~during the February utility billing cycle, so as to coincide with the highest usage gas utility bill during the year.~~ *to residential customers of the gas corporation.*

~~(e) The commission may consider a gas corporation's billing system's ability to distribute the credit described in subdivision (a) in February and may authorize the gas corporation to provide the credit as close to the February utility billing cycle as feasible.~~

~~(d)~~
(c) (1) The commission may require gas corporations to annually use up to 15 percent of the revenues, including any accrued interest, received as a result of the direct allocation of greenhouse gas emissions allowances provided to gas corporations as part of a market-based compliance mechanism adopted pursuant to subdivision (c) of Section 38562 of the Health and Safety Code to fund the Climate Pollution Reduction in Homes Initiative established pursuant to Chapter 8.65 (commencing with Section 25760) of Division 15 of the Public Resources Code.

(2) *This subdivision shall become inoperative on January 1, 2029.*

SEC. 4. No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution because the only costs that may be incurred by a local agency or school district will be incurred because this act creates a new crime or infraction, eliminates a crime or infraction, or changes the penalty for a crime or infraction, within the meaning of Section 17556 of the Government Code, or changes the definition of a crime within the meaning of Section 6 of Article XIII B of the California Constitution.

ATTACHMENT 2E

South Coast Air Quality Management District
Legislative Analysis Summary – SB 1095 (Becker)
Version: As Amended – 4/8/24
Analyst: PC

SB 1095 (Becker)

Cozy Homes Cleanup Act: building standards: gas-fuel-burning appliances.

Summary: This bill would update ambiguities in existing law to ensure that individuals can switch from gas to electric appliances, thereby allowing Californians to opt for healthier zero-emission homes. The bill would:

- 1) Establish the Cozy Homes Clean-up Act, which clarifies the authority of individuals in mobilehomes, manufactured homes, and common interest developments (CIDs) to possess and use electric appliances, in addition to gas appliances, and
- 2) Require the Department of Housing and Community Development (HCD) to regulate electric appliances.

Background: According to the author: “Despite California’s ambitious greenhouse gas reduction targets and incentives to convert to more climate-friendly appliances, local agencies and non-profit organizations at the forefront of electric appliance installations have raised concerns about outdated health and safety codes that could prevent or discourage individuals from making the switch from gas to electric appliances. Issues such as legal ambiguities or delays in approval of installation from a homeowner association (HOA) can potentially add time or costs to the process of allowing residents to make the switch. This is particularly burdensome in cases of changes of appliances at the ‘end of life,’ where a family cannot and will not wait 3-6 months for their HOA to approve replacement water heater installation. These outdated regulations could preemptively increase building electrification barriers and costs, particularly for installations of heat pumps on the exteriors of homes, or for replacements in mobile and multi-family homes. SB 1095 will help preemptively remove potential barriers that could frustrate Californians trying to make the switch to electric appliances so that all Californians can have cozier, healthier zero-emission homes.”

CIDs are a type of housing with separate ownership of housing units that also share common areas and amenities. There are a variety of different types of CIDs including condominium complexes, planned unit developments, and resident-owned mobilehome parks. In recent years, CIDs have represented a growing share of California’s housing stock. In 2019 there were an estimated 54,065 CIDs in the state which contain 5 million housing units, or about 35% of the state’s total housing stock. CIDs and their governing documents are regulated under the Davis-Stirling Act. CIDs can also have Covenants, Conditions, and Restrictions (CC&Rs) which are filed with the county recorder at the time they are established. Owners in a CID are contractually obligated to abide by the CC&Rs and the governing documents of a CID, which specify rules, such as how an owner can modify their home. Additionally, CIDs include HOAs which are run by an elected board of directors.

Status: 4/15/24 – Placed on Senate Appropriations Committee suspense file.

Specific Provisions: Specifically, this bill would:

- 1) Void, within the Davis Sterling Act, any governing document or architectural guidelines or policies within CIDs that prevent the replacement of a fuel-gas-burning appliance with an electric appliance;
- 2) Add that nothing shall prohibit the replacement of fuel-gas-burning water heaters with electric appliances in manufactured homes or mobilehomes;
- 3) Provide that nothing shall prohibit the installation of plumbing, heating, or air-conditioning systems for manufactured homes, mobilehomes, or multifamily manufactured homes from being located outside the home if necessary to replace an existing fuel-gas-burning water heater;
- 4) Require HCD, by July 1, 2026, to issue regulations that include standards for electric water heater seismic bracing, anchoring, and strapping to be applicable statewide in manufactured homes and mobilehomes. Requires new relevant appliances to adhere to these standards; and
- 5) Require HCD to by July 1, 2026, update existing regulations regarding the facilitation of electric appliance replacement in manufactured homes and mobilehomes.

Impacts on South Coast AQMD’s Mission, Operations or Initiatives: According to the CARB 2018 GHG Inventory, commercial and residential buildings are responsible for approximately 12% each of all greenhouse gas (GHG) emissions, and space and water heating make up nearly 75% of all building-related fuel consumption. To date, electric appliances have been key in helping fulfill California’s zero emissions goals. Because of the impacts to the environment, CARB is considering a regulation requiring any newly purchased heater to be a zero-emission space or water heater as an important part of their effort to decrease GHG emissions to help meet the state’s climate goals of achieving carbon neutrality by 2045 or earlier. Similarly, the sponsor of this bill, the Bay Area AQMD, is considering amending their Regulation 9, Rules 4 and 6 to reduce emissions of nitrogen oxides from residential and commercial furnaces and water heaters via replacement or upgrade to zero emission electric appliances. These Bay Area AQMD amendments would bring the Bay Area into line with air districts in the Southern California and Central Valley regions, which are developing programs to help residents facilitate the transition to zero-emission electric appliances. These changes in regulation are examples of a trend to electrification to reduce GHG and air pollutant emissions.

This bill is consistent with South Coast AQMD’s policy priorities to promote zero emission technology, reduce emissions and protect public health within the South Coast region.

Recommended Position: SUPPORT

Support:

Bay Area Air Quality Management District (Sponsor)
ACT Now Bay Area
Acterra: Action for A Healthy Planet
Building Decarbonization Coalition
California Air Pollution Control Officers Association
California Environmental Voters
Carbon Free Palo Alto
Carbon Free Silicon Valley
Center for Biological Diversity
EarthJustice
Institute for Market Transformation
Natural Resources Defense Council (NRDC)
Physicians for Social Responsibility - San Francisco Bay Area Chapter
Rewiring America
RMI
San Francisco Bay Area Planning & Urban Research Association (SPUR)
Sierra Club California
Silicon Valley Leadership Group
US Green Building Council
350 Sacramento

Opposition:

Previously listed opposition has changed to neutral.

ATTACHMENT 2F

AMENDED IN SENATE APRIL 8, 2024

AMENDED IN SENATE MARCH 21, 2024

SENATE BILL

No. 1095

Introduced by Senator Becker

February 12, 2024

An act to add Section 4737 to the Civil Code, and to amend Sections 17958.8, 18031.7, and 18031.8 of, *and* to add Section 18031.9 to, the Health and Safety Code, relating to building standards.

LEGISLATIVE COUNSEL'S DIGEST

SB 1095, as amended, Becker. Cozy Homes Cleanup Act: building standards: gas-fuel-burning appliances.

(1) Existing law, the Manufactured Housing Act of 1980 (the “act”), requires the Department of Housing and Community Development to enforce various laws pertaining to the structural, fire safety, plumbing, heat-producing, or electrical systems and installations or equipment of a manufactured home, mobilehome, commercial coach, or special purpose commercial coach. The act defines “manufactured home” and “mobilehome” to mean a structure that meets specified requirements, including that the structure is transportable in one or more sections and is 8 body feet or more in width, or 40 body feet or more in length, in the traveling mode, or, when erected onsite, is 320 or more square feet, and includes the plumbing, heating, air-conditioning, and electrical systems contained within the structure.

The act specifies that it does not prohibit the replacement of water heaters or appliances for comfort heating in manufactured homes or mobilehomes with fuel-gas-burning water heaters or fuel-gas appliances for comfort heating that are not specifically listed for use in a manufactured home or mobilehome, as specified.

This bill would extend those provisions to also apply to electric water heaters and electric appliances for comfort heating that are not specifically listed for use in a manufactured home or mobilehome.

This bill would provide that the act, including any regulation, rule, or bulletin adopted pursuant thereto, does not prohibit the installation of plumbing, heating, or air-conditioning systems for manufactured homes, mobilehomes, or multifamily manufactured homes from being located outside of the home if necessary to replace an existing fuel-gas-burning water heater.

(2) The act requires replacement fuel-gas-burning water heaters to be listed for residential use and installed within the specifications of that listing to include tiedown or bracing to prevent overturning.

This bill would also require replacement electric water heaters to be listed for residential use and installed within the specifications of that listing to include tiedown or bracing to prevent overturning.

The act requires fuel-gas-burning water heater appliances in new manufactured homes or new multifamily manufactured homes to be seismically braced, anchored, or strapped, as specified.

This bill would also require electric water heater appliances in new manufactured homes or new multifamily manufactured homes to be seismically braced, anchored, or strapped, as specified.

The act required the Department of Housing and Community Development, on or before July 1, 2009, to promulgate rules and regulations that include standards for water heater seismic bracing, anchoring, or strapping.

This bill would require the department, on or before ~~August 15, 2025~~, *July 1, 2026*, to promulgate rules and regulations that include standards for electric water heater seismic bracing, anchoring, or strapping, as specified.

This bill would also require the department, if necessary, by ~~December 31, 2025~~, *July 1, 2026*, to update rules and regulations that facilitate the use of electricity-powered space and water heating technologies for manufactured homes, mobilehomes, and multifamily manufactured homes when necessary to replace fuel-burning appliances with electric appliances.

The act provides that any person who knowingly violates any provision of the act or any rule or regulation issued pursuant to the act is guilty of a misdemeanor.

By establishing new standards applicable to the installation and replacement of electric water heaters, the bill would expand the above-mentioned crime and thus impose a state-mandated local program.

(3) The act provides that it does not prohibit the replacement in manufactured homes or mobilehomes of ovens, ranges, or clothes dryers with fuel-gas-burning ovens, ranges, or clothes dryers that are not specifically listed for use in a manufactured home or mobilehome.

This bill would authorize the replacement in manufactured homes or mobilehomes of ovens, ranges, or clothes dryers with electric ovens, ranges, or clothes dryers that are not specifically listed for use in a manufactured home or mobilehome.

The act requires replacement gas-fuel-burning ovens, ranges, or clothes dryers to be listed for residential use and installed in accordance with the specifications of that listing to include tiedown and bracing to prevent displacement.

This bill would require replacement electric ovens, ranges, or clothes dryers to be listed for residential use and installed in accordance with the specifications of that listing to include tiedown and bracing to prevent displacement.

(4) Existing law, the State Housing Law, establishes statewide construction and occupancy standards for buildings used for human habitation. The State Housing Law requires local ordinances or regulations that govern the alteration and repair of existing buildings to permit the replacement, retention, and extension of original materials and the use of original methods of constructions, provided that the portion of the building and structure complies with applicable building code provisions and the building does not become or continue to be a substandard building, as specified.

This bill would provide that the above provision regarding the use of original materials and methods of construction does not prevail over any state or local law that prohibits the use or installation of fuel-gas-burning appliances or that requires the use or installation of electric appliances.

(5) The Davis-Stirling Common Interest Development Act governs the management and operation of common interest developments. Existing law makes void and unenforceable any provision of the governing documents or architectural or landscaping guidelines or policies that prohibits use of low water-using plants, or prohibits or restricts compliance with water-efficient landscape ordinances or regulations on the use of water, as specified.

This bill would make void and unenforceable any provision of the governing documents or architectural guidelines or policies to the extent that the provision prevents the replacement of a fuel-gas-burning appliance with an electric appliance.

(6) This bill would state that specified provisions of the bill are declaratory of existing law.

(7) The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that no reimbursement is required by this act for a specified reason.

Vote: majority. Appropriation: no. Fiscal committee: yes.
State-mandated local program: yes.

The people of the State of California do enact as follows:

1 SECTION 1. This act shall be known, and may be cited, as the
2 Cozy Homes Cleanup Act.

3 SEC. 2. Section 4737 is added to the Civil Code, to read:

4 4737. Notwithstanding any other law, any provision of the
5 governing documents or architectural guidelines or policies shall
6 be void and unenforceable to the extent that the provision prevents
7 the replacement of a fuel-gas-burning appliance with an electric
8 appliance.

9 SEC. 3. Section 17958.8 of the Health and Safety Code is
10 amended to read:

11 17958.8. (a) Local ordinances or regulations governing
12 alterations and repair of existing buildings shall permit the
13 replacement, retention, and extension of original materials and the
14 use of original methods of construction for any building or
15 accessory structure subject to this part, including a hotel,
16 lodginghouse, motel, apartment house, or dwelling, or portions
17 thereof, as long as the portion of the building and structure subject
18 to the replacement, retention, or extension of original materials
19 and the use of original methods of construction complies with the
20 building code provisions governing that portion of the building or
21 accessory structure at the time of construction, and the other rules
22 and regulations of the department or alternative local standards
23 governing that portion at the time of its construction and adopted

1 pursuant to Section 13143.2 and the building or accessory structure
2 does not become or continue to be a substandard building.

3 (b) This section shall not prevail over any other state or local
4 law that prohibits the use or installation of fuel-gas-burning
5 appliances or that requires the use or installation of electric
6 appliances.

7 SEC. 4. Section 18031.7 of the Health and Safety Code is
8 amended to read:

9 18031.7. (a) (1) Nothing in this part shall prohibit the
10 replacement of water heaters in manufactured homes or
11 mobilehomes with electric or fuel-gas-burning water heaters not
12 specifically listed for use in a manufactured home or mobilehome
13 or from having hot water supplied from an approved source within
14 the manufactured home or mobilehome, or in the garage, in
15 accordance with this part or Part 2.1 (commencing with Section
16 18200).

17 (2) Nothing in this part shall prohibit the replacement of
18 appliances for comfort heating in manufactured homes,
19 mobilehomes, or multifamily manufactured homes with electric
20 or fuel-gas appliances for comfort heating not specifically listed
21 for use in a manufactured home or mobilehome within the
22 manufactured home, mobilehome, or multifamily manufactured
23 home in accordance with this part, Part 2.1 (commencing with
24 Section 18200), or Part 2.3 (commencing with Section 18860).

25 (b) Nothing in this part, nor any regulation, rule, or bulletin
26 adopted pursuant to this part, shall prohibit the installation of
27 plumbing, heating, or air-conditioning systems for manufactured
28 homes, mobilehomes, or multifamily manufactured homes from
29 being located outside of the home if necessary to replace an
30 existing fuel-gas-burning water heater.

31 (c) Replacement electric or fuel-gas-burning water heaters shall
32 be listed for residential use and installed within the specifications
33 of that listing to include tiedown or bracing to prevent overturning.

34 (d) Replacement electric or fuel-gas-burning water heaters
35 installed in accordance with subdivision (c) shall bear a label
36 permanently affixed in a visible location adjacent to the fuel gas
37 inlet or electrical power source which reads, as applicable:

38
39

--

WARNING

This appliance is approved only for use with natural gas (NG).

OR

WARNING

This appliance is approved only for use with liquified petroleum gas (LPG).

OR

WARNING

This appliance is approved only for electrical use.

Lettering on the label shall be black on a red background and not less than $\frac{1}{4}$ inch in height except for the word “WARNING” which shall be not less than $\frac{1}{2}$ inch in height.

(e) (1) All electric or fuel-gas-burning water heater appliances in new manufactured homes or new multifamily manufactured homes installed in the state shall be seismically braced, anchored, or strapped pursuant to paragraph (3) or (4) and shall be completed before or at the time of installation of the homes.

(2) Any replacement electric or fuel-gas-burning water heater appliances installed in existing mobilehomes, existing manufactured homes, or existing multifamily manufactured homes that are offered for sale, rent, or lease shall be seismically braced, anchored, or strapped pursuant to paragraph (3) or (4).

(3) On or before July 1, 2009, the department shall promulgate rules and regulations that include standards for water heater seismic bracing, anchoring, or strapping. These standards shall be substantially in accordance with either the guidelines developed pursuant to Section 19215 or the California Plumbing Code (Part 5 of Title 24 of the California Code of Regulations), and shall be applicable statewide.

(4) On or before ~~August 15, 2025~~, *July 1, 2026*, the department shall promulgate rules and regulations that include standards for electric water heater seismic bracing, anchoring, or strapping. These standards shall be substantially in accordance with either

1 the guidelines developed pursuant to Section 19215 or the
2 California Plumbing Code (Part 5 of Title 24 of the California
3 Code of Regulations), and shall be applicable statewide.

4 (5) The dealer, or manufacturer acting as a dealer, responsible,
5 as part of the purchase contract, for both the sale and installation
6 of any home subject to this subdivision shall ensure all water
7 heaters are seismically braced, anchored, or strapped in compliance
8 with this subdivision prior to completion of installation.

9 (6) In the event of a sale of a home, pursuant to either paragraph
10 (1) of subdivision (e) of Section 18035 or Section 18035.26, the
11 homeowner or contractor responsible for the installation of the
12 home shall ensure all electric or fuel-gas-burning water heater
13 appliances are seismically braced, anchored, or strapped consistent
14 with the requirements of paragraph (3). This requirement shall be
15 satisfied when the homeowner or responsible contractor signs a
16 declaration stating each electric or fuel-gas-burning water heater
17 is secured as required by this section on the date the declaration
18 is signed.

19 (f) All used mobilehomes, used manufactured homes, and used
20 multifamily manufactured homes that are sold shall, on or before
21 the date of transfer of title, have the electric or fuel-gas-burning
22 water heater appliance or appliances seismically braced, anchored,
23 or strapped consistent with the requirements of paragraph (3) or
24 (4) of subdivision (e). This requirement shall be satisfied if, within
25 45 days prior to the transfer of title, the transferor signs a
26 declaration stating that each water heater appliance in the used
27 mobilehome, used manufactured home, or used multifamily
28 manufactured home is secured pursuant to paragraph (3) or (4) of
29 subdivision (e) on the date the declaration is signed.

30 (g) For sales of manufactured homes or mobilehomes installed
31 on real property pursuant to subdivision (a) of Section 18551, as
32 to real estate agents licensed pursuant to Division 4 (commencing
33 with Section 10000) of the Business and Professions Code, the
34 real estate licensee duty provisions of Section 8897.5 of the
35 Government Code shall apply to this section.

36 SEC. 5. Section 18031.8 of the Health and Safety Code is
37 amended to read:

38 18031.8. (a) Nothing in this part or the regulations promulgated
39 thereunder shall prohibit the replacement in manufactured homes
40 or mobilehomes of ovens, ranges, or clothes dryers with electric

1 or fuel gas burning ovens, ranges, or clothes dryers not specifically
2 listed for use in a manufactured home or mobilehome.

3 (b) Replacement electric or fuel gas burning ovens, ranges, or
4 clothes dryers shall be listed for residential use and installed in
5 accordance with the specifications of that listing to include tiedown
6 and bracing to prevent displacement.

7 (c) Replacement electric or fuel gas burning ovens, ranges, or
8 clothes dryers installed in accordance with subdivision (b) shall
9 bear a label in compliance with subdivision (c) of Section 18031.7.

10 SEC. 6. Section 18031.9 is added to the Health and Safety
11 Code, to read:

12 18031.9. The department shall, if necessary, by ~~December 31,~~
13 ~~2025, July 1, 2026,~~ update existing rules and regulations that
14 facilitate the use of electricity-powered space and water heating
15 technologies for manufactured homes, mobilehomes, and
16 multifamily manufactured homes when necessary to replace
17 fuel-burning appliances with electric appliances.

18 SEC. 7. The amendments to Section 17958.8 of the Health and
19 Safety Code made by this act do not constitute a change in, but
20 are declaratory of, existing law.

21 SEC. 8. No reimbursement is required by this act pursuant to
22 Section 6 of Article XIII B of the California Constitution because
23 the only costs that may be incurred by a local agency or school
24 district will be incurred because this act creates a new crime or
25 infraction, eliminates a crime or infraction, or changes the penalty
26 for a crime or infraction, within the meaning of Section 17556 of
27 the Government Code, or changes the definition of a crime within
28 the meaning of Section 6 of Article XIII B of the California
29 Constitution.

ATTACHMENT 2G



Western
Manufactured Housing Communities
Association

May 3, 2024

The Honorable Josh Becker
California State Senate
1021 O Street, Suite 7250
Sacramento, CA 95814

RE: SB 1095 (Becker) Cozy Homes Cleanup Act (April 8, 2024) — **NEUTRAL POSITION**

Senator Becker,

On behalf of the Western Manufactured Housing Communities Association (WMA), I appreciate your willingness to amend SB 1095 to address our concern about the original version's language's potential to require significant utility system upgrades necessary to comply with the legislation.

Further, we appreciate you agreeing to ensure electric appliances installed do not jeopardize the health and safety of residents and the mobilehome park and requires the Department of Housing and Community Development to promulgate rules and regulations to satisfy the requirements of SB 1095.

For the reasons listed above, WMA has adopted a neutral position on SB 1095. If you have any questions or comments regarding our position, please contact me at (916) 448-7002, and thank you for your consideration.

Sincerely,

Christopher Wysocki
State Legislative Advocate

CC: The Honorable Anna Caballero, Chair, Senate Appropriations Committee
The Honorable Brian Jones, Vice-Chair, Senate Appropriations Committee
Members, Senate Appropriations Committee
Mark McKenzie, Staff Director, Senate Appropriations Committee
Kirk Feely, Fiscal Director, Senate Republican Caucus

ATTACHMENT 2H



1945 Chicago Avenue Suite B North
Riverside, CA 92507
(951)683-4053 P
(951)683-4075 F
www.cmhi.org

March 26, 2024

Senator Thomas J. Umberg
Chair, Senate Judiciary Committee
1021 O Street, Room 3240
Sacramento, CA 95814

**RE: SB 1095 (Becker) Cozy Homes Cleanup Act: Building Standards
California Manufactured Housing Institute: Removal of Opposition
Set for hearing 4/2/24**

Chair Umberg:

On March 11th 2024, the California Manufactured Housing Institute (CMHI) submitted an *Oppose Unless Amended* letter on Senator Becker's SB 1095, primarily based on our concerns with the bill's definition of, "manufactured home."

Based on the author's March 21, 2024 amendments, taken in Senate Housing Committee, we write with thanks for Senator Becker's amendments to address our concerns and we have adopted a *Neutral* position on SB 1095.

If you have any questions regarding our change in position, please contact John Moffatt or Geoff Neill, CMHI's legislative representatives, at (916) 446-6752. Thank you for your consideration.

Sincerely

A handwritten signature in blue ink, appearing to read "J. Maxcy", is written over a horizontal line.

Jess Maxcy
President

ATTACHMENT 2I

South Coast Air Quality Management District
Legislative Analysis Summary – SB 1298 (Cortese)
Version: As Amended 4/22/24
Analyst: DPG

SB 1298 (Cortese)

Certification of thermal powerplants: data centers.

Summary: This bill authorizes the California Energy Commission (CEC) to exempt a thermal powerplant with generating capacity up to 150 megawatts (MW) from the CEC’s powerplant siting review, if the facility is used solely as a backup generation facility for a data center and certain other conditions are met.

Background: Existing law:

- 1) Defines a “thermal powerplant” as any stationary or floating electrical generating facility with a generating capacity of 50 MW or more using any source of thermal energy. Thermal powerplants include facilities related to the powerplant; however, they do not include facilities related to a geothermal development or production facility. Existing law also exempts certain renewable energy generation facilities from the definition of a thermal powerplant, including wind, hydroelectric, and solar photovoltaic facilities.
- 2) Provides the CEC with exclusive authority to certify all power facilities in the state, regardless of whether a facility is a new power site or an addition to an existing site. A certificate provided by the CEC for a power facility serves in lieu of any permit, certificate, or similar authorization required by any local, regional, state, or federal agency to the extent permitted by federal law.
- 3) Designates the CEC as the lead review agency under the California Environmental Quality Act (CEQA) for projects subject to the CEC’s powerplant siting review authority. Any other public agency making a decision related to the CEQA review of a powerplant that is subject to the CEC’s authority must use the CEC’s certification review as the environmental impact report for that decision.
- 4) Allows the CEC to exempt from its certification process certain thermal powerplants with a generating capacity up to 100 MW and modifications to existing facilities that do not add capacity in excess of 100 MW. The CEC may provide an exemption as long as the CEC finds that no substantial adverse impact on the environment or energy resources will result from the construction or operation of the proposed facility or from the modifications.
- 5) Provides an expedited judicial review of CEC decisions for powerplant and transmission applications for certification. These decisions are subject to judicial review by the California Supreme Court. All other courts within the state are prohibited from hearing or determining any issue regarding CEC powerplant and transmission applications which could have been determined in a CEC proceeding and all other courts may not delay or

stop construction of a powerplant except to enforce a CEC decision regarding the construction.

Status: 4/22/24 - Read second time and amended. Re-referred to Senate Appropriations Committee.

Specific Provisions: Specifically, this bill authorizes the CEC to exempt a thermal powerplant with generating capacity up to 150 MW from CEC's powerplant siting review, if it meets the following conditions:

- 1) The facility is used solely as a backup generation facility for a data center;
- 2) The facility is located on the customer side of the meter and is not interconnected to the distribution system; and
- 3) CEC finds that no substantial adverse impact on the environment or energy resources will result from the construction and operation of the facility.

Impacts on South Coast AQMD's Mission, Operations or Initiatives: Numerous data center projects with large diesel generators as a source of backup power have been installed through the CEC's Small Power Plant Exemption (SPPE) program. These generators emit cancer causing toxic air contaminants including diesel particulate matter, criteria air pollutants, and greenhouse gases. The risk to public health and the environment from operation of diesel-fired generators is significant. Much of the risk can be avoided by requiring cleaner technologies such as natural gas engines or fuel cells. Raising the exemption threshold from the current 100 to 150 MW will encourage larger data centers to be installed, resulting in even more negative impacts to nearby communities.

Recommended Position: OPPOSE

Support:

Silicon Valley Leadership Group, Sponsor
Bay Area Council
Carlsbad Chamber of Commerce
Data Center Coalition
ECOLAB
Greater Irvine Chamber of Commerce
Microsoft Corporation
Multicultural Business Alliance
Opportunity Stanislaus
San Francisco Filipino American Chamber of Commerce

Opposition:

Bay Area Air Quality Management District, unless amended.

South Coast Air Quality Management District
Legislative Analysis Summary – SB 1298 (Cortese)
Version: As Amended 4/22/24
Analyst: DPG

California Air Pollution Control Officers Association
Coalition for Clean Air
Union of Concerned Scientists

ATTACHMENT 2J

AMENDED IN SENATE APRIL 22, 2024

SENATE BILL

No. 1298

Introduced by Senator Cortese

February 15, 2024

An act to amend Section 25541 of the Public Resources Code, relating to energy.

LEGISLATIVE COUNSEL'S DIGEST

SB 1298, as amended, Cortese. Certification of thermal powerplants: data centers.

Existing law vests the State Energy Resources Conservation and Development Commission with the exclusive power to certify all locations on which an electrical transmission line or thermal powerplant is constructed, or is proposed to be constructed, and related electrical transmission lines or thermal powerplants. Existing law authorizes the commission to exempt from certification a thermal powerplant with a generating capacity of up to 100 megawatts, and modifications to existing generating facilities that do not add capacity in excess of 100 megawatts, if the commission finds that no substantial adverse impact on the environment or energy resources will result from the construction or operation of the proposed facility or from the modifications.

This bill would additionally authorize the commission to exempt from certification a thermal powerplant with a generating capacity of up to ~~200~~ 150 megawatts ~~that if it is used solely as an emergency backup generating a backup generation facility for a data center and that is not interconnected with the electrical transmission grid for purposes of exporting electricity, if center, it is located on the customer side of the meter and is not interconnected to the distribution system, and the~~ commission finds that no substantial adverse impact on the environment

or energy resources will result from the construction ~~or~~ *and* operation of the ~~proposed data center facility.~~

Vote: majority. Appropriation: no. Fiscal committee: yes.

State-mandated local program: no.

The people of the State of California do enact as follows:

1 SECTION 1. Section 25541 of the Public Resources Code is
2 amended to read:

3 25541. The commission may exempt from this chapter both
4 of the following:

5 (a) Thermal powerplants with a generating capacity of up to
6 100 megawatts and modifications to existing generating facilities
7 that do not add capacity in excess of 100 megawatts, if the
8 commission finds that no substantial adverse impact on the
9 environment or energy resources will result from the construction
10 or operation of the proposed facility or from the modifications.

11 ~~(b) Thermal powerplants with a generating capacity of up to~~
12 ~~200 megawatts that are used solely as emergency backup generating~~
13 ~~facilities for a data center and that are not interconnected with the~~
14 ~~electrical transmission grid for purposes of exporting electricity,~~
15 ~~if the commission finds that no substantial adverse impact on the~~
16 ~~environment or energy resources will result from the construction~~
17 ~~or operation of the proposed data center.~~

18 (b) *Thermal powerplants with a generating capacity of up to*
19 *150 megawatts, subject to all of the following conditions:*

20 (1) *The facility is used solely as a backup generation facility*
21 *for a data center.*

22 (2) *The facility is located on the customer side of the meter and*
23 *is not interconnected to the distribution system.*

24 (3) *The commission finds that no substantial adverse impact on*
25 *the environment or energy resources will result from the*
26 *construction and operation of the facility.*

ATTACHMENT 3A



Carmen Group
I N C O R P O R A T E D

To: South Coast AQMD Legislative Committee

From: Carmen Group

Date: April 24, 2024

Re: Federal Update -- Executive Branch

Department of Transportation

DOT Announces Funds Available for Mega, INFRA, and Rural Grants: In late March, the Department of Transportation announced the availability of \$5.1 billion for three significant grant opportunities under a single application process through the Multimodal Projects Discretionary Grant Program (MPDG). This includes \$1.7 billion for the Mega program to help fund large complex projects above \$100 million in total cost; \$2.7 billion for the INFRA program for multimodal freight and highway projects; and \$780 million for the Rural program to fund highway, bridge and tunnel projects in rural areas. Applications due May 6, 2024.

FRA Announces Funds Available Rail Infrastructure Grants: In late March, the Federal Railroad Administration (FRA) announced the availability of \$2.4 billion under the Consolidated Rail Infrastructure and Safety Improvements (CRISI) program for projects that modernize freight and passenger rail infrastructure. Applications due May 29, 2024.

FTA Announces Funds Available for Ferry Service Modernization: In April, the Federal Transit Administration (FTA) announced the availability of \$316 million for projects to modernize passenger ferry service across the country. This includes \$49 million for electric or low-emission ferry vessels that use alternative fuels or on-board energy storage systems. Applications due June 17, 2024.

FHWA Announces Grants to Reduce Truck Air Pollution Near Ports: In April, the Federal Highway Administration (FHWA) announced \$148 million in grants to 16 projects in 11 states under the Reduction of Truck Emissions at Port Facilities grant program. In California, \$49.7 million in grants went to the Ports of Long Beach, Los Angeles and Oakland, each receiving funds to replace diesel and gas trucks with zero-emission technologies, electric trucks and EV chargers.

FAA Announces Research Grants to Reduce Aviation Emissions and Noise: In late March, the Federal Aviation Administration (FAA) announced the award of \$27.1 million to 11 universities as part of the Aviation Sustainability Center (ASCENT) program. This includes sustainable aviation fuel research at Stanford University in California.

Proven Process. Proven Results.™

901 F Street, NW Suite 600 Washington, DC 20004 T 202.785.0500 F 202.478.1734 carmengroup.com

DOT IG Launches Audit of MARAD's Port Infrastructure Program Grants: In April, DOT's Inspector General (IG), citing the heightened risks associated with administering a grant program that has received a substantial increase in funding, launched a formal audit to assess the Maritime Administration's management and oversight of the Port Infrastructure Development Program's funded grants.

Notable Personnel Change: Christopher Coes, Assistant Secretary for Transportation Policy, now serves as Acting Under Secretary for Policy, replacing Carlos Monte Jr. who announced his departure in April.

Environmental Protection Agency

EPA Finalizes Phase 3 GHG Standards for Heavy-Duty Trucks: In late March, the Environmental Protection Agency announced final greenhouse gas emissions standards for heavy-duty vehicles, such as freight trucks and buses, for model years 2028-2032, after digesting over 175,000 public comments. The "Phase 3" standards build on EPA's Heavy-Duty Phase 2 program from 2016. The standards are to be technology-neutral, allowing manufacturers flexibility in choices of emissions control methods, and envisions a gradual transition in the development and deployment of future vehicle technologies. At the same time, the EPA says the agency will closely monitor implementation and may decide to issue further guidance documents or issue a new rulemaking if deemed necessary as circumstances warrant.

EPA Announces Its Selections to Coordinate New Clean Energy Grants: In April, the EPA announced the selection of eight private entities that will coordinate the distribution of \$20 billion in grant awards under the Greenhouse Gas Reduction Fund (GGRF) created by the Inflation Reduction Act. The EPA says the three selections under the \$14 billion National Clean Energy Investment Fund and the five selections under the \$6 billion Clean Communities Investment Accelerator will create a national clean financing network for clean energy and climate solutions that will help communities have the access they need to benefit from the financing of tens of thousands of projects expected under these programs. Meanwhile, the EPA also announced under the GGRF a \$7 billion investment in 60 Solar for All recipients that it says will enable 900,000 households in low-income and disadvantaged communities to deploy and benefit from distributed solar energy.

EPA Announces Funds Available for Clean Heavy-Duty Vehicle Grants: In April, the EPA announced the new Clean Heavy-Duty Vehicle grant program, making nearly \$1 billion available to fund the replacement of older Class 6 and 7 vehicles with new zero-emission heavy-duty vehicles. Approximately 70% of the funding will go to school buses and 30% will go to vocational vehicles such as garbage trucks, dump trucks, delivery trucks and utility trucks. Applications due July 25, 2024.

EPA's Car/Truck Emissions Rule Draws Legal Challenge: In April, a coalition of 25 state attorneys general, led by the state of Kentucky, filed a legal challenge to the EPA's March 20 final rule designating new emissions standards for cars and light trucks for

model years 2027-2032. The challenge frames the EPA action as an “electric vehicle mandate” that the state AG’s group claims exceeds the agency’s authority, and asks the DC Circuit Court of Appeals to vacate the rule.

Department of Energy

DOE Rule Pushes Federal Buildings Toward Zero Emissions: In April, the Department of Energy (DOE) announced a final rule which it says implements a Congressional mandate under the Energy Independence and Security Act of 2007 to phase out fossil fuel usage in new federal building construction. The Clean Energy for New Federal Buildings Rule is expected to achieve a 90% reduction in fossil fuel use in new projects started between 2025 and 2029, and completely eliminate on-site fossil fuel usage in new projects beginning in 2030. Meanwhile, the DOE also released a report, *Decarbonizing the US Economy by 2050: A National Blueprint for the Buildings Sector*, described as a comprehensive plan to reduce greenhouse gas emissions from all buildings by 65% by 2030 and 90% by 2050.

DOE Loan Will Support Domestic Electric Vehicle Manufacturing: In April, the DOE’s Loan Programs Office announced the closing of a \$362 million loan to CelLink Corporation of San Carlos, CA, to help finance the construction of a domestic manufacturing facility in Georgetown, TX, that will produce components essential to electric vehicle assembly. CelLink brings expertise in producing wiring harnesses and related equipment that relay information and carry electricity throughout electric vehicles.

DOE Releases Reports on Pathways to Bolster National Electric Grid: In April, the DOE release two reports designed to show progress in efforts to improve the reliability and capacity of the nation’s electric grid, which will be essential in the drive toward net zero emissions in all sectors. The *Transmission Interconnection Roadmap* serves as a guide for transmission providers, consumer advocates, and other stakeholders to meet success targets and outline tools for connecting more clean energy projects to the grid in a timely way. The *Pathways to Commercial Liftoff: Innovative Grid Deployment* report demonstrates how commercially available advanced grid solutions can cost-effectively increase the existing grid’s capacity to support higher peak demand growth.

DOE Announces Environmental Justice Grants: In April, the DOE announced \$27 million in financial and technical assistance to 40 partner teams of states and local governments through the Energy Futures Grants (EFG) Program. The EFG program supports partnership efforts to facilitate and advance clean energy projects in disadvantaged communities. Receiving one the multiple \$500,000 grants was the EV Equity Workforce Program in Los Angeles County, CA, which DOE says is bringing equity and diversity to the field of electric vehicle infrastructure development while partnering with local unions and community and technical colleges.

###

ATTACHMENT 3B



To: South Coast Air Quality Management District
From: Cassidy & Associates
Date: April 24, 2024
Re: April Report

HOUSE/SENATE

Congress

During the short April session Congress passed a bill to reauthorize Section 702 of the Foreign Intelligence Surveillance Act and the Senate voted to dismiss the articles of impeachment for Homeland Security Secretary Alejandro Mayorkas. In addition, House and Senate Committees held several hearings related to Fiscal Year 2025 budget requests.

Although the Senate was scheduled to be in recess this week, members stayed for an extended session to pass the foreign aid package that was passed by the House over the weekend. The \$95 billion package includes funding for Israel, Ukraine, and Taiwan, as well as a prospective TikTok ban and language authorizing the sale of Russian assets. The House and Senate will be back in session April 29.

EPA

On April 19, the Environmental Protection Agency (EPA) issued a final rule to designate two PFAS chemicals, perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS), as hazardous substances. The rule will ensure reporting and cleanup of the two chemicals from leaks, spills, and other releases. The EPA also issued a separate enforcement discretion policy to focus enforcement of the new rule on manufacturing and industrial companies who have significantly contributed to the release of PFAS chemicals. Read more [here](#).

On April 15, the EPA denied a petition to remove stationary combustion turbines from compliance with national limits on hazardous air pollutants under section 112 of the Clean Air Act. Stationary combustion turbines release toxic emissions in their exhaust gases. Petitioners claimed that cancer risks from their exhaust should meet the statutory delisting threshold, but the EPA determined that the petition was incomplete. Stationary combustion turbines will continue to be required to limit emissions of air toxics, including formaldehyde. Read more [here](#).

On April 11, the EPA released the annual “Inventory of U.S. Greenhouse Gas Emissions and Sinks,” which offers a national-level overview of emissions of seven greenhouse gases (GHG) – carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride – during 2022. The report also calculates carbon dioxide that is removed from the atmosphere through the uptake of carbon in forests. The country saw a 1.3% increase in GHG emissions as a result of higher energy use in 2022. However, emissions have declined 17% overall since 2005. Read more [here](#).

On April 10, the EPA used its authority under the American Innovation and Manufacturing Act of 2020 (AIM) to file a complaint against USA Wholesale, Inc. for unlawfully importing hydrofluorocarbons (HFCs). The San Jose corporation sells engine lubricants and attempted to illegally import 34,480.3 pounds of HFC-134a. The AIM Act requires the United States to phase down HFC production and consumption by 85% by 2036. HFCs have global warming potentials hundreds to thousands of times higher than carbon dioxide. Read more [here](#).

On April 1, the EPA announced settlements with four automotive parts distributors based in Southern California to resolve claims of violations of the Clean Air Act. Domestic Gaskets, Mizumo Auto, PPE Inc, and Performance Parts will all pay penalties to settle violations from manufacturing and selling defeat devices that exacerbate harmful air pollution by disabling required emissions control systems. Defeat devices can enable large emissions of nitrogen oxides and particulate matter, which can contribute to respiratory issues. Read more [here](#).

On March 29, the EPA announced final national greenhouse gas pollution standards for heavy-duty vehicles for model years 2027 through 2032. The standards, which will apply to heavy-duty vocational vehicles and tractors, will allow each manufacturer to choose what emissions control technologies are best for them. The final rule will reduce dangerous air pollution and is expected to avoid one billion tons of greenhouse gas emissions. The EPA is allowing more time in the early model years of the program for development of vehicle technologies and deployment of charging and refueling infrastructure. Read more [here](#).

Cassidy and Associates support in April:

- Worked with SCAQMD staff to strategize on future DC outreach.
- Strategized with SCAQMD staff regarding EPA Proposed Disapproval.
- Continued to monitor and report on activities in Congress and the Administration that impact the District.
- Assisted SCAQMD to prepare for upcoming appropriations cycle by sharing submission dates, exploring opportunities to influence policy through report language, and providing updates on status of spending bills
- Participated in weekly strategy sessions with SCAQMD staff.

IMPORTANT LEGISLATIVE DATES

May 10, 2024: Deadline for the Federal Aviation Administration reauthorization.

September 30, 2024: Reauthorization deadline for the Farm Bill, an omnibus package of legislation that supports US agriculture and food industries; the bill is reauthorized on a five-year cycle. The Congressional Budget Office (CBO) projects a combined budget of \$648 billion for the 2023 Farm Bill.

December 31, 2024: Expiration of the National Defense Authorization Act, which authorizes and funds specialized Department of Defense (DoD) programs and sets the DoD's policy agenda each year.

ATTACHMENT 3C

KADESH & ASSOCIATES

South Coast AQMD Report for the May 2024 Legislative Meeting covering April 2024 Kadesh & Associates

As reported last month, Congress finally completed work on the FY24 appropriations cycle and – with the release of the President’s FY25 budget request – Washington officially kicked off the FY25 budget process. The House and Senate Appropriations committees have spent the first part of the month of April on their annual budget hearings, taking testimony from agency and departmental officials. EPA Administrator Regan will testify in the House on April 30.

Despite this early committee activity, until the House and Senate arrive at an agreed-upon spending deal, government funding is still likely to lapse at the end of the fiscal year, requiring a continuing resolution and all of the attendant politics that accompanies end-of-election-year funding fights. At the end of March, House Appropriations Chair Kay Granger announced that she would step down from the role in advance of her retirement at the end of the session. Senior committee member Tom Cole (R-OK) was approved by the Republican conference as the new full committee chairman and will oversee this year’s process, which means that the House Republicans will bring different negotiators to the table for FY25 than they did for the start of FY24 (from McCarthy/Granger to Johnson/Cole).

The House was only in session for the first two weeks of the month, but it was an active work period: after much hand-wringing, the chamber was able to pass a long-stalled package of foreign assistance bills, including \$61 billion for Ukraine. The Senate returned from its recess to pass the funding package, and President Biden will sign it into law soon. With Speaker Johnson having finally called their bluff, Members of the House Freedom Caucus have now filed a motion to vacate the chair – ie a “no confidence” vote in his leadership. However, it is unclear whether this vote will actually occur given that the bills passed overwhelmingly, and it is unclear if House Democrats will support the Speaker in appreciation of his decision to finally bring up the Ukraine/Israel/Indo-Pacific aid packages. The House majority is deeply divided and it remains unlikely whether any further meaningful legislation will be considered between now and the election.

Kadesh & Associates Activity Summary-

-Worked with South Coast AQMD and the congressional delegation on whole-of-government efforts to address air quality through BIL and IRA funding programs including CPRG. Assisted with efforts related to U.S. EPA’s proposed disapproval of South Coast AQMD’s Contingency Measure Plan for 1997 8-hour ozone standard.

Contacts:

Contacts included staff and Members throughout the CA delegation, Senate offices, and members of key committees. We have also been in touch with administration staff.

###

South Coast Air Quality Management District Legislative and Regulatory Update –April 2024

❖ Important Upcoming Dates

May 24, 2024 – House of Origin Deadline for Legislation Introduced in that House.

❖ RESOLUTE Actions on Behalf of South Coast AQMD. RESOLUTE partners David Quintana, and Alfredo Arredondo continued their representation of SCAQMD before the State's Legislative and the Executive branch. Selected highlights of our recent advocacy include:

- Provided ongoing updates as the Legislature began committee hearings in mid-March and continued staff work on legislation during the legislative spring recess
- Set and attended meetings with legislative offices regarding bills for the 2024 legislative session, including for SCAQMD sponsored legislation.

❖ AB 2522 (W. Carrillo): SCAQMD Sponsored Legislation

Summary: the bill states that each member of the board shall receive compensation of \$200 for each day, or portion thereof, but not to exceed \$2,000 per month, while attending meetings of the board or any committee, or on official business of the district. The bill also authorizes increases to the compensation amount pegged to the Consumer Price Index (CPI) with a ceiling of 10 percent per year.

This bill had been set for hearing on April 8th in the Assembly Natural Resources Committee and received unanimous support. Because this bill is not estimated to have a fiscal impact on the State, the bill avoided the Appropriations committee and was sent to the Assembly Floor. On April 18th, the bill passed the Assembly with unanimous support on the Consent File. Now the bill will head to the Senate for further deliberations after May.

❖ AB 2958 (Calderon): SCAQMD Sponsored Legislation

Summary: this bill repeals the existing statute prohibiting compensation for CARB members from Air Districts. In doing so, the bill addresses the inequity in compensation among CARB board members.

This bill had been set for hearing on April 8th in Assembly Natural Resources where it received unanimous support. Because this bill is expected to have a fiscal impact on the State, the bill was sent to the Appropriations Committee where it was placed on the Suspense File. The Appropriations Committee will take up the Suspense File on May 16th.

❖ Early Action on Budget Items. On April 4th, legislative leadership and the Governor agreed on the final version of the Early Action Package. Governor's overview is available here: <https://www.gov.ca.gov/wp-content/uploads/2024/04/Early-Action-Agreement-Overview-.pdf>

The Early Action Package was contained in AB 106, which was subsequently passed by the legislature and signed by the Governor on April 15th.

❖ Legislative Meetings Set in March. As the legislative hearing process in the capitol picked up pace, the SCAQMD Government Affairs team and the Resolute team met with the following offices regarding priority legislation: Asm. Josh Hoover, Asm. Mathis, Asm. Friedman, Asm. Muratsuchi, and Asm. Kalra.

ATTACHMENT 4B



CALIFORNIA ADVISORS, LLC

South Coast AQMD Report

California Advisors, LLC

May 9, 2024, Legislative Committee Hearing

Legislative Update

April is traditionally one of the busiest months in the California State Legislature, primarily because this month includes the deadline for policy committees to hear and vote on bills. This stage is crucial as it marks the beginning of the legislative process for many proposals. During these committee hearings, legislators and advocates engage in detailed discussions and debates on the bills, often for the first time. Although passing the policy committees is a significant first step for legislation, the Appropriations Committee plays an especially critical role this year, given the state's ongoing budget deficit. The Appropriations Committee “suspense” hearings will happen in mid-May this year.

Budget Update

The Legislature passed AB 106 which encompassed the early action budget items the Governor and the Legislature agreed upon. The budget bill contained two noteworthy provisions in Sections 74 and 77 which required the Department of Finance to send two letters to the Joint Legislative Budget Committee (JLBC) within 7 days.

The first letter, as mandated by Section 74, announced the administration’s plan to issue directives for suspending further expenditures of certain one-time appropriations from the Budget Acts of 2021, 2022, and 2023. This measure aims to provide policymakers with additional options to balance the budget in June, following a review period by the JLBC.

The second letter, required by Section 77, recorded the early action budget items previously released by the Senate and Assembly. This was important because many items in the

agreement concerned 2024-25 budget plans that will be reflected in the new 2024-25 budget bill by the June deadline. This notification memorialized the \$17.3 billion of changes to previously planned General Fund expenditures.

In March, the preliminary General Fund agency cash receipts were \$243 million or 1.6 percent below the projections set by the Governor's Budget, with a fiscal year-to-date shortfall of \$5.8 billion or 4.0 percent below the forecast of \$146.0 billion. Although personal income tax receipts for March exceeded expectations by \$683 million, this gain was negated by significant deficits in sales and use taxes (down \$653 million) and corporation taxes (down \$247 million).

For this year, personal income tax receipts have contributed \$3.4 billion to the shortfall and corporation tax receipts were also down by \$1.4 billion. The Department of Finance specifically noted that the current and longer-term sales tax receipts trends reflect ongoing weakness in taxable sales for the State. The next update on the State's cash position will come when the Governor provides his May Revise.

ATTACHMENT 4C



Joe A. Gonsalves & Son

Anthony D. Gonsalves

Jason A. Gonsalves

Paul A. Gonsalves

PROFESSIONAL LEGISLATIVE REPRESENTATION

925 L ST. · SUITE 250 · SACRAMENTO, CA 95814-3766

916 441-8597 · FAX 916 441-5061

Email: gonsalves@gonsalvi.com

TO: South Coast Air Quality Management District

FROM: Anthony, Jason & Paul Gonsalves

SUBJECT: Legislative Update – April, 2024

DATE: Tuesday, April 23, 2024

The Legislature returned from their week-long Spring Recess to a busy Capitol on April 1. April is typically a busy month in the Legislature. April 26 marks the deadline to pass all bills with costs to the State out of policy committees and to the fiscal committees. As this deadline applies to most legislation introduced each year, our firm has been tracking a number of bills and issues of interest to the District.

The following will provide you with updates of interest to the District:

Budget Update

California is facing a significant budget deficit. The highly respected non-partisan Legislative Analyst's Office (LAO) previously projected a \$58 billion deficit based on the Governor's revenue projections. However, the Governor's January budget proposal projected a \$38 billion deficit.

In early February, the LAO released an update that predicts that by the time the Governor releases his May Revision to the budget, the state's deficit is projected to be \$15 billion higher, ballooning to \$73 billion. On the other hand, State revenues came in \$1.16 billion higher than projected for the month of February, mainly from personal income taxes and corporation taxes. Even with slightly higher projections, the Governor and Legislature have their work cut out for them to balance the state's budget.

On April 11, the Legislature passed AB 106 (Committee on Budget), a budget bill that reflects the early action budget agreement announced by the Governor and legislative leaders earlier this month to reduce the shortfall by approximately \$17.3 billion.

AB 106 is part of the early action agreement that contains a mix of \$3.6 billion in reductions (primarily to one-time funding), \$5.2 billion in revenue and borrowing, \$5.2 billion in delays and deferrals, and \$3.4 billion in shifts of costs from the general fund to other state funds.

Although the agreement addresses \$17 billion of the State's budget shortfall, it is also saving the more challenging fiscal decisions for later this summer when lawmakers have a more complete budget picture. With this \$17 billion in early actions, coupled with \$12.2 billion from the state Rainy Day Fund, Legislative leaders estimate the remaining deficit to be anywhere from \$8.6 billion to \$23.6 billion.

California Climate Actions

The State of California enjoyed a series of big climate wins this month, including new technology that cuts emissions from making cement and a groundbreaking clean energy project in tribal communities. The following will provide you with a summary of those actions:

- Court reaffirms California's right to fight vehicle pollution. California won a major legal victory to protect communities from dirty air and the climate crisis, defeating the fossil fuel industry. The federal appeals court reaffirmed our decades-old authority to innovate new clean-car standards to cut a major source of pollution.
- Making cleaner, greener cement. Roughly 8% of global emissions are caused by manufacturing, one of the larger contributors to the climate crisis. A California startup that just opened in Redding developed innovative technology to cut these emissions, capturing the carbon dioxide from when cement is made and using it to make more cement.
- Clean energy in tribal communities. A cutting-edge microgrid project funded by a \$32 million state grant will support energy sovereignty and sustainable economic growth for the Paskenta Band of Nomlaki Indians, one of the largest to benefit a California Native American tribe.
- \$75 million for clean water innovation. California's Lawrence Berkeley National Laboratory is pioneering cutting-edge technologies to produce more clean water, everything from wastewater recycling to desalination to water efficiency. The U.S. Department of Energy announced \$75 million to continue these innovations, on top of \$2.5 million the state invested in this program.
- \$58 million for climate-resilient infrastructure. The Biden-Harris Administration announced that California received six grants to protect infrastructure from the climate crisis, funding projects in California to upgrade roads, protect against flooding, improve safety, and more.
- Leading the country in solar power. A new report showed that California is a solar superpower, leading the nation with 68,816 gigawatt-hours of electricity produced by the sun – a 9% increase from the previous year. And, the state's grid broke a record for solar generation, with 17,170 megawatts on Wednesday afternoon; the next day another record was set by the grid, with 86% of demand being served by solar generation.
- First EV freight truck crosses the U.S.-Mexico border. New EV charging infrastructure, which was funded by a California climate grant, and a partnership between SDG&E and Bali Express has resulted in a significant milestone in

binational relations and clean energy – the first of many EV freight trucks to transport goods between the United States and Mexico.

California and Norway Climate Partnership

On April 16, Governor Newsom welcomed a delegation from Norway led by His Royal Highness Crown Prince Haakon. The California and Norway delegations visited the Larkspur Ferry Terminal, which includes the backdrop of one of the world's first clean hydrogen fuel cell passenger ferries, to sign a new Memorandum of Understanding (MOU) to advance climate collaboration.

The MOU outlines four years of cooperation between California and Norway on clean energy, zero-emission transportation and ports, carbon removal and climate-smart agriculture. The two delegations also signed a joint statement highlighting the new areas of climate collaboration, existing work on economic development and continued partnership on criminal justice and prison reform.

California's world-leading climate policies have led the state to exceed its 2020 climate target six years ahead of schedule, and formed partnerships across the U.S. and around the world.

Legislation

SB 1158 (Archuleta): This bill is sponsored by SCAQMD and proposes to extend the time air districts have to use Carl Moyer Program funds from 4 to 6 years.

SB 1158 was set for hearing in the Senate Transportation Committee on April 23. After meeting with the Committee staff, all 15 members of the committee, and the republican caucus, we were able to get unanimous support for the bill. Ultimately, SB 1158 was placed on the Senate Transportation Committee consent file and the bill passed.

SB 1158 will be heard next in the Senate Appropriations Committee.

 [Back to Agenda](#)

BOARD MEETING DATE: June 7, 2024

AGENDA NO. 19

REPORT: Mobile Source Committee

SYNOPSIS: The Mobile Source Committee held a hybrid meeting on Friday, May 17, 2024. The following is a summary of the meeting.

RECOMMENDED ACTION:
Receive and file.

Gideon Kracov, Chair
Mobile Source Committee

SLR:ja

Committee Members

Present: Board Member Gideon Kracov, Committee Chair
Mayor Pro Tem Larry McCallon
Supervisor V. Manuel Perez
Councilmember Nithya Raman
Councilmember Carlos Rodriguez

Absent: Supervisor Holly J. Mitchell, Committee Vice Chair

Call to Order

Committee Chair Kracov called the meeting to order at 9:00 a.m.

For additional details, please refer to the [Webcast](#).

ROLL CALL

INFORMATIONAL ITEM (Item 1):

1. 2023 Ozone and PM2.5 Summary

Scott Epstein, Planning and Rules Manager/Planning, Rule Development and Implementation, provided a summary of 2023 ozone and PM2.5 levels. For additional details, please refer to the [Webcast](#) beginning at 00:03:30.

Committee Chair Kracov inquired about the amount of reductions that are needed to meet the ozone standard by 2037. Ian MacMillan, Assistant Deputy Executive Officer/Planning, Rule Development and Implementation, confirmed that a 67 percent reduction in NOx emissions beyond existing measures is needed for attainment. Executive Officer Wayne Nastri added that a substantial fraction of reductions needed are from sources that are regulated by the federal government. For additional details, please refer to the [Webcast](#) beginning at 13:30.

Councilmember Rodriguez asked about the amount of reductions needed from federally regulated sources to bring the Basin into attainment. Mr. MacMillan explained that if all emissions from sources regulated by South Coast AQMD were eliminated, the Basin would not attain the ozone standards. For additional details, please refer to the [Webcast](#) beginning at 18:24.

Mayor McCallon asked why ozone levels in the San Bernardino area have been increasing in recent years while NOx has been decreasing. Dr. Epstein explained that this is due to the chemistry of ozone. For additional details, please refer to the [Webcast](#) beginning at 24:54.

Mayor Pro Tem McCallon asked what the mechanism is that can lead to increased ozone from wildfires. Dr. Epstein explained that in addition to PM2.5, wildfires emit NOx and VOCs which can form ozone. Supervisor Perez commented that dust is a major issue for the Coachella Valley. For additional details, please refer to the [Webcast](#) beginning at 30:41.

Committee Chair Kracov asked which control measures have improved PM2.5. Mr. MacMillan replied that NOx controls, direct PM controls, and changes in fuels have reduced PM2.5 emissions. Committee Chair Kracov also asked when South Coast AQMD needs to submit a Plan for the new 24-hour PM2.5 standard. Mr. MacMillan responded in about 2026. For additional details, please refer to the [Webcast](#) beginning at 43:19.

Committee Chair Kracov asked if the public is responding to the no-burn days from the measurement data. Mr. MacMillan responded that modeling analyses have quantified the impact of how direct controls of PM2.5 emissions can reduce concentrations. For additional details, please refer to the [Webcast](#) beginning at 51:55.

Mr. Nastri commented about the impacts of climate change on ozone levels and mentioned the possibility of hosting an international conference as suggested by Supervisor Perez. For additional details, please refer to the [Webcast](#) beginning at 55:46.

Harvey Eder, Public Solar Power Coalition, commented that the agency has not done enough. Mark Abramowitz, Community Environmental Services, commented that staff should focus on public health instead of sanctions and state standards should be addressed. Moses Huerta, resident of the city of Paramount, commented that a recent community meeting with South Coast AQMD was a good experience. For additional details, please refer to the [Webcast](#) beginning at 57:40.

Mayor McCallon discussed temperature trends over the past several decades. For additional details, please refer to the [Webcast](#) beginning at 1:02:36.

WRITTEN REPORTS (Items 2-4):

2. Rule 2305 Implementation Status Report: Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program

This item was received and filed.

3. Rule 2202 Activity Report: Rule 2202 Summary Status Report

This item was received and filed.

4. Intergovernmental Review of Environmental Documents and CEQA Lead Agency Projects

This item was received and filed.

OTHER MATTERS:

5. Other Business

There was no other business to report.

6. Public Comment Period

Mr. Eder expressed support for both wind and solar technologies. Thomas Jelenic, Pacific Merchant Shipping Association, stated that work will need to continue to support electrification, hydrogen deployment and infrastructure to reduce emissions from port-related sources.

7. Next Meeting Date

The next regular Mobile Source Committee meeting is scheduled for Friday, June 21, 2024 at 9:00 a.m.

Adjournment

The meeting adjourned at 10:11 a.m.

Attachments

1. Attendance Record
2. Rule 2305 Implementation Status Report: Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program
3. Rule 2202 Activity Report: Rule 2202 Summary Status Report – Written Report
4. Intergovernmental Review of Environmental Documents and CEQA Lead Agency Projects – Written Report

ATTACHMENT 1

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT MOBILE SOURCE COMMITTEE MEETING

Attendance – May 17, 2024

Board Member Gideon Kracov	South Coast AQMD Board Member
Mayor Pro Tem Larry McCallon	South Coast AQMD Board Member
Supervisor V. Manuel Perez	South Coast AQMD Board Member
Councilmember Nithya Raman	South Coast AQMD Board Member
Councilmember Carlos Rodriguez	South Coast AQMD Board Member
Guillermo Gonzalez	Board Consultant (Perez)
Jackson Guze	Board Consultant (Raman)
Loraine Lundquist	Board Consultant (Mitchell)
Debra Mendelsohn	Board Consultant (McCallon)
Mark Taylor	Board Consultant (Rodriguez)
Mark Abramowitz	Community Environmental Services
Nick Bryan	Public Member
Bobbi Jo Chavarria	Sierra Club
Chris Chavez	Coalition for Clean Air
Curtis Coleman	Southern CA Air Quality Alliance
Harvey Eder	Public Solar Power Coalition
Matt Graham	Public Member
Moses Huerta	Public Member
Thomas Jelenic	PMSA
Bill LaMarr	CSBA
Julia Lester	Ramboll
David Pettit	NRDC
Peter Okurowski	CCEEB
Bethmarie Quiambao	Southern California Edison
Bill Quinn	CCEEB
David Rothbart	LA County Sanitation Districts
Ramine Ross	Western States Petroleum Association
Mario Salguero	Public Member
Heather Tomley	Port of Long Beach
Alison Torres	Eastern Municipal Water District
Anne Walsh	Public Member
Derrick Alatorre	South Coast AQMD Staff
Jacob Allen	South Coast AQMD Staff
Debra Ashby	South Coast AQMD Staff
Jason Aspell	South Coast AQMD Staff
Cesar Ayala	South Coast AQMD Staff
Barbara Baird	South Coast AQMD Staff
Elham Baranizadeh	South Coast AQMD Staff
Emily Bian	South Coast AQMD Staff

Laurence Brown	South Coast AQMD Staff
Cindy Bustillos	South Coast AQMD Staff
Marc Carreras Sospedra	South Coast AQMD Staff
Phillip Crabbe III	South Coast AQMD Staff
Scott Epstein	South Coast AQMD Staff
Scott Gallegos	South Coast AQMD Staff
Cui Ge	South Coast AQMD Staff
Bayron Gilchrist	South Coast AQMD Staff
De Groeneveld	South Coast AQMD Staff
Masoud Fallah Shorshani	South Coast AQMD Staff
Dillon Harris	South Coast AQMD Staff
Anissa “Cessa” Heard-Johnson	South Coast AQMD Staff
Nicole Idiart	South Coast AQMD Staff
Angela Kim	South Coast AQMD Staff
Howard Lee	South Coast AQMD Staff
Sang-Mi Lee	South Coast AQMD Staff
Cristina Lopez	South Coast AQMD Staff
Jason Low	South Coast AQMD Staff
Melissa Maestas	South Coast AQMD Staff
Terrence Mann	South Coast AQMD Staff
Ian MacMillan	South Coast AQMD Staff
Ron Moskowitz	South Coast AQMD Staff
Ghislan Muberwa	South Coast AQMD Staff
Susan Nakamura	South Coast AQMD Staff
Wayne Nastri	South Coast AQMD Staff
Robert Paud	South Coast AQMD Staff
Nicholas Sanchez	South Coast AQMD Staff
Nico Schulte	South Coast AQMD Staff
Lisa Tanaka O’Malley	South Coast AQMD Staff
Victor Yip	South Coast AQMD Staff
Chris Yu	South Coast AQMD Staff



South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765
(909) 396-2000, www.aqmd.gov

Rule 2305 Implementation Status Report:
Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program

April 1, 2024 to April 30, 2024

1. Implementation and Outreach Activities:

Activity	Since Last Report*	Since Rule Adoption
Calls and Emails to WAIRE Program Hotline (909-396-3140) and Helpdesk (waire-program@aqmd.gov)	380	8,387
Views of Compliance Training Videos (outside of webinars)	133	7,180
Emails Sent with Information About WAIRE Program Resources	0	~ 77,332
Visits to www.aqmd.gov/waire	2,860	~ 64,066
Warehouse Locations Visited In-Person	158	1,179
Presentations to Stakeholders*	1	144

**Los Angeles Environmental Justice Network Enforcement Symposium*

2. Highlights of Recent Implementation and Enforcement Activities

Warehouse operators in Phase 1 and Phase 2 were required to submit their Annual WAIRE Report (AWR) by January 31, 2024. As of April 30th, South Coast AQMD has received the following AWRs from these two phases:

Compliance Period	Phase 1 (≥250,000 sf)	Phase 2 (≥150,000 - <250,000 sf)	Phase 3 (≥100,000 - <150,000 sf)*	Grand Total
2022	581	N/A	N/A	581
2023	518	325	N/A	843

*Phase 3 warehouse operators are required to submit their first Annual WAIRE Report by January 31, 2025.

Of the submitted reports, 78 warehouse operators still need to submit the required fees (including mitigation fees, as applicable). The warehouse operators who submitted an AWR earned a total of about 888,878 WAIRE Points in the two compliance periods, far exceeding the total WAIRE Points Compliance Obligation reported by these entities. These excess points may be banked for future compliance. The operators reported approximately \$27.4 million in mitigation fees, of which about \$22.8 million were paid by April 30, 2024.

Rule 2305 allows warehouse operators or owners the option of earning WAIRE Points for early actions completed prior to their first compliance period. As of April 30th, 2023 warehouse operators and facility owners filed Early Action AWRs. These early action reports include about 80,308 earned WAIRE Points.

Since December 2023, over 200 Notice of Violations (NOVs) have been issued for failure to submit reports. Approximately one hundred warehouses have contacted South Coast AQMD directly in response to the NOVs issued, and staff is providing compliance assistance as needed. Sixty-one facilities have subsequently filed the required reports and fees. An additional eight facilities have submitted the required reports but have not yet submitted the associated fees. Some operators provided additional documentation to assert that the rule may not apply to their facility, and staff is in the process of evaluating this information.

Staff continued working on eight Public Records Act Requests preparing information that includes Rule 2305 reported data.

Anticipated Activities in May

- Custom WAIRE Plan applications for the 2024 compliance period will be due no later than May 7, 2024. Staff will begin review of the Custom WAIRE Plan applications submitted for the 2024 compliance period.
- Continue outreach and support efforts to warehouse operators in preparation of their ISIR/AWR submittals.
- Continue to pursue potential enforcement action as necessary.
- Continue to review and verify submitted information and analyze data reported by facilities.
- Continue to provide documents in response to Public Records Act Requests.
- Continue to develop an approach for addressing business confidentiality concerns and making WAIRE Program data publicly accessible via the online F.I.N.D. tool on the South Coast AQMD website.
- Continue to enhance the WAIRE POP software to support Phase 3 ISIR submittals and improved functionality (e.g., program administration, and an amendment process for submitted reports).



South Coast Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 • www.aqmd.gov

Rule 2202 Summary Status Report

Activity for January 1, 2024 – April 30, 2024

Employee Commute Reduction Program (ECRP)	
# of Submittals:	51

Emission Reduction Strategies (ERS)	
# of Submittals:	44

Air Quality Investment Program (AQIP) Exclusively		
County	# of Facilities	\$ Amount
Los Angeles	24	\$ 33,739
Orange	1	\$ 4,439
Riverside	0	\$ 0
San Bernardino	0	\$ 0
TOTAL:	25	\$ 38,178

ECRP w/AQIP Combination		
County	# of Facilities	\$ Amount
Los Angeles	0	\$ 0
Orange	0	\$ 0
Riverside	0	\$ 0
San Bernardino	0	\$ 0
TOTAL:	0	\$ 0

Total Active Sites as of April 30, 2024

ECRP (AVR Surveys)			TOTAL Submittals w/Surveys	AQIP	ERS	TOTAL
ECRP ¹	AQIP ²	ERS ³				
483	9	12	504	101	724	1,329
36.3%	0.7%	0.9%	37.9%	7.6%	54.5%	100% ⁴

Total Peak Window Employees as of April 30, 2024

ECRP (AVR Surveys)			TOTAL Submittals w/Surveys	AQIP	ERS	TOTAL
ECRP ¹	AQIP ²	ERS ³				
364,677	3,179	1,982	369,838	13,625	282,472	665,935
54.7%	0.5%	0.3%	55.5%	2.1%	42.4%	100% ⁴

- Notes:**
1. ECRP Compliance Option.
 2. ECRP Offset (combines ECRP w/AQIP). AQIP funds are used to supplement the ECRP AVR survey shortfall.
 3. ERS with Employee Survey to get Trip Reduction credits. Emission/Trip Reduction Strategies are used to supplement the ECRP AVR survey shortfall.
 4. Totals may vary slightly due to rounding.

DRAFT VERSION

BOARD MEETING DATE: June 7, 2024

AGENDA NO.

REPORT: Intergovernmental Review of Environmental Documents and CEQA Lead Agency Projects

SYNOPSIS: This report provides a listing of environmental documents prepared by other public agencies seeking review by South Coast AQMD between April 1, 2024 and April 30, 2024, and proposed projects for which South Coast AQMD is acting as lead agency pursuant to CEQA.

COMMITTEE: Mobile Source, May 17, 2024, Reviewed

RECOMMENDED ACTION:
Receive and file.

Wayne Nastri
Executive Officer

SR:MK:BR:SW:HK

Background

The California Environmental Quality Act (CEQA) Statute and Guidelines require public agencies, when acting in their lead agency role, to provide an opportunity for other public agencies and members of the public to review and comment on the analysis in environmental documents prepared for proposed projects. A lead agency is when a public agency has the greatest responsibility for supervising or approving a proposed project and is responsible for the preparation of the appropriate CEQA document.

Each month, South Coast AQMD receives environmental documents, which include CEQA documents, for proposed projects that could adversely affect air quality. South Coast AQMD fulfills its intergovernmental review responsibilities, in a manner that is consistent with the Board's 1997 Environmental Justice Guiding Principles and Environmental Justice Initiative #4, by reviewing and commenting on the adequacy of the air quality analysis in the environmental documents prepared by other lead agencies.

The status of these intergovernmental review activities is provided in this report in two sections: 1) Attachment A lists all of the environmental documents prepared by other public agencies seeking review by South Coast AQMD that were received during the reporting period; and 2) Attachment B lists the active projects for which South Coast AQMD has reviewed or is continuing to conduct a review of the environmental documents prepared by other public agencies. Further, as required by the Board's October 2002 Environmental Justice Program Enhancements for fiscal year (FY) 2002-03, each attachment includes notes for proposed projects which indicate when South Coast AQMD has been contacted regarding potential air quality-related environmental justice concerns. The attachments also identify for each proposed project, as applicable: 1) the dates of the public comment period and the public hearing date; 2) whether staff provided written comments to a lead agency and the location where the comment letter may be accessed on South Coast AQMD's website; and 3) whether staff testified at a hearing.

In addition, the South Coast AQMD will act as lead agency for a proposed project and prepare a CEQA document when: 1) air permits are needed; 2) potentially significant adverse impacts have been identified; and 3) the South Coast AQMD has primary discretionary authority over the approvals. Attachment C lists the proposed air permit projects for which South Coast AQMD is lead agency under CEQA.

Attachment A – Log of Environmental Documents Prepared by Other Public Agencies and Status of Review, and Attachment B – Log of Active Projects with Continued Review of Environmental Documents Prepared by Other Public Agencies

Attachment A contains a list of all environmental documents prepared by other public agencies seeking review by South Coast AQMD that were received pursuant to CEQA or other regulatory requirements. Attachment B provides a list of active projects, which were identified in previous months' reports, and which South Coast AQMD staff is continuing to evaluate or prepare comments relative to the environmental documents prepared by other public agencies. The following table provides statistics on the status of review¹ of environmental documents for the current reporting period for Attachments A and B combined²:

¹ The status of review reflects the date when this Board Letter was prepared. Therefore, Attachments A and B may not reflect the most recent updates.

² Copies of all comment letters sent to the lead agencies are available on South Coast AQMD's website at: <http://www.aqmd.gov/home/regulations/ceqa/commenting-agency>.

Statistics for Reporting Period from April 1, 2024 to April 30, 2024	
Attachment A: Environmental Documents Prepared by Other Public Agencies and Status of Review	86
Attachment B: Active Projects with Continued Review of Environmental Documents Prepared by Other Public Agencies (which were previously identified in the March 2024 report)	8
Total Environmental Documents Listed in Attachments A & B	94
<i>Comment letters sent</i>	9
<i>Environmental documents reviewed, but no comments were made</i>	67
<i>Environmental documents currently undergoing review</i>	18

Staff focuses on reviewing and preparing comments on environmental documents prepared by other public agencies for proposed projects: 1) where South Coast AQMD is a responsible agency under CEQA (e.g., when air permits are required but another public agency is lead agency); 2) that may have significant adverse regional air quality impacts (e.g., special event centers, landfills, goods movement); 3) that may have localized or toxic air quality impacts (e.g., warehouse and distribution centers); 4) where environmental justice concerns have been raised; and 5) which a lead or responsible agency has specifically requested South Coast AQMD review.

If staff provided written comments to a lead agency, then a hyperlink to the “South Coast AQMD Letter” is included in the “Project Description” column which corresponds to a notation in the “Comment Status” column. In addition, if staff testified at a hearing for a proposed project, then a notation is included in the “Comment Status” column. Copies of all comment letters sent to lead agencies are available on South Coast AQMD’s website at: <http://www.aqmd.gov/home/regulations/ceqa/commenting-agency>. Interested parties seeking information regarding the comment periods and scheduled public hearings for projects listed in Attachments A and B should contact the lead agencies for further details as these dates are occasionally modified.

In January 2006, the Board approved the Clean Port Initiative Workplan (Workplan). One action item of the Workplan was to prepare a monthly report describing CEQA documents for projects related to goods movement and to make full use of the process to ensure the air quality impacts of such projects are thoroughly mitigated. In accordance with this action item, Attachments A and B organize the environmental documents received according to the following categories: 1) goods movement projects; 2) schools; 3) landfills and wastewater projects; 4) airports; and 5) general land use projects. In response to the action item relative to mitigation, staff maintains a compilation of mitigation measures presented as a series of tables relative to off-road engines; on-road engines; harbor craft; ocean-going vessels; locomotives; fugitive dust; and greenhouse gases which are available on South Coast AQMD’s website at:

<http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mitigation-measures-and-control-efficiencies>. Staff will continue compiling tables of mitigation measures for other emission sources such as ground support equipment.

Attachment C – Proposed Air Permit Projects for Which South Coast AQMD is CEQA Lead Agency

The CEQA lead agency is responsible for determining the type of environmental document to be prepared if a proposal requiring discretionary action is considered to be a “project” as defined by CEQA. South Coast AQMD periodically acts as lead agency for its air permit projects and the type of environmental document prepared may vary depending on the potential impacts. For example, an Environmental Impact Report (EIR) is prepared when there is substantial evidence that the project may have significant adverse effects on the environment. Similarly, a Negative Declaration (ND) or Mitigated Negative Declaration (MND) may be prepared if a proposed project will not generate significant adverse environmental impacts, or the impacts can be mitigated to less than significance. The ND and MND are types of CEQA documents which analyze the potential environmental impacts and describe the reasons why a significant adverse effect on the environment will not occur such that the preparation of an EIR is not required.

Attachment C of this report summarizes the proposed air permit projects for which South Coast AQMD is lead agency and is currently preparing or has prepared environmental documentation pursuant to CEQA. As noted in Attachment C, South Coast AQMD is lead agency for three air permit projects during April 2024.

Attachments

- A. Environmental Documents Prepared by Other Public Agencies and Status of Review
- B. Active Projects with Continued Review of Environmental Documents Prepared by Other Public Agencies
- C. Proposed Air Permit Projects for Which South Coast AQMD is CEQA Lead Agency

DRAFT VERSION**ATTACHMENT A****ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW****April 01, 2024 to April 30, 2024**

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Warehouse & Distribution Centers</i> ORC240402-11 5665 Plaza Drive Project	The project consists of demolishing a 150,626 square foot office building and constructing a 191,394 square foot industrial building with 181,061 square foot of warehouse space and 10,333 square foot of office space on 8.53 acres. The project is located north of the intersection of Plaza Drive and Douglas Drive at 5665 Plaza Drive. Reference ORC240221-03 Comment Period: 4/2/2024 - 5/1/2024 Public Hearing: N/A	Notice of Intent to Adopt a Mitigated Negative Declaration	City of Cypress	Under review, may submit comments
<i>Warehouse & Distribution Centers</i> ORC240416-02 Design Review (DR) 2023-0009: Platform Tustin Project	The project consists of demolishing three buildings and a parking structure and constructing two buildings for industrial and warehouse use on 6.17 acres. Building 1 is 49,552 square feet with 5 dock doors and building 2 is 93,372 square feet with 11 dock doors. The project is located on the corner of Bell Avenue and Red Hill Avenue. Comment Period: 4/11/2024 - 5/1/2024 Public Hearing: N/A	Notice of Intent to Adopt a Mitigated Negative Declaration	City of Tustin	Document reviewed - No comments sent
<i>Warehouse & Distribution Centers</i> ORC240424-10 Enterprise Business Center LLC Project: Notice of Extension of the Comment Period for the Notice of Preparation and Scheduling of a Second Scoping Meeting	The project consists of demolishing a 144,906 square foot building and constructing and operating a 165,803 square foot warehouse on 8.83 acres. The project is located at 26200 Enterprise Way. Off-site improvements are located at five intersections to enhance public safety and address concerns related to large truck turning movements: Bake Parkway/Commercentre Drive, Bake Parkway/Dimension Drive, Dimension Drive/Commercentre Drive/Enterprise Way, Lake Forest Drive/Dimension Drive, and Lake Forest Drive/Rancho Parkway. Reference ORC240326-05 Comment Period: 4/24/2024 - 5/15/2024 Public Hearing: 4/24/2024	Other	City of Lake Forest	Document reviewed - No comments sent
<i>Warehouse & Distribution Centers</i> RVC240404-02 Plot Plan No. 220024	The project consists of a plot plan application (PPT 220024) to allow the development and construction of a 105,371 square foot warehouse on 5.06 acres. The project is located at 19587 Patterson Avenue, southwest of the corner of Patterson Avenue and Cajalco Road. Reference RVC220601-05 Comment Period: 4/1/2024 - 5/2/2024 Public Hearing: 5/6/2024	Notice of Intent to Adopt a Mitigated Negative Declaration	County of Riverside	Document reviewed - No comments sent

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

- Disposition may change prior to Governing Board Meeting
- Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

April 01, 2024 to April 30, 2024

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
Warehouse & Distribution Centers	The project consists of subdividing 382.29 acres into eight numbered parcels and seven lettered lots, constructing 5,275,306 square feet of industrial development distributed among four warehouse and distribution buildings, and annexing 383.74 acres. The project is located south of East 1st Street and Beaumont Avenue (Highway 79).	Site Plan	City of Beaumont	Under review, may submit comments
RVC240409-03 Beaumont Heights				
	Comment Period: 4/9/2024 - 4/30/2024 Public Hearing: 4/25/2024			
Warehouse & Distribution Centers	The project consists of amending the site designation from Commercial to Light Industrial and constructing a 58,974 square foot warehouse on 4.01 acres. The project is located north of the Flood Channel and the Home Depot warehouse, east of Indian Avenue, south of Harley Knox Boulevard, and west of Perris Boulevard. Reference RVC240221-20	Notice of Intent to Adopt a Mitigated Negative Declaration	City of Perris	Document reviewed - No comments sent
RVC240410-03 Brew Harley Knox Warehouse Project				
	Comment Period: 4/5/2024 - 5/6/2024 Public Hearing: N/A			
Warehouse & Distribution Centers	The project consists of an annexation, General Plan Amendment, and a Zoning Ordinance Amendment in two phases. Phase 1 is building three warehouses and Phase 2 is building three more warehouses totaling 2,084,820 square feet on a total of 110 acres. The project is located on the northwest corner of Beaumont Avenue and California Avenue. Reference RVC230906-01 https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2024/april-2024/RVC240411-03.pdf	Site Plan	City of Beaumont	Comment letter sent on 4/25/2024
RVC240411-03 PLAN2024-0030 Inland Harbor Annexation and Industrial				
	Comment Period: 4/11/2024 - 4/25/2024 Public Hearing: 4/25/2024			
Warehouse & Distribution Centers	The project consists of building three warehouses totaling 2,626,302 square feet on 127.15 acres. The project is located north of McLaughlin Road, east of Menifee Road, south of Highway 74, and west of Briggs Road.	Site Plan	City of Menifee	Under review, may submit comments
RVC240416-01 Menifee Valley Business Park (Plot Plan No. PLN 24-0067)				
	Comment Period: 4/12/2024 - 5/10/2024 Public Hearing: N/A			

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

1. Disposition may change prior to Governing Board Meeting

2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
Warehouse & Distribution Centers RVC240416-06 Conditional Use Permit No. 230006	The project consists of demolishing and removing existing improvements within APN 405-230-010 and 405-230-006 and constructing a new mini-warehouse facility with 11 buildings (totaling 107,495 square feet), 5 detached canopies, and 150 covered RV storage spaces (totaling 81,334 square feet) on 8.28 acres. The project is located on the northeast corner of the intersection of Brookside Avenue and Oak View Drive, in the unincorporated area of Cherry Valley. Comment Period: 4/17/2024 - 5/7/2024 Public Hearing: N/A	Initial Study	County of Riverside	Document reviewed - No comments sent
Warehouse & Distribution Centers RVC240419-06 Majestic Freeway Business Center Phase II - Plot Plan 220003 (Building 18), Plot Plan 220008 (Building 13), Plot Plan 220009 (Building 17), and Plot Plan 220015 (Buildings 14A and 14B)	The project consists of constructing five warehouses totaling 1,280,183 square feet on 70.37 acres. The project is located on four separate plot plan applications within Mead Valley: the northwest corner of Martin Street and Harvill Avenue, the northwest corner of Perry Street and Harvill Avenue, the northeast corner of Harvill Avenue and America's Tire Drive, and the southwest corner of Peregrine Way and Harvill Avenue. Reference RVC230905-01 and RVC220803-01 Comment Period: 4/19/2024 - 4/30/2024 Public Hearing: 5/1/2024	Final Environmental Impact Report	County of Riverside	Document reviewed - No comments sent
Warehouse & Distribution Centers RVC240424-06 79 North Logistics Center Project	The project consists of constructing a 404,200 square foot warehouse with a total of 70 truck dock doors on 20.06 acres. The project is located at 853 East 3rd Street, at the southeast corner of East 3rd Street and Palm Avenue. Reference RVC231003-02 and RVC230721-01 Staff previously provided comments on the Site Plan for the project, which can be accessed at: https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/august-2023/RVC230721-01.pdf Comment Period: 4/18/2024 - 5/17/2024 Public Hearing: 5/1/2024	Notice of Preparation	City of Beaumont	Document reviewed - No comments sent

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
Warehouse & Distribution Centers RVC240424-11 Conditional Use Permit No. 230006 - Intent to Adopt a Mitigated Negative Declaration	The project consists of demolishing and removing existing improvements within APN 405-230-010 and 405-230-006 and constructing a new mini-warehouse facility with 11 buildings (totaling 107,495 square feet), 5 detached canopies, and 150 covered RV storage spaces (totaling 81,334 square feet) on 8.27 acres. The project is located on the northeast corner of the intersection of Brookside Avenue and Oak View Drive, in the unincorporated area of Cherry Valley. Comment Period: 4/18/2024 - 5/8/2024 Public Hearing: 6/5/2024	Notice of Intent to Adopt a Mitigated Negative Declaration	County of Riverside	Document reviewed - No comments sent
Warehouse & Distribution Centers SBC240402-03 1101 California Street Warehouse (Lot Merger No. 8; Planned Development No.7)	The project consists of building a 357,610 warehouse and demolishing remaining concrete paving and k-rails, the remains of former amusement park attractions, and landscaping left from prior development. The project is located at 1101 California Street, at the southwest corner of Lugonia Avenue and California Street. https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2024/april-2024/SBC240402-03.pdf Comment Period: 3/28/2024 - 4/29/2024 Public Hearing: N/A	Notice of Intent to Adopt a Mitigated Negative Declaration	City of Redlands	Comment letter sent on 4/17/2024
Warehouse & Distribution Centers SBC240418-05 310 Tennessee Warehouse Project	The project consists of constructing a 197,397 square foot warehouse building with 25 truck loading doors, 242 automobile parking stalls, and other related improvements such as driveways, landscaping, lighting, utilities, and drainage improvements all on 11 acres. The project is located at 360 Kansas Street and 301 Tennessee Street, on the northwest corner of West State Street and Tennessee Street. Reference SBC230510-08 Comment Period: N/A Public Hearing: 4/23/2024	Other	City of Redlands	Document reviewed - No comments sent
Industrial and Commercial RVC240409-02 Legacy Highlands Specific Plan	The project consists of subdividing 1,414.66 acres, amending the General Plan land use designation, annexing 1,431.66 acres into the city limits, and pre-zoning for 1,431.66 acres. The project also consists of a Specific Plan to allow for 12,192,480 square feet of industrial use, 134,200 square feet of commercial use, and 542.3 acres of open space on 1,366.5 acres. The project is located near the southeast corner of State Route 60 and Potrero Boulevard. Reference RVC230927-09, RVC221115-09, RVC220913-04, RVC220809-07 and RVC220601-06 Comment Period: 4/9/2024 - 5/7/2024 Public Hearing: 5/2/2024	Site Plan	City of Beaumont	Under review, may submit comments

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

- Disposition may change prior to Governing Board Meeting
- Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Industrial and Commercial</i> SBC240419-05 Planned Development No. 9	The project consists of constructing a 310 square foot guard house with restroom facilities and establishing a parking facility for trucks, trailers, and cabs on 4-acres. The project is located at 2407 West Lugonia Avenue within the Special Development District of the East Valley Corridor Specific Plan. Comment Period: N/A Public Hearing: 4/23/2024	Site Plan	City of Redlands	Document reviewed - No comments sent
<i>Waste and Water-related</i> LAC240402-08 SA Recycling Amendment to Permit No. 750 Project#	The project consists of an amendment to an existing permit to allow 10 years of continued operations use of the site as a scrap metal recycling facility (with up to 5 additional years for non-operational use to allow for closure and restoration of the property). The project is located at 901 New Dock Street on Terminal Island in Los Angeles, within the designated AB 617 Wilmington, Carson, and West Long Beach community. Reference LAC240104-01 and LAC230329-01 Staff previously provided comments on the Notice of Preparation for the project, which can be accessed at: https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/april-2023/LAC230329-01.pdf Comment Period: 3/29/2024 - 4/11/2024 Public Hearing: 4/11/2024	Final Subsequent Environmental Impact Report	City of Los Angeles Harbor Department	Document reviewed - No comments sent
<i>Waste and Water-related</i> LAC240403-03 Notice of Opportunity to Comment Environmental Investigation and Cleanup Belmont Fibers	The project consists of the excavation and cleanup of contaminated soil and groundwater beneath the on-site point of release where three former gasoline underground storage fuel tanks (USTs) were located. The remediation is estimated to cover 590 cubic yards. The project is located at 1736 Chapin Road in Montebello, on the northeast corner of Chapin Road and Slauson Avenue. https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2024/april-2024/LAC240403-03.pdf Comment Period: 4/3/2024 - 4/5/2024 Public Hearing: N/A	Site Plan	California Water Boards	Comment letter sent on 4/4/2024

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

- Disposition may change prior to Governing Board Meeting
- Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Waste and Water-related</i> LAC240410-05 Tesoro Carson Refinery Class 3 Permit Modification#	The project consists of a public notice to inform the community of a Class 3 permit modification (constructing a new concrete floor above the existing floor within the West Retention Basin) to the Hazardous Waste Facility Post-Closure Permit for the Tesoro Carson Refinery. The project is located at 1801 East Sepulveda Boulevard in Carson, within the designated AB 617 Wilmington, Carson, and West Long Beach community. Comment Period: 4/10/2024 - 4/16/2024 Public Hearing: 4/16/2024	Permit Modification	Department of Toxic Substances Control	Document reviewed - No comments sent
<i>Waste and Water-related</i> LAC240410-11 Crosby & Overton, Inc. Class 2 Permit Modification#	The project consists of modifying the current permit to complete container unit modifications within Unit 12 and technological advancements in Unit 9. The project is located at 1630 West 17th Street in Long Beach, within the designated AB 617 Wilmington, Carson, and West Long Beach community. Reference LAC240207-10. Comment Period: 3/28/2024 - 5/26/2024 Public Hearing: 4/23/2024	Permit Modification	Department of Toxic Substances Control	Document reviewed - No comments sent
<i>Waste and Water-related</i> LAC240417-04 U.S. Ecology Vernon, Inc. - Notice of Class 1 Permit Modification#	The project consists of modifications to an existing hazardous waste facility permit to replace Tank 49A, PMT1, PMT2, and PMT3 portable media vessels with functionality equivalent vessels and to replace Emergency Coordinator and Assistant Emergency Coordinator contact information. The project is located at 5375 South Boyle Avenue on the northwest corner of East 54th Street and South Boyle Avenue in the City of Vernon, within the designated AB 617 Southeast Los Angeles community. Reference LAC210218-03 and LAC200204-13 Comment Period: N/A Public Hearing: N/A	Permit Modification	Department of Toxic Substances Control	Document reviewed - No comments sent
<i>Waste and Water-related</i> LAC240424-07 UPRR Site Adjacent to Proposed Greenway Trail Extension	The project consists of a cleanup plan to address soil contaminated with arsenic and lead. The project is located near the intersection of Lambert Road and Leffingwell Creek Crossing, east of Scott Avenue, and adjacent to the Greenway Trail Extension Project in Whittier. Comment Period: 5/1/2024 - 5/30/2024 Public Hearing: N/A	Draft Removal Action Workplan	Department of Toxic Substances Control	Under review, may submit comments

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Waste and Water-related</i> LAC240424-08 Revised Soil Remedial Action Plan: 1600 and 1606 West 135th Street, Gardena, California 90249	The project consists of a Revised Soil Remedial Action Plan (RAP) to clean up and mitigate volatile organic compounds (VOCs), including tetrachloroethene (PCE) and trichloroethene (TCE) impacts at the HITCO II Site. The project is located at 1600 and 1606 West 135th Street, bounded by West 135th Street to the north, Normandie Avenue to the east, 139th Street to the south, and South Western Street to the west, in Gardena. Reference LAC230301-02 Comment Period: 5/2/2024 - 6/1/2024 Public Hearing: N/A	Other	California Water Boards	Under review, may submit comments
<i>Waste and Water-related</i> ODP240403-08 Southern California Edison (SCE) – San Onofre Nuclear Generating Station (SONGS)	The project consists of modifications to existing hazardous waste facility permits - Class 1 (2024-01) and Class 2 (2024-02) - to include administrative and information changes, correction of typographical errors, operational changes, and changes to the closure plan. The project is located at 5000 Old Pacific Highway near the southeast corner of Old Pacific Highway and Beach Club Road in the Marine Corps Base Camp Pendleton within San Diego County. Reference ODP210406-08, ODP200922-11, and ODP191203-04 Comment Period: 3/28/2024 - 5/31/2024 Public Hearing: 4/18/2024	Permit Modification	Department of Toxic Substances Control	Document reviewed - No comments sent
<i>Waste and Water-related</i> ORC240403-06 Smith Reservoir Replacement Project	The project consists of replacing the 6-million-gallon Smith Reservoir and Pump Station with two below grade cast-in-place concrete tanks of the same size and a pump station with increased maximum pumping capacity from 7,400 gallons per minute (gpm) to 8,400 gpm all on 1.7 acres. The project is located southwest of the intersection of Taft Avenue and Sycamore Street in the city of Villa Park. Reference ORC231213-01 Comment Period: 4/3/2024 - 4/23/2024 Public Hearing: 4/23/2024	Notice of Availability of a Final Mitigated Negative Declaration	Serrano Water District	Document reviewed - No comments sent
<i>Waste and Water-related</i> ORC240410-12 Environmental Investigation Sher Lane Retail Center - Huntington Beach, CA	The project consists of providing the community with a fact sheet of the environmental investigations, remedial, and cleanup activities at the Sher Lane Retail Center. The project is located at 7682-7746 Edinger Avenue, at the southeast corner of Edinger Avenue and Sher Lane in Huntington Beach. Comment Period: N/A Public Hearing: N/A	Community Fact Sheet	Santa Ana Water Board	Document reviewed - No comments sent

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Waste and Water-related</i> ORC240424-05 Rancho Santa Margarita Recycled Water System Project	The project consists of installing 95,000 linear feet (18 miles) of 8-inch through 18-inch diameter pipes in four or five phases, constructing a new aboveground reservoir tank to store recycled water, and adding two new pump stations. The project is located east of Interstate 5 and is bisected by State Route 241 in the city of Rancho Santa Margarita and the unincorporated areas of Coto de Caza and Las Flores, within southeastern Orange County. One small component is in the city of Mission Viejo. Comment Period: 4/18/2024 - 5/17/2024 Public Hearing: N/A	Notice of Intent to Adopt a Mitigated Negative Declaration	Santa Margarita Water District	Under review, may submit comments
<i>Waste and Water-related</i> RVC240404-01 Best Cleaners Project	The project consists of updating the public on the investigations, cleanup activities, and land use requirements of the site. The project is located at 11875 Pigeon Pass Road, at the northwest corner of Ironwood Avenue and Pigeon Pass Road in Moreno Valley. Comment Period: 4/4/2024 - 4/19/2024 Public Hearing: N/A	Other	Department of Toxic Substances Control	Document reviewed - No comments sent
<i>Waste and Water-related</i> RVC240416-05 Annexation No. 109 (AX109)	The project consists of a concurrent annexation of 10.43 acres to Rancho Water, Eastern Municipal Water District (EMWD), and the Metropolitan Water District of Southern California (MWD). The project is located south of Murrieta Valley Pony Baseball Fields and southeast of Fig Street and Adams Avenue in Murrieta. Comment Period: 4/17/2024 - 5/20/2024 Public Hearing: N/A	Notice of Intent to Adopt a Mitigated Negative Declaration	Rancho California Water District	Document reviewed - No comments sent
<i>Waste and Water-related</i> RVC240417-03 Goetz Road Sewer Backbone Extension Project	The project consists of constructing a new 15-inch diameter trunk sewer and a new 8-inch sewer pipeline, extending the trunk sewer south to north, starting from the intersection of Goetz Road and Rock Canyon Drive to the intersection of Avenida Roble and Goetz Road, approximately 2,911 linear feet. The project also consists of relocating an existing 8-inch waterline within Goetz Road five feet west of its current alignment. The project is located along a portion of Goetz Road in Quail Valley, bounded by Palm Drive to the north, Rock Canyon Drive to the south, and Canyon Heights Drive to the west. Comment Period: 4/11/2024 - 5/13/2024 Public Hearing: N/A	Notice of Intent to Adopt a Mitigated Negative Declaration	Eastern Municipal Water District	Document reviewed - No comments sent

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Waste and Water-related</i> RVC240423-01 Salton Sea Management Program Update - April 2024#	The project consists of providing an April 2024 update on the Salton Sea Management Program: 1) Partners visited and toured the Species Conservation Habitat and Vegetation Enhancement Projects and SSMP's Vegetation Enhancement Clubhouse project, 2) SSMP and the Imperial Irrigation District (IID) welcomed new staff members from Federal and Utah State Agencies, 3) IID provided a detailed presentation of the science behind the Salton Sea Air Quality Mitigation Program and Proactive Dust Control Plan, and 4) SSMP Community Meetings are set for May 8, 9, and 10. The project is bounded by Mecca to the north, State Route 111 to the east, State Route 78 to the south, and State Route 86 to the west, within the designated AB 617 Eastern Coachella Valley community. Reference RVC240326-06, RVC240321-02, and RVC230103-09 Comment Period: 4/23/2024 - 5/8/2024 Public Hearing: 5/8/2024	Other	California Natural Resources Agency and the Salton Sea Authority	Document reviewed - No comments sent
<i>Waste and Water-related</i> RVC240424-04 Extension of Sewer to Highway 74 Project	The project consists of upsizing, constructing, and operating sewer lines that will serve customers in Riverside County Planning Area 6 using two alternatives. The project is located east of East 7th Street bounded by East 2nd Street and Case Road, on Highway 74 from West Ellis Avenue north through Navajo Road to Kruse Street, and on West Ellis Avenue from Highway 74 in the west to B Street in the east. Comment Period: 4/11/2024 - 5/13/2024 Public Hearing: N/A	Notice of Intent to Adopt a Mitigated Negative Declaration	Eastern Municipal Water District	Under review, may submit comments
<i>Utilities</i> LAC240416-08 Avocet Energy Storage System Project#	The project consists of the development of a 200-megawatt battery energy storage system (BESS) located within the 6.96-acre site. The project is located at 23320 Alameda Street, northeast of the corner of Alameda Street and East Sepulveda Boulevard, within the designated AB 617 Wilmington, Carson, and West Long Beach community. Comment Period: 4/16/2024 - 5/16/2024 Public Hearing: N/A	Notice of Intent to Adopt an Initial Study/Mitigated Negative Declaration	City of Carson	Document reviewed - No comments sent

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Utilities</i>	The project consists of adding a battery energy storage facility at 6920 East Slauson Avenue, modify the previously approved battery energy storage facility at 6904 East Slauson Avenue, and make related modifications at the Southern California Edison substation located at 6319-6337 Garfield Avenue. The project is located at 6904 and 6920 East Slauson Avenue and 6319-6337 Garfield Avenue, within the designated AB 617 East Los Angeles, Boyle Heights, West Commerce, and Southeast Los Angeles communities.	Notice of Intent to Adopt a Mitigated Negative Declaration	City of Commerce	Document reviewed - No comments sent
LAC240419-07 Commerce Energy Storage 2023 Project#				
	Comment Period: 4/19/2024 - 5/10/2024 Public Hearing: 5/22/2024			
<i>Utilities</i>	The project consists of the Local Coastal Program Amendment No. 16-007 and Zoning Text Amendment No. 16-005 to consider California Coastal Commission recommended modifications to the City Council approved Ordinance No. 484 for a comprehensive regulatory system for the placement of wireless communications facilities. The project is located citywide in the city of Malibu.	Other	City of Malibu	Document reviewed - No comments sent
LAC240424-03 Wireless Communication Facility Ordinance Update (No. 484): Local Coastal Program Amendment No. 16-007 and Zoning Text Amendment No. 16-005				
	Comment Period: 4/24/2024 - 5/13/2024 Public Hearing: 5/13/2024			
<i>Utilities</i>	The project consists of constructing, owning, and operating a 250-megawatt (MW) battery energy storage system (BESS) on 13-acres. The project is located within the northern portion of San Juan Capistrano, adjacent to Camino Capistrano and Interstate-5 to the east.	Other	California Energy Commission	Under review, may submit comments
ORC240419-01 Compass Battery Energy Storage (24-OPT-02)				
	Comment Period: N/A Public Hearing: N/A			
<i>Utilities</i>	The project consists of upgrades, modifications, and/or replacements of insulators and hardware on 1,740 existing transmission towers that span 162 miles from Boulder City, Nevada to the Victorville Switching Station in Victorville, California. The project is in Clark County, Nevada and San Bernardino County, California - the McCullough-Victorville Transmission Lines 1 and 2 run northeast/southwest, parallel to each other, for 162 miles from Boulder City, Nevada to Victorville, California.	Notice of Preparation	Los Angeles Department of Water and Power	Document reviewed - No comments sent
SBC240403-07 McCullough-Victorville Transmission Lines 1 and 2 Upgrade Project				
	Comment Period: 4/1/2024 - 5/1/2024 Public Hearing: 4/17/2024			

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
Transportation ALL240416-07 Connect SoCal 2024#	The project consists of addressing transportation and land use challenges, leveraging opportunities to support attainment of applicable federal air quality standards, and achieving emissions reduction targets. The project is located within six counties: Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The project also includes six designated AB 617 communities: 1) East Los Angeles, Boyle Heights, and West Commerce; 2) Eastern Coachella Valley; 3) San Bernardino and Muscoy; 4) Southeast Los Angeles; 5) South Los Angeles; and 6) Wilmington, Carson, and West Long Beach. Reference ALL231109-01, ALL231107-01 and ODP231107-01 Comment Period: N/A Public Hearing: N/A	Other	Southern California Association of Governments	Document reviewed - No comments sent
Transportation LAC240402-06 West Santa Ana Branch Transit Corridor Project#	The project consists of construction of a light rail transit line that will extend approximately 14.5 miles from southeast Los Angeles County to a southern terminus in the City of Artesia. The Project will include 12.1 miles of at-grade and 2.4 miles of aerial alignment, 9 stations and 1 in-fill station, and 5 transit parking facilities. The project is located between the Interstate 101 and State Route 110 interchange in the City of Los Angeles and the Pioneer Boulevard and 183rd Street interchange in the City of Artesia. The project traverses through cities of Los Angeles, Vernon, Maywood, Huntington Park, Commerce, Bell, Cudahy, Bell Gardens, South Gate, Lynwood, Compton, Downey, Paramount, Bellflower, Long Beach, Lakewood, Norwalk, Artesia, Cerritos, and Hawaiian Gardens, as well as portions of unincorporated Los Angeles County. The project is also located within the following AB 617 communities: East Los Angeles, Boyle Heights, West Commerce, Southeast Los Angeles, Wilmington, Carson, West Long Beach, and South Los Angeles. Reference LAC210803-11, LAC180720-05, LAC180712-02, LAC180711-05, LAC180301-10, LAC170809-07, LAC170614-08, LAC170608-01, and LAC170606-04 Comment Period: 3/29/2024 - 4/29/2024 Public Hearing: N/A	Final Environmental Impact Report	Los Angeles County Metropolitan Transportation Authority	Document reviewed - No comments sent
Transportation LAC240416-03 State Route 39 Reopening Project (EA 07-34770)	The project consists of rehabilitating and reopening a 4.4-mile segment of State Route 39 from post mile 40.0 to 44.4. The project is bounded by State Route 2 to the north, Crystal Lake to the east, Burro Canyon Shooting Park to the south, and Angeles National Forest to the west in Los Angeles County. Reference LAC230111-09 Comment Period: 3/13/2024 - 5/11/2024 Public Hearing: 4/16/2024	Notice of Availability of a Draft Environmental Impact Report	California Department of Transportation	Document reviewed - No comments sent

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
Transportation	The project consists of replacing the entire bridge deck, seismic sensors, the median concrete barriers, and the bridge railing of the Vincent Thomas Bridge. The project is located on State Route 47 (Bridge #53-1471) in Los Angeles, within the designated AB 617 Wilmington, Carson, and West Long Beach community. Reference LAC230606-09, and LAC230418-09	Notice of Availability of a Draft Environmental Impact Report	California Department of Transportation	Under review, may submit comments
LAC240416-04 Vincent Thomas Bridge Deck Replacement Project#				
	Comment Period: 4/16/2024 - 7/15/2024	Public Hearing: 5/1/2024		
Transportation	The project consists of reconstructing and widening three roads, replacing two bridges, and reconfiguring an intersection to accommodate for future traffic projections. The project is bounded by Newhall Ranch Road to the north, Interstate 5 to the east, Magic Mountain Parkway to the south, and Santa Clara River to the west. Reference LAC240306-01 and LAC230308-01	Revised Notice of Availability of a Draft Environmental Impact Report	County of Los Angeles Department of Public Works	Document reviewed - No comments sent
LAC240417-06 The Old Road over Santa Clara River and the Southern Pacific Transportation Company Bridge, et al. Project [Project No. BRLS-5953(601), STPL-5953(682)]				
	Comment Period: 2/27/2024 - 4/18/2024	Public Hearing: N/A		
Transportation	The project consists of providing transportation projects and programs that foster safe, quality, multimodal options for moving people and goods while promoting clean air, healthy and sustainable communities, and economic empowerment for residents, communities, and users in the Corridor. The project is located along a stretch of Interstate 710 (I-710), from East Los Angeles to Long Beach. The project is also located within the designated AB 617 East Los Angeles, Boyle Heights, West Commerce, Southeast Los Angeles, South Los Angeles, Wilmington, Carson, and West Long Beach communities.	Other	Los Angeles County Metropolitan Transportation Authority	Under review, may submit comments
LAC240418-02 Long Beach-East Los Angeles (LB-ELA) Corridor Mobility Investment Plan#				
	Comment Period: N/A	Public Hearing: 4/25/2024		
Transportation	The project consists of improvements to Stonehill Drive within the project site boundaries, including proposed addition of a third eastbound lane in order to mitigate significant and unavoidable transportation impacts resulting from the nearby Ganahl Lumber Project in the City of San Juan Capistrano. The project site is a 0.4-mile segment of Stonehill Drive between Palo Alto Street and San Juan Creek. The project site is bound by residential, recreational, and commercial uses, as well as the San Juan Creek bridge overcrossing.	Notice of Intent to Adopt an Initial Study/Mitigated Negative Declaration	City of Dana Point	Document reviewed - No comments sent
ORC240402-07 Stonehill Drive Improvement Project				
	Comment Period: 3/29/2024 - 4/29/2024	Public Hearing: N/A		

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
Transportation ORC240425-01 Cleo Street Beach Access Rehabilitation Project - CIP 21-9525	The project consists of improving, removing, replacing, and rehabilitating various parts of the sidewalk, beach access stairs, pump house and pump station, rock slope, abandoned steel pipe, concrete plugs and grouted riprap, and irrigation. The construction is expected to commence in 2024 and be completed in 2025. The project is located at the western terminus of Cleo Street by the Pacific Ocean, near the intersection of Cleo Street and South Coast Highway. Comment Period: 4/24/2024 - 5/24/2024 Public Hearing: N/A	Notice of Intent to Adopt an Initial Study/Mitigated Negative Declaration	City of Laguna Beach	Document reviewed - No comments sent
Transportation RVC240402-05 Interstate 215/McCall Boulevard Interchange Improvements Project	The project consists of the widening of McCall Boulevard and the existing structure over I-215, adding a bike/Neighborhood Electric Vehicle (NEV) lane on both sides of the road/bridge, adding sidewalk on the north side of the road/bridge, modifying the associated on- and off-ramps, and improving the nearby intersections of McCall Boulevard/Bradley Road and McCall Boulevard/Encanto Drive in the City of Menifee. The project begins at Post Mile 20.1 and extends along I-215 to Post Mile 21.5. The project also extends along McCall Boulevard from Encanto Drive to Bradley Road. Comment Period: 3/29/2024 - 5/1/2024 Public Hearing: 4/30/2024	Notice of Preparation	California Department of Transportation	Document reviewed - No comments sent
Transportation RVC240409-01 Connect Coachella#	The project consists of the addition of two non-motorized bicycle routes and numerous improvements to intersections and roadways throughout the routes. The project is located on Grapefruit Boulevard, between Avenue 48 and Avenue 54; and Avenue 54 between Van Buren Street and the Coachella Valley Stormwater Channel. The project is also within the designated AB 617 Eastern Coachella Valley community. Comment Period: 4/8/2024 - 4/29/2024 Public Hearing: N/A	Notice of Intent to Adopt a Mitigated Negative Declaration	City of Coachella	Document reviewed - No comments sent
Transportation SBC240418-03 Interstate 15 Replace Rock Slope Protection for 6 Bridges	The project consists of removing the existing rock slope protection (RSP) and installing partially grouted or traditional RSP, upgrading four Metal Beam Guardrail (MBGR) to Midwest Guardrail System (MGS) and constructing vegetation control underneath those guardrails. In addition, re-striping would occur from Mescal Ditch Bridge to Ivanpah Bridge. The project is located on Interstate 15 (I-15) at post mile (PM) R110.4, PM 166.8, PM 172.1L and PM 179.4 in San Bernardino County Comment Period: 4/17/2024 - 5/17/2024 Public Hearing: N/A	Notice of Intent to Adopt a Mitigated Negative Declaration	California Department of Transportation	Document reviewed - No comments sent

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Institutional (schools, government, etc.)</i>	The project consists of a 940-acre Master Plan to renovate, demolish, and construct 600,000 square feet of new buildings to support a planned growth of 30,000 students by 2040. The project is located northwest of West Temple Avenue and South Campus Drive.	Notice of Preparation	California State University, Pomona	Under review, may submit comments
LAC240409-04 California State Polytechnic University, Pomona Campus Master Plan Update				
	Comment Period: 4/8/2024 - 5/8/2024			
	Public Hearing: 4/24/2024			
<i>Institutional (schools, government, etc.)</i>	The project consists of a pre-application requesting to construct a 26,018 square foot building on 30 acres, which will replace a 16,000 square foot building. The project is located at 1151 San Gabriel Boulevard, south of the intersection of Delta Street and San Gabriel Boulevard.	Other	City of Rosemead	Document reviewed - No comments sent
LAC240410-02 Pre-application 24-03 Don Bosco New Academic Classroom Building				
	Comment Period: 4/4/2024 - 4/18/2024			
	Public Hearing: N/A			
<i>Institutional (schools, government, etc.)</i>	The project consists of the demolition of two permanent buildings and two portable buildings, demolition of a second-story pedestrian bridge, construction of a staff parking lot, and construction of a new permanent building that provides adequate learning spaces and support areas. The project is located at 5101 East Sixth Street, northeast of the corner of East Sixth Street and Fraser Avenue in East Los Angeles, within the designated AB 617 East Los Angeles, Boyle Heights, and West Commerce community.	Notice of Intent to Adopt a Mitigated Negative Declaration	Los Angeles Unified School District	Document reviewed - No comments sent
LAC240418-04 James A. Garfield High School Major Modernization Project#				
	Comment Period: 4/17/2024 - 5/17/2024			
	Public Hearing: 5/8/2024			
<i>Institutional (schools, government, etc.)</i>	The project consists of updating the previously approved campus build-out from 2017 to shift certain square footage and residential units between the various approved development phases. The project is located at 1530 Concordia West on the southwest corner of Ridgeline Drive and University Drive. Reference ORC240221-23, ORC170411-02, ORC170303-03, ORC160802-04 and ORC150911-01	Other	City of Irvine	Document reviewed - No comments sent
ORC240417-05 Concordia University Conditional Use Permit Modification				
	Comment Period: 4/17/2024 - 5/2/2024			
	Public Hearing: 5/2/2024			

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Institutional (schools, government, etc.)</i> RVC240417-02 Conditional Use Permit (PEN21-0175)	The project consists of a request for the approval of the Conditional Use Permit PEN21-0175 for the development of the Gerldine Gibson Community Center (approximately 3,874 square feet) on 1.78 acres within the Residential 15 (R15) district. The project is located east of Elsworth Street, south of Cottonwood Avenue, and west of Arvella Way. Comment Period: 4/17/2024 - 4/25/2024 Public Hearing: 4/25/2024	Other	City of Moreno Valley	Document reviewed - No comments sent
<i>Institutional (schools, government, etc.)</i> RVC240424-02 KC-46A Main Operating Base 5 (MOB 5) Final Environmental Impact Statement (FEIS)	The project consists of analyzing the potential environmental impacts associated with the proposal to beddown KC-46A tanker aircraft, associated infrastructure, and manpower for the Main Operating Base (MOB 5) where the Air Force Command (ARFC) leads a global refueling mission. The project is located near the southeast corner of Cactus Avenue and Heacock Street in Riverside. Reference RVC240124-05, RVC230712-10, and RVC221201-05 Comment Period: 4/19/2024 - 5/20/2024 Public Hearing: N/A	Final Environmental Impact Statement	Department of Defense, Department of the Air Force	Document reviewed - No comments sent
<i>Institutional (schools, government, etc.)</i> SBC240410-08 Ontario Regional Sports Complex Environmental Impact Report	The project consists of constructing 540,750 square feet of commercial building space, 450,000 square feet of stadium space, and 272,000 square feet of parking structures on 199.01 acres. The project is located near the northeast corner of Vineyard Avenue and Chino Avenue. Reference SBC231122-15 and SBC230920-10 Staff previously provided comments on the Notice of Preparation for the project, which can be accessed at: http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/october-2023/SBC230920-10.pdf Comment Period: 4/4/2024 - 5/20/2024 Public Hearing: N/A	Notice of Availability of a Draft Environmental Impact Report	City of Ontario	Under review, may submit comments
<i>Medical Facility</i> RVC240411-02 AHC Skilled Nursing Facility	The project consists of constructing a 42,526 square foot nursing facility on 5.75 acres with a proposed 5,000 to 10,000 square foot medical office building to be developed in the future. The project is located at the northeast corner of Bob Hope Drive and Gerald Ford Drive. Comment Period: 4/12/2024 - 5/11/2024 Public Hearing: N/A	Notice of Intent to Adopt a Mitigated Negative Declaration	City of Rancho Mirage	Document reviewed - No comments sent

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
Retail LAC240424-01 Conditional Use Permit No. 341 and Variance No. 172 - Heavy Equipment Rental and Sales & Reduction in Required Parking	The project consists of the Conditional Use Permit No. 341 and Variance No. 172 to establish and operate a heavy equipment rental and sales facility for landscaping equipment and vehicles with accessory office space and maintenance to reduce the amount of required on-site parking. The project is located at 14575 Firestone Boulevard, east of the corner of Firestone Boulevard and Phoebe Avenue. Comment Period: 4/24/2024 - 5/9/2024 Public Hearing: 5/16/2024	Other	City of La Mirada	Document reviewed - No comments sent
Retail RVC240403-05 Beaumont Village Shopping Center Project; TPM 37440, PP2019-0222, CUP2017-0010, CUP2019-0037, CUP2019-0038, and PM2019-0006	The project consists of subdividing 2 accessor's parcels totaling 10 acres into eight parcels. Seven of the eight parcels (7.16 acres) will be for commercial uses as the Beaumont Village Shopping Center and the eighth parcel is to remain undeveloped. The project also consists of 3 fast-food restaurants with drive-throughs, a multi-tenant building with a drive-through, a retail building, a car wash, and a six-island/12 fuel dispenser fueling station (with two 20,000-gallon underground storage tanks (USTs)) with a convenience store. The project is located at 11867 Beaumont Avenue, on the northwest corner of Oak Valley Parkway and Beaumont Avenue. Reference RVC231024-03 Comment Period: 4/4/2024 - 5/3/2024 Public Hearing: 5/8/2024	Notice of Intent to Adopt a Mitigated Negative Declaration	City of Beaumont	Document reviewed - No comments sent
Retail RVC240410-07 Walmart Fuel Beaumont Project	The project consists of construction of a gasoline service station with 16 pumps on 1.29 acres. The project is located at 1540 East Second Street near the northeast corner of East Second Street and Commerce Way. Reference RVC220802-07 and RVC220503-01 Comment Period: 4/5/2024 - 5/6/2024 Public Hearing: 5/22/2024	Notice of Intent to Adopt an Initial Study/Mitigated Negative Declaration	City of Beaumont	Document reviewed - No comments sent

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
Retail RVC240424-09 Appeals (PLN24-0068 and PLN24-0069) of Planning Commission Decision of the Mister Car Wash and Day Care Project (Major Plot Plan No. PLN22-0289 and Major Conditional Use Permit No. PLN22-0288)	The project consists of the construction of a 5,434 square foot car wash and an 11,992 square foot day care with a 21,300 square foot play area. The project is located on the southeast corner of Newport Road and Menifee Road. <p style="text-align: center;">Comment Period: 4/24/2024 - 5/1/2024 Public Hearing: 5/1/2024</p>	Other	City of Menifee	Document reviewed - No comments sent
Retail SBC240419-03 Commission Sign Review No. 493	The project consists of constructing a 12-foot-high pedestal sign with a total sign face area of 23.95 square feet for a Nick's Burgers fast food restaurant. The project is located at 1626 West Redlands Boulevard. The sign will be placed in the southeast corner of the property. <p style="text-align: center;">Comment Period: N/A Public Hearing: 4/23/2024</p>	Other	City of Redlands	Document reviewed - No comments sent
General Land Use (residential, etc.) LAC240403-01 The Bloc	The project consists of constructing 466 residential units on 4.2 acres. The project is located at 700 South Flower Street, 700 West 7th Street, and 711 South Hope Street, on the western corner of 7th Street and South Hope Street. Reference LAC221220-08 <p style="text-align: center;">Comment Period: 3/28/2024 - 5/13/2024 Public Hearing: N/A</p>	Notice of Availability of a Draft Environmental Impact Report	City of Los Angeles	Document reviewed - No comments sent
General Land Use (residential, etc.) LAC240404-03 5700 Hannum Avenue Residential and Commercial Mixed-Use Project	The project consists of demolishing a 30,672 square foot building and constructing a mixed-use building with 309 residential units and 5,600 square feet of retail space on 2.23 acres. The project is located at 5700 Hannum Avenue, near the southwest corner of Buckingham Parkway and Hannum Avenue. Reference LAC230901-11 <p style="text-align: center;">Comment Period: 4/4/2024 - 5/20/2024 Public Hearing: 4/30/2024</p>	Notice of Availability of a Draft Environmental Impact Report	City of Culver City	Under review, may submit comments

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

- Disposition may change prior to Governing Board Meeting
- Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>General Land Use (residential, etc.)</i>	The project consists of repealing the existing Specific Plan and replacing it with a new Specific Plan to construct approximately 625,492 square feet of residential buildings with approximately 84,337 square feet of non-residential areas to address the long-term demand for senior housing over a 15-to-20-year span. The project is located northwest of the corner of Bradbourne Avenue and Central Avenue.	Notice of Preparation	City of Duarte	Under review, may submit comments
LAC240410-09 Westminster Gardens Specific Plan Update				
	Comment Period: 4/4/2024 - 5/6/2024			
<i>General Land Use (residential, etc.)</i>	The project consists of constructing four residential units each ranging from 4,114 to 4,186 square feet on four existing vacant lots. The project is located at 24937 Mulholland Highway in Calabasas, northwest of the corner of Cold Canyon Road and Mulholland Highway.	Notice of Intent to Adopt a Mitigated Negative Declaration	Los Angeles County Department of Regional Planning	Document reviewed - No comments sent
LAC240416-09 2019-000010-(3): Green Hills Mulholland				
	Comment Period: 4/25/2024 - 5/28/2024			
<i>General Land Use (residential, etc.)</i>	The project consists of minor adjustments to the 2019 previously approved project (constructing 19,333 units for residential, warehouse, commercial, education and medical uses on 12,323 acres) which includes (1) allowing utility-scale battery storage and microgrids to improve the resilience of the Specific Plan's onsite renewable energy electricity program in support of the Net Zero GHG program, and (2) modifying the Specific Plan's internal roadway design standards to improve evacuation capacity for future project residents. The project is located near the northeast corner of State Route 138 and Interstate Highway 5 in the vicinity of Quail Lake south of the Kern County and Los Angeles County boundary line. Reference LAC180522-12, LAC180425-03, LAC180313-03, LAC180220-08, LAC170705-01 and LAC151001-10	Notice of Preparation	County of Los Angeles	Document reviewed - No comments sent
ODP240402-10 Centennial Specific Plan Project No. 02-232				
	Comment Period: 3/29/2024 - 4/27/2024			

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
General Land Use (residential, etc.)	The project consists of building 15 three-story residential buildings on 0.88 acres. The project is located at 12828 Newhope Street, at the southeast corner of Newhope Street and Zeta Street.	Notice of Intent to Adopt an Initial Study/Mitigated Negative Declaration	City of Garden Grove	Document reviewed - No comments sent
ORC240402-09 Newhope and Garden Grove Residential Project				
	Comment Period: 3/29/2024 - 4/17/2024 Public Hearing: 4/18/2024			
General Land Use (residential, etc.)	The project consists of building 206 residential units on 37.87 acres. The project is located northeast of the corner of North Ramona Boulevard and North Sanderson Avenue.	Notice of Intent to Adopt a Mitigated Negative Declaration	City of San Jacinto	Document reviewed - No comments sent
RVC240402-01 Valley Reseda Silverbeach Grand (TTM 38066) (P21-010)				
	Comment Period: 3/19/2024 - 4/18/2024 Public Hearing: N/A			
General Land Use (residential, etc.)	The project consists of a cleanup plan and alternatives to address areas of soil and soil vapor contaminated with pesticides, arsenic, lead, PCE, and petroleum hydrocarbons. The project is located at 2524 Mulberry Street in Riverside. Reference RVC240207-02	Draft Removal Action Workplan	Department of Toxic Substances Control	Document reviewed - No comments sent
RVC240403-02 Mulberry Gardens Apartment				
	Comment Period: 3/27/2024 - 4/29/2024 Public Hearing: N/A			
General Land Use (residential, etc.)	The project consists of constructing 388 residential units and 25,320 square feet of commercial retail space on 17.37 acres. The project is located at 5261 Arlington Avenue, northeast of the intersection of Arlington Avenue and Streeter Avenue.	Other	City of Riverside	Document reviewed - No comments sent
RVC240403-09 PR-2022-001252, Tentative Parcel Map (TPM-38638)				
	Comment Period: 3/29/2024 - 4/25/2024 Public Hearing: 4/25/2024			

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>General Land Use (residential, etc.)</i> RVC240403-10 DP-2022-00047 (COA), DP-2022-00048 (EIR)	The project consists of the demolition of a 192,139 square foot building and all appurtenances. The project is located at 5229 Arlington Avenue, northwest of the intersection of Arlington Avenue and Capistrano Way. <p style="text-align: center;">Comment Period: 3/21/2024 - 4/17/2024 Public Hearing: 4/17/2024</p>	Other	City of Riverside	Document reviewed - No comments sent
<i>General Land Use (residential, etc.)</i> RVC240410-06 PR-2024-001658 Design Review (DR)	The project consists of constructing a 10,800 square foot residential building on 1.05 acres. The project is located at 5730 Jurupa Avenue, east of Sheppard Street and south of Jurupa Avenue. <p style="text-align: center;">Comment Period: 4/3/2024 - 4/15/2024 Public Hearing: N/A</p>	Site Plan	City of Riverside	Document reviewed - No comments sent
<i>General Land Use (residential, etc.)</i> SBC240403-04 Conditional Use Permit (CUP 23-010), Design Review Application (DRA 24-003)	The project consists of constructing a 79-unit residential development on 8.31 acres. The project is located at 7394 Central Avenue, west of the corner of Central Avenue and 11th Street. <p style="text-align: center;">Comment Period: 4/3/2024 - 4/17/2024 Public Hearing: N/A</p>	Site Plan	City of Highland	Document reviewed - No comments sent
<i>General Land Use (residential, etc.)</i> SBC240419-02 Tentative Parcel Map No. 20475 and Conditional Use Permit No. 1138	The project consists of a request for a one-year (2025) time extension for TPM No. 20475 and CUP No. 1138 to construct an apartment building with 131 units and 3 restaurant buildings on a vacant 3.8-acre site. The project is located at 212 and 216 Brookside Avenue. <p style="text-align: center;">Comment Period: N/A Public Hearing: 4/23/2024</p>	Other	City of Redlands	Document reviewed - No comments sent

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

- Disposition may change prior to Governing Board Meeting
- Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
General Land Use (residential, etc.)	The project consists of demolishing an existing parking lot and constructing a 20,351 square foot residential building with onsite parking, open areas, landscaping, and related site improvements on 0.39 acres. The project is located at 211 East Olive Avenue in the Village Corridor District of the Transit Villages Specific Plan.	Site Plan	City of Redlands	Document reviewed - No comments sent
SBC240419-04 Commission Review and Approval No. 960				
	Comment Period: N/A Public Hearing: 4/23/2024			
Plans and Regulations	The project consists of revisions made to the 2021-2029 Housing Element which assess housing needs, densities, and development standards with a planning horizon of 2029. The project encompasses 5.71 square miles and is bounded by unincorporated areas of Los Angeles County to the north and west, City of West Hollywood to the east, and City of Culver City to the south. Reference LAC210907-09	Addendum to Mitigated Negative Declaration	City of Beverly Hills	Document reviewed - No comments sent
LAC240402-02 City of Beverly Hills 2021-2029 Housing Element Update				
	Comment Period: N/A Public Hearing: N/A			
Plans and Regulations	The project consists of the adoption and implementation of a comprehensive update to the Culver City General Plan and amendments to the City's Zoning Code to implement the General Plan Update to serve as a framework and guide for future planning-related decisions and development with a planning horizon of 2045. The project encompasses 5 square miles and is bounded by the City of Los Angeles to the north, south and west and unincorporated areas of Los Angeles County to the east. The project is also within the designated AB 617 South Los Angeles community. Reference LAC240221-15 and LAC220308-06	Notice of Availability of a Draft Program Environmental Impact Report	City of Culver City	Under review, may submit comments
LAC240402-04 Picture Culver City: General Plan 2045 and Zoning Code Update#				
	Comment Period: 3/28/2024 - 5/13/2024 Public Hearing: N/A			
Plans and Regulations	The project consists of the rehabilitation and adaptive reuse of the Saks Fifth Avenue Women's Building, the retention of an existing commercial building for commercial use, and the construction of new residential, retail, office, and other related uses in the Specific Plan Area. The project is located on the southeast corner of Wilshire Boulevard and South Bedford Avenue. Reference LAC230316-02	Notice of Availability of a Draft Environmental Impact Report	City of Beverly Hills	Document reviewed - No comments sent
LAC240405-01 9600 Wilshire Boulevard Specific Plan				
	Comment Period: 4/5/2024 - 5/20/2024 Public Hearing: 4/25/2024			

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

- Disposition may change prior to Governing Board Meeting
- Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Plans and Regulations</i>	The project consists of an Action Plan prepared by the City of Glendale Community Services and Parks Department for the fiscal year 2024-2025 Community Development Block Grant (CDBG), Emergency Shelter Grant (ESG), and HOME programs. The project is located in Glendale, California, which is s bounded by the cities of Burbank, Pasadena, La Canada Flintridge, and the Los Angeles neighborhoods of Tujunga, Eagle Rock, and Los Feliz.	Notice of Intent to Adopt a Negative Declaration	City of Glendale	Document reviewed - No comments sent
LAC240409-05 Fiscal Year 2024-2025 CDBG, ESG, and HOME Programs				
	Comment Period: 4/11/2024 - 5/1/2024	Public Hearing: N/A		
<i>Plans and Regulations</i>	The project consists of subdividing 1.23 acres of land into three residential lots. The project is located at 20630 Gartel Drive, north of the corner of La Puente Road and Pierre Road.	Site Plan	City of Walnut	Document reviewed - No comments sent
LAC240410-01 Tentative Parcel Map (TTM) No. 83728				
	Comment Period: 4/10/2024 - 5/1/2024	Public Hearing: N/A		
<i>Plans and Regulations</i>	The project consists of adopting the General Plan Environmental Justice (EJ) Element to address and minimize the adverse effects of environmental hazards to create a healthy environment for all people. The project is located throughout the city of Bell Gardens, within the designated AB 617 Southeast Los Angeles community.	Notice of Intent to Adopt a Negative Declaration	City of Bell Gardens	Document reviewed - No comments sent
LAC240411-01 The City of Bell Gardens Environmental Justice Element#				
	Comment Period: 4/9/2024 - 5/9/2024	Public Hearing: 5/13/2024		
<i>Plans and Regulations</i>	The project consists of amending the urgency ordinance (No. 1693) related to single-family residential developments and urban lot splits pursuant to Senate Bill 9 within specified single-family residential zones (chapter 25.95). The project is located throughout the city of Laguna Beach.	Other	City of Laguna Beach	Document reviewed - No comments sent
ORC240410-04 Public Hearing for the Extension of Urgency Ordinance No. 1693				
	Comment Period: N/A	Public Hearing: 4/9/2024		

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Plans and Regulations</i>	The project consists of amending the Laguna Beach Municipal Code Chapter 25.16 (Artists' Work/Live) to streamline the review of artist occupancy permit applications for artists proposing to occupy working and living units. The project is located throughout the city of Laguna Beach. Comment Period: 3/20/2024 - 4/17/2024 Public Hearing: 4/17/2024	Other	City of Laguna Beach	Document reviewed - No comments sent
ORC240410-10 Zoning Ordinance Amendment 24-0519 and Local Coastal Program Amendment 24-0520				
<i>Plans and Regulations</i>	The project consists of updating the General Plan to accommodate the construction of 57,656 residential units in three focus areas. The boundaries of the first focus area are Barranca Parkway to the north, San Diego Creek to the east, Campus Drive to the south, and State Route 55 to the west. The boundaries of the second focus area are Barranca Parkway to the north, Alton Parkway to the east, Interstate 405 to the south, and Sand Canyon Avenue to the west. The boundaries of the third focus area are State Route 241 to the north, Alton Parkway to the east, Interstate 405 to the south, and State Route 133 to the west. Reference ORC240319-01 and ORC230801-01 Comment Period: N/A Public Hearing: 4/23/2024	Other	City of Irvine	Document reviewed - No comments sent
ORC240417-07 Irvine 2045 General Plan Update				
<i>Plans and Regulations</i>	The project consists of amendments to the City's 2021-2029 Housing Element plan to establish programs, policies, and actions for future construction of all income housing in six areas of Newport Beach: Airport Area, West Newport Mesa, Dover-Westcliff, Newport Center, Coyote Canyon, and Banning Ranch. The project is bounded by Interstate 405 to the North, State Route 73 to the east, and the Pacific Ocean to the south and west. Reference ORC240214-11 and ORC230705-06 Comment Period: N/A Public Hearing: 4/18/2024	Notice of Availability of Draft Local Coastal Program Amendment	City of Newport Beach	Document reviewed - No comments sent
ORC240418-01 City of Newport Beach General Plan 2021-2029 6th Cycle Housing Element Implementation Program Amendment (PA2022-0245)				

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT A
ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES AND STATUS OF REVIEW
April 01, 2024 to April 30, 2024

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Plans and Regulations</i>	This project consists of including the Environmental Justice Element as part of the March Joint Powers Authority General Plan. The project is located between the Cities of Moreno Valley, Perris, Riverside and the County of Riverside. Reference RVC240207-11, RVC240110-01, and RVC231212-05	Other	March Joint Powers Authority	Document reviewed - No comments sent
RVC240417-01 March JPA Environmental Justice Element (GP 23-02)	Comment Period: 4/17/2024 - 4/24/2024 Public Hearing: 4/24/2024			

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County, ODP = Outside District Jurisdiction Project, ALL = All counties within the South Coast AQMD jurisdiction

Notes:

1. Disposition may change prior to Governing Board Meeting
2. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

DRAFT VERSION

ATTACHMENT B

ACTIVE PROJECTS WITH CONTINUED REVIEW OF ENVIRONMENTAL DOCUMENTS PREPARED BY OTHER PUBLIC AGENCIES

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
Utilities	The project consists of developing and constructing a 250-megawatt (MW) alternating current (AC) solar photovoltaic (PV) energy generating project and a 5.9-mile-long, 230 kV generation tie (gen-tie) line to the approved Arica and Victory Pass substation on 3,487 acres. The Project is located on federal lands in Chuckwalla Valley in Riverside County, and 8.5 miles east of the unincorporated area of Desert Center.	Site Plan	United States Department of the Interior Bureau of Land Management California Desert District	Under review, may submit comments
RVC240327-01 Redonda Solar Project CACA 059387	Comment Period: N/A Public Hearing: 4/15/2024			
General Land Use (residential, etc.)	The project consists of constructing 223 residential units, a church, and 982,232 square feet of business park uses on 110.2 acres. The project is located northeast of Interstate 10 and Calimesa Boulevard, southeast of Singleton Road, and south of Beckwith Avenue. Reference RVC230817-02	Notice of Availability of a Draft Environmental Impact Report	City of Calimesa	Under review, may submit comments
RVC240328-01 Oak Valley North (OVN) Project	Comment Period: 3/22/2024 - 5/6/2024 Public Hearing: N/A			
Warehouse & Distribution Centers	The project consists of demolishing a 144,906 square foot building and constructing and operating a 165,803 square foot warehouse on 8.83 acres. The project is located at 26200 Enterprise Way. Off-site improvements are located at five intersections to enhance public safety and address concerns related to large truck turning movements: Bake Parkway/Commerce Tre Drive, Bake Parkway/Dimension Drive, Dimension Drive/Commerce Tre Drive/Enterprise Way, Lake Forest Drive/Dimension Drive, and Lake Forest Drive/Rancho Parkway. https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2024/april-2024/ORC240326-05.pdf	Notice of Preparation	City of Lake Forest	Comment letter sent on 4/18/2024
ORC240326-05 IPT Enterprise Business Center LLC Project	Comment Period: 3/20/2024 - 4/18/2024 Public Hearing: 4/3/2024			
Warehouse & Distribution Centers	The project consists of construction of a 700,037 square foot warehouse on 40.03 acres. The project is located on the southeast corner of Ethanac Road and Wheat Street. Reference RVC220503-10 https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2024/april-2024/RVC240313-05.pdf	Notice of Availability of a Draft Environmental Impact Report	City of Menifee	Comment letter sent on 4/17/2024
RVC240313-05 CADO Menifee Industrial Warehouse Project, Tentative Parcel Map (TPM) No. PLN22-0041, and Plot Plan No. PLN 21-0370	Comment Period: 3/13/2024 - 4/27/2024 Public Hearing: N/A			

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County

Notes:

- Disposition may change prior to Governing Board Meeting
- Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

ATTACHMENT B
ACTIVE PROJECTS WITH CONTINUED REVIEW OF ENVIRONMENTAL DOCUMENTS PREPARED BY
OTHER PUBLIC AGENCIES

<u>SOUTH COAST AQMD LOG-IN NUMBER</u>	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE				
<i>Industrial and Commercial</i> LAC240320-05 Charles Caine Company, Inc.	The project consists of soil vapor extraction, in-situ chemical oxidation, and reductive bioremediation activities on a 0.32-acre site to reduce various volatile organic compounds in soil and groundwater. The project is located at 8325 Hindry Avenue in Los Angeles. https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2024/april-2024/LAC240320-05.pdf Comment Period: 3/18/2024 - 4/17/2024 Public Hearing: N/A	Public Notice	Department of Toxic Substances Control	Comment letter sent on 4/18/2024
<i>Waste and Water-related</i> ORC240326-04 Lennar Parcel F	The project consists of a cleanup plan which proposes a combination of Alternatives 2 (Soil Vapor Extraction (SVE) with monitoring and 4 (SVE including installation of a Vapor Intrusion Mitigation System (VIMS) with monitoring to address soil and soil vapor contaminated with residual volatile organic compounds (VOCs). The project is located at the southeast corner of the intersection of Union Street and Park Street (formerly South Chris Lane) in Anaheim. https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2024/april-2024/ORC240326-04.pdf Comment Period: 3/18/2024 - 4/18/2024 Public Hearing: N/A	Draft Removal Action Workplan	Department of Toxic Substances Control	Comment letter sent on 4/18/2024
<i>Waste and Water-related</i> SBC240313-01 Wolf Reservoir and Booster Replacement Project	The project consists of the installation and operation of a 612,000-gallon water storage reservoir tank that will replace the existing 100,000-gallon Wolf Reservoir. The project also includes the replacement of the existing pump station and the improvement of a portion of the existing access road within the project site. The project is located at the northeast corner of the intersection of Wolf Road and Coyote Court. https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2024/april-2024/SBC240313-01.pdf Comment Period: 3/7/2024 - 4/6/2024 Public Hearing: N/A	Notice of Intent to Adopt a Mitigated Negative Declaration	City of Big Bear Lake	Comment letter sent on 4/4/2024
<i>Plans and Regulations</i> ORC240319-01 Irvine 2045 General Plan Update	The project consists of updating the General Plan to accommodate the construction of 57,656 residential units in three focus areas. The boundaries of the first focus area are Barranca Parkway to the north, San Diego Creek to the east, Campus Drive to the south, and State Route 55 to the west. The boundaries of the second focus area are Barranca Parkway to the north, Alton Parkway to the east, Interstate 405 to the south, and Sand Canyon Avenue to the west. The boundaries of the third focus area are State Route 241 to the north, Alton Parkway to the east, Interstate 405 to the south, and State Route 133 to the west. Reference ORC230801-01 https://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2024/april-2024/ORC240319-01.pdf Comment Period: 3/15/2024 - 4/29/2024 Public Hearing: N/A	Notice of Availability of a Draft Program Environmental Impact Report	City of Irvine	Comment letter sent on 4/26/2024

Key:

= Project has potential environmental justice concerns due to the nature and/or location of the project.

LAC = Los Angeles County, ORC = Orange County, RVC = Riverside County, and SBC = San Bernardino County

Notes:

- Disposition may change prior to Governing Board Meeting
- Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.

DRAFT VERSION

ATTACHMENT C
PROPOSED AIR PERMIT PROJECTS FOR
WHICH SOUTH COAST AQMD IS CEQA
LEAD AGENCY THROUGH APRIL 30, 2024

PROJECT DESCRIPTION	PROPONENT	TYPE OF DOCUMENT	STATUS	CONSULTANT
Quemetco is proposing to modify existing South Coast AQMD permits to allow the facility to recycle more batteries and to eliminate the existing daily idle time of the furnaces. The proposed project will increase the rotary feed drying furnace feed rate limit from 600 to 750 tons per day and increase the amount of total coke material allowed to be processed. In addition, the project will allow the use of petroleum coke in lieu of or in addition to calcined coke and remove one existing emergency diesel-fueled internal combustion engine (ICE) and install two new emergency naturalgas-fueled ICEs.	Quemetco	Environmental Impact Report (EIR)	<p>The Draft EIR was released for a 124-day public review and comment period from October 14, 2021 to February 15, 2022 and approximately 200 comment letters were received.</p> <p>South Coast AQMD held two community meetings, on November 10, 2021 and February 9, 2022, which presented an overview of the proposed project, the CEQA process, detailed analysis of the potentially significant environmental topic areas, and the existing regulatory safeguards. Response to written comments submitted relative to the Draft EIR and oral comments made at the community meetings are currently being prepared by the consultant.</p> <p>After the Draft EIR public comment and review period closed, Quemetco submitted additional applications for other permit modifications. South Coast AQMD staff is evaluating the effect of these new applications on the EIR process.</p>	Trinity Consultants
Sunshine Canyon Landfill is proposing to modify its South Coast AQMD permits for its active landfill gas collection and control system to accommodate the increased collection of landfill gas. The proposed project will: 1) install two new low emission flares with two additional 300-horsepower electric blowers; and 2) increase the landfill gas flow limit of the existing landfill gas collection system.	Sunshine Canyon Landfill	Subsequent Environmental Impact Report (SEIR)	South Coast AQMD staff reviewed and provided comments on the preliminary air quality analysis, health risk assessment (HRA), and Preliminary Draft SEIR which are currently being addressed by the consultant.	Castle Environmental Consulting
Tesoro is proposing to modify its Title V permit to: 1) add gas oil as a commodity that can be stored in three of the six new crude oil storage tanks at the Carson Crude Terminal (previously assessed in the May 2017 Final EIR); and 2) drain, clean and decommission Reservoir 502, a 1.5-million-barrel concrete lined, wooden-roof topped reservoir used to store gasoil.	Tesoro Refining & Marketing Company, LLC (Tesoro)	Addendum to the Final Environmental Impact Report (EIR) for the May 2017 Tesoro Los Angeles Refinery Integration and Compliance Project (LARIC)	South Coast AQMD staff received a revised Preliminary Draft Addendum, which is currently being reviewed.	Environmental Audit, Inc.

BOARD MEETING DATE: June 7, 2024

AGENDA NO. 20

REPORT: Stationary Source Committee

SYNOPSIS: The Stationary Source Committee held a hybrid meeting on Friday, May 17, 2024. The following is a summary of the meeting.

RECOMMENDED ACTION:
Receive and file.

Mayor Pro Tem Larry McCallon,
Committee Chair
Stationary Source Committee

JA:cr

Committee Members

Present: Mayor Pro Tem Larry McCallon, Committee Chair
Vice Chair Michael A. Cacciotti
Mayor José Luis Solache

Absent: Chair Vanessa Delgado
Supervisor Holly J. Mitchell, Committee Vice Chair
Board Member Veronica Padilla-Campos

Call to Order

Committee Chair McCallon called the meeting to order at 10:30 a.m.

For additional information of the Stationary Source Committee Meeting, please refer to the [Webcast](#).

Roll Call

INFORMATIONAL ITEMS:

1. Update on Proposed Amended Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters, Small Boilers and Process Heaters

Heather Farr, Planning and Rules Manager/Planning, Rule Development and Implementation, provided a summary of key remaining issues associated with Proposed Amended Rule 1146.2. For additional details please refer to the [Webcast](#) beginning at 3:20.

Committee Chair McCallon asked for the number of sites staff visited for each type of application; expressed concern with the challenges for dry cleaners including availability and the footprint of zero-emission technology units, as well as needing electrical upgrades as a tenant in commercial spaces; and requested that the proposed technology check-in be moved 6 months earlier. Staff responded that they have conducted one to four site visits per facility type, highlighted alternative compliance options that have been incorporated to assist small businesses, and agreed to an earlier technology check-in. For additional details please refer to the [Webcast](#) beginning at 5:28.

Mayor Solache asked for clarification on the additional time provided to small businesses, commented that he supports the future technology check-in with a focus on small businesses and suggested to move forward with the proposed amended rule. For additional details please refer to the [Webcast](#) beginning at 9:20.

Vice Chair Cacciotti inquired about a potential conflict with local regulations as cited in a comment letter by a list of stakeholders including the Los Angeles County Business Federation (BizFed). Staff responded that a new rule provision has been created to address construction needs such as moving walls. For additional details please refer to the [Webcast](#) beginning at 20:30.

There were ten commentors which included representatives from industry and environmental groups. For additional details please refer to the [Webcast](#) beginning at 22:18.

Sassan Rahimzadeh, ARYA Cleaners, expressed concern with tenant challenges. For additional details please refer to the [Webcast](#) beginning at 22:18.

Harvey Eder, Public Solar Power Coalition, spoke to the technology of solar energy. For additional details please refer to the [Webcast](#) beginning at 25:36.

Michael Leeming, Parker Boiler, expressed concern on electrical upgrades, installation costs, and the high operating costs of electric boilers. For additional details please refer to the [Webcast](#) beginning at 29:01.

Chris Chavez, Coalition for Clean Air, Monica Embrey, Industrious Labs, and Kim Orbe, Sierra Club, requested no delay in the adoption of the proposed amended rule to address 2022 AQMP goals. For additional details please refer to the [Webcast](#) beginning at 31:54.

Bill Pearce, Boeing, expressed concern about whether the current timeframes in the proposed amendments will allow adequate time for utility upgrades. For additional details please refer to the [Webcast](#) beginning at 35:58.

Sarah Wiltfong, BizFed, asked for delay of the rule adoption to consider a report to be released in the following weeks. For additional details please refer to the [Webcast](#) beginning at 37:53.

Jed Holtzman, RMI, supported the rule adoption in June without further delay and highlighted the new rule provisions provided to address industry stakeholder concerns. For additional details please refer to the [Webcast](#) beginning at 39:46.

Adrian Martinez, Earthjustice, concurred with the support for adoption of the proposed amended rule without delay, emphasized the substantial emission reductions needed, and supported Committee Chair McCallon's suggestion on reporting on the technology check-in earlier. For additional details please refer to the [Webcast](#) beginning at 43:44.

2. Update on Proposed Rule 317.1 – Clean Air Act Nonattainment Fees for 8-Hour Ozone Standards

Kalam Cheung, Ph.D., Planning & Rules Manager/Planning, Rule Development and Implementation, provided a summary of Proposed Rule 317.1 (PR 317.1). For additional details please refer to the [Webcast](#) beginning at 51:30.

Committee Chair McCallon suggested that the funds collected be spent in the environmental justice areas where the fee payers are generating the funds along with mitigating the impacts on stationary sources. For additional details, please refer to the [Webcast](#) beginning at 57:19.

Committee Chair McCallon inquired about rule language proposed by David Rothbart of the Los Angeles County Sanitation District and Steven Jepsen of Clean Water SoCal. Michael Krause, Assistant Deputy Executive Officer/Planning, Rule Development and Implementation, responded that suggestions to the proposed rule language are under consideration. For additional details, please refer to the [Webcast](#) beginning at 59:00.

There were seven commentors which included representatives from industry and environmental groups. For additional details, please refer to the [Webcast](#) beginning at 01:01:20.

Chris Chavez, Coalition for Clean Air, Monika Embry, Industrious Labs, and Jane Williams, California Communities Against Toxics, expressed support for the proposed rule. For additional details, please refer to the [Webcast](#) beginning at 01:03:53.

Rita Loof, RadTech International, suggested facilities who have voluntarily reduced their emissions be provided flexibility and expressed concerns over the process to exit the Title V permit program. For additional details, please refer to the [Webcast](#) beginning at 01:06:50.

Bill LaMarr, California Alliance of Small Business Associations, commented that under-controlled mobile and federal sources should be paying the penalty fees, highlighted a major stationary source could be a small business, and suggested a delegation to formulate a feasible legislative pathway to attainment and provide recommendations to the federal government. For additional details, please refer to the [Webcast](#) beginning at 01:09:55.

Jason Aspell, Deputy Executive Officer/Engineering and Permitting, responded that the process to be excluded from the rule is in the staff report and Mr. Krause added that the rule needs to be implemented in accordance with the Clean Air Act. For additional details, please refer to the [Webcast](#) beginning at 01:14:38

3. Update on Proposed Amended Rule 1148.1 – Oil and Gas Production Well

Michael Morris, Planning & Rules Manager/Planning, Rule Development and Implementation, presented a summary of the proposed amendments to Rule 1148.1. For additional details please refer to the [Webcast](#) beginning at 1:17:03.

Mark Abramowitz, Community Environmental Services, expressed concern over cost-effectiveness calculations and also stated that other technologies such as fuel cells could be used in lieu of combustion engines for workover rigs. For additional details please refer to the [Webcast](#) beginning at 1:25:12.

Jane Williams, California Communities Against Toxics, expressed concern with the proposed notification threshold of 25,000 ppm for leaks identified using Optical Gas Imaging (OGI) technology since 9,000 ppm is fenceline reporting threshold for benzene from refineries. For additional details please refer to the [Webcast](#) beginning at 1:27:30.

Mr. Morris responded that zero-emission technology workover rigs are not readily available and added that CARB's future clean fleets rule may address this issue. Mr. Morris also stated that leaks detected with OGI occur much closer to the actual leak source resulting in more accurate values than fenceline monitoring. For additional details please refer to the [Webcast](#) beginning at 1:29:01.

WRITTEN REPORTS:

4. Monthly Permitting Enhancement Program (PEP) Update

The report was acknowledged by the committee.

5. Monthly Update of Staff's Work with U.S. EPA and CARB on New Source Review Issues for the Transition of RECLAIM Facilities to a Command-and-Control Regulatory Program

The report was acknowledged by the committee.

6. Notice of Violation Penalty Summary

The report was acknowledged by the committee.

OTHER MATTERS:

7. Other Business

There was no other business to report.

8. Public Comment Period

Ms. Loof commented that it is currently difficult to find the section for proposed rules and staff reports on the website. She suggested adding a link to the calendar section whenever rules are before the Stationary Source Committee to make it easier for the public to find the staff reports. She also stated it would be beneficial to include resources and links to external organizations that can assist businesses, such as trade associations, as businesses may be more comfortable reaching out to them for help rather than directly to the South Coast AQMD.

9. Next Meeting Date

The next Stationary Source Committee meeting is scheduled for Friday, June 21, 2024, at 10:30 a.m.

Adjournment

The meeting was adjourned at 12:00 p.m.

Attachments

1. Attendance Record
2. Monthly Permitting Enhancement Program (PEP) Update
3. Monthly Update of Staff's Work with U.S. EPA and CARB on New Source Review Issues for the Transition of RECLAIM Facilities to a Command-and-Control Regulatory Program
4. Notice of Violation Penalty Summary

ATTACHMENT 1

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT STATIONARY SOURCE COMMITTEE

Attendance –May 17, 2024

Councilmember Michael A. Cacciotti	South Coast AQMD Board Member
Mayor Pro Tem Larry McCallon	South Coast AQMD Board Member
Mayor José Luis Solache	South Coast AQMD Board Member
Alisa Cota	Board Consultant (Delgado)
William Kelly	Board Consultant (Cacciotti)
Debra Mendelsohn	Board Consultant (McCallon)
Fred Minassian	Board Consultant (Padilla-Campos)
Marisela Santana	Board Consultant (Solache)
Mark Taylor	Board Consultant (Rodriguez)
Mark Abramowitz	Community Environmental Services
Chris Chavez	Coalition for Clean Air
Harvey Eder	Public Solar Power Coalition
Monica Embrey	Industrious Labs
Jed Holtzman	RMI
Steve Jepsen	Clean Water SoCal
Bill LaMarr	California Alliance of Small Business
Associations	
Michael Leeming	Parker Boiler
Rita Loof	RadTech International
Adrian Martinez	Earthjustice
Warisa Nuzawa	Los Angeles County Sanitation District
Kim Orbe	Sierra Club
Bill Pearce	Boeing
Sassan Rahimzadeh	ARYA Cleaners
David Rothbart	Los Angeles County Sanitation District
Jane Williams	California Communities Against Toxics
Sarah Wiltfong	Los Angeles County Business Federation
Derrick Alatorre	South Coast AQMD staff
Jason Aspell	South Coast AQMD staff
Barbara Baird	South Coast AQMD staff
Cindy Bustillos	South Coast AQMD staff
Kalam Cheung	South Coast AQMD staff
Heather Farr	South Coast AQMD staff
Bayron Gilchrist	South Coast AQMD staff
De Groeneveld	South Coast AQMD staff
Sheri Hanizavareh	South Coast AQMD staff
Anissa Heard-Johnson	South Coast AQMD staff
Michael Krause	South Coast AQMD staff
Howard Lee	South Coast AQMD staff
Jason Low	South Coast AQMD staff
Ian MacMillian	South Coast AQMD staff
Terrence Mann	South Coast AQMD staff

ATTACHMENT 1

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
STATIONARY SOURCE COMMITTEE**

Attendance –May 17, 2024

Michael Morris	South Coast AQMD staff
Ron Moskowitz	South Coast AQMD staff
Susan Nakamura	South Coast AQMD staff
Wayne Nastri	South Coast AQMD staff
Catherine Rodriguez	South Coast AQMD staff
Lisa Tanaka O'Malley	South Coast AQMD staff
Brian Tomasovic	South Coast AQMD staff
Mei Wang	South Coast AQMD staff
Jillian Wong	South Coast AQMD staff
Victor Yip	South Coast AQMD staff

Monthly Permitting Enhancement Program (PEP) Update
South Coast AQMD
Stationary Source Committee – May 17, 2024

Background

At the February 2, 2024 Board meeting, the Board directed staff to provide monthly updates to the Stationary Source Committee to report progress made under the Permitting Enhancement Program (PEP). The Chair's PEP initiative was developed to enhance the permitting program and improve permitting inventory and timelines. This report provides a summary of the pending permit application inventory, monthly production, and other PEP related activities.

Summary

Pending Permit Application Inventory

The permitting process consists of a constant stream of incoming applications and outgoing application issuances, rejections, and denials. The remainder of the applications are considered the pending application inventory. The inventory consists of applications that are being prescreened prior to being accepted, workable applications, and non-workable applications. Non-workable means that staff are unable to proceed with processing an application because it is awaiting actions to address various regulatory requirements or deficiencies. As an example, after staff issues a Permit to Construct to a facility, staff must wait for the facility to construct and test the equipment prior to issuing a final Permit to Operate. Once a final Permit to Operate is issued, the permit application is removed from the pending application inventory. Other examples include facilities that may be in violation of rules and cannot be permitted until a facility achieves compliance, staff awaiting additional information from facilities, or facilities that have not completed the CEQA process for their project. During the life of an application, it may switch several times between being workable and non-workable as actions are taken by facilities and staff. Attachment 1 contains more detailed descriptions of the categories of non-workable permit applications. Figure 1 below provides a monthly snapshot of the pending application inventory.

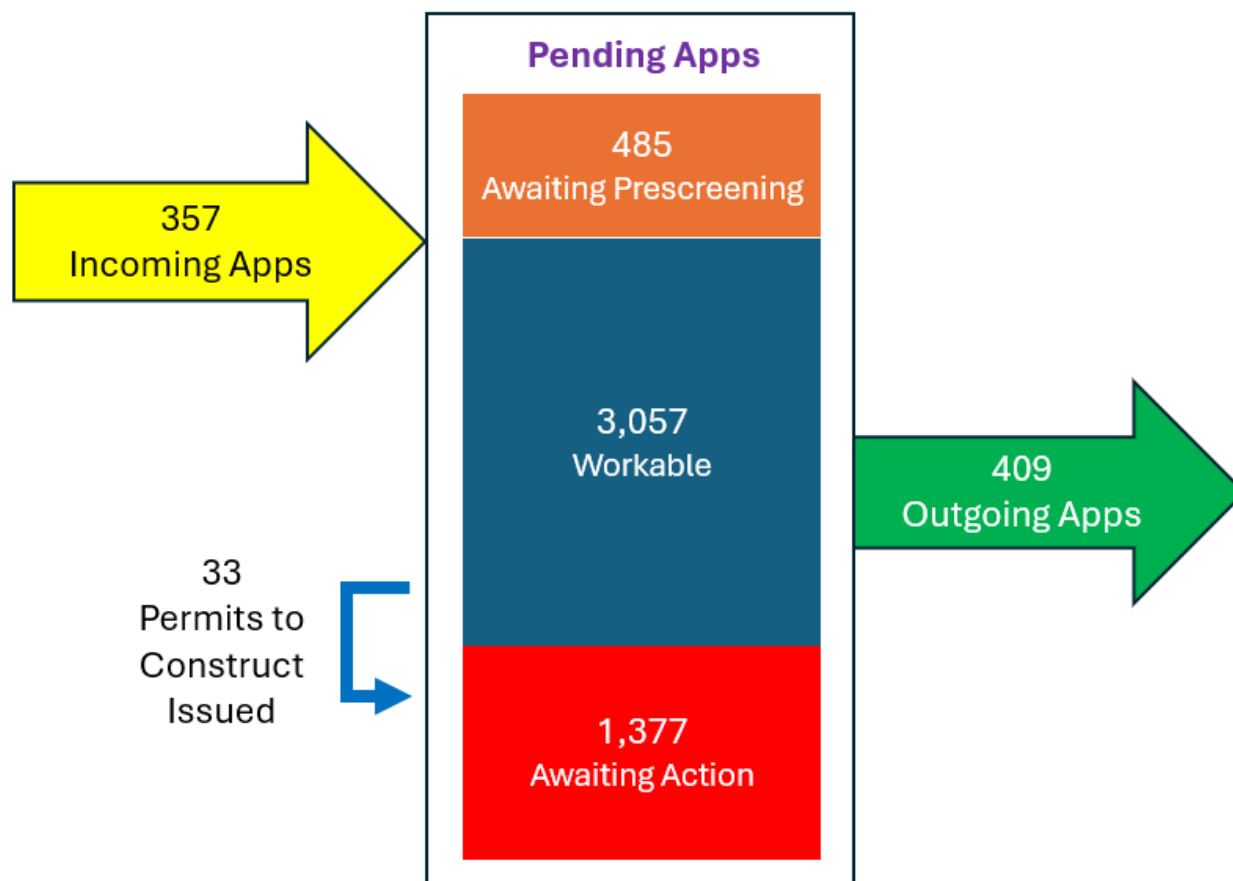


Figure 1: Application Processing Workflow – April 2024

Table 1 below lists the categories included in Awaiting Action (Non-Workable) for the last month. Please note that Table 1 provides a snapshot of data and applications may change statuses several times before final action.

Table 1: Awaiting Action (Non-Workable) Applications Summary

Awaiting Action (Non-Workable) Categories	March 2024	April 2024
Additional Information from Facility	235	223
CEQA Completion	25	27
Completion of Construction	770	794
Facility Compliance Resolution	17	19
Facility Draft Permit Review	92	91
Fee Payment Resolution	2	3
Other Agency Review	35	52
Other Facility Action	69	7
Other South Coast AQMD Review	100	0
Public Notice Completion	23	34
Source Test Completion	117	127
Total	1,485	1,377

Please see Attachment 1 for more information on these categories.

In April, 357 incoming applications were submitted which was a decrease of 88 incoming applications from the previous month. There were 409 outgoing applications which was a decrease of 57 applications from February (further information is provided in the “Production” section of this report). Several applications changed status from “Awaiting Action” to “Workable” after other Facility Actions and Other South Coast AQMD Reviews were addressed in April. Since outgoing applications (green arrow) exceeded incoming applications (yellow arrow) this month, the pending application inventory decreased.

The rate of incoming applications is unpredictable and is dependent on business demands and the economic climate, as well as South Coast AQMD rule requirements. Maintaining the average production rate of outgoing applications greater than average rate of incoming applications is key to reducing the pending application inventory until a manageable working inventory is established. Looking ahead to the next reporting period in June, there historically has been a spike in incoming applications before fee increases take effect on July 1 for application fees. This typically results in a swell in the inventory as time is needed to address the surge of permit applications.

Maintaining a low vacancy rate with trained and experienced permitting staff is the biggest factor in maintaining high production and reducing the pending application inventory. In addition, data and analysis showed that addressing vacancies at the Senior and Supervising AQ Engineers was vital since these positions are the review and approval stages of the permitting process. Now that vacancies and process bottlenecks are in the final stages of being addressed, production is improving.

Production

Prior to staff retirements, permit production levels in 2020 were typically above 500 completions per month. Prior to PEP implementation, high vacancy rates resulted in decreased permit completions. Lower production rates nearing 400 completions per month occurred as the vacancy rate peaked. As the vacancy rate has been reduced and staff have been trained, production has increased. Figure 2 below shows a rolling 12-month average of application completions and the monthly production for the last three months. Recently, increased monthly production levels (orange circles) are raising the rolling 12-month production averages (black line) in the chart below. The rolling 12-month average includes the monthly totals from the last year to visualize the trend over time, as production in individual months often fluctuates (in addition to fluctuations in incoming application submittals). The current rolling 12-month average production rate is 461 completions per month. In the coming months, staff anticipates production rates will return to 2020 levels. A higher rolling 12-month average will indicate sustained higher production levels. These higher production levels will begin to reduce the pending application inventory and improve permit processing times.

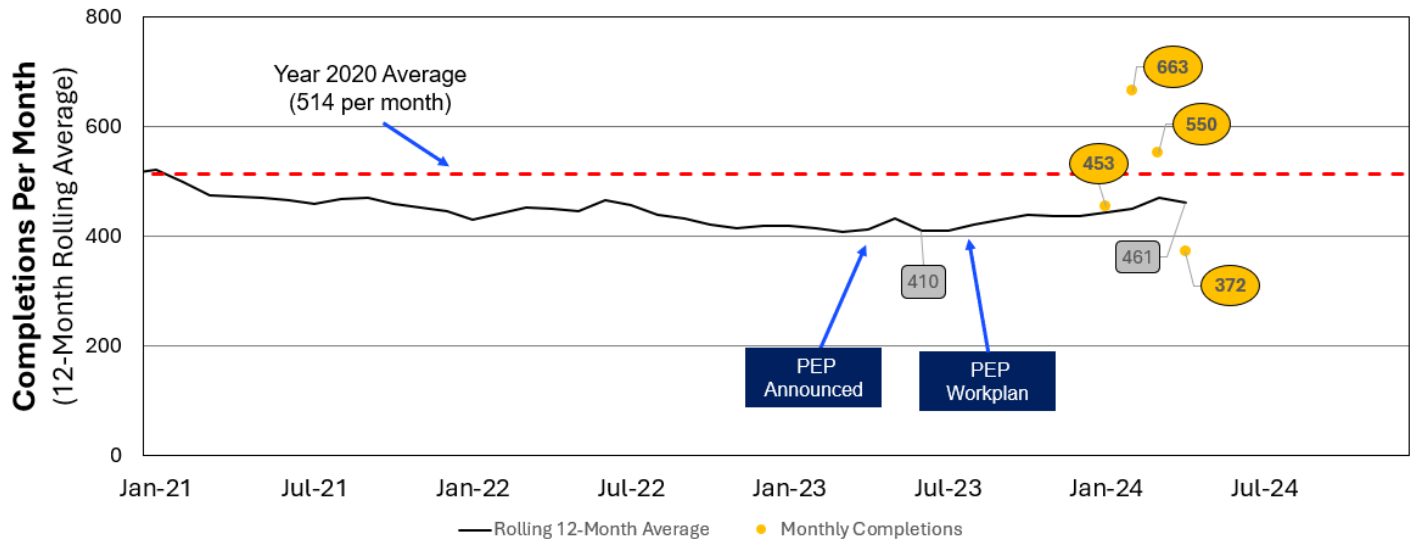


Figure 2: Application Completions - Rolling 12-Month Average and Recent Three Months

Production began to increase in the second half of 2023 as substantial promotional and hiring occurred. New engineering staff are currently being trained and production is expected to increase over the coming months and years as they become more experienced in their duties.

Production data is collected in whole calendar weeks. April only had four calendar weeks for production as compared to March which had five weeks. On a weekly average basis, this equates to 110 completions per week in March and 93 completions per week in April, which indicates an overall dip in production occurred in April. Potential causes for this decrease include the normal expected monthly fluctuations but also increased training and rulemaking support activities, as well as activities related to the Chiquita Canyon Landfill Hearing Board case this month.

Engineering & Permitting (E&P) Vacancy Rate

The current E&P vacancy rate is 10.2%. The minimum target vacancy rate for PEP is 10%. When PEP was first announced, the E&P vacancy rate was greater than 20%.

In April, there was one vacancy created through a promotion of a Senior Office Assistant to another division, however the resulting increase in E&P vacancy rate was offset by the onboarding of a new Staff Specialist.

Interviews for an Air Quality Engineer 2 recruitment were initiated on April 26 and will continue into May. Selected candidates from this external recruitment will reduce the E&P vacancy rate. This recruitment is targeted to be completed by July.

Key Activities This Month

- Approximately 15 permit processing engineers in the Waste Management team received enhanced onsite training at Orange County Sanitation District (OCSan) in Fountain Valley. Staff received a detailed tour of the wastewater treatment process and the related air pollution control equipment.

- E&P staff conducted recruitment and engineering information sessions for engineering students at CSU Long Beach and Cal Poly Pomona. Past efforts have been successful in recruiting new engineering staff.
- A Permit Streamlining Task Force (PSTF) meeting was held on April 11. Discussion topics included the Certified Permit Professional program and development and consistency of permit conditions.
- Staff initiated testing of the new electronic permit application forms. The new forms are expected to streamline permit processing. The forms are expected to be introduced at the July Permit Streamlining Task Force subcommittee.
- Staff promoted two Supervising Air Quality Engineers in the Waste Management team. One promotion was effective on April 15, and the second promotion will be effective May 7. These promotions will triple the current Supervisors reviewing and approving permits in the Waste Management team. The waste management sector is a focus of PEP efforts, and these positions will relieve identified bottlenecks in the coming months.
- A new Staff Specialist position was filled on April 29 to consolidate permit public noticing functions. This new process will be developed in the coming months and is expected to streamline the public notice process and decrease the time to distribute public notices and therefore improve permit processing timelines.

Upcoming Meetings:

- Staff will conduct Permitting Working Group (PWG) meetings that will be a collaborative public effort to discuss permitting requirements with various industry sectors and receive public input.
- Staff are targeting to conduct at least six public meetings regarding permitting in Fiscal Year 2024-2025. A schedule of future PSTF and PWG meetings is under development.
- The first PWG is tentatively targeted for June.
- The next PSTF is targeted for July 17.
- A PEP update to the Board will occur in the third quarter of 2024.

Attachment 1

Explanation of Non-Workable Application Statuses

Workable applications are those applications where staff have the required information to process the permit application.

Non-workable applications are those applications where the application process has been paused while staff are awaiting the resolution of one or more related tasks or where the permit cannot be issued.

Description of Non-Workable/Awaiting Action Terms

Additional Information from Facility

During permit processing staff may need additional information from a facility that was not included in the original permit application package or a change of scope of the proposed project. Additional information may include items regarding materials used in the equipment (such as toxics), equipment information, or other items to perform emission calculations or determine compliance for the proposal in the application.

CEQA Completion

Prior to issuing permits, CEQA requirements are required to be evaluated and completed. South Coast AQMD can either be the Lead Agency that certifies or approves the CEQA document or the Responsible Agency that consults with the Lead Agency (typically a land use agency) on the CEQA document.

Completion of Construction

After a Permit to Construct is issued, the permit application file remains in the pending application inventory. Staff must wait for the facility to complete construction prior to completing other compliance determination steps before the permitting process can continue. Typically, a Permit to Construct is valid for one year, but it may be extended for various reasons if the facility demonstrates they are making increments of progress. For some large projects, construction may take years while the permit application remains in the pending application inventory.

Facility Compliance Resolution

Prior to issuing permits the affected facility must demonstrate compliance with all rules and regulations [Rule 1303(b)(4)]. Prior to the issuance of a Permit to Construct, all major stationary sources that are owned or operated by, controlled by, or under common control in the State of California are subject to emission limitations must demonstrate that they are in compliance or on a schedule for compliance with all applicable emission limitations and standards under the Clean Air Act. [Rule 1303(b)(2)(5)].

Facility Draft Permit Review

If a facility requests to review their draft permit, staff provides the facility a review period prior to proceeding with issuance. During the review period, staff do not perform any additional evaluation until feedback from the facility is received. Some projects include several permits or large facility permit documents which may take a substantial time to review.

Fee Payment Resolution

Prior to issuing permits, all fees must be remitted, including any outstanding fees from associated facility activities including, but not limited to, annual operating and emission fees, modeling or source testing fees, and permit reinstatement fees.

Other Agency Review

The Title V permitting program requires a 45-day review of proposed permitting actions by U.S. EPA prior to many permitting actions. During the review period, staff are unable to proceed with permit issuance. If U.S. EPA has comments or requests additional information, the review stage may add weeks or months to the process before staff can proceed with the project.

For Electricity Generating Facilities (Power Plants), CEC may provide a review of proposed permits prior to issuance.

Other Facility Action

Prior to issuing a permit, a facility may need to take action to address deficiencies or take steps to meet regulatory requirements. This may include acquiring Emission Reduction Credits after staff notifies a facility the project requires emissions to be offset, performing an analysis for Best Available Control Technology requirements, or conducting air dispersion modeling.

Other South Coast AQMD Review

Prior to proceeding with a permit evaluation, permit engineering staff may require assistance and support from other South Coast AQMD departments. For example, IM support for electronic processing due to unique or long-term project considerations or to complete concurrent review of separate phases or integrated processes for multi-phase projects is routinely needed.

Public Notice Completion

There are several South Coast AQMD requirements that may require public noticing and a public participation process prior to permit issuance. Rule 212 and Regulation XXX both detail public noticing thresholds and requirements which include equipment located near schools, high-emitting equipment, equipment above certain health risk thresholds, or significant projects or permit renewals in the Title V program. The public notice period is typically 30 days, and staff are required to respond to all public comments in writing prior to proceeding with the permitting process. Other delays in the public notice process may include delays in distribution of the notice by the facility, incomplete distribution which may require restarting the 30-day period, or requests for extension from the public.

Source Test Completion

Many rules require source testing prior to permit issuance. Source testing is the measurement of actual emissions from a source that may be used to determine compliance with emission limits, or measurements of toxic emissions may be used to perform a health risk assessment. Lab analysis of an air sample is often required as part of the process. The testing is performed by third party contractors who prepare a source test protocol to detail the testing program, and a source test report with the results of the testing and equipment operation. Both the protocol and report need to be reviewed and approved by South Coast AQMD staff.

May 2024 Update on Work with U.S. EPA and California Air Resources Board on New Source Review Issues for the RECLAIM Transition

At the October 5, 2018, Board meeting, the Board directed staff to provide the Stationary Source Committee with a monthly update of staff's work with U.S. EPA regarding resolving NSR issues for the transition of facilities from RECLAIM to a command-and-control regulatory structure. The table below summarizes key activities with U.S. EPA and California Air Resources Board (CARB) since the last report.

Item	Discussion
In person meeting with U.S. EPA (Region IX) – April 18, 2024	<ul style="list-style-type: none">• Discussed options to address offset availability for RECLAIM facilities

- A follow up meeting with U.S. EPA (Region IX) is planned for May 2024 to continue discussions from April 18th meeting
- RECLAIM/NSR Working Group meeting will not be held in May
- The next Working Group Meeting is planned for third quarter 2024 to provide an update on discussions with U.S. EPA regarding the New Source Review issues for the RECLAIM transition

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
General Counsel's Office
Settlement Penalty Report (04/01/2024 - 04/30/2024)

Total Penalties

Civil Settlement: \$501,240.00
MSPAP Settlement: \$169,909.00
No-Burn Day Settlement: \$50.00
Total Cash Settlements: \$671,199.00
Total SEP Value: \$0.00

Fiscal Year through 04/30/2024 Cash Total: \$4,943,692.46

Fiscal Year through 04/30/2024 SEP Value Only Total: \$668,125.00

Fac ID	Company Name	Rule Number	Settled Date	Init	Notice Nbrs	Total Settlement
Civil						
193645	04 PAN CONSTRUCTION	1403	04/17/2024	JL	P74226	\$7,000.00
82207	ALL AMERICAN ASPHALT	402,403, 1402, 2004, 3002, 3003, H&S 41700	04/12/2024	RM	P68595, P68599, P68600, P68668, P73821, P74016, P74606, P74623, P75232, P76413, P76416, P76417	\$100,000.00
16642	ANHEUSER-BUSCH, LLC (LA BREWERY)	2004, 2011, 2012 Appendix A, 3002	04/09/2024	KER	P66224, P67387, P74610, P74622, P74633	\$9,068.00
190467	APPLIED COMPOSITES	203	04/19/2024	KCM	P69760, P69788	\$7,500.00
190474	BALDWIN & SONS	403	04/17/2024	ND	P56749, P68593, P68779, P69918	\$21,078.00
132068	BIMBO BAKERIES-USA, INC.	2004	04/04/2024	KCM	P69795, P69798	\$16,500.00
193846	BROADMOOR EXCLUSIVES (C/O VINTAGE MANAGEMENT)	1403, 40 CFR 61.145	04/03/2024	JL	P73630, P73631, P73634, P73635	\$3,500.00
138568	CALIFORNIA DROP FORGE, INC	1430, 2004	04/16/2024	SH	P66885, P66888	\$3,500.00
169721	CIRCLE K STORES, INC. (#2709470)	461	04/17/2024	JJ	P69889	\$1,000.00
169537	CIRCLE K STORES, INC. (#2709480)	461	04/17/2024	JJ	P70190	\$1,000.00
54952	CIRCLE K STORES, INC. (#1922)	461	04/17/2024	JJ	P69897, P78772	\$3,000.00

Fac ID	Company Name	Rule Number	Settled Date	Init	Notice Nbrs	Total Settlement
178111	CIRCLE K STORES, INC. (#2709500)	203, 461	04/11/2024	RL	P66025, P70372, P76154, P76162, P76177, P78752	\$17,526.00
114484	CITY OF SANTA ANA POLICE DEPARTMENT	203, 1146.1, 1415	04/17/2024	JL	P73958	\$3,500.00
63013	COOPER AND BRAIN, INC.	203, 463, 1148.1, 1173, 2004	04/25/2024	KCM	P66537, P66845, P67707, P69272, P73263, P74357, P74378, P74537, P75507, P75508, P75662, P75670, P75677	\$90,000.00
62467	COUNTY OF RIVERSIDE	203, 461, 1146.2	04/03/2024	RL	P73054, P74122, P74167, P74168	\$20,000.00
122691	DEIST	203, 463, 1173	04/25/2024	JL	P74367, P74370, P74371, P74373	\$29,300.00
190126	DESCANSO GARDENS GUILD, INC.	402, H&S 41700	04/03/2024	JL	P79182	\$3,500.00
172363	EAGLE CONTRACTING, INC.	1403	04/24/2024	ND	P73503, P73505	\$4,836.00
800369	EQUILON ENTER.LLC (DBA "SHELL OIL PROD. U S")	462, 3002	04/18/2024	EC	P73285	\$6,150.00
193800	ERAN GURION	1403	04/04/2024	KCM	P74427	\$500.00
142267	FS PRECISION TECH, LLC	2004, 2012, 2012 Appendix A	04/02/2024	NS	P66872, P66880, P66896	\$22,834.50
198121	H7 CONTRACTING & ENGINEERING	403	04/03/2024	CL	P75211	\$2,050.00
188395	I 405 IMPROVEMENT PROJECT	403	04/16/2024	NS	P63880, P68573, P68576, P68780	\$46,840.00
190860	NEW ODYSSEY SHIPPING CO.	1142	04/10/2024	JJ	P68212	\$3,500.00
47046	O'DONNELL OIL CO.	203, 463	04/16/2024	EC	P66844, P69258, P74392, P74394	\$10,700.00
187040	PEMACO METAL PROCESSING	1469	04/03/2024	SH	P67528, P78609	\$3,000.00
159758	PETRO BRASS	461, H&S 41960.2	04/25/2024	ND	P70482	\$1,813.50
185588	PHOENIX SERVICES, LLC	301, 1155, 3002	04/10/2024	ND	P70142, P76113	\$3,000.00
191746	PRECISION WORKS, INC.	1403	04/18/2024	RM	P74561, P74564	\$2,450.00
20061	RAINBOW ENVIRONMENTAL SERVICES	402, H&S 41700	04/03/2024	KCM	P74792, P75806, P75807	\$4,560.00
58044	SAN BERNARDINO COUNTY SOLID WASTE MANAGEMENT - COLTON	3002	04/09/2024	EC	P72901, P76114, P76115	\$2,400.00
194478	SELECT ELECTRIC, INC.	402, H&S 41700	04/25/2024	EC	P69288	\$3,300.00
193861	SEUNGIL HA	1403	04/10/2024	JL	P74227, P74228	\$7,000.00
196898	SHUNDE ROOFING, INC.	1403	04/10/2024	JL	P75874	\$4,700.00
148521	SUKUT CONSTRUCTION	1403, 40 CFR 61.145	04/02/2024	EC	P74442	\$2,400.00

Fac ID	Company Name	Rule Number	Settled Date	Init	Notice Nbrs	Total Settlement
135491	TREND TECHNOLOGIES, LLC	402	04/17/2024	JL	P73931	\$4,800.00
194997	TRUST BUILDERS CONSTRUCTION	1403	04/19/2024	SH	P74568	\$500.00
71160	U.S. BATTERY MANUFACTURING CO.	203	04/24/2024	JL	P77570	\$2,400.00
800026	ULTRAMAR, INC.	1173, 1176, 2004, 3002	04/04/2024	DH	P63388, P63389, P66094, P75057, P75058, P75059	\$13,174.00
191608	UP2 HOLDINGS, LLC (#0209)	461, H&S 41960.2	04/17/2024	JL	P75463	\$2,400.00
137722	VOPAK TERMINAL LONG BEACH, INC.	203	04/17/2024	ND	P74068	\$6,460.00
193904	YSK CONSTRUCTION GROUP	1403, 40 CFR 61.145	04/04/2024	KCM	P72938, P72939	\$2,500.00
Total Civil Settlements: \$501,240.00						
MSPAP						
200988	310 S. ALVARADO STREET, LLC	1403, 40 CFR 61.145	04/12/2024	CL	P78611	\$1,813.00
171896	5555 HOLLYWOOD LP.	203	04/12/2024	CL	P76513	\$971.00
39813	ACCURATE STEEL TREATING, INC.	203	04/19/2024	VB	P73891	\$2,118.00
148762	AGOURA OIL (DBA "SHELL")	461	04/19/2024	VB	P79090	\$2,117.00
177857	APRO, LLC (DBA "UNITIED OIL #101")	201	04/12/2024	VB	P80606	\$1,535.00
181809	APRO, LLC (DBA "UNITED PACIFIC #5742")	461	04/05/2024	VB	P78770	\$3,834.00
115200	ARLETA MOBIL - PETRO ENTERPRISES	203, 461	04/05/2024	VB	P66050	\$1,990.00
8865	C. J. SEGERSTROM & SONS	461	04/05/2024	VB	P76415	\$2,342.00
106812	CALIFORNIA HIGHWAY PATROL BEAUMONT GROUP	461	04/12/2024	VB	P79318	\$460.00
183891	CAMBRIA SUITES, FC (EL SEGUNDO)	203	04/05/2024	VB	P75608	\$4,514.00
137244	CLEMENT PAPPAS CA, INC.	1146	04/05/2024	VB	P75419	\$5,105.00
174774	COLKER'S UNION OIL, LLC	461	04/05/2024	VB	P77738	\$5,269.00
128297	DEEPZ INVESTMENTS, INC.	203, 461	04/12/2024	CL	P77721	\$1,444.00
188048	DIMAR ENTERPRISES	1403	04/12/2024	CL	P76244	\$2,913.00
112292	FLETCHER JONES MOTORCARS	461	04/12/2024	CL	P78577	\$1,844.00
132002	GEN AND SONS, INC. (NEW AVALON AUTOBODY)	109, 203	04/26/2024	VB	P76279	\$8,000.00
195506	GT COLLISION CENTER	203	04/19/2024	CL	P73827	\$15,430.00
800003	HONEYWELL INTERNATIONAL, INC.	2004	04/26/2024	CL	P68674	\$6,826.00
146937	HUBBARD CHEVRON (#9-5063)	461, H&S 41960.2	04/05/2024	VB	P79082	\$1,454.00
162584	JACOB'S UNION SERVICE	203, 461, H&S 41960.2	04/12/2024	CL	P77739, P77740, P79074	\$7,376.00
198245	JAVIER AND IRMA PEREZ	1403	04/05/2024	VB	P76119	\$5,534.00
198078	KOHANOFF MISSION, INC.	201	04/26/2024	CL	P78681	\$782.00

Fac ID	Company Name	Rule Number	Settled Date	Init	Notice Nbrs	Total Settlement
161523	LOU'S UNION 76	203	04/05/2024	VB	P75749	\$1,429.00
117518	MODION & SONS, INC.	461	04/26/2024	VB	P79358	\$1,588.00
139027	CHUCK MERCIER'S UNION (DBA "76")	461, H&S 41960	04/05/2024	VB	P75708	\$2,603.00
184727	OIL LEE, INC.	203, 461, H&S 41960.2	04/05/2024	VB	P78658	\$4,284.00
33018	ORANGE CITY CORP YARD	461, 1470	04/12/2024	CL	P80751	\$2,427.00
99964	ORANGE COUNTY BOAT REPAIR	109, 203	04/05/2024	VB	P77607	\$2,043.00
193475	PARAMOUNT FUEL, INC.	461	04/05/2024	VB	P75727	\$1,756.00
195955	PASTA PICCININI, INC.	201, 203, 1146	04/19/2024	CL	P76512	\$4,369.00
183658	PENA DEMOLITION	1403, 40 CFR 61.145	04/05/2024	VB	P78602	\$1,656.00
134102	QUEST DIAGNOSTICS (VALENCIA)	1146.1	04/12/2024	CL	P68601	\$17,867.00
155346	RAINN C POWDER COATING, INC.	203, 1147	04/26/2024	VB	P74465	\$2,300.00
181441	RASHID'S, INC.(DBA "UNIVERSITY MOBIL")	203, 461	04/26/2024	VB	P73128	\$6,400.00
158151	ROBERT F. KENNEDY COMMUNITY OF SCHOOLS	203, 1146.1	04/12/2024	CL	P76509	\$5,826.00
58670	SAN JUAN SERVICE	461	04/12/2024	CL	P69881	\$1,124.00
180175	SEPAND INVESTMENT, INC.	203	04/05/2024	VB	P79064	\$5,819.00
123730	SHADOW RIDGE RESORT (MARRIOTT)	461	04/12/2024	CL	P79319	\$1,454.00
186908	SHENANDOAH - HALLMARK DISTRIBUTION CENTER	203	04/19/2024	CL	P79702	\$2,913.00
156040	SOFIJON, INC.	203, 461	04/12/2024	CL	P74836	\$910.00
152122	TERRIBLE HERBST INC. (#285)	461	04/05/2024	VB	P69877	\$3,513.00
191386	THE NEWARK GROUP, INC. (DBA "GREIF, INC.")	2012	04/12/2024	CL	P63843	\$1,009.00
18400	TORRANCE UNIFIED SCHOOL DISTRICT	461	04/19/2024	CL	P78316	\$2,677.00
131448	TORRANCE UNIFIED SCHOOL DISTRICT	203	04/19/2024	VB	P78319	\$971.00
196043	TRILOGY MEDWASTE WEST	1146	04/12/2024	CL	P78425	\$6,447.00
17275	TUSTIN (CITY OF TUSTIN)	461, 1470	04/12/2024	VB	P77814	\$2,250.00
146819	WHITE OAK SHELL	461, H&S 41960.2	04/12/2024	CL	P79075	\$2,603.00
Total MSPAP Settlements: \$169,909.00						
No-Burn Day						
202505	RESIDENT, IRVINE	445	04/09/2024	CL	W15009	\$50.00
Total No-Burn Day Settlements: \$50.00						

SOUTH COAST AQMD'S RULES AND REGULATIONS INDEX FOR APRIL 2024 PENALTY REPORT

REGULATION I - GENERAL PROVISIONS

Rule 109 Recordkeeping for Volatile Organic Compound Emissions

REGULATION II - PERMITS

Rule 201 Permit to Construct

Rule 203 Permit to Operate

REGULATION III - FEES

Rule 301 Permitting and Associated Fees

REGULATION IV - PROHIBITIONS

Rule 402 Nuisance

Rule 403 Fugitive Dust

Rule 445 Wood-Burning Devices

Rule 461 Gasoline Transfer and Dispensing

Rule 462 Organic Liquid Loading

Rule 463 Storage of Organic Liquids

REGULATION XI - SOURCE SPECIFIC STANDARDS

Rule 1142 Marine Tank Vessel Operations

Rule 1146 Emissions of Oxides of Nitrogen from Industrial, Institutional and Commercial Boilers, Steam Generators,
and Process Heaters

Rule 1146.1 Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators,
and Process Heaters

Rule 1146.2 Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers

Rule 1147 NO_x Reductions from Miscellaneous Sources

Rule 1148.1 Oil and Gas Production Wells

Rule 1155 Particulate Matter Control Devices

Rule 1173 Fugitive Emissions of Volatile Organic Compounds

Rule 1176 Sumps and Wastewater Separators

REGULATION XIV - TOXICS

Rule 1402 Control of Toxic Air Contaminants from Existing Sources

SOUTH COAST AQMD'S RULES AND REGULATIONS INDEX FOR APRIL 2024 PENALTY REPORT

Rule 1403	Asbestos Emissions from Demolition/Renovation Activities
Rule 1415	Reduction of Refrigerant Emissions from Stationary Air Conditioning Systems
Rule 1430	Control of Emissions from Metal Grinding Operations at Metal Forging Facilities
Rule 1469	Hexavalent Chromium Emissions from Chrome Plating and Chromic Acid Anodizing Operations
Rule 1470	Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines

REGULATION XX - REGIONAL CLEAN AIR INCENTIVES MARKET (RECLAIM)

Rule 2004	Requirements
Rule 2011	Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Sulfur (SOx) Emissions
Rule 2012	Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NOx) Emissions
Rule 2012	
Appendix A	Protocol for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NOx) Emissions

REGULATION XXX- TITLE V PERMITS

Rule 3002	Requirements
Rule 3003	Applications

CODE OF FEDERAL REGULATIONS

40 CFR 61.145	Standard for Demolition and Renovation
---------------	--

CALIFORNIA HEALTH AND SAFETY CODE

41700	Prohibited Discharges
41960	Certification of Gasoline Vapor Recovery System
41960.2	Gasoline Vapor Recovery

BOARD MEETING DATE: June 7, 2024

AGENDA NO. 21

REPORT: Mobile Source Air Pollution Reduction Review Committee

SYNOPSIS: The Mobile Source Air Pollution Reduction Review Committee held a hybrid meeting on Thursday, May 16, 2024. The following is a summary of the meeting.

RECOMMENDED ACTION:
Receive and file.

Daphne Hsu
Principal Deputy District Counsel
South Coast AQMD

AK:CR:me

MSRC Chair and MSRC Vice Chair Elected

Annually the MSRC elects its Chair and Vice Chair. At its May 16, 2024 meeting, the MSRC re-elected Mayor Larry McCallon as its Chair for a one-year term. Mayor McCallon is Mayor Pro Tem from District 5 for the City of Highland and represents the San Bernardino County Transportation Authority on the MSRC.

The MSRC also re-elected Mayor Brian Berkson as its MSRC Vice Chair for a one-year term. Mayor Berkson serves as Mayor Pro Tem from District 3 for the City of Jurupa Valley and represents the Riverside County Transportation Commission on the MSRC.

FYs 2016-18 Local Government Partnership Program

As part of the FYs 2016-18 Local Government Partnership Program, the MSRC originally awarded \$72,580 to the City of Paramount to install a total of five charging stations: two public-access stations and three limited-access stations. The City subsequently requested to reduce the project's scope, decreasing the number of stations from five to three and making all three stations publicly accessible, with a corresponding value reduction to \$64,675. The City completed installation of two stations. However, the contract was terminated prior to the City submitting a final report

and invoice. The MSRC considered and approved a six-month contract for the two stations in an amount not to exceed \$42,686 as part of the FYs 2016-18 Work Program, using a portion of the funds from the earlier contract. The other \$21,989 will revert to the AB 2766 Discretionary Fund.

Contract Modification Requests

The MSRC considered three contract modification requests and took the following actions:

1. Air Products and Chemicals, Inc., Contract #MS18182 to install a hydrogen refueling station in Paramount, approval of 18-month term extension;
2. City of Yucaipa, Contract #ML18129 to install EV charging infrastructure, approval of modified statement of work and payment schedule; and
3. Ryder Integrated Logistics, Inc., Agreement #MS21016 to procure two integrated power centers and four Mega Chargers, approval to extend the deadline for delivery of associated vehicles without extending the overall contract term.

Operational Policies and Procedures

The MSRC's "Operational Policies and Procedures" were originally adopted in 1993 and amended in 2020 with respect to the Regional Rideshare Agency position. The MSRC considered a more comprehensive set of proposed amendments to bring the policies up to date. Key language changes included making it apparent that the MSRC-TAC, in addition to the MSRC, is subject to the Conflict of Interest Code, and standardizing the withholding amount on invoices at 5 percent for any funding recipient, whether a public or private entity. The MSRC approved the proposed amendments.

Contracts Administrator's Report

The MSRC AB 2766 Contracts Administrator's report provides a written status report on all open contracts from FY 2011-12 to the present. The Contracts Administrator's Report for March 28, 2024 through April 24, 2024 is attached (*Attachment 1*).

Attachments

1. March 28 through April 24, 2024 Contracts Administrator's Report
2. Minutes of the March 21, 2024 MSRC Meeting

MSRC Agenda Item No. 2

DATE: May 16, 2024

FROM: Cynthia Ravenstein

SUBJECT: AB 2766 Contracts Administrator's Report

SYNOPSIS: This report covers key issues addressed by MSRC staff, status of open contracts, and administrative scope changes from March 28 to April 24, 2024.

RECOMMENDATION: Receive and file report

WORK PROGRAM IMPACT: None

Contract Execution Status

2021-24 Work Program

On September 2, 2022, the SCAQMD Governing Board approved an award under the Major Event Center Transportation Program. This contract is executed.

On February 3, 2023, the SCAQMD Governing Board approved an award under the Transformative Transportation Strategies & Mobility Solutions Program. This contract is executed.

On June 2, 2023, the SCAQMD Governing Board approved six awards under the Microtransit Service RFP, for zero-emission shared mobility service. These contracts are under development, with the prospective contractor for signature, with the SCAQMD Board Chair for signature, or executed.

On September 1, 2023, the SCAQMD Governing Board approved two awards under the Publicly Accessible Goods Movement Zero Emission Infrastructure Request for Information. One of these contracts will be administered by SCAQMD on behalf of the MSRC, and the other award is conditional upon successful selection of a site developer and operator and securing co-funding commitments.

On November 3, 2023, the SCAQMD Governing Board approved an allocation for partnership with SCAQMD and other partners in proposals seeking funding under the CARB "Advanced Technology Demonstration and Pilot Projects" solicitation. If proposal(s) had been awarded funding, contract(s) would have been administered by SCAQMD on behalf of the MSRC. However, MSRC staff have received notification that these proposals were not selected for funding award. The \$3,000,000 reverts to the AB 2766 Discretionary Fund.

On February 2, 2024, the SCAQMD Governing Board approved allocations for partnership in applications seeking funding under the Carl Moyer Program solicitation. If the applications are awarded funding, to the extent feasible these contracts will be administered by SCAQMD on behalf of the MSRC.

Work Program Status

Contract Status Reports for Work Program years with open and/or pending contracts are attached.

FY 2011-12 Work Program Contracts

One contract is in “Open/Complete” status, having completed all obligations except operations.

FY 2011-12 Invoices Paid

No invoices were paid during this period.

FYs 2012-14 Work Program Contracts

3 contracts from this Work Program year are open, and 6 are in “Open/Complete” status.

FYs 2012-14 Invoices Paid

No invoices were paid during this period.

FYs 2014-16 Work Program Contracts

9 contracts from this Work Program year are open, and 14 are in “Open/Complete” status.

FYs 2014-16 Invoices Paid

No invoices were paid during this period.

FYs 2016-18 Work Program Contracts

36 contracts from this Work Program year are open, and 57 are in “Open/Complete” status. One contract was cancelled at the contractor’s request during this period: City of San Bernardino, Contract #ML18177 – Purchase Medium- and Heavy-Duty EVs and Install EV Charging Infrastructure. One contract was terminated during this period: Irvine Ranch Water District (IRWD), Contract #MS18029 – Install New Limited-Access CNG Station. IRWD’s extension request was denied by the MSRC Contracts Administrator because the contract had previously been extended for a total of three years or more, and the request was for greater than one year. IRWD opted not to request MSRC review of the denial, so the contract was terminated.

FYs 2016-18 Invoices Paid

One invoice in the amount of \$10,000.00 was paid during this period.

FYs 2018-21 Work Program Contracts

12 contracts from this Work Program year are open, and 3 are in “Open/Complete” status.

FYs 2018-21 Invoices Paid

5 invoices totaling \$364,102.00 were paid during this period.

FYs 2021-24 Work Program Contracts

5 contracts from this Work Program year are open.

FYs 2021-24 Invoices Paid

No invoices were paid during this period.

Administrative Scope Changes

No administrative scope changes were initiated during the period from March 28 to April 24, 2024.

Attachments

- FY 2011-12 through FYs 2021-24 Contract Status Reports

FYs 2011-12 Through 2021-24 AB2766 Contract Status Report

4/24/2024

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
FY 2011-2012 Contracts									
Declined/Cancelled Contracts									
ML12016	City of Cathedral City	1/4/2013	10/3/2019		\$60,000.00	\$0.00	CNG Vehicle & Electric Vehicle Infrastructur	\$60,000.00	No
ML12038	City of Long Beach Public Works				\$26,000.00	\$0.00	Electric Vehicle Charging Infrastructure	\$26,000.00	No
ML12040	City of Duarte				\$30,000.00	\$0.00	One Heavy-Duty Nat. Gas Vehicle	\$30,000.00	No
ML12044	County of San Bernardino Public Wo				\$250,000.00	\$0.00	Install New CNG Station	\$250,000.00	No
ML12048	City of La Palma	1/4/2013	11/3/2018		\$20,000.00	\$0.00	Two Medium-Duty LPG Vehicles	\$20,000.00	No
ML12052	City of Whittier	3/14/2013	7/13/2019		\$165,000.00	\$0.00	Expansion of Existing CNG Station	\$165,000.00	No
ML12053	City of Mission Viejo				\$60,000.00	\$0.00	EV Charging Infrastructure	\$60,000.00	No
ML12090	City of Palm Springs	10/9/2015	10/8/2021	9/8/2025	\$21,163.00	\$0.00	EV Charging Infrastructure	\$21,163.00	No
MS12007	WestAir Gases & Equipment				\$100,000.00	\$0.00	Construct New Limited-Acess CNG Station	\$100,000.00	No
MS12027	C.V. Ice Company, Inc.	5/17/2013	11/16/2019		\$75,000.00	\$0.00	Purchase 3 Medium-Heavy Duty Vehicles	\$75,000.00	No
MS12030	Complete Landscape Care, Inc.				\$150,000.00	\$0.00	Purchase 6 Medium-Heavy Duty Vehicles	\$150,000.00	No
MS12067	Leatherwood Construction, Inc.	11/8/2013	3/7/2017		\$122,719.00	\$0.00	Retrofit Six Vehicles w/DECS - Showcase III	\$122,719.00	No
MS12070	Valley Music Travel/CID Entertainme				\$99,000.00	\$0.00	Implement Shuttle Service to Coachella Mus	\$99,000.00	No
Total: 13									
Closed Contracts									
ML12013	City of Pasadena	10/19/2012	3/18/2015	9/18/2015	\$200,000.00	\$65,065.00	Electric Vehicle Charging Infrastructure	\$134,935.00	Yes
ML12014	City of Santa Ana - Public Works Ag	11/8/2013	8/7/2020	2/7/2022	\$338,000.00	\$255,977.50	9 H.D. Nat. Gas & LPG Trucks, EV Charging	\$82,022.50	Yes
ML12015	City of Fullerton	4/25/2013	11/24/2020	11/24/2021	\$40,000.00	\$40,000.00	HD CNG Vehicle, Expand CNG Station	\$0.00	Yes
ML12017	City of Los Angeles, Bureau of Sanit	6/26/2013	5/25/2020	11/25/2021	\$950,000.00	\$950,000.00	32 H.D. Nat. Gas Vehicles	\$0.00	Yes
ML12018	City of West Covina	10/18/2013	10/17/2020	8/17/2023	\$300,000.00	\$300,000.00	Expansion of Existing CNG Station	\$0.00	Yes
ML12019	City of Palm Springs	9/6/2013	7/5/2015		\$38,000.00	\$16,837.00	EV Charging Infrastructure	\$21,163.00	Yes
ML12020	City of Los Angeles Dept of General	9/27/2012	3/26/2019	3/26/2020	\$450,000.00	\$450,000.00	15 H.D. Nat. Gas Vehicles	\$0.00	Yes
ML12021	City of Rancho Cucamonga	9/14/2012	1/13/2020		\$40,000.00	\$40,000.00	Four Medium-Duty Nat. Gas Vehicles	\$0.00	Yes
ML12022	City of La Puente	12/6/2013	6/5/2020		\$110,000.00	\$110,000.00	2 Medium-Duty and Three Heavy-Duty CNG	\$0.00	Yes
ML12023	County of Los Angeles Internal Servi	8/1/2013	2/28/2015		\$250,000.00	\$192,333.00	EV Charging Infrastructure	\$57,667.00	Yes
ML12037	Coachella Valley Association of Gov	3/14/2013	3/13/2014		\$250,000.00	\$250,000.00	Street Sweeping Operations	\$0.00	Yes
ML12039	City of Redlands	2/8/2013	10/7/2019		\$90,000.00	\$90,000.00	Three Heavy-Duty Nat. Gas Vehicles	\$0.00	Yes
ML12041	City of Anaheim Public Utilities Depa	4/4/2014	11/3/2015	11/3/2017	\$68,977.00	\$38,742.16	EV Charging Infrastructure	\$30,234.84	Yes
ML12042	City of Chino Hills	1/18/2013	3/17/2017		\$87,500.00	\$87,500.00	Expansion of Existing CNG Station	\$0.00	Yes
ML12043	City of Hemet	6/24/2013	9/23/2019	11/23/2021	\$30,000.00	\$30,000.00	One Heavy-Duty Nat. Gas Vehicles	\$0.00	Yes
ML12046	City of Irvine	8/11/2013	3/10/2021		\$30,000.00	\$30,000.00	One Heavy-Duty Nat. Gas Vehicle	\$0.00	Yes

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
ML12047	City of Orange	2/1/2013	1/31/2019		\$30,000.00	\$30,000.00	One Heavy-Duty Nat. Gas Vehicle	\$0.00	Yes
ML12049	City of Rialto Public Works	7/14/2014	9/13/2015		\$30,432.00	\$3,265.29	EV Charging Infrastructure	\$27,166.71	Yes
ML12050	City of Baldwin Park	4/25/2013	4/24/2014	10/24/2014	\$402,400.00	\$385,363.00	EV Charging Infrastructure	\$17,037.00	Yes
ML12054	City of Palm Desert	9/30/2013	2/28/2015		\$77,385.00	\$77,385.00	EV Charging Infrastructure	\$0.00	Yes
ML12055	City of Manhattan Beach	3/1/2013	12/31/2018		\$10,000.00	\$10,000.00	One Medium-Duty Nat. Gas Vehicle	\$0.00	Yes
ML12056	City of Cathedral City	3/26/2013	5/25/2014		\$25,000.00	\$25,000.00	Regional Street Sweeping Program	\$0.00	Yes
ML12057	City of Coachella	8/28/2013	8/27/2019	1/27/2022	\$57,456.00	\$57,456.00	Purchase One Nat. Gas H.D. Vehicle/Street	\$0.00	Yes
ML12066	City of Manhattan Beach	1/7/2014	4/6/2015		\$5,900.00	\$5,900.00	Electric Vehicle Charging Infrastructure	\$0.00	Yes
ML12091	City of Bellflower	10/5/2018	10/4/2019	6/30/2022	\$100,000.00	\$49,230.44	EV Charging Infrastructure	\$50,769.56	Yes
MS12001	Los Angeles County MTA	7/1/2012	4/30/2013		\$300,000.00	\$211,170.00	Clean Fuel Transit Service to Dodger Stadium	\$88,830.00	Yes
MS12002	Orange County Transportation Authority	9/7/2012	4/30/2013		\$342,340.00	\$333,185.13	Express Bus Service to Orange County Fair	\$9,154.87	Yes
MS12003	Orange County Transportation Authority	7/20/2012	2/28/2013		\$234,669.00	\$167,665.12	Implement Metrolink Service to Angel Stadium	\$67,003.88	Yes
MS12004	USA Waste of California, Inc.	10/24/2013	11/23/2019		\$175,000.00	\$175,000.00	Construct New Limited-Access CNG Station	\$0.00	Yes
MS12005	USA Waste of California, Inc.	10/19/2012	8/18/2013		\$75,000.00	\$75,000.00	Vehicle Maintenance Facility Modifications	\$0.00	Yes
MS12006	Waste Management Collection & Re	10/19/2012	8/18/2013		\$75,000.00	\$75,000.00	Vehicle Maintenance Facility Modifications	\$0.00	Yes
MS12008	Bonita Unified School District	7/12/2013	12/11/2019	4/11/2021	\$175,000.00	\$175,000.00	Construct New Limited-Access CNG Station	\$0.00	Yes
MS12009	Sysco Food Services of Los Angeles	1/7/2014	4/6/2020		\$150,000.00	\$150,000.00	Construct New Public-Access LNG Station	\$0.00	Yes
MS12010	Murrieta Valley Unified School District	4/5/2013	9/4/2019		\$242,786.00	\$242,786.00	Construct New Limited-Access CNG Station	\$0.00	Yes
MS12011	Southern California Gas Company	6/14/2013	6/13/2019	5/28/2021	\$150,000.00	\$150,000.00	Construct New Public-Access CNG Station -	\$0.00	Yes
MS12012	Rim of the World Unified School District	12/20/2012	5/19/2014		\$75,000.00	\$75,000.00	Vehicle Maintenance Facility Modifications	\$0.00	Yes
MS12024	Southern California Gas Company	6/13/2013	12/12/2019	11/12/2020	\$150,000.00	\$150,000.00	Construct New Public-Access CNG Station -	\$0.00	Yes
MS12025	Silverado Stages, Inc.	11/2/2012	7/1/2018		\$150,000.00	\$150,000.00	Purchase Six Medium-Heavy Duty Vehicles	\$0.00	Yes
MS12026	U-Haul Company of California	3/14/2013	3/13/2019		\$500,000.00	\$353,048.26	Purchase 23 Medium-Heavy Duty Vehicles	\$146,951.74	Yes
MS12028	Dy-Dee Service of Pasadena, Inc.	12/22/2012	1/21/2019		\$45,000.00	\$40,000.00	Purchase 2 Medium-Duty and 1 Medium-He	\$5,000.00	Yes
MS12029	Community Action Partnership of Or	11/2/2012	11/1/2018		\$25,000.00	\$14,850.00	Purchase 1 Medium-Heavy Duty Vehicle	\$10,150.00	Yes
MS12031	Final Assembly, Inc.	11/2/2012	11/1/2018		\$50,000.00	\$32,446.00	Purchase 2 Medium-Heavy Duty Vehicles	\$17,554.00	Yes
MS12032	Fox Transportation	12/14/2012	12/13/2018		\$500,000.00	\$500,000.00	Purchase 20 Medium-Heavy Duty Vehicles	\$0.00	Yes
MS12033	Mike Diamond/Phace Management	12/22/2012	12/21/2018	6/21/2021	\$148,900.00	\$148,900.00	Purchase 20 Medium-Heavy Duty Vehicles	\$0.00	Yes
MS12034	Ware Disposal Company, Inc.	11/2/2012	11/1/2018	5/1/2022	\$133,070.00	\$133,070.00	Purchase 8 Medium-Heavy Duty Vehicles	\$0.00	Yes
MS12035	Disneyland Resort	1/4/2013	7/3/2019		\$25,000.00	\$18,900.00	Purchase 1 Medium-Heavy Duty Vehicle	\$6,100.00	Yes
MS12036	Jim & Doug Carter's Automotive/VS	1/4/2013	11/3/2018		\$50,000.00	\$50,000.00	Purchase 2 Medium-Heavy Duty Vehicles	\$0.00	Yes
MS12058	Krisda Inc	4/24/2013	1/23/2019		\$25,000.00	\$25,000.00	Repower One Heavy-Duty Off-Road Vehicle	\$0.00	Yes
MS12059	Orange County Transportation Authority	2/28/2013	12/27/2014		\$75,000.00	\$75,000.00	Maintenance Facilities Modifications	\$0.00	Yes
MS12060	City of Santa Monica	4/4/2014	8/3/2017	8/3/2019	\$500,000.00	\$434,202.57	Implement Westside Bikeshare Program	\$65,797.43	Yes
MS12061	Orange County Transportation Authority	3/14/2014	3/13/2017		\$224,000.00	\$114,240.00	Transit-Oriented Bicycle Sharing Program	\$109,760.00	Yes
MS12062	Fraser Communications	12/7/2012	5/31/2014		\$998,669.00	\$989,218.49	Develop & Implement "Rideshare Thursday"	\$9,450.51	Yes
MS12063	Custom Alloy Light Metals, Inc.	8/16/2013	2/15/2020		\$100,000.00	\$100,000.00	Install New Limited Access CNG Station	\$0.00	Yes

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
MS12064	Anaheim Transportation Network	3/26/2013	12/31/2014		\$127,296.00	\$56,443.92	Implement Anaheim Circulator Service	\$70,852.08	Yes
MS12065	Orange County Transportation Autho	7/27/2013	11/30/2013		\$43,933.00	\$14,832.93	Ducks Express Service to Honda Center	\$29,100.07	Yes
MS12068	Southern California Regional Rail Au	3/1/2013	9/30/2013		\$57,363.00	\$47,587.10	Implement Metrolink Service to Autoclub Sp	\$9,775.90	Yes
MS12069	City of Irvine	8/11/2013	2/28/2014		\$45,000.00	\$26,649.41	Implement Special Transit Service to Solar	\$18,350.59	Yes
MS12071	Transit Systems Unlimited, Inc.	5/17/2013	12/16/2018		\$21,250.00	\$21,250.00	Expansion of Existing CNG Station	\$0.00	Yes
MS12072	99 Cents Only Stores	4/5/2013	9/4/2019		\$100,000.00	\$100,000.00	Construct New CNG Station	\$0.00	Yes
MS12073	FirstCNG, LLC	7/27/2013	12/26/2019		\$150,000.00	\$150,000.00	Construct New CNG Station	\$0.00	Yes
MS12074	Arcadia Unified School District	7/5/2013	9/4/2019		\$175,000.00	\$175,000.00	Expansion of Existing CNG Infrastructure	\$0.00	Yes
MS12075	CR&R Incorporated	7/27/2013	1/26/2021	1/26/2022	\$100,000.00	\$100,000.00	Expansion of Existing CNG Infrastructure	\$0.00	Yes
MS12076	City of Ontario, Housing & Municipal	3/8/2013	4/7/2015		\$75,000.00	\$75,000.00	Maintenance Facilities Modification	\$0.00	Yes
MS12078	Penske Truck Leasing Co., L.P.	1/7/2014	1/6/2016		\$75,000.00	\$73,107.00	Maintenance Facility Modifications - Vernon	\$1,893.00	Yes
MS12080	City of Pasadena	11/8/2013	8/7/2020	2/7/2022	\$225,000.00	\$225,000.00	Expansion of Existing CNG Infrastructure	\$0.00	Yes
MS12081	Penske Truck Leasing Co., L.P.	1/7/2014	1/6/2016		\$75,000.00	\$75,000.00	Maintenance Facility Modifications - Santa A	\$0.00	Yes
MS12082	City of Los Angeles, Bureau of Sanit	11/20/2013	2/19/2021	2/19/2023	\$175,000.00	\$175,000.00	Install New CNG Infrastructure	\$0.00	Yes
MS12083	Brea Olinda Unified School District	7/30/2015	2/29/2024		\$59,454.00	\$59,454.00	Install New CNG Infrastructure	\$0.00	Yes
MS12085	Bear Valley Unified School District	4/25/2013	6/24/2014		\$75,000.00	\$75,000.00	Maintenance Facility Modifications	\$0.00	Yes
MS12086	SuperShuttle International, Inc.	3/26/2013	3/25/2019		\$225,000.00	\$225,000.00	Purchase 23 Medium-Heavy Duty Vehicles	\$0.00	Yes
MS12087	Los Angeles County MTA	8/29/2013	11/28/2015		\$125,000.00	\$125,000.00	Implement Rideshare Incentives Program	\$0.00	Yes
MS12088	Orange County Transportation Autho	12/6/2013	3/5/2016		\$125,000.00	\$18,496.50	Implement Rideshare Incentives Program	\$106,503.50	Yes
MS12089	Riverside County Transportation Co	10/18/2013	9/17/2015		\$249,136.00	\$105,747.48	Implement Rideshare Incentives Program	\$143,388.52	Yes
MS12Hom	Mansfield Gas Equipment Systems				\$296,000.00	\$0.00	Home Refueling Apparatus Incentive Progra	\$296,000.00	Yes

Total: 74

Closed/Incomplete Contracts

ML12051	City of Bellflower	2/7/2014	2/6/2016	5/6/2018	\$100,000.00	\$0.00	EV Charging Infrastructure	\$100,000.00	No
MS12077	City of Coachella	6/14/2013	6/13/2020		\$225,000.00	\$0.00	Construct New CNG Station	\$225,000.00	No
MS12079	Penske Truck Leasing Co., L.P.	1/7/2014	1/6/2016		\$75,000.00	\$0.00	Maintenance Facility Modifications - Boyle H	\$75,000.00	No
MS12084	Airport Mobil Inc.	12/6/2013	5/5/2020		\$150,000.00	\$0.00	Install New CNG Infrastructure	\$150,000.00	No

Total: 4

Open/Complete Contracts

ML12045	City of Baldwin Park DPW	2/14/2014	12/13/2020	12/13/2026	\$400,000.00	\$400,000.00	Install New CNG Station	\$0.00	Yes
---------	--------------------------	-----------	------------	------------	--------------	--------------	-------------------------	--------	-----

Total: 1

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
--------	------------	------------	----------------------	---------------------	-------------------	----------	---------------------	------------------	----------------------

FY 2012-2014 Contracts

Open Contracts

ML14027	County of Los Angeles Dept of Publi	10/2/2015	5/1/2023	8/1/2028	\$492,000.00	\$0.00	Construct New CNG Station in Canyon Coun	\$492,000.00	No
MS14057	Los Angeles County MTA	11/7/2014	10/6/2019	10/31/2026	\$1,250,000.00	\$0.00	Implement Various Signal Synchronization P	\$1,250,000.00	No
MS14072	San Bernardino County Transportatio	3/27/2015	3/26/2018	3/26/2024	\$1,237,500.00	\$1,148,376.17	Implement Various Signal Synchronization P	\$89,123.83	No

Total: 3

Declined/Cancelled Contracts

ML14063	City of Hawthorne				\$32,000.00	\$0.00	Expansion of Existng CNG Infrastructure	\$32,000.00	No
ML14068	City of South Pasadena	9/12/2014	10/11/2015	1/11/2020	\$10,183.00	\$0.00	Electric Vehicle Charging Infrastructure	\$10,183.00	No
ML14069	City of Beaumont	3/3/2017	3/2/2025		\$200,000.00	\$0.00	Construct New CNG Infrastructure	\$200,000.00	No
MS14035	Penske Truck Leasing Co., L.P.				\$75,000.00	\$0.00	Vehicle Maint. Fac. Modifications - Sun Valle	\$75,000.00	No
MS14036	Penske Truck Leasing Co., L.P.				\$75,000.00	\$0.00	Vehicle Maint. Fac. Modifications - La Mirad	\$75,000.00	No
MS14038	Penske Truck Leasing Co., L.P.				\$75,000.00	\$0.00	Vehicle Maint. Fac. Modifications - Fontana	\$75,000.00	No
MS14043	City of Anaheim				\$175,000.00	\$0.00	Expansion of Existing CNG Station	\$175,000.00	No
MS14078	American Honda Motor Co., Inc.	9/4/2015	8/3/2022		\$150,000.00	\$0.00	New Public Access CNG Station	\$150,000.00	No
MS14085	Prologis, L.P.				\$100,000.00	\$0.00	New Limited Access CNG Station	\$100,000.00	No
MS14086	San Gabriel Valley Towing I				\$150,000.00	\$0.00	New Public Access CNG Station	\$150,000.00	No
MS14091	Serv-Wel Disposal				\$100,000.00	\$0.00	New Limited-Access CNG Infrastructure	\$100,000.00	No

Total: 11

Closed Contracts

ML14010	City of Cathedral City	8/13/2014	10/12/2015		\$25,000.00	\$25,000.00	Street Sweeping Operations	\$0.00	Yes
ML14011	City of Palm Springs	6/13/2014	1/12/2016		\$79,000.00	\$78,627.00	Bicycle Racks, Bicycle Outreach & Educatio	\$373.00	Yes
ML14012	City of Santa Ana - Public Works Ag	2/13/2015	10/12/2021	10/12/2022	\$41,220.00	\$41,220.00	EV Charging and 1 H.D. CNG Vehicle	\$0.00	Yes
ML14014	City of Torrance	9/5/2014	12/4/2019		\$56,000.00	\$56,000.00	EV Charging Infrastructure	\$0.00	Yes
ML14015	Coachella Valley Association of Gov	6/6/2014	9/5/2015		\$250,000.00	\$250,000.00	Street Sweeping Operations	\$0.00	Yes
ML14016	City of Anaheim	4/3/2015	9/2/2021		\$380,000.00	\$380,000.00	Purchase 2 H.D. Vehicles, Expansion of Exi	\$0.00	Yes
ML14019	City of Corona Public Works	12/5/2014	6/4/2020	3/6/2023	\$111,518.00	\$111,517.18	EV Charging, Bicycle Racks, Bicycle Locker	\$0.82	Yes
ML14022	County of Los Angeles Department o	10/2/2015	5/1/2022		\$270,000.00	\$270,000.00	Purchase 9 H.D. Nat. Gas Vehicles	\$0.00	Yes
ML14023	County of Los Angeles Department o	10/2/2015	9/1/2017	3/1/2021	\$230,000.00	\$230,000.00	Maintenance Fac. Modifications-Westcheste	\$0.00	Yes
ML14024	County of Los Angeles Department o	10/2/2015	9/1/2017	9/1/2021	\$230,000.00	\$230,000.00	Maintenance Fac. Modifications-Baldwin Par	\$0.00	Yes
ML14028	City of Fullerton	9/5/2014	1/4/2022		\$126,950.00	\$126,950.00	Expansion of Exisiting CNG Infrastructure	\$0.00	Yes
ML14029	City of Irvine	7/11/2014	6/10/2017		\$90,500.00	\$71,056.78	Bicycle Trail Improvements	\$19,443.22	Yes
ML14030	County of Los Angeles Internal Servi	1/9/2015	3/8/2018	7/30/2021	\$425,000.00	\$216,898.02	Bicycle Racks, Outreach & Education	\$208,101.98	Yes
ML14031	Riverside County Waste Manageme	6/13/2014	12/12/2020		\$90,000.00	\$90,000.00	Purchase 3 H.D. CNG Vehicles	\$0.00	Yes
ML14032	City of Rancho Cucamonga	1/9/2015	1/8/2022		\$113,990.00	\$104,350.63	Expansion of Existing CNG Infras., Bicycle L	\$9,639.37	Yes
ML14033	City of Irvine	7/11/2014	2/10/2021	2/10/2022	\$60,000.00	\$60,000.00	Purchase 2 H.D. CNG Vehicles	\$0.00	Yes

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
ML14034	City of Lake Elsinore	9/5/2014	5/4/2021		\$56,700.00	\$56,700.00	EV Charging Stations	\$0.00	Yes
ML14049	City of Moreno Valley	7/11/2014	3/10/2021		\$105,000.00	\$101,976.09	One HD Nat Gas Vehicle, EV Charging, Bicy	\$3,023.91	Yes
ML14051	City of Brea	9/5/2014	1/4/2017	7/4/2018	\$450,000.00	\$450,000.00	Installation of Bicycle Trail	\$0.00	Yes
ML14054	City of Torrance	11/14/2014	4/13/2017	7/13/2017	\$350,000.00	\$319,908.80	Upgrade Maintenance Facility	\$30,091.20	Yes
ML14055	City of Highland	10/10/2014	3/9/2018	3/9/2019	\$500,000.00	\$489,385.24	Bicycle Lanes and Outreach	\$10,614.76	Yes
ML14056	City of Redlands	9/5/2014	5/4/2016	5/4/2018	\$125,000.00	\$125,000.00	Bicycle Lanes	\$0.00	Yes
ML14061	City of La Habra	3/11/2016	3/10/2022		\$41,600.00	\$41,270.49	Purchase Two Heavy-Duty Nat. Gas Vehicle	\$329.51	Yes
ML14062	City of San Fernando	3/27/2015	5/26/2021	10/31/2023	\$325,679.00	\$325,679.00	Expand Existing CNG Fueling Station	\$0.00	Yes
ML14064	City of Claremont	7/11/2014	7/10/2020	1/10/2021	\$60,000.00	\$60,000.00	Purchase Two Heavy-Duty Nat. Gas Vehicle	\$0.00	Yes
ML14065	City of Orange	9/5/2014	8/4/2015		\$10,000.00	\$10,000.00	Electric Vehicle Charging Infrastructure	\$0.00	Yes
ML14070	City of Rancho Cucamonga	9/3/2016	12/2/2018		\$365,245.00	\$326,922.25	Bicycle Trail Improvements	\$38,322.75	Yes
ML14071	City of Manhattan Beach	1/9/2015	11/8/2018		\$22,485.00	\$22,485.00	Electric Vehicle Charging Infrastructure	\$0.00	Yes
ML14072	City of Cathedral City	8/13/2014	1/12/2021	7/12/2022	\$41,000.00	\$41,000.00	Install Bicycle Racks & Implement Bicycle E	\$0.00	Yes
ML14094	City of Yucaipa	6/9/2017	6/8/2018		\$84,795.00	\$84,795.00	Installation of Bicycle Lanes	\$0.00	Yes
ML14095	City of South Pasadena	1/10/2019	7/9/2019		\$142,096.00	\$134,182.09	Bicycle Trail Improvements	\$7,913.91	Yes
ML14096	County of Los Angeles Dept of Pub	5/3/2019	12/2/2019	3/2/2020	\$74,186.00	\$74,186.00	San Gabriel BikeTrail Underpass Improve	\$0.00	Yes
ML14097	County of Los Angeles Internal Servi	9/6/2019	9/5/2020	9/5/2021	\$104,400.00	\$104,400.00	Electric Vehicle Charging Infrastructure	\$0.00	Yes
MS14001	Los Angeles County MTA	3/6/2015	4/30/2015		\$1,216,637.00	\$1,199,512.68	Clean Fuel Transit Service to Dodger Stadiu	\$17,124.32	Yes
MS14002	Orange County Transportation Autho	9/6/2013	4/30/2014		\$576,833.00	\$576,833.00	Clean Fuel Transit Service to Orange Count	\$0.00	Yes
MS14003	Orange County Transportation Autho	8/1/2013	4/30/2014	10/30/2014	\$194,235.00	\$184,523.00	Implement Metrolink Service to Angel Stadiu	\$9,712.00	Yes
MS14004	Orange County Transportation Autho	9/24/2013	4/30/2014		\$36,800.00	\$35,485.23	Implement Express Bus Service to Solar De	\$1,314.77	Yes
MS14005	Transit Systems Unlimited, Inc.	4/11/2014	2/28/2016		\$515,200.00	\$511,520.00	Provide Expanded Shuttle Service to Hollyw	\$3,680.00	Yes
MS14007	Orange County Transportation Autho	6/6/2014	4/30/2015		\$208,520.00	\$189,622.94	Implement Special Metrolink Service to Ang	\$18,897.06	Yes
MS14008	Orange County Transportation Autho	8/13/2014	5/31/2015		\$601,187.00	\$601,187.00	Implement Clean Fuel Bus Service to Orang	\$0.00	Yes
MS14009	A-Z Bus Sales, Inc.	1/17/2014	12/31/2014	3/31/2015	\$388,000.00	\$388,000.00	Alternative Fuel School Bus Incentive Progra	\$0.00	Yes
MS14037	Penske Truck Leasing Co., L.P.	4/7/2017	6/6/2020		\$75,000.00	\$75,000.00	Vehicle Maint. Fac. Modifications - Carson	\$0.00	Yes
MS14039	Waste Management Collection and	7/10/2015	4/9/2016		\$75,000.00	\$75,000.00	Vehicle Maint. Fac. Modifications - Irvine	\$0.00	Yes
MS14040	Waste Management Collection and	7/10/2015	4/9/2016		\$75,000.00	\$75,000.00	Vehicle Maint. Fac. Modifications - Santa An	\$0.00	Yes
MS14041	USA Waste of California, Inc.	9/4/2015	10/3/2021		\$175,000.00	\$175,000.00	Limited-Access CNG Station, Vehicle Maint.	\$0.00	Yes
MS14042	Grand Central Recycling & Transfer	6/6/2014	9/5/2021		\$150,000.00	\$150,000.00	Expansion of Existing CNG Station	\$0.00	Yes
MS14044	TIMCO CNG Fund I, LLC	5/2/2014	11/1/2020		\$150,000.00	\$150,000.00	New Public-Access CNG Station in Santa A	\$0.00	Yes
MS14045	TIMCO CNG Fund I, LLC	6/6/2014	12/5/2020		\$150,000.00	\$150,000.00	New Public-Access CNG Station in Inglewoo	\$0.00	Yes
MS14046	Ontario CNG Station Inc.	5/15/2014	5/14/2020	11/14/2021	\$150,000.00	\$150,000.00	Expansion of Existing CNG Infrastructure	\$0.00	Yes
MS14047	Southern California Regional Rail Au	3/7/2014	9/30/2014		\$49,203.00	\$32,067.04	Special Metrolink Service to Autoclub Speed	\$17,135.96	Yes
MS14048	BusWest	3/14/2014	12/31/2014	5/31/2015	\$940,850.00	\$847,850.00	Alternative Fuel School Bus Incentive Progra	\$93,000.00	Yes
MS14052	Arcadia Unified School District	6/13/2014	10/12/2020		\$78,000.00	\$78,000.00	Expansion of an Existing CNG Fueling Statio	\$0.00	Yes
MS14053	Upland Unified School District	1/9/2015	7/8/2021		\$175,000.00	\$175,000.00	Expansion of Existing CNG Infrastructure	\$0.00	Yes

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
MS14058	Orange County Transportation Autho	11/7/2014	4/6/2016	4/6/2017	\$1,250,000.00	\$1,250,000.00	Implement Various Signal Synchronization P	\$0.00	Yes
MS14059	Riverside County Transportation Co	9/5/2014	3/4/2018	7/4/2023	\$1,250,000.00	\$1,209,969.08	Implement Various Signal Synchronization P	\$40,030.92	No
MS14073	Anaheim Transportation Network	1/9/2015	4/30/2017		\$221,312.00	\$221,312.00	Anaheim Resort Circulator Service	\$0.00	Yes
MS14074	Midway City Sanitary District	1/9/2015	3/8/2021		\$250,000.00	\$250,000.00	Limited-Access CNG Station & Facility Modif	\$0.00	Yes
MS14075	Fullerton Joint Union High School Di	7/22/2016	11/21/2023		\$293,442.00	\$293,442.00	Expansion of Existing CNG Infrastructure/Ma	\$0.00	Yes
MS14076	Rialto Unified School District	6/17/2015	2/16/2022	6/25/2023	\$225,000.00	\$225,000.00	New Public Access CNG Station	\$0.00	Yes
MS14077	County Sanitation Districts of L.A. Co	3/6/2015	5/5/2021		\$175,000.00	\$175,000.00	New Limited Access CNG Station	\$0.00	Yes
MS14080	CR&R Incorporated	6/1/2015	8/31/2021	8/31/2022	\$200,000.00	\$200,000.00	Expansion of Existing CNG Infrastructure/Ma	\$0.00	Yes
MS14081	CR&R Incorporated	6/1/2015	5/30/2021		\$175,000.00	\$100,000.00	Expansion of Existing CNG Infrastructure/Ma	\$75,000.00	Yes
MS14082	Grand Central Recycling & Transfer	12/4/2015	3/3/2023	3/3/2024	\$150,000.00	\$150,000.00	Construct New Public Access CNG Station	\$0.00	Yes
MS14083	Hacienda La Puente Unified School	7/10/2015	3/9/2022	6/9/2023	\$175,000.00	\$175,000.00	New Limited Access CNG Station	\$0.00	Yes
MS14084	US Air Conditioning Distributors	5/7/2015	9/6/2021		\$100,000.00	\$100,000.00	Expansion of Existing CNG Infrastructure	\$0.00	Yes
MS14087	Orange County Transportation Autho	8/14/2015	4/30/2016		\$239,645.00	\$195,377.88	Implement Special Metrolink Service to Ang	\$44,267.12	Yes
MS14088	Southern California Regional Rail Au	5/7/2015	9/30/2015		\$79,660.00	\$66,351.44	Special Metrolink Service to Autoclub Speed	\$13,308.56	Yes
MS14089	Top Shelf Consulting, LLC	1/18/2017	8/4/2016	3/31/2017	\$200,000.00	\$200,000.00	Enhanced Fleet Modernization Program	\$0.00	Yes
MS14090	City of Monterey Park	5/7/2015	5/6/2021		\$225,000.00	\$225,000.00	Expansion of Existing CNG Infrastructure	\$0.00	Yes

Total: 69

Closed/Incomplete Contracts

ML14020	County of Los Angeles Dept of Pub	8/13/2014	1/12/2018		\$150,000.00	\$0.00	San Gabriel BikeTrail Underpass Improveme	\$150,000.00	No
ML14021	Riverside County Regional Park and	7/24/2014	12/23/2016	9/30/2024	\$250,000.00	\$0.00	Bicycle Trail Improvements	\$250,000.00	No
ML14050	City of Yucaipa	7/11/2014	9/10/2015	7/1/2016	\$84,795.00	\$0.00	Installation of Bicycle Lanes	\$84,795.00	No
ML14060	County of Los Angeles Internal Servi	10/6/2017	1/5/2019		\$104,400.00	\$0.00	Electric Vehicle Charging Infrastructure	\$104,400.00	No
ML14066	City of South Pasadena	9/12/2014	7/11/2016	2/11/2018	\$142,096.00	\$0.00	Bicycle Trail Improvements	\$142,096.00	No
ML14093	County of Los Angeles Dept of Pub	8/14/2015	1/13/2019		\$150,000.00	\$0.00	San Gabriel BikeTrail Underpass Improveme	\$150,000.00	No
MS14092	West Covina Unified School District	9/3/2016	12/2/2022		\$124,000.00	\$0.00	Expansion of Existing CNG Infrastructure	\$124,000.00	No

Total: 7

Open/Complete Contracts

ML14013	City of Los Angeles, Bureau of Sanit	10/7/2016	2/6/2025		\$400,000.00	\$400,000.00	Purchase 14 H.D. Nat. Gas Vehicles	\$0.00	Yes
ML14018	City of Los Angeles Dept of General	3/6/2015	9/5/2021	2/5/2026	\$810,000.00	\$810,000.00	Purchase 27 H.D. Nat. Gas Vehicles	\$0.00	Yes
ML14025	County of Los Angeles Dept of Publi	10/2/2015	7/1/2018	7/1/2024	\$300,000.00	\$300,000.00	Construct New CNG Station in Malibu	\$0.00	Yes
ML14026	County of Los Angeles Dept of Publi	10/2/2015	5/1/2023	5/1/2024	\$300,000.00	\$300,000.00	Construct New CNG Station in Castaic	\$0.00	Yes
ML14067	City of Duarte	12/4/2015	1/3/2023	6/3/2024	\$60,000.00	\$60,000.00	Purchase Two Electric Buses	\$0.00	Yes
MS14079	Waste Resources, Inc.	9/14/2016	8/13/2022	10/13/2024	\$100,000.00	\$100,000.00	New Limited Access CNG Station	\$0.00	Yes

Total: 6

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
--------	------------	------------	----------------------	---------------------	-------------------	----------	---------------------	------------------	----------------------

FY 2014-2016 Contracts

Open Contracts

ML16017	City of Long Beach	2/5/2016	8/4/2023	5/4/2029	\$1,445,400.00	\$1,415,400.00	Purchase 50 Medium-Duty, 17 H.D. Nat. Ga	\$30,000.00	No
ML16025	City of South Pasadena	6/22/2016	4/21/2023	2/21/2025	\$130,000.00	\$0.00	Expand Existing CNG Infrastructure	\$130,000.00	No
ML16039	City of Torrance Transit Department	1/6/2017	9/5/2022	3/27/2026	\$32,000.00	\$0.00	Install Eight Level II EV Chargers	\$32,000.00	No
ML16047	City of Fontana	1/6/2017	8/5/2019	8/5/2024	\$500,000.00	\$0.00	Enhance an Existing Class 1 Bikeway	\$500,000.00	No
ML16057	City of Yucaipa	4/27/2016	1/26/2019	1/26/2024	\$380,000.00	\$0.00	Implement a "Complete Streets" Pedestrian	\$380,000.00	No
ML16075	City of San Fernando	10/27/2016	2/26/2019	8/26/2024	\$354,000.00	\$0.00	Install a Class 1 Bikeway	\$354,000.00	No
ML16077	City of Rialto	5/3/2018	10/2/2021	2/2/2026	\$463,216.00	\$218,708.00	Pedestrian Access Improvements, Bicycle L	\$244,508.00	No
MS16094	Riverside County Transportation Co	1/25/2017	1/24/2022	2/24/2024	\$1,909,241.00	\$1,635,864.00	MetroLink First Mile/Last Mile Mobility Strate	\$273,377.00	No
MS16121	Long Beach Transit	11/3/2017	4/2/2024	11/30/2028	\$600,000.00	\$570,000.00	Repower 39 and Purchase 1 New Transit Bu	\$30,000.00	No

Total: 9

Declined/Cancelled Contracts

ML16014	City of Dana Point				\$153,818.00	\$0.00	Extend an Existing Class 1 Bikeway	\$153,818.00	No
ML16065	City of Temple City				\$500,000.00	\$0.00	Implement a "Complete Streets" Pedestrian	\$500,000.00	No
ML16067	City of South El Monte				\$73,329.00	\$0.00	Implement an "Open Streets" Event	\$73,329.00	No
ML16074	City of La Verne	7/22/2016	1/21/2023		\$365,000.00	\$0.00	Install CNG Fueling Station	\$365,000.00	No
MS16043	LBA Realty Company LLC				\$100,000.00	\$0.00	Install Limited-Access CNG Station	\$100,000.00	No
MS16080	Riverside County Transportation Co				\$1,200,000.00	\$0.00	Passenger Rail Service for Coachella and St	\$1,200,000.00	No
MS16098	Long Beach Transit				\$198,957.00	\$0.00	Provide Special Bus Service to Stub Hub Ce	\$198,957.00	No
MS16104	City of Perris				\$175,000.00	\$0.00	Expansion of Existing CNG Infrastructure	\$175,000.00	No
MS16106	City of Lawndale	3/1/2019	11/30/2025		\$175,000.00	\$0.00	Expansion of Existing CNG Infrastructure	\$175,000.00	No
MS16107	Athens Services				\$100,000.00	\$0.00	Construct a Limited-Access CNG Station	\$100,000.00	No
MS16108	VNG 5703 Gage Avenue, LLC				\$150,000.00	\$0.00	Construct Public-Access CNG Station in Bell	\$150,000.00	No
MS16109	Sanitation Districts of Los Angeles C				\$275,000.00	\$0.00	Expansion of an Existing L/CNG Station	\$275,000.00	No
MS16111	VNG 925 Lakeview Avenue, LLC				\$150,000.00	\$0.00	Construct Public Access CNG Station in Pla	\$150,000.00	No

Total: 13

Closed Contracts

ML16006	City of Cathedral City	4/27/2016	4/26/2022	4/26/2023	\$25,000.00	\$25,000.00	Bicycle Outreach	\$0.00	Yes
ML16007	City of Culver City Transportation De	10/6/2015	4/5/2023		\$246,000.00	\$246,000.00	Purchase 7 H.D. Nat. Gas Vehicles, EV Cha	\$0.00	Yes
ML16009	City of Fountain Valley	10/6/2015	2/5/2018	5/5/2019	\$46,100.00	\$46,100.00	Install EV Charging Infrastructure	\$0.00	Yes
ML16011	City of Claremont	10/6/2015	6/5/2022		\$90,000.00	\$90,000.00	Purchase 3 Heavy-Duty Nat. Gas Vehicles	\$0.00	Yes
ML16012	City of Carson	1/15/2016	10/14/2022		\$60,000.00	\$60,000.00	Purchase 2 Heavy-Duty Nat. Gas Vehicles	\$0.00	Yes
ML16015	City of Yorba Linda	3/4/2016	11/3/2017		\$85,000.00	\$85,000.00	Install Bicycle Lanes	\$0.00	Yes
ML16016	City of Los Angeles Dept of General	2/5/2016	12/4/2022		\$630,000.00	\$630,000.00	Purchase 21 Heavy-Duty Nat. Gas Vehicles	\$0.00	Yes
ML16018	City of Hermosa Beach	10/7/2016	1/6/2023		\$29,520.00	\$23,768.44	Purchase 2 M.D. Nat. Gas Vehicles, Bicycle	\$5,751.56	Yes

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
ML16019	City of Los Angeles, Dept of General	1/25/2017	3/24/2023		\$102,955.00	\$102,955.00	Install EV Charging Infrastructure	\$0.00	Yes
ML16020	City of Pomona	4/1/2016	2/1/2018	8/1/2018	\$440,000.00	\$440,000.00	Install Road Surface Bicycle Detection Syste	\$0.00	Yes
ML16023	City of Banning	12/11/2015	12/10/2021		\$30,000.00	\$30,000.00	Purchase 1 H.D. Nat. Gas Vehicle	\$0.00	Yes
ML16024	City of Azusa	4/27/2016	2/26/2022		\$30,000.00	\$30,000.00	Purchase 1 H.D. Nat. Gas Vehicle	\$0.00	Yes
ML16026	City of Downey	5/6/2016	9/5/2017		\$40,000.00	\$40,000.00	Install EV Charging Infrastructure	\$0.00	Yes
ML16027	City of Whittier	1/8/2016	11/7/2022		\$30,000.00	\$30,000.00	Purchase 1 H.D. Nat. Gas Vehicle	\$0.00	Yes
ML16028	City of Azusa	9/9/2016	4/8/2018		\$25,000.00	\$25,000.00	Enhance Existing Class 1 Bikeway	\$0.00	Yes
ML16031	City of Cathedral City	12/19/2015	2/18/2017		\$25,000.00	\$25,000.00	Street Sweeping in Coachella Valley	\$0.00	Yes
ML16032	City of Azusa	9/9/2016	4/8/2019	4/8/2021	\$474,925.00	\$474,925.00	Implement a "Complete Streets" Pedestrian	\$0.00	Yes
ML16033	Coachella Valley Association of Gov	4/27/2016	4/26/2018		\$250,000.00	\$250,000.00	Street Sweeping Operations in Coachella Va	\$0.00	Yes
ML16034	City of Riverside	3/11/2016	10/10/2018	7/10/2020	\$500,000.00	\$500,000.00	Implement a "Complete Streets" Pedestrian	\$0.00	Yes
ML16036	City of Brea	3/4/2016	12/3/2018		\$500,000.00	\$500,000.00	Install a Class 1 Bikeway	\$0.00	Yes
ML16037	City of Rancho Cucamonga	2/5/2016	11/4/2022		\$30,000.00	\$30,000.00	Purchase One Heavy-Duty Natural Gas Vehi	\$0.00	Yes
ML16038	City of Palm Springs	4/1/2016	7/31/2022	9/30/2022	\$170,000.00	\$60,000.00	Install Bicycle Lanes & Purchase 2 Heavy-D	\$110,000.00	Yes
ML16042	City of San Dimas	4/1/2016	12/31/2019	12/31/2021	\$55,000.00	\$55,000.00	Install EV Charging Infrastructure	\$0.00	No
ML16045	City of Anaheim	6/22/2016	8/21/2019		\$275,000.00	\$255,595.08	Maintenance Facility Modifications	\$19,404.92	Yes
ML16046	City of El Monte	4/1/2016	5/31/2021	5/31/2023	\$20,160.00	\$14,637.50	Install EV Charging Infrastructure	\$5,522.50	Yes
ML16049	City of Buena Park	4/1/2016	11/30/2018		\$429,262.00	\$429,262.00	Installation of a Class 1 Bikeway	\$0.00	Yes
ML16050	City of Westminster	5/6/2016	7/5/2020	5/5/2022	\$115,000.00	\$93,925.19	Installation of EV Charging Infrastructure	\$21,074.81	Yes
ML16051	City of South Pasadena	2/12/2016	1/11/2017	12/11/2017	\$320,000.00	\$258,691.25	Implement "Open Streets" Event with Variou	\$61,308.75	Yes
ML16052	City of Rancho Cucamonga	9/3/2016	11/2/2019	3/31/2021	\$315,576.00	\$305,576.00	Install Two Class 1 Bikeways	\$10,000.00	Yes
ML16053	City of Claremont	3/11/2016	7/10/2018	12/10/2020	\$498,750.00	\$498,750.00	Implement a "Complete Streets" Pedestrian	\$0.00	Yes
ML16054	City of Yucaipa	3/26/2016	7/26/2018	10/25/2019	\$120,000.00	\$120,000.00	Implement a "Complete Streets" Pedestrian	\$0.00	Yes
ML16055	City of Ontario	5/6/2016	5/5/2022		\$270,000.00	\$270,000.00	Purchase Nine Heavy-Duty Natural-Gas Veh	\$0.00	Yes
ML16056	City of Ontario	3/23/2016	9/22/2020	9/22/2021	\$106,565.00	\$106,565.00	Expansion of an Existing CNG Station	\$0.00	Yes
ML16059	City of Burbank	4/1/2016	2/28/2022		\$180,000.00	\$180,000.00	Purchase 6 H.D. Nat. Gas Vehicles	\$0.00	Yes
ML16060	City of Cudahy	2/5/2016	10/4/2017		\$73,910.00	\$62,480.00	Implement an "Open Streets" Event	\$11,430.00	Yes
ML16061	City of Murrieta	4/27/2016	1/26/2020		\$11,642.00	\$9,398.36	Installation of EV Charging Infrastructure	\$2,243.64	Yes
ML16062	City of Colton	6/3/2016	7/2/2020		\$21,003.82	\$21,003.82	Installation of EV Charging Infrastructure	\$0.00	Yes
ML16063	City of Glendora	3/4/2016	4/3/2022		\$30,000.00	\$30,000.00	Purchase One H.D. Nat. Gas Vehicle	\$0.00	Yes
ML16064	County of Orange, OC Parks	2/21/2017	10/20/2018		\$204,073.00	\$157,632.73	Implement "Open Streets" Events with Vario	\$46,440.27	Yes
ML16066	City of Long Beach Public Works	1/13/2017	9/12/2018		\$75,050.00	\$63,763.62	Implement an "Open Streets" Event	\$11,286.38	Yes
ML16068	Riverside County Dept of Public Heal	12/2/2016	8/1/2018		\$171,648.00	\$171,648.00	Implement "Open Streets" Events with Vario	\$0.00	Yes
ML16069	City of West Covina	3/10/2017	6/9/2021		\$54,199.00	\$54,199.00	Installation of EV Charging Infrastructure	\$0.00	Yes
ML16070	City of Beverly Hills	2/21/2017	6/20/2023		\$90,000.00	\$90,000.00	Purchase 3 H.D. Nat. Gas Vehicles	\$0.00	Yes
ML16071	City of Highland	5/5/2017	1/4/2020	1/4/2023	\$264,500.00	\$264,500.00	Implement a "Complete Streets" Pedestrian	\$0.00	Yes
ML16072	City of Palm Desert	3/4/2016	1/4/2020	1/3/2022	\$56,000.00	\$56,000.00	Installation of EV Charging Infrastructure	\$0.00	Yes

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
ML16073	City of Long Beach Public Works	1/13/2017	7/12/2017		\$50,000.00	\$50,000.00	Implement an "Open Streets" Event	\$0.00	Yes
ML16076	City of San Fernando	2/21/2017	8/20/2021		\$43,993.88	\$43,993.88	Install EV Charging Infrastructure	\$0.00	Yes
ML16078	City of Moreno Valley	5/6/2016	11/5/2017	5/5/2018	\$32,800.00	\$31,604.72	Install Bicycle Infrastructure & Implement Bi	\$1,195.28	Yes
ML16079	City of Yucaipa	4/1/2016	3/31/2020		\$5,000.00	\$5,000.00	Purchase Electric Lawnmower	\$0.00	Yes
ML16083	City of El Monte	4/1/2016	4/30/2021	4/30/2023	\$57,210.00	\$25,375.60	Install EV Charging Infrastructure	\$31,834.40	Yes
ML16122	City of Wildomar	6/8/2018	6/7/2019		\$500,000.00	\$500,000.00	Install Bicycle Lanes	\$0.00	Yes
ML16126	City of Palm Springs	7/31/2019	7/30/2020	10/30/2020	\$22,000.00	\$19,279.82	Install Bicycle Racks, and Implement Bicycle	\$2,720.18	Yes
MS16001	Los Angeles County MTA	4/1/2016	4/30/2017		\$1,350,000.00	\$1,332,039.84	Clean Fuel Transit Service to Dodger Stadiu	\$17,960.16	Yes
MS16002	Orange County Transportation Autho	10/6/2015	5/31/2016		\$722,266.00	\$703,860.99	Clean Fuel Transit Service to Orange Count	\$18,405.01	Yes
MS16003	Special Olympics World Games Los	10/9/2015	12/30/2015		\$380,304.00	\$380,304.00	Low-Emission Transportation Service for Sp	\$0.00	Yes
MS16004	Mineral LLC	9/4/2015	7/3/2017	1/3/2018	\$27,690.00	\$9,300.00	Design, Develop, Host and Maintain MSRC	\$18,390.00	Yes
MS16029	Orange County Transportation Autho	1/12/2018	6/11/2020		\$836,413.00	\$567,501.06	TCM Partnership Program - OC Bikeways	\$268,911.94	Yes
MS16030	Better World Group Advisors	12/19/2015	12/31/2017	12/31/2019	\$271,619.00	\$245,355.43	Programmic Outreach Services to the MSR	\$26,263.57	Yes
MS16081	EDCO Disposal Corporation	3/4/2016	10/3/2022		\$150,000.00	\$150,000.00	Expansion of Existing Public Access CNG St	\$0.00	Yes
MS16084	Transit Systems Unlimited, Inc.	5/6/2016	2/28/2018		\$565,600.00	\$396,930.00	Implement Special Shuttle Service from Uni	\$168,670.00	Yes
MS16085	Southern California Regional Rail Au	3/11/2016	9/30/2016		\$78,033.00	\$64,285.44	Special MetroLink Service to Autoclub Spee	\$13,747.56	Yes
MS16086	San Bernardino County Transportatio	9/3/2016	10/2/2021		\$800,625.00	\$769,021.95	Freeway Service Patrols	\$31,603.05	Yes
MS16087	Burrtec Waste & Recycling Services,	7/8/2016	3/7/2023		\$100,000.00	\$100,000.00	Construct New Limited-Access CNG Station	\$0.00	Yes
MS16088	Transit Systems Unlimited, Inc.	5/12/2017	1/11/2023		\$17,000.00	\$17,000.00	Expansion of Existing CNG Station	\$0.00	Yes
MS16089	Orange County Transportation Autho	7/8/2016	4/30/2017		\$128,500.00	\$128,500.00	Implement Special Bus Service to Angel Sta	\$0.00	Yes
MS16092	San Bernardino County Transportatio	2/3/2017	1/2/2019		\$242,937.00	\$242,016.53	Implement a Series of "Open Streets" Event	\$920.47	Yes
MS16093	Orange County Transportation Autho	9/3/2016	3/2/2018	9/2/2018	\$1,553,657.00	\$1,499,575.85	Implement a Mobile Ticketing System	\$54,081.15	Yes
MS16095	Orange County Transportation Autho	7/22/2016	5/31/2017		\$694,645.00	\$672,864.35	Implement Special Bus Service to Orange C	\$21,780.65	Yes
MS16096	San Bernardino County Transportatio	10/27/2016	12/26/2019	6/30/2021	\$450,000.00	\$450,000.00	EV Charging Infrastructure	\$0.00	Yes
MS16097	Walnut Valley Unified School District	10/7/2016	11/6/2022		\$250,000.00	\$250,000.00	Expand CNG Station & Modify Maintenance	\$0.00	Yes
MS16099	Foothill Transit	3/3/2017	3/31/2017		\$50,000.00	\$50,000.00	Provide Special Bus Service to the Los Ange	\$0.00	Yes
MS16100	Southern California Regional Rail Au	5/5/2017	9/30/2017		\$80,455.00	\$66,169.43	Provide Metrolink Service to Autoclub Speed	\$14,285.57	Yes
MS16102	Nasa Services, Inc.	2/21/2017	4/20/2023		\$100,000.00	\$100,000.00	Construct a Limited-Access CNG Station	\$0.00	Yes
MS16103	Arrow Services, Inc.	2/3/2017	4/2/2023		\$100,000.00	\$100,000.00	Construct a Limited-Access CNG Station	\$0.00	Yes
MS16116	Riverside Transit Agency	3/3/2017	1/2/2023		\$10,000.00	\$9,793.00	Purchase One Transit Bus	\$207.00	Yes
MS16117	Omnitrans	4/21/2017	6/20/2023		\$175,000.00	\$175,000.00	Expansion of Existing CNG Infrastructure	\$0.00	Yes
MS16118	Omnitrans	4/21/2017	6/20/2023		\$175,000.00	\$175,000.00	Expansion of Existing CNG Infrastructure	\$0.00	Yes
MS16119	Omnitrans	4/21/2017	8/20/2022		\$150,000.00	\$0.00	New Public Access CNG Station	\$150,000.00	No
MS16124	Riverside County Transportation Co	12/14/2018	12/14/2019	5/14/2020	\$253,239.00	\$246,856.41	Extended Freeway Service Patrols	\$6,382.59	Yes
MS16125	San Bernardino County Transportatio	9/20/2019	11/19/2020		\$1,000,000.00	\$1,000,000.00	Traffic Signal Synchronization Projects	\$0.00	Yes
MS16127	Los Angeles County MTA	6/29/2021		6/28/2022	\$2,500,000.00	\$2,500,000.00	Expansion of the Willowbrook/Rosa Parks Tr	\$0.00	Yes

Total: 81

[illegible]

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
FY 2016-2018 Contracts									
Open Contracts									
ML18031	City of Diamond Bar	9/7/2018	11/6/2025	11/6/2027	\$58,930.00	\$38,930.00	Install EVSE, Purchase up to 2-LD Vehicles	\$20,000.00	No
ML18050	City of Irvine	9/7/2018	8/6/2028		\$330,490.00	\$0.00	Purchase 1 Medium/Heavy-Duty ZEV and In	\$330,490.00	No
ML18051	City of Rancho Cucamonga	3/1/2019	10/31/2025	4/30/2027	\$91,500.00	\$82,500.00	Purchase 6 Light-Duty ZEVs, Install 3 Limite	\$9,000.00	No
ML18055	City of Long Beach	11/29/2018	11/28/2026	11/28/2028	\$622,220.00	\$302,401.53	Install EV Charging Stations	\$319,818.47	No
ML18057	City of Carson	10/5/2018	7/4/2023	12/15/2026	\$106,250.00	\$50,000.00	Purchase 5 Zero-Emission Vehicles and Infr	\$56,250.00	No
ML18060	County of Los Angeles Internal Servi	10/5/2018	8/4/2026	8/4/2028	\$1,367,610.00	\$724,868.96	Purchase 29 Light-Duty Zero Emission Vehi	\$642,741.04	No
ML18063	City of Riverside	6/7/2019	1/6/2027	3/6/2028	\$50,000.00	\$0.00	Expand Existing CNG Station	\$50,000.00	No
ML18067	City of Pico Rivera	9/7/2018	11/6/2022	12/6/2027	\$83,500.00	\$0.00	Install EVSE	\$83,500.00	No
ML18068	City of Mission Viejo	7/31/2019	6/30/2027		\$86,940.00	\$20,000.00	Purchase 2 Light-Duty ZEVs & Install EVSE	\$66,940.00	No
ML18069	City of Torrance	3/1/2019	7/31/2027	12/31/2028	\$187,400.00	\$100,000.00	Purchase 4 Heavy-Duty Near-Zero Emission	\$87,400.00	No
ML18078	County of Riverside	10/5/2018	10/4/2028		\$375,000.00	\$300,000.00	Purchase 15 Heavy-Duty Vehicles	\$75,000.00	No
ML18082	City of Los Angeles Bureau of Sanita	8/30/2019	8/29/2028	8/29/2029	\$900,000.00	\$0.00	Purchase Medium-Duty Vehicles and EV Ch	\$900,000.00	No
ML18084	City of South El Monte	10/18/2019	9/17/2023	3/30/2028	\$30,000.00	\$0.00	EV Charging Infrastructure	\$30,000.00	No
ML18091	City of Temecula	1/19/2019	7/18/2023	3/18/2026	\$141,000.00	\$0.00	Install Sixteen EV Charging Stations	\$141,000.00	No
ML18092	City of South Pasadena	2/1/2019	1/31/2025	4/30/2027	\$50,000.00	\$20,000.00	Procure Two Light-Duty ZEVs and Install EV	\$30,000.00	No
ML18094	City of Laguna Woods	7/12/2019	12/11/2024	10/11/2026	\$50,000.00	\$0.00	Install Two EV Charging Stations	\$50,000.00	No
ML18129	City of Yucaipa	12/14/2018	3/13/2023	9/13/2027	\$63,097.00	\$0.00	Install Six EV Charging Stations	\$63,097.00	No
ML18134	City of Los Angeles Dept of General	5/3/2019	5/2/2028		\$116,000.00	\$0.00	Purchase Two Medium-Duty ZEVs	\$116,000.00	No
ML18135	City of Azusa	12/6/2019	12/5/2029		\$55,000.00	\$0.00	Purchase Three Light-Duty ZEVs and One H	\$55,000.00	No
ML18145	City of Los Angeles Dept of Transpor	1/10/2020	4/9/2027	4/9/2028	\$1,400,000.00	\$0.00	Provide One Hundred Rebates to Purchaser	\$1,400,000.00	No
ML18146	City of South Gate	3/1/2019	11/30/2023	11/30/2026	\$127,400.00	\$127,400.00	Purchase Five Light-Duty ZEVs and Install S	\$0.00	No
ML18147	City of Palm Springs	1/10/2019	1/9/2024	7/9/2026	\$60,000.00	\$0.00	Install Eighteen EV Charging Stations	\$60,000.00	No
ML18148	City of San Dimas	1/21/2022	5/20/2023	5/20/2024	\$50,000.00	\$0.00	Implement Bicycle Detection Measures	\$50,000.00	No
ML18151	County of San Bernardino Departme	8/25/2020	10/24/2029		\$200,000.00	\$150,000.00	Purchase Eight Heavy-Duty Near Zero Emis	\$50,000.00	No
ML18152	County of San Bernardino Flood Con	8/11/2020	10/10/2029		\$108,990.00	\$75,000.00	Purchase Five Heavy-Duty Near Zero Emissi	\$33,990.00	No
ML18166	City of Placentia	2/18/2021	5/17/2027		\$25,000.00	\$0.00	Purchase One Heavy-Duty Near-Zero Emiss	\$25,000.00	No
ML18178	City of La Puente	11/1/2019	11/30/2025	11/30/2028	\$25,000.00	\$0.00	Purchase One Heavy-Duty Near-Zero Emiss	\$25,000.00	No
ML18185	City of Wildomar	10/19/2023	10/18/2024		\$25,000.00	\$0.00	Install Bicycle Trail	\$25,000.00	No
MS18015	Southern California Association of G	7/13/2018	2/28/2021	11/30/2023	\$2,000,000.00	\$1,585,466.77	Southern California Future Communities Par	\$414,533.23	No
MS18024	Riverside County Transportation Co	6/28/2018	8/27/2021	8/31/2024	\$1,500,000.00	\$1,013,960.00	Vanpool Incentive Program	\$486,040.00	No
MS18027	City of Gardena	11/2/2018	9/1/2026	1/1/2029	\$365,000.00	\$0.00	Install New Limited Access CNG, Modify Mai	\$365,000.00	No
MS18065	San Bernardino County Transportatio	3/29/2019	8/28/2023	3/28/2024	\$2,000,000.00	\$2,000,000.00	Implement Metrolink Line Fare Discount Pro	\$0.00	Yes
MS18106	R.F. Dickson Co., Inc.	7/19/2019	1/18/2026		\$265,000.00	\$250,000.00	Expansion of Existing Infrastructure/Mechani	\$15,000.00	No
MS18181	San Bernardino County Transportatio	4/10/2023	9/9/2030		\$1,662,000.00	\$0.00	Construct Hydrogen Fueling Station	\$1,662,000.00	No

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
MS18182	Air Products and Chemicals Inc.	3/8/2023	2/7/2031		\$1,000,000.00	\$0.00	Install Publicly Accessible Hydrogen Fueling	\$1,000,000.00	No
MS18183	Nikola-TA HRS 1, LLC	9/28/2022	1/27/2030		\$1,660,000.00	\$0.00	Install Publicly Accessible Hydrogen Fueling	\$1,660,000.00	No

Total: 36

Declined/Cancelled Contracts

ML18044	City of Malibu	8/8/2018	10/7/2022	10/7/2023	\$50,000.00	\$0.00	Install EV Charging Infrastructure	\$50,000.00	No
ML18053	City of Paramount	9/7/2018	3/6/2023		\$64,675.00	\$0.00	Install EV Charging Infrastructure	\$64,675.00	No
ML18075	City of Orange				\$25,000.00	\$0.00	One Heavy-Duty Vehicle	\$25,000.00	No
ML18140	City of Bell Gardens	12/14/2018	12/13/2028		\$50,000.00	\$0.00	Purchase Two Heavy-Duty Near-ZEVs	\$50,000.00	No
ML18149	City of Sierra Madre				\$50,000.00	\$0.00	Implement Bike Share Program	\$50,000.00	No
ML18150	City of South El Monte				\$20,000.00	\$0.00	Implement Bike Share Program	\$20,000.00	No
ML18153	City of Cathedral City	5/3/2019	4/2/2025		\$52,215.00	\$0.00	Install EV Charging Infrastructure	\$52,215.00	No
ML18158	City of Inglewood				\$146,000.00	\$0.00	Purchase 4 Light-Duty Zero Emission, 4 Hea	\$146,000.00	No
ML18164	City of Pomona				\$200,140.00	\$0.00	Purchase Three Heavy-Duty ZEVs	\$200,140.00	No
ML18165	City of Baldwin Park	2/1/2019	1/30/2024		\$49,030.00	\$0.00	Expand CNG Station	\$49,030.00	No
ML18172	City of Huntington Park	3/1/2019	2/28/2025		\$65,450.00	\$0.00	Purchase One Heavy-Duty ZEV	\$65,450.00	No
ML18174	City of Bell	11/22/2019	7/21/2026		\$25,000.00	\$0.00	Purchase One Heavy-Duty Near-Zero Emiss	\$25,000.00	No
ML18177	City of San Bernardino	6/7/2019	12/6/2026	12/6/2028	\$279,088.00	\$0.00	Purchase Medium- and Heavy-Duty Evs and	\$279,088.00	No
MS18009	Penske Truck Leasing Co., L.P.	8/8/2018	12/7/2020		\$82,500.00	\$0.00	Modify Maintenance Facility & Train Technici	\$82,500.00	No
MS18013	California Energy Commission				\$3,000,000.00	\$0.00	Advise MSRC and Administer Hydrogen Infr	\$3,000,000.00	No
MS18017	City of Banning				\$225,000.00	\$0.00	Expansion of Existing CNG Infrastructure	\$225,000.00	No
MS18018	City of Norwalk	6/8/2018	9/7/2019		\$75,000.00	\$0.00	Vehicle Maintenance Facility Modifications	\$75,000.00	No
MS18107	Huntington Beach Union High School				\$225,000.00	\$0.00	Expansion of Existing Infrastructure	\$225,000.00	No
MS18109	City of South Gate				\$175,000.00	\$0.00	Install New Limited-Access CNG Infrastructu	\$175,000.00	No
MS18111	Newport-Mesa Unified School Distric				\$175,000.00	\$0.00	Expansion of Existing CNG Infrastructure	\$175,000.00	No
MS18112	Banning Unified School District	11/29/2018	11/28/2024	11/28/2025	\$275,000.00	\$0.00	Install New CNG Infrastructure	\$275,000.00	No
MS18113	City of Torrance				\$100,000.00	\$0.00	Expansion of Existing CNG Infrastructure	\$100,000.00	No
MS18114	Los Angeles County Department of P	11/15/2019	11/14/2026		\$175,000.00	\$0.00	Install New Limited-Access CNG Infrastructu	\$175,000.00	No
MS18116	Los Angeles County Department of P	11/15/2019	11/14/2026		\$175,000.00	\$0.00	Install New Limited-Access CNG Infrastructu	\$175,000.00	No
MS18119	LBA Realty Company XI LP				\$100,000.00	\$0.00	Install New Limited-Access CNG Infrastructu	\$100,000.00	No
MS18121	City of Montebello				\$70,408.00	\$0.00	Expansion of Existing CNG Infrastructure	\$70,408.00	No
MS18175	Regents of the University of Californi	6/7/2019	8/6/2025	8/6/2026	\$1,000,000.00	\$0.00	Expansion of Existing Hydrogen Station	\$1,000,000.00	No
MS18184	Clean Energy				\$1,000,000.00	\$0.00	Install Publicly Accessible Hydrogen Fueling	\$1,000,000.00	No

Total: 28

Closed Contracts

ML18019	City of Hidden Hills	5/3/2018	5/2/2022	5/2/2023	\$49,999.00	\$49,999.00	Purchase Two Light-Duty ZEVs and EVSE	\$0.00	Yes
ML18021	City of Signal Hill	4/6/2018	1/5/2022		\$49,661.00	\$46,079.31	Install EV Charging Stations	\$3,581.69	Yes
ML18022	City of Desert Hot Springs	5/3/2018	1/2/2020	1/2/2021	\$50,000.00	\$50,000.00	Traffic Signal and Synchronization Project	\$0.00	Yes

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
ML18034	City of Calabasas	6/8/2018	3/7/2022	3/7/2023	\$50,000.00	\$50,000.00	Install EVSE	\$0.00	Yes
ML18035	City of Westlake Village	8/8/2018	11/7/2022		\$50,000.00	\$50,000.00	Install EVSE	\$0.00	Yes
ML18040	City of Agoura Hills	7/13/2018	6/12/2022		\$17,914.00	\$17,914.00	Install EV Charging Infrastructure	\$0.00	Yes
ML18042	City of San Fernando	6/28/2018	2/27/2024		\$10,000.00	\$10,000.00	Purchase 1 Light-Duty ZEV	\$0.00	Yes
ML18049	City of Downey	7/6/2018	5/5/2023		\$148,260.00	\$148,116.32	Install EV Charging Stations	\$143.68	Yes
ML18052	City of Garden Grove	8/8/2018	10/7/2022		\$53,593.00	\$46,164.28	Purchase 4 L.D. ZEVs and Infrastructure	\$7,428.72	Yes
ML18054	City of La Habra Heights	8/8/2018	4/7/2022		\$9,200.00	\$9,200.00	Purchase 1 L.D. ZEV	\$0.00	Yes
ML18056	City of Chino	3/29/2019	9/28/2023		\$103,868.00	\$103,868.00	Install EV Charging Infrastructure	\$0.00	Yes
ML18070	City of Lomita	11/29/2018	6/28/2022		\$6,250.00	\$6,250.00	Purchase 1 Light-Duty ZEV	\$0.00	Yes
ML18071	City of Chino Hills	9/7/2018	10/6/2022		\$20,000.00	\$20,000.00	Purchase 2 Light-Duty ZEVs	\$0.00	Yes
ML18076	City of Culver City Transportation De	10/5/2018	10/4/2023		\$1,130.00	\$1,130.00	Purchase Light-Duty ZEV	\$0.00	Yes
ML18077	City of Orange	11/2/2018	10/1/2022		\$59,776.00	\$59,776.00	Four Light-Duty ZEV and EV Charging Infrast	\$0.00	Yes
ML18079	City of Pasadena	12/7/2018	11/6/2023		\$183,670.00	\$183,670.00	EV Charging Infrastructure	\$0.00	Yes
ML18086	City of Los Angeles Bureau of Street	2/8/2019	4/7/2023		\$300,000.00	\$300,000.00	Install Sixty EV Charging Stations	\$0.00	Yes
ML18088	City of Big Bear Lake	11/29/2018	8/28/2020	8/28/2021	\$50,000.00	\$50,000.00	Install Bicycle Trail	\$0.00	Yes
ML18090	City of Santa Clarita	5/9/2019	2/8/2023	2/8/2024	\$122,000.00	\$118,978.52	Install Nine EV Charging Stations	\$3,021.48	Yes
ML18097	City of Temple City	11/29/2018	7/28/2022		\$16,000.00	\$12,000.00	Purchase Two Light-Duty ZEVs	\$4,000.00	Yes
ML18126	City of Lomita	12/7/2018	1/6/2020		\$26,500.00	\$13,279.56	Install bicycle racks and lanes	\$13,220.44	Yes
ML18127	City of La Puente	2/1/2019	2/28/2023		\$10,000.00	\$7,113.70	Purchase Light-Duty Zero Emission Vehicle	\$2,886.30	Yes
ML18128	City of Aliso Viejo	8/30/2019	11/29/2023		\$65,460.00	\$65,389.56	Purchase Two Light-Duty ZEVs and Install S	\$70.44	Yes
ML18130	City of Lake Forest	3/1/2019	9/30/2022		\$106,480.00	\$106,480.00	Install Twenty-One EVSEs	\$0.00	Yes
ML18131	City of Los Angeles, Police Departm	5/3/2019	12/2/2022		\$19,294.00	\$19,294.00	Purchase Three Light-Duty ZEVs	\$0.00	Yes
ML18138	City of La Canada Flintridge	2/8/2019	5/7/2023		\$32,589.00	\$32,588.07	Install Four EVSEs and Install Bicycle Racks	\$0.93	Yes
ML18139	City of Calimesa	8/30/2019	7/29/2020	11/29/2021	\$50,000.00	\$50,000.00	Install Bicycle Lane	\$0.00	Yes
ML18142	City of La Quinta	4/24/2019	2/23/2023	8/23/2023	\$51,780.00	\$51,780.00	Install Two EV Charging Stations	\$0.00	Yes
ML18154	City of Hemet	11/22/2019	9/21/2023	3/21/2024	\$30,000.00	\$30,000.00	Purchase Two Light-Duty ZEVs and EV Cha	\$0.00	Yes
ML18155	City of Claremont	7/31/2019	9/30/2023		\$35,609.00	\$35,608.86	Install EV Charging Infrastructure	\$0.14	Yes
ML18156	City of Covina	2/1/2019	3/31/2023	12/31/2023	\$63,800.00	\$62,713.00	Purchase Four Light-Duty ZEVs and EV Cha	\$1,087.00	Yes
ML18160	City of Irwindale	3/29/2019	12/28/2022		\$14,263.00	\$14,263.00	Purchase Two Light-Duty ZEVs	\$0.00	Yes
ML18173	City of Manhattan Beach	3/29/2019	2/28/2023		\$49,000.00	\$49,000.00	Purchase Two Light-Duty ZEVs and EV Cha	\$0.00	Yes
ML18179	City of Rancho Mirage	8/20/2021	2/19/2022		\$50,000.00	\$50,000.00	Traffic Signal Synchronization	\$0.00	Yes
MS18001	Los Angeles County MTA	6/29/2017	4/30/2018		\$807,945.00	\$652,737.07	Provide Clean Fuel Transit Service to Dodge	\$155,207.93	Yes
MS18002	Southern California Association of G	6/9/2017	11/30/2018	12/30/2021	\$2,500,000.00	\$2,276,272.46	Regional Active Transportation Partnership	\$223,727.54	Yes
MS18003	Geographics	2/21/2017	2/20/2021	6/20/2021	\$72,453.00	\$65,521.32	Design, Host and Maintain MSRC Website	\$6,931.68	Yes
MS18004	Orange County Transportation Autho	8/3/2017	4/30/2019		\$503,272.00	\$456,145.29	Provide Special Rail Service to Angel Stadiu	\$47,126.71	Yes
MS18005	Orange County Transportation Autho	1/5/2018	4/30/2019		\$834,222.00	\$834,222.00	Clean Fuel Bus Service to OC Fair	\$0.00	Yes
MS18006	Anaheim Transportation Network	10/6/2017	2/28/2020		\$219,564.00	\$9,488.22	Implement Anaheim Circulator Service	\$210,075.78	Yes

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
MS18008	Foothill Transit	1/12/2018	3/31/2019		\$100,000.00	\$99,406.61	Special Transit Service to LA County Fair	\$593.39	Yes
MS18010	Southern California Regional Rail Au	12/28/2017	7/31/2019		\$351,186.00	\$275,490.61	Implement Special Metrolink Service to Unio	\$75,695.39	Yes
MS18011	Southern California Regional Rail Au	2/9/2018	6/30/2018		\$239,565.00	\$221,725.12	Special Train Service to Festival of Lights	\$17,839.88	Yes
MS18012	City of Hermosa Beach	2/2/2018	2/1/2024		\$36,000.00	\$36,000.00	Construct New Limited-Access CNG Station	\$0.00	Yes
MS18014	Regents of the University of Californi	10/5/2018	12/4/2019	3/4/2020	\$254,795.00	\$251,455.59	Planning for EV Charging Infrastructure Inve	\$3,339.41	Yes
MS18016	Southern California Regional Rail Au	1/10/2019	3/31/2019		\$87,764.00	\$73,140.89	Special Train Service to Auto Club Speedwa	\$14,623.11	Yes
MS18023	Riverside County Transportation Co	6/28/2018	6/27/2021	3/31/2023	\$500,000.00	\$500,000.00	Weekend Freeway Service Patrols	\$0.00	Yes
MS18025	Los Angeles County MTA	11/29/2018	5/31/2019		\$1,324,560.00	\$961,246.86	Special Bus and Train Service to Dodger Sta	\$363,313.14	Yes
MS18102	Orange County Transportation Autho	10/4/2019	5/31/2020		\$1,146,000.00	\$1,146,000.00	Implement OC Flex Micro-Transit Pilot Proje	\$0.00	Yes
MS18103	Orange County Transportation Autho	2/8/2019	9/7/2020		\$642,000.00	\$613,303.83	Install Hydrogen Detection System	\$28,696.17	Yes
MS18104	Orange County Transportation Autho	2/21/2020	3/31/2021	3/31/2022	\$212,000.00	\$165,235.92	Implement College Pass Transit Fare Subsi	\$46,764.08	Yes
MS18105	Southern California Regional Rail Au	1/10/2019	6/30/2019		\$252,696.00	\$186,830.04	Special Train Service to the Festival of Light	\$65,865.96	Yes
MS18180	Omnitrans	8/4/2022	8/3/2023		\$83,000.00	\$75,000.00	Modify Vehicle Maintenance Facility and Trai	\$8,000.00	Yes

Total: 53

Closed/Incomplete Contracts

ML18083	City of San Fernando	11/2/2018	11/1/2022		\$20,000.00	\$0.00	Implement Traffic Signal Synchronization	\$20,000.00	No
ML18093	City of Monterey Park	2/1/2019	2/28/2026	10/31/2028	\$25,000.00	\$0.00	Purchase Heavy-Duty Near-ZEV	\$25,000.00	No
ML18133	City of Rancho Mirage	12/7/2018	11/6/2020		\$50,000.00	\$0.00	Traffic Signal Synchronization	\$50,000.00	No
ML18137	City of Wildomar	3/1/2019	5/31/2021	12/1/2022	\$50,000.00	\$0.00	Install Bicycle Trail	\$50,000.00	No
ML18167	City of Beverly Hills	3/29/2019	6/28/2025		\$50,000.00	\$0.00	Purchase Two Heavy-Duty Near-Zero Emiss	\$50,000.00	No
ML18168	City of Maywood	3/29/2019	11/28/2022		\$7,059.00	\$0.00	Purchase EV Charging Infrastructure	\$7,059.00	No
MS18026	Omnitrans	10/5/2018	1/4/2020		\$83,000.00	\$0.00	Modify Vehicle Maintenance Facility and Trai	\$83,000.00	No
MS18118	City of Beverly Hills	3/29/2019	7/28/2025		\$85,272.00	\$0.00	Expansion of Existing CNG Infrastructure	\$85,272.00	No

Total: 8

Open/Complete Contracts

ML18020	City of Colton	5/3/2018	4/2/2024	4/2/2027	\$67,881.00	\$67,881.00	Purchase One Medium-Duty and One Heavy	\$0.00	Yes
ML18028	City of Artesia	6/28/2018	3/27/2025		\$50,000.00	\$50,000.00	Install EVSE	\$0.00	Yes
ML18030	City of Grand Terrace	6/28/2018	3/27/2022	3/27/2025	\$45,000.00	\$45,000.00	Install EVSE	\$0.00	Yes
ML18032	City of Arcadia	2/1/2019	4/30/2025		\$24,650.00	\$24,650.00	Purchase 1 Heavy-Duty Near-ZEV	\$0.00	Yes
ML18033	City of Duarte	8/8/2018	2/7/2025		\$50,000.00	\$50,000.00	Purchase 1-HD ZEV	\$0.00	Yes
ML18036	City of Indian Wells	8/8/2018	5/7/2023	5/7/2026	\$50,000.00	\$50,000.00	Install EV Charging Stations	\$0.00	No
ML18037	City of Westminster	6/28/2018	6/27/2024	12/27/2026	\$120,900.00	\$120,900.00	Install EVSE, Purchase up to 3-LD ZEV & 1-	\$0.00	Yes
ML18038	City of Anaheim	10/5/2018	5/4/2025	5/4/2026	\$151,630.00	\$147,883.27	Purchase 5 Light-Duty ZEVs and Install EVS	\$3,746.73	Yes
ML18039	City of Redlands	6/28/2018	7/27/2024	1/27/2025	\$63,191.00	\$63,190.33	Purchase 1 Medium/Heavy-Duty ZEV and In	\$0.67	Yes
ML18041	City of West Hollywood	8/8/2018	12/7/2023	6/7/2024	\$50,000.00	\$50,000.00	Install EV Charging Infrastructure	\$0.00	Yes
ML18043	City of Yorba Linda	9/7/2018	12/6/2023	12/6/2024	\$87,990.00	\$87,990.00	Install EV Charging Infrastructure	\$0.00	Yes
ML18045	City of Culver City Transportation De	6/28/2018	6/27/2025		\$51,000.00	\$51,000.00	Purchase Eight Near-Zero Vehicles	\$0.00	Yes

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
ML18046	City of Santa Ana - Public Works Ag	11/9/2018	7/8/2026		\$385,000.00	\$359,590.75	Purchase 6 Light-Duty ZEVs, 9 Heavy-Duty	\$25,409.25	Yes
ML18047	City of Whittier	8/8/2018	4/7/2026	1/7/2029	\$113,910.00	\$113,910.00	Purchase 5 Heavy-Duty Near-Zero Emission	\$0.00	No
ML18048	City of Lynwood	6/28/2018	10/27/2024		\$93,500.00	\$44,505.53	Purchase Up to 3 Medium-Duty Zero-Emissi	\$48,994.47	Yes
ML18059	City of Glendale Water & Power	2/1/2019	7/31/2026	1/31/2028	\$260,500.00	\$232,315.70	Install Electric Vehicle Charging Infrastructur	\$28,184.30	No
ML18061	City of Moreno Valley	4/9/2019	2/8/2025		\$25,000.00	\$25,000.00	Purchase 1 Heavy-Duty Near-ZEV	\$0.00	Yes
ML18062	City of Beaumont	8/8/2018	9/7/2024		\$25,000.00	\$25,000.00	Purchase 1 Heavy-Duty Near-ZEV	\$0.00	Yes
ML18064	City of Eastvale	11/29/2018	4/28/2026	4/28/2029	\$80,400.00	\$61,462.40	Purchase 2 Light-Duty, One Medium-Duty. Z	\$18,937.60	No
ML18072	City of Anaheim	12/18/2018	11/17/2026		\$239,560.00	\$239,560.00	Purchase 9 Light-Duty ZEVs & 2 Med/Hvy-D	\$0.00	Yes
ML18074	City of Buena Park	12/14/2018	6/13/2026		\$107,960.00	\$107,960.00	EV Charging Infrastructure	\$0.00	Yes
ML18080	City of Santa Monica	1/10/2019	12/9/2023	9/9/2025	\$44,289.00	\$44,288.92	Install EV Charging Stations	\$0.08	Yes
ML18081	City of Beaumont	10/5/2018	10/4/2022	10/4/2025	\$31,870.00	\$31,870.00	EV Charging Infrastructure	\$0.00	Yes
ML18085	City of Orange	4/12/2019	10/11/2026		\$50,000.00	\$50,000.00	Purchase Two Heavy-Duty Near-Zero Emiss	\$0.00	Yes
ML18087	City of Murrieta	3/29/2019	3/28/2025		\$143,520.00	\$143,520.00	Install Four EV Charging Stations	\$0.00	Yes
ML18089	City of Glendora	7/19/2019	4/18/2025	10/18/2028	\$50,760.00	\$50,760.00	Purchase a Heavy-Duty ZEV	\$0.00	Yes
ML18095	City of Gardena	11/9/2018	12/8/2024		\$25,000.00	\$25,000.00	Purchase Heavy-Duty Near-ZEV	\$0.00	Yes
ML18096	City of Highland	12/13/2019	8/12/2024		\$10,000.00	\$9,918.84	Purchase Light-Duty Zero Emission Vehicle	\$81.16	Yes
ML18098	City of Redondo Beach	2/1/2019	3/31/2023	3/31/2025	\$89,400.00	\$89,400.00	Install Six EV Charging Stations	\$0.00	Yes
ML18099	City of Laguna Hills	3/1/2019	5/31/2023	9/30/2024	\$32,250.00	\$32,250.00	Install EV Charging Stations	\$0.00	Yes
ML18100	City of Brea	10/29/2020	12/28/2024	12/31/2025	\$56,500.00	\$56,500.00	Install Twenty-Four Level II EV Charging Sta	\$0.00	Yes
ML18101	City of Burbank	2/1/2019	4/30/2024	10/30/2024	\$137,310.00	\$137,310.00	Install Twenty EV Charging Stations	\$0.00	No
ML18132	City of Montclair	4/5/2019	9/4/2023	9/4/2026	\$40,000.00	\$40,000.00	Install Eight EV Chargers	\$0.00	Yes
ML18136	City of Orange	4/12/2019	8/11/2024		\$40,000.00	\$40,000.00	Purchase Four Light-Duty Zero Emission Ve	\$0.00	Yes
ML18141	City of Rolling Hills Estates	2/14/2020	1/13/2024	4/13/2026	\$40,000.00	\$40,000.00	Purchase One Light-Duty ZEV and Install Se	\$0.00	Yes
ML18143	City of La Habra	10/18/2019	9/17/2025	9/17/2027	\$80,700.00	\$80,700.00	Install Two EV Charging Stations	\$0.00	Yes
ML18144	City of Fontana Public Works	10/4/2019	12/3/2023	12/31/2025	\$269,090.00	\$269,090.00	Install Twelve EVSEs	\$0.00	No
ML18157	City of Los Angeles Bureau of Street	6/21/2019	5/20/2027		\$85,000.00	\$85,000.00	Purchase One Medium-Duty ZEV	\$0.00	Yes
ML18159	City of Rialto	12/13/2019	5/12/2024	9/19/2025	\$135,980.00	\$106,597.86	Purchase Nine Light-Duty ZEVs and EV Cha	\$29,382.14	No
ML18161	City of Indio	5/3/2019	10/2/2025		\$25,000.00	\$25,000.00	Purchase 1 Light-Duty Zero Emission and E	\$0.00	Yes
ML18162	City of Costa Mesa	1/10/2020	7/9/2026		\$148,210.00	\$148,210.00	Purchase Three Light-Duty ZEVs and EV Ch	\$0.00	Yes
ML18163	City of San Clemente	3/8/2019	12/7/2024	12/7/2025	\$75,000.00	\$70,533.75	Purchase Three Light-Duty ZEVs and EV Ch	\$4,466.25	Yes
ML18169	City of Alhambra	6/14/2019	8/13/2024		\$111,980.00	\$111,980.00	Install EV Charging Infrastructure	\$0.00	Yes
ML18170	City of Laguna Niguel	1/10/2020	8/9/2028		\$75,100.00	\$75,100.00	Purchase One Light-Duty ZEV and EV Char	\$0.00	No
ML18171	City of El Monte	3/1/2019	4/30/2025		\$68,079.00	\$68,077.81	Purchase One Heavy-Duty ZEVs and EV Ch	\$1.19	Yes
ML18176	City of Coachella	3/1/2019	11/30/2024		\$58,020.00	\$58,020.00	Install EV Charging Stations	\$0.00	Yes
MS18066	El Dorado National	12/6/2019	2/5/2026		\$100,000.00	\$100,000.00	Install New Limited-Access CNG Station	\$0.00	Yes
MS18073	Los Angeles County MTA	1/10/2019	2/9/2026		\$2,000,000.00	\$2,000,000.00	Purchase 40 Zero-Emission Transit Buses	\$0.00	Yes
MS18108	Capistrano Unified School District	2/1/2019	5/30/2025	9/30/2026	\$111,750.00	\$111,750.00	Expansion of Existing Infrastructure	\$0.00	Yes

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
MS18110	Mountain View Unified School Distric	2/1/2019	3/31/2025		\$275,000.00	\$61,747.29	Install New Limited-Access CNG Infrastructu	\$213,252.71	No
MS18115	City of Commerce	6/7/2019	12/6/2025	7/6/2026	\$275,000.00	\$275,000.00	Expansion of Existing L/CNG Infrastructure	\$0.00	No
MS18117	City of San Bernardino	6/7/2019	11/6/2025		\$240,000.00	\$240,000.00	Expansion of Existing CNG Infrastructure/Me	\$0.00	Yes
MS18120	City of Redondo Beach	2/1/2019	9/30/2025		\$275,000.00	\$275,000.00	Install New Limited-Access CNG Infrastructu	\$0.00	Yes
MS18122	Universal Waste Systems, Inc.	2/1/2019	3/31/2025	7/31/2027	\$195,000.00	\$195,000.00	Install New Limited Access CNG Infrastructu	\$0.00	Yes
MS18123	City Rent A Bin DBA Serv-Wel Dispo	12/14/2018	2/13/2025		\$200,000.00	\$200,000.00	Install New Limited-Access CNG Infrastructu	\$0.00	Yes
MS18124	County Sanitation Districts of Los An	7/31/2019	2/28/2027		\$275,000.00	\$275,000.00	Install New Limited-Access CNG Infrastructu	\$0.00	Yes
MS18125	U.S. Venture	5/9/2019	8/8/2025		\$200,000.00	\$200,000.00	Install New Limited-Access CNG Infrastructu	\$0.00	Yes
Total: 57									

Terminated Contracts

ML18058	City of Perris	10/12/2018	11/11/2024	11/11/2028	\$94,624.00	\$0.00	Purchase 1 Medium-Duty ZEV and EV Char	\$94,624.00	No
MS18029	Irvine Ranch Water District	8/8/2018	10/7/2024	1/7/2029	\$185,000.00	\$0.00	Install New Limited Access CNG Station & T	\$185,000.00	No

Total: 2

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
--------	------------	------------	----------------------	---------------------	-------------------	----------	---------------------	------------------	----------------------

FY 2018-2021 Contracts

Open Contracts

MS21002	Better World Group Advisors	11/1/2019	12/31/2022	12/31/2024	\$448,154.00	\$218,476.80	Programmatic Outreach Services	\$229,677.20	No
MS21005	Southern California Association of G	5/5/2021	1/31/2024	7/31/2025	\$16,751,000.00	\$132,085.88	Implement Last Mile Goods Movement Progr	\$16,618,914.12	No
MS21006	Geographics	4/1/2021	6/20/2023	6/20/2025	\$20,152.00	\$13,472.50	Hosting & Maintenance of the MSRC Websit	\$6,679.50	No
MS21009	ITS Technologies & Logistics, LLC	7/15/2022	7/14/2028		\$1,686,900.00	\$168,690.00	Deploy 12 Zero-Emission Yard Tractors	\$1,518,210.00	No
MS21010	MHX, LLC	9/29/2021	1/28/2028	7/28/2029	\$569,275.00	\$0.00	Deploy One Zero-Emission Overhead Crane	\$569,275.00	No
MS21013	4 Gen Logistics	3/27/2022	5/26/2028		\$7,000,000.00	\$4,567,500.00	Deploy 40 Zero Emssion Trucks	\$2,432,500.00	No
MS21015	Premium Transportation Services, In	9/22/2021	5/21/2027	1/2/2028	\$1,500,000.00	\$1,334,758.50	Deploy up to 15 Near-Zero Emissions Truck	\$165,241.50	No
MS21016	Ryder Integrated Logistics, Inc.	12/7/2022	4/6/2029		\$3,169,746.00	\$0.00	Procure Two Integrated Power Centers and	\$3,169,746.00	No
MS21017	MHX, LLC	9/29/2021	9/28/2030		\$1,900,000.00	\$1,900,000.00	Deploy up to 10 Zero-Emission Trucks & Infr	\$0.00	No
MS21018	Pac Anchor Transportation, Inc.	8/17/2021	8/16/2027	8/16/2028	\$2,100,000.00	\$1,440,000.00	Deploy up to 21 Near Zero Emission Trucks	\$660,000.00	No
MS21019	Volvo Financial Services	3/31/2022	3/30/2030		\$3,930,270.00	\$2,095,869.15	Lease up to 14 Zero-Emission Trucks and P	\$1,834,400.85	No
MS21023	BNSF Railway Company	4/22/2022	4/21/2028	4/21/2029	\$1,313,100.00	\$0.00	Install EV Charging Infrastructure	\$1,313,100.00	No

Total: 12

Declined/Cancelled Contracts

MS21008	CMA CGM (America) LLC				\$3,000,000.00	\$0.00	Deploy 2 Zero-Emission Rubber Tire Gantry	\$3,000,000.00	No
MS21011	RDS Logistics Group	1/21/2022	7/20/2028		\$808,500.00	\$0.00	Deploy 3 Zero-Emission Yard Tractors and	\$808,500.00	No
MS21012	Amazon Logistics, Inc.				\$4,157,710.00	\$0.00	Deploy up to 10 Zero-Emission and 100 Nea	\$4,157,710.00	No
MS21020	Sea-Logix, LLC				\$2,300,000.00	\$0.00	Deploy up to 23 Near-Zero Emssions Trucks	\$2,300,000.00	No
MS21021	CMA CGM (America) LLC				\$1,946,463.00	\$0.00	Deploy up to 13 Near Zero Emission Trucks	\$1,946,463.00	No
MS21022	Orange County Transportation Autho				\$289,054.00	\$0.00	Implement Special Transit Service to the Or	\$289,054.00	No

Total: 6

Closed Contracts

MS21001	Los Angeles County MTA	8/30/2019	7/29/2020		\$613,752.87	\$613,752.87	Implement Special Transit Service to Dodge	\$0.00	Yes
MS21003	Orange County Transportation Autho	7/8/2020	5/31/2021		\$468,298.00	\$241,150.48	Provide Express Bus Service to the Orange	\$227,147.52	Yes
MS21004	Los Angeles County MTA	1/7/2021	5/31/2023		\$814,822.00	\$326,899.00	Clean Fuel Bus Service to Dodger Stadium	\$487,923.00	Yes

Total: 3

Open/Complete Contracts

MS21007	Penske Truck Leasing Co., L.P.	4/1/2022	3/31/2028		\$957,813.00	\$957,812.40	Deploy 5 Zero-Emission Yard Tractors	\$0.60	Yes
MS21014	Green Fleet Systems, LLC	8/31/2021	8/30/2027	8/30/2028	\$300,000.00	\$300,000.00	Deploy up to 3 Near Zero Emission Trucks	\$0.00	Yes
MS21025	Costco Wholesale Corporation	12/9/2022	12/8/2028		\$160,000.00	\$160,000.00	Install Five EV Charging Units	\$0.00	Yes

Total: 3

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
--------	------------	------------	----------------------	---------------------	-------------------	----------	---------------------	------------------	----------------------

FY 2021-2024 Contracts

Open Contracts

MS24001	Los Angeles County MTA	1/26/2023	5/31/2028		\$1,200,248.00	\$0.00	Provide Clean Fuel Bus Service to Dodger S	\$1,200,248.00	No
MS24002	South Pasadena Police Department	1/16/2024	5/15/2030		\$499,789.00	\$0.00	Procure Zero-Emission Vehicles and Infrastr	\$499,789.00	No
MS24003	Omnitrans	4/15/2024	10/30/2025		\$315,278.00	\$0.00	Bloomington Microtransit Service Expansion	\$315,278.00	No
MS24004	City of Seal Beach	12/21/2023	9/30/2025		\$162,891.00	\$0.00	Circuit Transit Shared Mobility	\$162,891.00	No
MS24006	Anaheim Transportation Network	10/12/2023	5/31/2025		\$322,000.00	\$0.00	Old Towne Orange Microtransit Service	\$322,000.00	No

Total: 5

Pending Execution Contracts

MS24005	City of Huntington Beach				\$279,186.00	\$0.00	Circuit Transit Rideshare Program	\$279,186.00	No
MS24007	City of Gardena				\$475,312.00	\$0.00	Gtrans Microtransit Service	\$475,312.00	No
MS24008	City of Long Beach				\$410,734.00	\$0.00	Circuit Transit Mobility Transit Expansion Pr	\$410,734.00	No

Total: 3



AB2766 Discretionary Fund Program Invoices

3/28/24 to 4/24/24

Contract Admin.	MSRC Chair	MSRC Liaison	Finance	Contract #	Contractor	Invoice #	Amount
2016-2018 Work Program							
4/18/2024	4/18/2024	4/19/2024		ML18068	City of Mission Viejo	2	\$10,000.00
Total: \$10,000.00							
2018-2021 Work Program							
4/18/2024				MS21017	MHX, LLC	20240418	\$190,000.00
4/12/2024				MS21009	ITS Technologies & Logistics, LLC	1	\$168,690.00
4/10/2024				MS21002	Better World Group Advisors	WG-MSRC4	\$4,848.25
4/2/2024				MS21006	Geographics	24-23611	\$373.00
4/2/2024				MS21006	Geographics	24-23612	\$190.75
Total: \$364,102.00							

Total This Period: \$374,102.00



**MOBILE SOURCE AIR POLLUTION REDUCTION REVIEW COMMITTEE
THURSDAY, MARCH 21, 2024 MEETING MINUTES**
21865 Copley Drive, Diamond Bar, CA 91765

Pursuant to Assembly Bill 361 the MSRC meeting was held at 2:00 p.m. on Thursday, January 18, 2024 through a hybrid format of in-person attendance in Conference Room CC-8 at the South Coast AQMD Headquarters, 21865 Copley Drive, Diamond Bar, California, and/or virtual attendance via videoconferencing and by telephone.

MEMBERS PRESENT:

(Vice-Chair) Brian Berkson, representing Riverside County Transportation Commission (RCTC)
William Robertson, representing California Air Resources Board (CARB)
Curt Hagman, representing South Coast AQMD
Patrick Harper, representing Orange County Transportation Authority (OCTA)
Rena Lum (Alt.), representing Los Angeles County Metropolitan Transportation Authority (Metro)
Mark Henderson, representing Southern California Association of Governments (SCAG)

MEMBERS ABSENT:

Chair Lary McCallon, representing San Bernardino County Transportation Authority (SBCTA)
Cindy Allen (Alt.), representing SCAG
Steve Veres, representing Metro
Linda Krupa (Alt.), representing RCTC
John Dutrey (Alt.), representing SBCTA
Peter Christensen (Alt.), representing CARB

MSRC-TAC MEMBERS PRESENT:

Scott Strelecki (Alt.), representing SCAG
Joseph Alcock, representing Cities of Orange County

OTHERS PRESENT:

Kimberly Young, City of Fontana
Katrina Kunkel, City of Yucaipa
Dan Penoyer
Sam Emmersen, Better World Group

Ryan Laws, SCAG
Moses Huert, City of Paramount
Lawrence Brown
Kirk Vyravan

SOUTH COAST AQMD STAFF & CONTRACTORS PRESENT:

Aaron Katzenstein, Deputy Executive Officer
Cynthia Ravenstein, MSRC Contracts Administrator
Daphne Hsu, Principal Deputy District Counsel
Karen Sandoval, Financial Analyst
Kristin Remy, Sr. Administrative Assistant
Lane Garcia, Program Supervisor
Laura Dunlap, Contractor
Maria Allen, Administrative Assistant
Marjorie Eaton, Administrative Assistant
Matt McKenzie, MSRC Contracts Assistant
Mei Wang, Assistant Deputy Executive Officer
Paul Wright, Information Technology Specialist
Ray Gorski, MSRC Technical Advisor-Contractor
Sindy Enriquez, MSRC Contracts Assistant

CALL TO ORDER

- Vice Chair Berkson called the meeting to order at 2:00 p.m.
- Roll call was taken at the start of the meeting.
- Vice Chair Berkson asked for disclosures.

Item No. 3 – MSRC Vice Chair Berkson said he does not have a financial interest in Item No. 3 but is required to identify for the record that he is a Commissioner for RCTC, which is involved in the item.

Items Nos. 3 and 5 – MSRC Member Curt Hagman said he does not have a financial interest in Item No. 3, but is required to identify for the record that he is a Regional Council Member for SCAG, which is involved in the item. In addition, he does not have a financial interest in Item No. 5, but is required to identify for the record that he is a member of SBCTA, which is involved in the item.

Item Nos. 3 and 4 – MSRC Member Mark Henderson said he does not have a financial interest in Item No. 3, but is required to identify for the record that he is a Regional Council Member for SCAG,

which is involved in the item. In addition, he does not have a financial interest in Item No. 4, but is required to identify for the record that he is a member of the City of Gardena City Council which is involved in the item.

- Retiring MSRC staff member Matthew Mackenzie was recognized for his many years of service.
- Vice Chair Berkson asked for public comments on the Consent Calendar.

No public comment.

STATUS REPORT

Clean Transportation Policy Update

CONSENT ITEMS (Items 1 through 4):

Information Only – Receive and File

1. MSRC Contracts Administrator's Report

The MSRC AB 2766 Contracts Administrator's Report for January 4, 2024 through February 28, 2024 was included in the agenda package.

Moved by Hagman; seconded by Henderson; under approval of Consent Calendar Items #1-4, item unanimously approved.

Ayes: Hagman, Henderson, Lum, Berkson, Robertson

Noes: None

Action: Staff will include the MSRC Contracts Administrator's Report in the MSRC Committee Report for the April 2024 South Coast AQMD Board meeting.

2. Financial Report on AB 2766 Discretionary Fund

A financial report on the AB2766 Discretionary Fund for March 2024 was included in the agenda package.

Moved by Hagman; seconded by Henderson; under approval of Consent Calendar Items #1-4, item unanimously approved.

Ayes: Hagman, Henderson, Lum, Berkson, Robertson

Noes: None

Action: No further action is required.

3. Consider 18-Month Term Extension by Southern California Association of Governments (SCAG), Contract #MS21005 (\$16,751,000- Last Mile Freight Program)

SCAG requests an 18-month term extension due to various issues encountered by delay in deliveries of vehicles from the manufacturers. This contract was previously extended a total of 18 months.

Moved by Hagman; seconded by Henderson; under approval of Consent Calendar Items #1-4, item unanimously approved.

Ayes: Hagman, Henderson, Lum, Berkson, Robertson

Noes: None

Action: Staff will amend the above contract accordingly.

4. Consider Reduced Scope and Value by City of Gardena, Proposed Agreement #MS24007 (\$475,312- Implement GTrans Microtransit Service)

GTrans requests to reduce the proposed hours of operation on the weekends, eliminating Sunday service and moving Saturday start time, with a corresponding \$51,178 value reduction.

Moved by Hagman; seconded by Henderson; under approval of Consent Calendar Items #1-4, item unanimously approved.

Ayes: Hagman, Henderson, Lum, Berkson, Robertson

Noes: None

Action: Staff will amend the above contract accordingly.

For Approval – As Recommended

5. Consider Modified Lighting and One-Year Extension by City of Fontana, Contract #ML16047 (\$500,000- Enhance Existing Class I Bikeway)

Cynthia Ravenstein, MSRC Contracts Administrator, presented that the City requests a one-year term extension due to the estimated cost increased drastically with the final design approval, resulting in the city securing additional funding. A change in the lighting is proposed to reduce the risk of vandalism.

Ravenstein related that the City of Fontana was awarded \$500,000 under the 2014/16 Work Program to enhance a Class I Bikeway. This contract has previously been extended five years total. There will be no further extensions of the contract term.

Vice Chair Berkson asks when and how long was their last extension, if we have proof of executed contracts and how long ago were the installation contracts executed.

Ravenstein replies that their previous extension was for two years, we have proof of contracts, and the installation contracts were executed in January.

Vice Chair Berkson asked for public comment.

No public comment.

Moved by Hagman; seconded by Robertson; item unanimously approved.

Ayes: Hagman, Henderson, Lum, Berkson, Robertson

Noes: None

Action: MSRC staff will amend the contract accordingly.

6. Consider Authorizing Issuance of New Contract to Complete Work Initiated by City of Yucaipa, Contract #ML16057 (\$380,000- Implement a “Complete Streets” Pedestrian Access Project

Cynthia Ravenstein, MSRC Contracts Administrator, presented that the City completed the sidewalk element and a portion of the work on the bicycle lane element, but the contract lapsed after being granted extensions totaling five years. Completion of the bicycle lanes is delayed due to drainage and waterline improvement projects. The City of Yucaipa requests either a new 21-month contract in the amount of \$380,000 or a new six-month contract in the amount of \$174,420 for the sidewalk element only.

Ravenstein stated that the City of Yucaipa was awarded \$380,000 under the 2014/16 Work Program to implement “Complete Streets” improvements on a segment of roadway. The project includes pedestrian and bicycle elements. The contract has been extended for a total of five years. When granting the last extension, the MSRC made a contingency that the City had to have an executed construction contract. There was a misunderstanding, and they executed a construction contract for only the pedestrian portion of the work. The City is having delays in completing the bicycle work due to roadway drain and water line improvements out of their jurisdiction and control. The City anticipates completing all projects by the end of 2025. MSRC staff is recommending approval of new six-month contract for \$174,420 for the pedestrian

element of the project. This will allow the City to turn in their final report and get reimbursed for the work that they completed.

Vice Chair Brian Berkson asks if anyone has questions.

Dr. Robertson asks if the money is going back into the MSRC fund.

Ray Gorski, MSRC Technical Advisor, replies yes it goes back in the account but it's unallocated.

Katrina Kunkel, who is employed by the City of Yucaipa, states that the project is located in multiple jurisdictions along County Line Road. The City has completed a roadway alignment, including widening, reconstruction of driveway approaches to be ADA compliant, construction of sidewalks, construction of curb ramps, and construction of bike ramps to allow bicycles to traverse the new roundabout. The only items left to complete are three-inch cap over the bike lane, striping and signage. The City is waiting for the water company to install a high pressurized water line and the City of Calimesa to finish their portion of the improvements, which are adjacent. The City has spent \$480,000 on the construction contract, which well exceeds the \$174,420 that they will be reimbursed. She is asking the MSRC to approve the alternative option, which would grant the City more time as they wait for the other entities to finish their construction work, so the City can finish the three remaining items.

Vice Chair Brian Berkson asked if anyone had questions.

Supervisor Curt Hagman asked if construction was going on currently.

Ravenstein replied that there was some construction going on.

Vice Chair Brian Berkson asked Katrina Kunkel what the current progress was on the waterline install.

Katrina Kunkel replied that the plans are complete. They are awaiting an encroachment permit through CalTrans. The improvements by the City of Calimesa are 50% complete.

Moved by Hagman, seconded by Robertson; item unanimously approved to grant the six-month, \$174,420 contract.

Ayes: Hagman, Henderson, Lum, Berkson, Robertson

Noes: None

Action: MSRC staff will place this item on the agenda for consideration by the

South Coast AQMD Governing Board.

7. Consider Nine-Month Term Extension by City of Carson, Contract ML#18057 (\$106,250- Purchase 5 Light-Duty ZEVs and Install Charging Infrastructure

Cynthia Ravenstein, MSRC Contracts Administrator, presented that the City of Carson requests an extension to August 31, 2027, approximately a nine-month term extension, due to longer than expected time for design and selection of construction contractor of the stations. This contract was previously extended a total of 41 months.

Ravenstein stated that the reason this item is on the action calendar is that there is a condition that this be the final extension. The contract was previously extended a total of 47 months, not 41 months as stated incorrectly in the agenda.

Vice Chair Brian Berkson asked if anyone had questions.

Dr. Robertson and Vice Chair Berkson asked if there had been any action on this contract, if they bought vehicles or was it completely waiting on construction.

Ravenstein replied that the vehicles have been in service. They now have the construction contract awarded.

Moved by Berkson; seconded by Hagman; item unanimously approved.

Ayes: Hagman, Henderson, Lum, Berkson, Robertson

Noes: None

Action: MSRC staff will amend the contract accordingly.

OTHER BUSINESS:

12. Other Business

Vice Chair Berkson asked if anyone has other business.

Cynthia Ravenstein, MSRC Contracts Administrator, stated that WattEV, who received funding under the MSRC's partnership with SCAG under the Last Mile Freight Program, is opening their charging depot in San Bernardino on April 15th. She asked if anyone has interest in attending.

Dr. Robertson stated he will be attending so there is MSRC representation.

PUBLIC COMMENT PERIOD

No public comments.

ADJOURNMENT

The meeting adjourned at 2:37 p.m.

NEXT MEETING

Thursday, April 8th at 2:00 p.m.

[Prepared by Kristin Remy]

 [Back to Agenda](#)

BOARD MEETING DATE: June 7, 2024

AGENDA NO. 22

REPORT: California Air Resources Board Monthly Meeting

SYNOPSIS: The California Air Resources Board held a public Board meeting on May 23, 2024. The following is a summary of the meeting.

RECOMMENDED ACTION:
Receive and file.

Gideon Kracov, Member
South Coast AQMD Governing Board

ft

The May Board meeting of the California Air Resources Board (Board) was held in Sacramento, California at the California Environmental Protection Agency Headquarters Building. Key items presented are summarized below.

CONSENT ITEM

24-2-1: Public Meeting to Consider the Proposed 2024 State Implementation Plan Submittal of Five Previously Adopted California Air Resources Board Regulations

The Board approved the submittal of five previously adopted California Air Resources Board regulations to the U.S. Environmental Protection Agency to be included in the California State Implementation Plan under the Clean Air Act. This action was limited to the submittal of the previously adopted regulations into the California State Implementation Plan. This action will not result in any changes to existing regulatory language.

DISCUSSION ITEMS

24-2-3: Public Meeting to Consider a Proposed New Member for the California Air Resources Board's Research Screening Committee

The Board approved the appointment of Dr. Michael Schmeltz, Assistant Professor at California State University, East Bay, as a new member of the CARB Research Screening Committee.

24-2-2: Public Hearing to Consider Proposed Amendments to the Advanced Clean Trucks Regulation and the Zero-Emission Powertrain Certification Test Procedure

The Board heard Staff's proposed amendments to the Advanced Clean Trucks regulation and the Zero-Emission Powertrain Certification test procedure. In consideration of Stakeholder comments, the Board directed Staff to address the comments and bring the amendments back to the Board at a future meeting.

Attachment

CARB May 23, 2024 Meeting Agenda

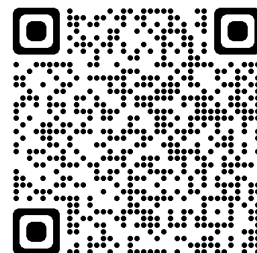


Gavin Newsom, Governor
Yana Garcia, CalEPA Secretary
Liane M. Randolph, Chair

May 2024 Board Meeting Agenda

Thursday, May 23, 2024 @ 9:00 a.m.

Zoom Webinar: [Register](#)
Phone Number: (669) 900-6833
Webinar ID: 848 8487 3825



California Environmental Protection Agency

1001 I Street, Sacramento, California 95814

Byron Sher Auditorium, 2nd Floor

[Webcast](#) (Livestream/Watch Only)

<https://ww2.arb.ca.gov/ma052324>

The May 23, 2024, meeting of the California Air Resources Board (CARB or Board) will be held at 1001 I Street in Sacramento, with remote participation also available. This facility is accessible to persons with disabilities and by public transit. For transit information, call (916) 321-BUSS (2877) or visit <http://sacrt.com/>.

To only watch the Board Meeting and not provide verbal comments, please view the [webcast](#). If you do not wish to provide oral comments, we strongly recommend watching the webcast as this will free up space on the webinar for those who are providing oral comments. Please do not view the webcast and then switch over to the webinar to comment as the webcast will have a time delay; instead, register to participate via the Zoom webinar.

Public Comment Guidelines and Information

- [In-Person Public Testimony](#)
- [Remote Public Participation](#)

The Board will set a two-minute time limit on oral comments; however, the amount of time could change at the Chair's discretion. In-person speakers signed up to comment will be called upon first, followed by public Zoom and phone participants wishing to comment. The Chair may close speaker sign-ups 30 minutes after the public comment portion of an item has begun.

Please note that under the California Public Records Act (Gov. Code, § 7920.000 et seq.), your written and oral comments, attachments, and associated contact information (e.g., your address, phone, email, etc.) become part of the public record and can be released to the public upon request.

Spanish interpretation will be available for the May 23rd Board Meeting.

- [Agenda de la Reunión Pública](#)
- [Spanish Webcast](#)

Thursday, May 23, 2024 @ 9:00 a.m.

Hard copies of the Public Agenda and Proposed Resolutions (when applicable) will be provided at the meeting; copies of all other documents linked below will only be available upon request.

Consent Calendar:

These items are scheduled to be heard on the Board's Consent Calendar and will not have a presentation by CARB staff. The Board will vote on all agenda items on the Consent Calendar at the beginning of the public meeting.

24-2-1: Public Meeting to Consider the Proposed 2024 State Implementation Plan Submittal of Five Previously Adopted California Air Resources Board Regulations

The Board will consider submitting five previously adopted California Air Resources Board regulations to the U.S. Environmental Protection Agency to be added to the California State Implementation Plan under the Clean Air Act. This proposed action is limited to submitting the previously adopted regulations into the California State Implementation Plan. This proposed action will not result in any changes to existing regulatory language.

- [More Information](#)
- [Public Meeting Notice](#)
- [Staff Report](#)
- [Item Summary](#)
- [Proposed Resolution](#)
- [Submit Written Comments](#)
- [View Public Comments](#)

24-2-3: Public Meeting to Consider a Proposed New Member for the California Air Resources Board's Research Screening Committee

The Board will consider a resolution to approve the appointment of Dr. Michael Schmeltz, Assistant Professor at California State University, East Bay, as a new member of the CARB Research Screening Committee.

- [More information](#)
- [Staff Report](#)
- [Item Summary](#)
- [Proposed Resolution](#)
- [Submit Written Comments](#)
- [View Public Comments](#)

Discussion Item:

24-2-2: Public Hearing to Consider Proposed Amendments to the Advanced Clean Trucks Regulation and the Zero-Emission Powertrain Certification Test Procedure

The Board will consider the proposed amendments to the Advanced Clean Trucks regulation and the Zero-Emission Powertrain Certification test procedure. If adopted, these amendments will be submitted to the U.S. Environmental Protection Agency as a revision to the California State Implementation Plan.

- [Formal Rulemaking Page](#)
 - [Public Hearing Notice](#)
 - [Staff Report](#)
- [Item Summary](#)
- [Meeting Presentation](#)
- [Proposed Resolution](#)
- [Submit Written Comments](#)
- [View Public Comments](#)

Closed Session

The Board may hold a closed session, as authorized by Government Code section 11126(e), to confer with, and receive advice from, its legal counsel regarding the following pending or potential litigation:

American Free Enterprise Chamber of Commerce et al v. Steven S. Cliff et al. (United States District Court for the Eastern District of California, Case No. 2:24-cv-00988-KJM-JDP)

Association of American Railroads et al. v. Randolph et al. (United States District Court, Eastern District of California, Sacramento Division, Case No. 2:23-cv-01154-JAM-JDP)

California Air Resources Board v. Noil Energy Group, Inc. and Speedy Fuel Inc. (Los Angeles County Superior Court, Case No. 20STCV30142, complaint filed August 7, 2020; Los Angeles County Superior Court, Case No. 20STCV30292, complaint filed August 7, 2020)

California Natural Gas Vehicle Coalition v. California Air Resources Board. (Fresno County Superior Court, Case No. 20CECG02250)

California Trucking Association v. California Air Resources Board. (United States District Court, Eastern District of California, Case No. 2:23-cv-02333-TLN-CKD)

Chamber of Commerce of the United States et al v. California Air Resources Board et al. (United States District Court, Central District of California, Case No. 2:24-cv-00801)

California v. United States Environmental Protection Agency. (United States Court of Appeals, District of Columbia Circuit - No. 21-1034, consolidated with *California Communities Against Toxics et al. v. EPA*, No. 21-1024.)

Commonwealth of Kentucky, et al. v. United States Environmental Protection Agency. (United States Court of Appeals, District of Columbia Circuit, Case No. 24-1050)

East Yard Communities for Environmental Justice, et al. v. South Coast Air Quality Management District, et al. (United States District Court, Central District of California, Los Angeles, Case No. 2:23-cv-06682)

Environmental Defense Fund, et al., v. Andrew Wheeler, et al. (United States Court of Appeals, District of Columbia Circuit, Case No. 20-1360)

Friends of Oceano Dunes, Inc. v. California Air Resources Board, et al. (San Luis Obispo County Superior Court, Case No. 17CV-0576) and *Friends of Oceano Dunes, Inc. v. California Air Resources Board, et al.* (U.S. District Court for the Central District of California, Case No. 2:17-cv-8733)

GreenPower Motor Company, Inc. v. California Air Resources Board. (Sacramento County Superior Court, Case number 23WM000083)

Kentucky, et al., v. Environmental Protection Agency, et al. (United States Court of Appeals, District of Columbia Circuit, Case No. 24-1087)

People ex rel. California Air Resources Board and Xavier Becerra, Attorney General of the State of California v. Daimler AG and Mercedes-Benz USA, LLC. (United States District Court, District of Columbia, Case No. 1:20-cv-2565, consolidated with *United States v. Daimler AG and Mercedes-Benz USA, LLC*, United States District Court, District of Columbia, Case No. 1:20-cv-2564.)

People v. Best Energy Solutions & Tech. Corp. (Los Angeles County Superior Court, Case No. 22STCV32487)

People v. Southern California Gas Company. (Los Angeles Superior Court, Case No. BC602973)

Natural Resources Defense Council v. National Highway Traffic Safety Admin., et al. (United States Court of Appeals, District of Columbia Circuit, Case No. 22-1080, consolidated with Nos. 22-1144, 22-1145)

New York, et al. v. United States Environmental Protection Agency, et al. (United States Court of Appeals, District of Columbia Circuit, Case No. 21-1028)

Ohio, et al., v. EPA, et al. (United States Court of Appeals, District of Columbia Circuit, Case No. 22-1081, consolidated with Case Nos. 22-1083, 22-1084, and 22-1085.)

State of California v. Wheeler et al. (United States Court of Appeals, District of Columbia Circuit, Case No. 19-1239)

State of California v. Wheeler, et al. (United States Court of Appeals, District of Columbia Circuit, Case No. 20-1167)

State of California, et al. v. David Bernhardt, et al. (United States District Court, Northern District of California, 472 F. Supp. 3d 573 (N.D. Cal. 2020) Case No. 3:18-cv-5712-DMR; BLM, Wyoming, and industry appeal to United States Court of Appeals, Ninth Circuit, Case No. 20-16793)

State of California, et al. v. United States Environmental Protection Agency, et al. (United States Court of Appeals, District of Columbia Circuit, Case No. 21-1014)

State of New York, et al., v. Andrew Wheeler and the United States Environmental Protection Agency. (United States District Court, District of Columbia, Case No. 1:18-cv-00773)

State of New York, et al. v. United States Environmental Protection Agency. (United States Court of Appeals, District of Columbia Circuit, Case No. 21-1026)

State of North Dakota v. United States Environmental Protection Agency. (United States Court of Appeals, District of Columbia Circuit, Case No. 15-1381)

State of North Dakota, et al., v. United States Environmental Protection Agency, et al. (United States Court of Appeals, District of Columbia Circuit, Case No. 16-1242)

State of Texas, et al., v. Environmental Protection Agency, et al. (United States Court of Appeals, District of Columbia Circuit, Case No. 22-1031)

State of Texas, et al. v. U.S. EPA, et al. (United States Court of Appeals, District of Columbia Circuit, Case No. 24-1054)

State of Wyoming, et al., v. United States Department of the Interior, et al. (United States District Court, District of Wyoming, Case No. 16-CV-285-SWS; United States Court of Appeals, Tenth Circuit, Case No. 2:16-cv-00285-SWS)

State of West Virginia, et al. v. U.S. Environmental Protection Agency, et al. (United States Court of Appeals, District of Columbia Circuit, Case No. 24-1009)

South Coast Air Quality Management District v. City of Los Angeles, et al. (Los Angeles County Superior Court, Case No. 20STCP02985; transferred to San Diego County Superior Court, Case No. 37-2021-00023385-CU-TT-CTL; appeal California Court of Appeal, Fourth Appellate District, Div. 1, Case. No. D080902; remanded to superior court)

The Two Hundred for Homeownership, Robert Apodaca, and Jose Antonio Ramirez v. California Air Resources Board, Steven S. Cliff et al. (United States District Court, Eastern District of California, Fresno, Case No. 1:22-at-904)

Western States Petroleum Association v. California Air Resources Board et al. (Fresno County Superior Court, Case No. 22CECG03603.)

Western States Petroleum Association v. California Air Resources Board. (Los Angeles County Superior Court, Case No. 20STCP03138x, Appeal No. B327663)

Western States Petroleum Association v. California Air Resources Board (Fresno County Superior Court, Case No. 23CECG02976)

Western States Trucking Association v. California Air Resources Board (Fresno County Superior Court, Case No. 23CECG02964)

Opportunity for Members of the Board to Comment on Matters of Interest

Board members may identify matters they would like to have noticed for consideration at future meetings and comment on topics of interest; no formal action on these topics will be taken without further notice.

Open Session to Provide an Opportunity for Members of the Public to Address the Board on Subject Matters within the Jurisdiction of the Board

Although no formal Board action may be taken, the Board is allowing an opportunity to interested members of the public to address the Board on items of interest that are within the Board's jurisdiction, but that do not specifically appear on the agenda. Each person will be allowed a maximum of two minutes to ensure that everyone has a chance to speak. The public will also have an opportunity to *submit written comments* for open session the morning of the Board Meeting.

Other Information

Submit Comments Electronically the Day of the Board Meeting

View Submitted Comments

Please Note: PowerPoint presentations to be displayed during public comment at the Board meeting must be electronically submitted via email to the Clerks' Office at cotb@arb.ca.gov no later than noon on the business day prior to the scheduled Board Meeting.

If you have any questions, please contact the Clerks' Office:

1001 I Street, 23rd Floor, Sacramento, California 95814

cotb@arb.ca.gov or (916) 322-5594

CARB Homepage: www.arb.ca.gov

Special Accommodation Request

Consistent with California Government Code section 7296.2, special accommodation or language needs may be provided for any of the following:

- An interpreter to be available at the hearing;
- Documents made available in an alternate format or another language;
- A disability-related reasonable accommodation.

To request these special accommodations or language needs, please contact the Clerks' Office at cotb@arb.ca.gov or at (916) 322-5594 as soon as possible, but no later than 7 business days before the scheduled Board hearing. TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.

Acomodación Especial

Consecuente con la sección 7296.2 del Código de Gobierno de California, una acomodación especial o necesidades lingüísticas pueden ser suministradas para cualquiera de los siguientes:

- Un intérprete que esté disponible en la audiencia;
- Documentos disponibles en un formato alternativo u otro idioma;
- Una acomodación razonable relacionados con una incapacidad.

Para solicitar estas comodidades especiales o necesidades de otro idioma, por favor contacte la oficina del Consejo al (916) 322-5594 o por correo electrónico al cotb@arb.ca.gov lo más pronto posible, pero no menos de 7 días de trabajo antes del día programado para la audiencia del Consejo. TTY/TDD/Personas que necesiten este servicio pueden marcar el 711 para el Servicio de Retransmisión de Mensajes de California.

BOARD MEETING DATE: June 7, 2024

AGENDA NO. 24

PROPOSAL: Determine That Proposed Rule 317.1 – Clean Air Act Nonattainment Fees for 8-Hour Ozone Standards Is Not Considered Subject to CEQA; and Adopt Rule 317.1

SYNOPSIS: Section 185 of the federal Clean Air Act (CAA) requires areas that are classified as “severe” or “extreme” that do not attain the NAAQS for ozone by their assigned attainment dates to pay fees based upon a prescribed formula each year until the NAAQS is attained. Proposed Rule 317.1 – Clean Air Act Nonattainment Fees for 8-Hour Ozone Standards (PR 317.1) would implement these CAA requirements for the 1997 and 2008 8-hour ozone standards. The provisions of PR 317.1 would address when and how the CAA nonattainment fees would be assessed and collected.

COMMITTEE: Stationary Source, April 19 and May 17, 2024, Reviewed

RECOMMENDED ACTIONS:

Adopt the attached Resolution:

1. Determining that Proposed Rule 317.1 – Clean Air Act Nonattainment Fees for 8-Hour Ozone Standards, is Not Considered Subject to California Environmental Quality Act; and
2. Adopting Rule 317.1 – Clean Air Act Nonattainment Fees for 8-Hour Ozone Standards.

Wayne Natri
Executive Officer

Background

Section 185 of the federal Clean Air Act (CAA) establishes fee requirements for areas that are classified as “severe” or “extreme” nonattainment that do not attain the National Ambient Air Quality Standards (NAAQS) for ozone by their assigned attainment dates. Both VOC and NO_x are precursors of ozone. Section 185 requires that major stationary sources, which are facilities located in the South Coast Air Basin or Coachella Valley that emit or have the potential to emit 10 tons or more of VOC and/or NO_x, to either reduce their emissions by 20 percent from a specified emissions baseline or pay a CAA nonattainment fee. The CAA requires that the baseline emissions be based on emissions in the attainment year. Upon the U.S. EPA issuing a final finding of failure to attain, the fee would be collected from all major stationary sources for each calendar year after the attainment date and shall continue until the area is redesignated as an attainment area for that ozone standard. Additionally, the U.S. EPA is required to collect the fees if the SIP does not meet the requirements or if a state is not administering and enforcing CAA Section 185. As such, South Coast AQMD must promulgate a rule to fulfill the obligations of CAA Section 185 to ensure fees are collected and disbursed locally.

Proposed Rule 317.1 – Clean Air Act Nonattainment Fees for 8-Hour Ozone Standards (PR 317.1) implements requirements of the CAA Section 185 for the 1997 and 2008 8-hour ozone standards. The provisions of PR 317.1 are needed to address when and how the CAA nonattainment fees would be assessed and collected.

Proposal

PR 317.1 requires major stationary sources of VOC and/or NO_x located in the South Coast Air Basin and Coachella Valley to pay nonattainment fees when the U.S. EPA makes a final finding that the area has failed to attain the 1997 or 2008 8-hour ozone NAAQS. Approximately 320 facilities are estimated to be impacted by PR 317.1. For the revoked 1997 ozone standard with an attainment date of June 15, 2024, although a fee equivalency approach is allowed, adequate funding to utilize the fee equivalency approach is not available. For the 2008 ozone standard with an attainment date of July 20, 2032, which is not a revoked standard, a fee equivalency approach is not available. Consequently, nonattainment fee collection is proposed for both of these standards.

PR 317.1 specifies that the baseline emissions would be based on the applicable source emissions information in the attainment year unless U.S. EPA approves of the alternative baseline emissions methodology set forth in PR 317.1. If a major stationary source does not reduce emissions by 20 percent from the emissions baseline, a nonattainment fee will be assessed annually for each excess ton of VOC and for each excess ton of NO_x emissions above their respective 80 percent thresholds. The fee would be collected from all major stationary sources for each calendar year after the attainment due date and shall continue until the area is redesignated as an attainment area for that ozone standard. PR 317.1 also establishes requirements such as emissions reporting, fee determination, and payment due dates. The CAA does not specify how these CAA nonattainment fees may be used and guidance on the spending of these

potential funds will be determined in the future through a public process separate from this rulemaking. PR 317.1 will be submitted into the SIP to fulfill the CAA obligations.

Public Process

PR 317.1 was developed through a public process that included two Working Group Meetings on November 7, 2023 and February 7, 2024. The meetings included a variety of stakeholders such as affected facilities, industry associations, public agencies and environmental groups. A Public Consultation Meeting was held on April 3, 2024 to present PR 317.1 and receive further public comments. As part of this rule development process, staff worked closely with U.S. EPA and CARB and also met with interested stakeholders to discuss the proposed rule.

Key Issues

Throughout the rulemaking process, staff has worked with stakeholders to resolve many issues, while ensuring PR 317.1 would be approvable by U.S. EPA. Stakeholders have continued to raise a concern that PR 317.1 may still require fee collection in cases where facilities are no longer required to pay nonattainment fees due to potential changes in the CAA or implementation guidance. The concerns presented by the stakeholders would require a departure from current legislation and current guidance from U.S. EPA. As with any other new or modified requirements, staff would evaluate the changes and take the necessary actions to reflect these updates.

CAA and Legal Mandates

South Coast AQMD is required to adopt rules demonstrating compliance with all federal regulations and standards. PR 317.1 is needed to fulfill the CAA nonattainment fee obligations required by CAA Section 185.

California Environmental Quality Act

PR 317.1 has been developed as a government funding mechanism to satisfy federal requirements without involving a commitment to any specific project that could result in a potentially significant physical impact on the environment. Therefore, PR 317.1 is not considered a project within the meaning of the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15378 (b)(4).

Socioeconomic Impact Assessment

Approximately 319 facilities are subject to PR 317.1 requirements, with the majority belonging to the Utilities (NAICS 22) sector and with 89 facilities potentially qualifying as small businesses based on various small business definitions. The total present value of compliance costs associated with implementing PR 317.1 over the 2025 – 2035 period is estimated to be \$258.42 million and \$214.84 million with a 1 percent and 4 percent discount rate, respectively. This is assuming that no facility will reduce its emissions by 20 percent from the baseline except for emissions reductions already expected from implementation of Rule 1109.1. The annual average compliance cost of

PR 317.1 is estimated to be \$25.07 million. The analysis projects 81 net jobs foregone annually on average from the period of 2025 to 2035 in the four-county economy, relative to the baseline scenario. The Final Socioeconomic Impact Assessment is included in Attachment H of this Board package.

Implementation Resource Impacts

Staff anticipates implementation of PR 317.1 will result in significant resource impacts:

1) An initial evaluation of each major stationary source's emissions is needed to determine applicability and baseline emissions; 2) Subsequent annual evaluations would be required to determine the annual CAA nonattainment fee for each major stationary source; 3) Evaluations needed for facilities that voluntarily submit requests for challenging applicability, challenging baseline emissions, establishing alternative baseline emissions, or a Rule 317.1 Exclusion Plan; and 4) Costs associated with upgrading the web tool for the Annual Emissions Reporting program to accommodate the need for calculating and invoicing CAA nonattainment fees. While PR 317.1 includes cost recovery for the evaluations of either alternative baseline emissions or Rule 317.1 Exclusion Plans, there is no existing cost allocated to implement other elements of PR 317.1. Instead, cost recovery for implementation of PR 317.1 is expected through future reimbursement from CAA nonattainment fees collected. Resource impacts are expected in various divisions including Planning, Rule Development and Implementation, Engineering and Permitting, Compliance and Enforcement, Finance, and Information Management. At this time, no funds have been reserved for administration and implementation of PR 317.1. Additional resources or staffing might be requested in the future.

Attachments

- A. Summary of Proposal
- B. Key Issues and Responses
- C. Rule Development Process
- D. Key Contacts List
- E. Resolution
- F. Proposed Rule 317.1
- G. Final Staff Report
- H. Socioeconomic Impact Assessment
- I. Board Presentation

ATTACHMENT A

SUMMARY OF PROPOSAL

Proposed Rule 317.1 – Clean Air Act Nonattainment Fees for 8-Hour Ozone Standards

Purpose

- Implement federal Clean Air Act (CAA) section 185 requirements for nonattainment areas classified as “severe” or “extreme” for the 1997 or 2008 8-hour ozone standards

Applicability

- Any Major Stationary Sources of VOC and/or NO_x in the South Coast Air Basin or Coachella Valley if and when the U.S. EPA makes a final finding that the area has failed to attain the 1997 or 2008 8-hour ozone standards

Requirements - Fee Assessment

- Specifies that the Executive Officer will assess the CAA Nonattainment Fees
- Determines CAA Nonattainment Fees based on each excess ton of VOC and/or NO_x emissions above 80% of their Baseline Emissions or Alternative Baseline Emissions

Requirements - Annual Reporting and Payment

- Establishes emissions reporting requirements which will be used to determine fee obligations
- Establishes payment due dates
 - Initial invoice: due date is 365 days from invoice issuance
 - Subsequent invoice: due date is December 15th of the year of invoice or no later than 75 days from invoice issuance, whichever is later

Process of Challenging Rule Applicability or Baseline Emissions

- Facility may challenge applicability or Baseline Emissions no later than 90 days from noticing

Alternative Baseline Emissions

- Establishes the requirements for a Major Stationary Source that elects to use Alternative Baseline Emissions instead of the applicable Baseline Emissions.

Exemptions

- Establishes that the CAA Nonattainment Fees will cease during an extension year or when the area attains the standard
- Establishes a regulatory pathway for facilities that no longer meet the definition of a Major Stationary Source through a Rule 317.1 Exclusion Plan.

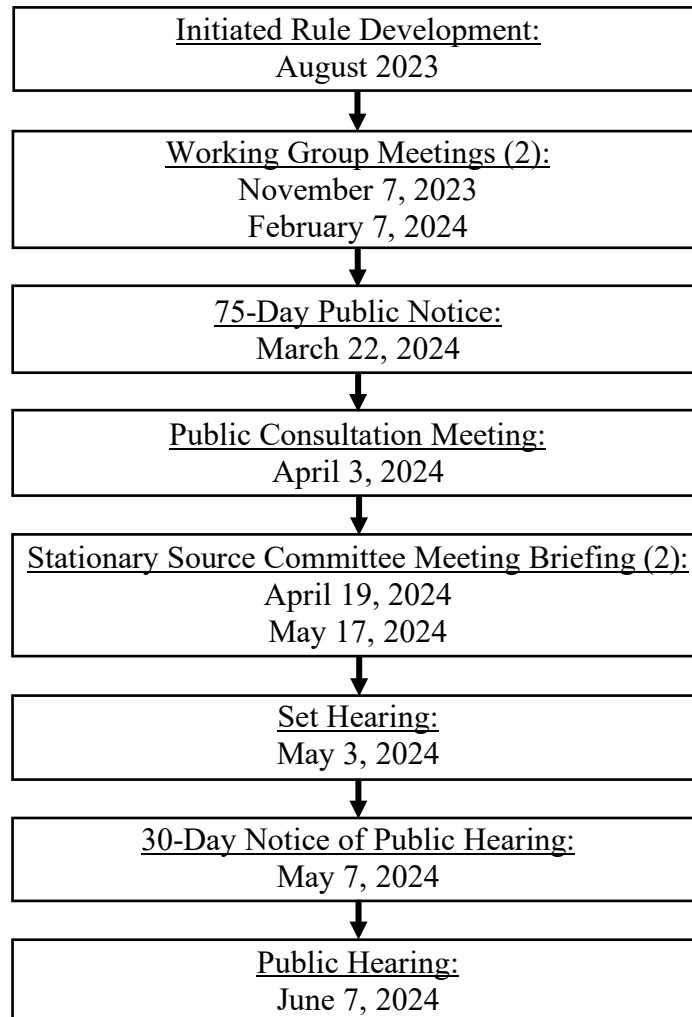
ATTACHMENT B

KEY ISSUES AND RESPONSES

Proposed Rule 317.1 – Clean Air Act Nonattainment Fees for 8-Hour Ozone Standards
<p>Throughout the rulemaking process, staff has worked with stakeholders to resolve many issues, while ensuring PR 317.1 would be approvable by the U.S. EPA. Stakeholders have continued to raise a concern that PR 317.1 would still require fee collection in cases where facilities are no longer required to pay nonattainment fee due to potential changes in the CAA or the implementation guidance.</p> <p>The concern presented by the stakeholders would require a departure from current legislation or guidance from the U.S. EPA. As with any other new or modified requirements, staff would evaluate the updates and take any necessary actions to reflect these updates, if appropriate. Due to the uncertainty regarding a prospective modification, it is not possible to develop appropriate rule language.</p>

ATTACHMENT C
RULE DEVELOPMENT PROCESS

Proposed Rule 317.1 – Clean Air Act Nonattainment Fees for 8-Hour Ozone Standards



Ten (10) months spent in rule development.

One (1) Public Consultation Meeting.

Two (2) Stationary Source Committee Meeting Briefings.

Two (2) Working Group Meetings.

ATTACHMENT D
KEY CONTACTS LIST

- California Communities Against Toxics
- California Council on Environmental and Economic Balance (CCEEB)
- California Safe Schools
- Center for Community Action and Environmental Justice
- Clean Water SoCal
- Coalition for Clean Air
- Communities for a Better Environment
- Earthjustice
- Hoag Memorial Hospital Presbyterian
- Industrious Labs, Natural Resources Defense Council
- Latham and Watkins, LLC
- Los Angeles County Business Federation (BizFed)
- RadTech
- Sierra Club
- Stoel Rives, LLP
- West Long Beach Association
- Western States Petroleum Association (WSPA)

ATTACHMENT E

RESOLUTION NO. 24-____

A Resolution of the Governing Board of the South Coast Air Quality Management District (South Coast AQMD) determining that Proposed Rule 317.1 – Clean Air Act Nonattainment Fees for 8-Hour Ozone Standards is not considered a project subject to the California Environmental Quality Act.

A Resolution of the South Coast AQMD Governing Board adopting Proposed Rule 317.1 – Clean Air Act Nonattainment Fees for 8-Hour Ozone Standards.

WHEREAS, the South Coast AQMD Governing Board finds and determines that Proposed Rule 317.1, which has been developed as a government funding mechanism to satisfy federal requirements without involving a commitment to any specific project that could result in a potentially significant physical impact on the environment, is not considered a project within the meaning of the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15378 (b)(4); and

WHEREAS, Proposed Rule 317.1 and supporting documentation, including but not limited to, the Final Staff Report, and the Final Socioeconomic Impact Assessment, were presented to the South Coast AQMD Governing Board and the South Coast AQMD Governing Board has reviewed and considered this information, as well as has taken and considered staff testimony and public comment prior to approving the project; and

WHEREAS, the South Coast AQMD Governing Board finds and determines, taking into consideration the factors in Section (d)(4)(D) of the Governing Board Procedures (codified as Section 30.5(4)(D)(i) of the Administrative Code), that the modifications to Proposed Rule 317.1, since the notice of public hearing was published include: updates to subparagraph (c)(8)(C) to replace the typo of attainment year with the initial calendar year operating as a Major Stationary Source; clarification to paragraph (c)(10) that the CAA Nonattainment Fee is for each Applicable Ozone Standard; clarification that the Alternative Baseline Emissions used in paragraph (d)(2) shall be approved by the Executive Officer; clarification that the invoice amounts described in clause (d)(4)(A)(ii) are for CAA Nonattainment Fees; clarification in paragraph (d)(8) that the Alternative Baseline Emissions may not be used for any Fee Assessment Years prior to approval by the Executive Officer; clarification that the criteria specified in subparagraphs (d)(8)(B) and (d)(8)(D) must be met to use the Alternative Baseline Emissions regardless of whether such criteria are also included in U.S. EPA Alternative Baseline Emissions guidance; clarification under subparagraph (d)(8)(D) that the due date for additional information required by the U.S. EPA guidance will be no later than 120 days after the U.S. EPA issues such guidance; clarification of the timing for the cessation of fees under paragraph (e)(2); and grammatical updates and corrections of punctuations for clarity throughout. These revisions meet the same air quality objective and are not so substantial as to significantly affect the meaning of the proposed rule within the meaning

ATTACHMENT E

of Health and Safety Code Section 40726 because: (a) the changes do not impact emission reductions, (b) the changes do not affect the number or type of sources regulated by the proposed rule, (c) the changes are consistent with the information contained in the notice of public hearing, and (d) the consideration of the range of CEQA alternatives is not applicable because the proposed project is not subject to CEQA and therefore, alternatives are not required; and

WHEREAS, the South Coast AQMD Governing Board has determined that the Final Socioeconomic Impact Assessment for Proposed Rule 317.1, is consistent with the March 17, 1989 Governing Board Socioeconomic Resolution for rule adoption; and

WHEREAS, the South Coast AQMD Governing Board has determined that the Final Socioeconomic Impact Assessment for Proposed Rule 317.1 is consistent with the provisions of Health and Safety Code Sections 40440.8, and 40728.5; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Rule 317.1 will result in increased costs to the affected industries, yet such costs are considered to be reasonable; and

WHEREAS, the South Coast AQMD Governing Board has actively considered the Final Socioeconomic Impact Assessment and has made a good faith effort to minimize such impacts; and

WHEREAS, the South Coast AQMD staff conducted one Public Consultation Meeting regarding Proposed Rule 317.1 on April 3, 2024; and

WHEREAS, Proposed Rule 317.1 will be submitted to the California Air Resources Board (CARB) and the United States Environmental Protection Agency (U.S. EPA) for inclusion into the State Implementation Plan; and

WHEREAS, Health and Safety Code Section 40727 requires that prior to adopting, amending or repealing a rule or regulation, the South Coast AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing and in the Final Staff Report; and

WHEREAS, the South Coast AQMD Governing Board has determined that a need exists to adopt Proposed Rule 317.1 to implement the requirements of the federal Clean Air Act (CAA) section 185 for the 1997 and 2008 8-hour ozone standards; and

WHEREAS, the South Coast AQMD Governing Board obtains its authority to adopt, amend or repeal rules and regulations from Sections 39002, 40000, 40001, 40440, 40441, 40506, 40510, 40522, 40702, 40725 through 40728, 41508, 41510, 41511, 41700, 42300 et seq. of the Health and Safety Code, and Federal Clean Air Act Section 116; and

ATTACHMENT E

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Rule 317.1 is written or displayed so that the meanings can be easily understood by the persons directly affected by it; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Rule 317.1 is in harmony with and not in conflict with or contradictory to, existing statutes, court decisions or state or federal regulations; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Rule 317.1 does not impose the same requirements as any existing state or federal regulations, and is necessary and proper to execute the powers and duties granted to, and imposed upon, South Coast AQMD; and

WHEREAS, the South Coast AQMD Governing Board, in adopting Proposed Rule 317.1, references the following statutes which the South Coast AQMD hereby implements, interprets, or makes specific: Health and Safety Code Sections 40000, 40440, 41511, and Federal Clean Air Act Section 185 (42 U.S.C. Section 7511d); and

WHEREAS, a public hearing has been properly noticed in accordance with the provisions of Health and Safety Code Sections 40725 and 40440.5; and

WHEREAS, the South Coast AQMD Governing Board has held a public hearing in accordance with all applicable provisions of state and federal law; and

WHEREAS, the South Coast AQMD specifies that the Assistant Deputy Executive Officer overseeing the development of Proposed Rule 317.1 as the custodian of the documents or other materials which constitute the record of proceedings upon which the adoption of the Proposed Rule 317.1 is based, which are located at the South Coast Air Quality Management District, 21865 Copley Drive, Diamond Bar, California; and

NOW, THEREFORE BE IT RESOLVED, that the South Coast AQMD Governing Board directs staff to initiate a future public process for the spending of funds generated by Proposed Rule 317.1; and

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board does hereby adopt, pursuant to the authority granted by law, Proposed Rule 317.1, as set forth in the attached, and incorporated herein by reference; and

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board requests that Proposed Rule 317.1 be submitted for inclusion in the State Implementation Plan; and

BE IT FURTHER RESOLVED, that the Executive Officer is hereby directed to forward a copy of this Resolution and Proposed Rule 317.1 to CARB for

ATTACHMENT E

approval and subsequent submittal to U.S. EPA for inclusion into the State Implementation Plan.

DATE: _____

CLERK OF THE BOARDS

ATTACHMENT F

(~~Version 2024/05/07~~ Adopted [Date of Rule Adoption])

RULE 317.1 CLEAN AIR ACT NONATTAINMENT FEES FOR 8-HOUR OZONE STANDARDS

(a) Purpose

The purpose of this rule is to satisfy requirements as specified in Sections 182(d), 182(e), 182(f) and 185 of the 1990 amendments to the federal Clean Air Act (CAA) for the 1997 8-hour ozone National Ambient Air Quality Standard (NAAQS) and the 2008 8-hour ozone NAAQS.

(b) Applicability

- (1) This rule shall become applicable if and when the U.S. Environmental Protection Agency (EPA) makes a final finding that a Basin within the South Coast Air Quality Management District has failed to attain the 1997 8-hour ozone NAAQS or the 2008 8-hour ozone NAAQS by the applicable Attainment Date.
- (2) Except as otherwise provided as exempt in subdivision (e), this rule is applicable to any Major Stationary Source of Volatile Organic Compounds (VOC) and/or Nitrogen Oxides (NO_x) located in the Basin for which the U.S. EPA has made a final finding as described in paragraph (b)(1).
- (3) Except as otherwise provided as exempt in subdivision (e), this rule is applicable to any Major Stationary Source of VOC and/or NO_x located in the Basin during or after the Attainment Year for an Applicable Ozone sStandard.

(c) Definitions

For the purpose of this rule, the following definitions shall apply:

- (1) ACTUAL EMISSIONS means the mass of all emissions of VOC or NO_x at a Major Stationary Source during a calendar year reported to or amended by the Executive Officer through the South Coast AQMD Annual Emissions Reporting (AER) Program.
- (2) ACTUAL QUALIFYING EMISSIONS FOR BASELINE means the mass of emissions of VOC or NO_x at a Major Stationary Source used to calculate the Baseline Emissions. The Actual Qualifying Emissions For Baseline are Actual Emissions, excluding emissions that exceed limits specified in the permit(s), plan(s), applicable rules(s), and implementation plan(s), regardless of whether administratively allowed.
- (3) ALTERNATIVE BASELINE EMISSIONS means a Major Stationary Source's VOC or NO_x average annual Actual Emissions for twenty-four consecutive

months within up to the last ten (10) calendar years prior to and including the Attainment Year, excluding emissions that exceed limits specified in the permit(s), plan(s), applicable rules(s), and implementation plan(s), regardless of whether administratively allowed.

- (c) (4) ANNUAL CAA NONATTAINMENT FEE RATE means \$5,000 per ton (in 1990 dollars), adjusted for inflation annually, beginning in the year after 1990, by the percent change in consumer price index (CPI), if any, pursuant to CAA Sections 185(b)(3) and 502(b)(3)(B)(v).
- (5) APPLICABLE OZONE STANDARD means either the 1997 8-hour ozone NAAQS or 2008 8-hour ozone NAAQS, as applicable.
- (6) ATTAINMENT DATE means the U.S. EPA-approved date, established pursuant to the CAA, by which a Basin must attain a federal NAAQS. Where no such U.S. EPA approval exists, the date of the Basin's maximum statutory attainment date for that standard.
- (7) ATTAINMENT YEAR means the calendar year containing the Attainment Date.
- (8) BASELINE EMISSIONS means the mass of emissions calculated for VOC and/or NO_x, individually, in tons per year, for the determination of CAA Nonattainment Fee. Baseline Emissions for VOC and/or NO_x are calculated separately for each Applicable Ozone Standard, and as follows:
 - (A) For a Major Stationary Source that began operation as a Major Stationary Source prior to the Attainment Year, the Baseline Emissions are the lower of:
 - (i) Actual Qualifying Emissions For Baseline during the Attainment Year; or
 - (ii) The amount of emissions allowed under permit(s), plan(s), applicable rule(s), and implementation plan(s) during the Attainment Year.
 - (B) For a Major Stationary Source that begins operation as a Major Stationary Source during the Attainment Year, the Baseline Emissions are the lower of:
 - (i) Emissions during the Attainment Year based on either:
 - (I) Actual Qualifying Emissions For Baseline; or
 - (II) Actual Qualifying Emissions For Baseline adjusted by extrapolating operational data as a Major Stationary Source for the entire Attainment Year, provided the Major Stationary Source demonstrates through operational data

that emissions differ between operating as a Major Stationary Source and prior to operating as a Major Stationary Source; or

- (c) (8) (B) (ii) The amount of emissions allowed under permit(s), plan(s), applicable rule(s), and implementation plan(s) as a Major Stationary Source in the Attainment Year.

- (C) For a Major Stationary Source that begins operation as a Major Stationary Source after the Attainment Year, the Baseline Emissions is the lower of:

- (i) Emissions during the initial calendar year of operating as a Major Stationary Source based on either:

- (I) Actual Qualifying Emissions For Baseline; or
- (II) Actual Qualifying Emissions For Baseline adjusted by extrapolating operational data as a Major Stationary Source for the entire ~~Attainment Year~~ initial calendar year operating as a Major Stationary Source, provided the Major Stationary Source demonstrates through operational data that emissions differ between operating as a Major Stationary Source and prior to operating as a Major Stationary Source; or

- (ii) The amount of emissions allowed under permit(s), plan(s), applicable rule(s), and implementation plan(s), for the initial calendar year operating as a Major Stationary Source.

- (9) BASIN means either the South Coast Air Basin or Riverside County portion of the Salton Sea Air Basin (Coachella Valley). The boundaries of each Basin are as defined by 40 Code of Federal Regulations (CFR), Section 81.305.
- (10) CAA NONATTAINMENT FEE means the federally mandated ozone NAAQS nonattainment fee assessed to a Major Stationary Source for excess emissions of VOC and NOx air contaminants pursuant to Section 185 of the CAA. It is the summation of the annual VOC CAA Nonattainment Fee and the annual NOx CAA Nonattainment Fee for each Applicable Ozone Standard. The fee is assessed only for the pollutant(s) for which the facility qualifies as a Major Stationary Source.
- (11) EXTENSION YEAR means the year that the U.S. EPA grants, pursuant to Section 181(a)(5) of the CAA and upon the state's request, an extension of the Attainment Date.

- (12) FEE ASSESSMENT YEAR means the calendar year when emissions occurred for which the CAA Nonattainment Fee are being calculated and assessed under the provisions of this rule for each Applicable Ozone Standard.
- (c) (13) MAJOR STATIONARY SOURCE means a facility that emits or has the potential to emit VOC and/or NO_x emissions equal to or greater than the applicable major stationary source threshold, specified in CAA Sections 182(d), 182(e), or 182(f). The following types of emissions are not considered in determining whether a facility emits or has the potential to emit equal to or greater than the applicable major stationary source threshold:
 - (A) Fugitive Emissions of VOC or NO_x, unless the source belongs to one of the categories listed in paragraph 2 of the definition of major source in 40 CFR Part 70, Section 70.2.
 - (B) Emissions from the following on-road and off-road mobile equipment:
 - (i) Motor vehicle or vehicle as defined by the California Vehicle Code as it exists on [Date of Rule Adoption].
 - (ii) Marine vessel as defined by Health and Safety Code Section 39037.1 as it exists on [Date of Rule Adoption].
 - (iii) A motor vehicle or a marine vessel that uses one internal combustion engine to propel the motor vehicle or marine vessel, and the same engine to operate other equipment mounted on the motor vehicle or marine vessel.
 - (iv) Equipment that is mounted on a vehicle, motor vehicle or marine vessel if such equipment does not emit air contaminants.
 - (v) Asphalt pavement heaters (which are any mobile equipment used for the purposes of road maintenance and new road construction).
 - (vi) Mobile day tankers that only carry fuel oil with an organic vapor pressure of 5 mm Hg (0.1 psi) absolute or less at 21.1 °C (70 °F).
 - (C) Off-site emissions from portable equipment permitted to operate at various locations.
 - (D) Emissions from non-road engines, as defined by 40 CFR Part 1039, Section 1039.801.
- (14) NITROGEN OXIDES (NO_x) means the sum of nitric oxides and nitrogen dioxides calculated as nitrogen dioxide.
- (15) VOLATILE ORGANIC COMPOUNDS (VOC) means the sum of any VOC as defined by Rule 102 – Definition of Terms.

(d) Requirements

(1) Fee Assessment

The Executive Officer will assess the CAA Nonattainment Fee for each Applicable Ozone Standard:

(A) Beginning the calendar year after the Attainment Year for a:

- (i) Major Stationary Source that began operating as a Major Stationary Source prior to the Attainment Year; or
- (ii) Major Stationary Source that begins operating as a Major Stationary Source during the Attainment Year; or

(B) Beginning the calendar year after the calendar year used to establish Baseline Emissions for a Major Stationary Source that begins operating as a Major Stationary Source after the Attainment Year.

(2) Fee Determination

Beginning the calendar year after the applicable Attainment Year, the CAA Nonattainment Fee shall be the Annual CAA Nonattainment Fee Rate for the applicable Fee Assessment Year assessed per ton of Actual Emissions of VOC and/or NO_x during the Fee Assessment Year that exceed 80% of the Baseline Emissions or approved Alternative Baseline Emissions. For each Major Stationary Source existing during the Fee Assessment Year, the CAA Nonattainment Fee shall be calculated as follows:

VOC CAA Nonattainment Fee =

$$\text{Annual CAA Nonattainment Fee Rate} \times [A_V - (0.8 \times B_V)]$$

NO_x CAA Nonattainment Fee =

$$\text{Annual CAA Nonattainment Fee Rate} \times [A_N - (0.8 \times B_N)]$$

CAA Nonattainment Fee =

$$\text{NO}_x \text{ CAA Nonattainment Fee} + \text{VOC CAA Nonattainment Fee}$$

Where:

- For a Major Stationary Source of VOC:
 - A_V = Actual Emissions of VOC for the applicable Fee Assessment Year (in tons per year). If A_V is less than or equal to 80% of B_V , there shall be no VOC CAA Nonattainment Fee assessed for the Fee Assessment Year.
 - B_V = Baseline Emissions or approved Alternative Baseline Emissions for VOC (in tons per year).
- For a Major Stationary Source of NO_x:

- A_N = Actual Emissions of NO_x for the applicable Fee Assessment Year (in tons per year). If A_N is less than or equal to 80% of B_N , there shall be no NO_x CAA Nonattainment Fee assessed for the Fee Assessment Year.
- B_N = Baseline Emissions or approved Alternative Baseline Emissions for NO_x (in tons per year).

(d) (3) Annual Reporting and Payment

- (A) The owner or operator of a Major Stationary Source shall report all Actual Emissions annually.
- (B) The owner or operator of a Major Stationary Source existing during the Fee Assessment Year shall, for each applicable Fee Assessment Year, which includes the years following the Attainment Year and prior to the U.S. EPA making a final finding that a Basin has failed to attain the Applicable Ozone ~~s~~Standard, pay the appropriate CAA Nonattainment Fee, determined pursuant to paragraph (d)(2), regardless of whether the owner or operator received an invoice from the Executive Officer.

(4) Payment Due Date

- (A) If the Executive Officer has issued an invoice for the CAA Nonattainment Fee for a Fee Assessment Year, the owner or operator of a Major Stationary Source existing during the Fee Assessment Year shall submit full payment for:
 - (i) The invoice amount that includes the CAA Nonattainment Fee for the initial Fee Assessment Year for the Applicable Ozone Standard, no later than 365 days from the date the invoice is issued by the Executive Officer; and
 - (ii) Any other invoice amount for any CAA Nonattainment Fee except for the invoice amount described in clause (d)(4)(A)(i), either:
 - (I) No later than December 15th of the year the invoice is issued by the Executive Officer; or
 - (II) No later than 75 days from the date the invoice is issued by the Executive Officer, whichever is later.
- (B) If the Executive Officer has not issued an invoice for the CAA Nonattainment Fee for a Fee Assessment Year, the owner or operator of a Major Stationary Source existing during the Fee Assessment Year shall submit payment and the calculations used to determine the amount of payment, determined pursuant to paragraph (d)(2), for the applicable CAA

Nonattainment Fee for the Fee Assessment Year no later than December 15th of the second year following either:

- (d) (4) (B) (i) The calendar year the U.S. EPA makes a final finding that a Basin has failed to attain the Applicable Ozone Standard; or
- (ii) The Fee Assessment Year for the Applicable Ozone Standard, whichever is later.

(5) Failure to Pay Fees

If one-hundred twenty (120) days have elapsed since the payment due date and all CAA Nonattainment Fees have not been paid in full, the Executive Officer has the authority to take action to revoke all Permits to Operate for equipment issued to the owner or operator at the Major Stationary Source, as authorized in California Health and Safety Code Section 42307.

(6) Process of Challenging Rule Applicability

(A) No later than 90 days after a notice issued by the Executive Officer specifying a facility is subject to this rule for VOC and/or NO_x for an Applicable Ozone Standard, the owner or operator of a facility that elects to challenge the applicability shall provide evidence to the Executive Officer to demonstrate that the facility does not meet the definition of a Major Stationary Source.

(B) No later than 90 days before the payment due date of the CAA Nonattainment Fee for the initial Fee Assessment Year for the Applicable Ozone Standard, unless the owner or operator is notified that additional time is needed to investigate, the Executive Officer will:

- (i) Review the evidence submitted in subparagraph (d)(6)(A) and other available data; and
- (ii) Notify the owner or operator the final decision regarding the challenge submitted, pursuant to subparagraph (d)(6)(A), that the facility is subject to this rule or the facility is not subject to this rule.

(C) The owner or operator of a facility that challenges rule applicability pursuant to subparagraph (d)(6)(A) shall:

- (i) Remain subject to the rule unless and until the Executive Officer notifies the owner or operator that the facility is not subject to this rule; and
- (ii) Not be eligible to challenge rule applicability for VOC and/or NO_x for the Applicable Ozone Standard pursuant to subparagraph

(d)(6)(A), after the Executive Officer notifies the owner or operator that the facility is subject to this rule, pursuant to clause (d)(6)(B)(ii).

(d) (7) Process of Challenging Baseline Emissions

- (A) No later than 90 days after a notice issued by the Executive Officer specifying a Major Stationary Source's assigned Baseline Emissions for VOC and/or NOx for an Applicable Ozone Standard, the owner or operator of the Major Stationary Source that elects to challenge the assigned Baseline Emissions shall provide evidence to the Executive Officer that supports adjustment of the assigned Baseline Emissions.
- (B) No later than 90 days before the payment due date of the CAA Nonattainment Fee for the initial Fee Assessment Year for the Applicable Ozone Standard, unless the owner or operator is notified that additional time is needed to investigate, the Executive Officer will:
 - (i) Review the evidence submitted in subparagraph (d)(7)(A) and other available data; and
 - (ii) Notify the owner or operator the final decision regarding the challenge submitted, pursuant to subparagraph (d)(7)(A), to either retain the assigned Baseline Emissions or revise the Baseline Emissions.
- (C) The owner or operator of a Major Stationary Source that challenges the Major Stationary Source's assigned Baseline Emissions pursuant to subparagraph (d)(7)(A) shall:
 - (i) Remain subject to the applicable CAA Nonattainment Fee pursuant to paragraph (d)(2) using the assigned Baseline Emissions unless and until the Executive Officer provides notification for a revised Baseline Emission; and
 - (ii) Not be eligible to challenge the assigned Baseline Emissions for VOC and/or NOx for the Applicable Ozone Standard, pursuant to subparagraph (d)(7)(A), after the Executive Officer notifies the owner or operator of the determination that the assigned Baseline Emissions is retained or revised, pursuant to clause (d)(7)(B)(ii).

(8) Alternative Baseline Emissions

If the owner or operator of a Major Stationary Source requests to use Alternative Baseline Emissions to determine the CAA Nonattainment Fee for a Fee

Assessment Year, the following criteria shall be met prior to the payment due date for the Fee Assessment Year:

- (d) (8) (A) The U.S. EPA has issued guidance authorizing an alternative methodology for calculation of a Major Stationary Source's Baseline Emissions, pursuant to CAA Section 185(b)(2) for the Applicable Ozone Standard, that is consistent with the methodology specified in subparagraph (d)(8)(C) ~~and criteria specified in subparagraphs (d)(8)(B) and (d)(8)(D)~~;
- (B) The Major Stationary Source was a Major Stationary Source during the entirety of the Attainment Year;
- (C) No later than 180 days after the end of the Attainment Year or no later than 120 days after the U.S. EPA makes a final finding that the Basin has failed to attain the Applicable Ozone Standard by the applicable Attainment Date, whichever is later, the owner or operator of a Major Stationary Source submits to the Executive Officer an Alternative Baseline Emissions Request that contains the following:
 - (i) An Alternative Baseline Emissions Report including Actual Qualifying Emissions For Baseline, for each of the relevant ten (10) calendar years preceding and including the Attainment Year;
 - (ii) Identification of the twenty-four consecutive months when Actual Qualifying Emissions For Baseline represent typical operations:
 - (I) For a Major Stationary Source without an electrical steam generating unit(s), within the last relevant ten (10) calendar years prior to and including the Attainment Year; or
 - (II) For a Major Stationary Source with an electrical steam generating unit(s), within the last relevant five (5) calendar years prior to and including the Attainment Year or, with justification, the relevant five (5) calendar years prior to the aforementioned calendar years;
 - (iii) An analysis demonstrating that the Actual Qualifying Emissions For Baseline from the average of the twenty-four consecutive months, identified pursuant to clause (d)(8)(C)(ii), represent typical operations;
 - (iv) Analysis of adopted local, state, and federal rules or regulations that would have restricted the source's ability to either operate or emit a particular pollutant, had they been in effect during the consecutive twenty-four months selected;

- (d) (8) (C) (v) The average Actual Qualifying Emissions For Baseline of the twenty-four months, identified in clause (d)(8)(C)(ii), considering the impacts identified in clause (d)(8)(C)(iv); and
 - (vi) Certification, in writing, by the highest-ranking executive on site that the source’s emissions are irregular, cyclical, or otherwise vary significantly from year to year; and
 - ~~(vii) Any other information as required by the U.S. EPA guidance referenced in subparagraph (d)(8)(A); and~~
 - (D) No later than 120 days after the U.S. EPA issues the guidance referenced in subparagraph (d)(8)(A), the owner or operator of a Major Stationary Source electing to include additional information as required by the U.S. EPA guidance submits such information to the Executive Officer; and
 - ~~(DE)~~ The Executive Officer has provided a written approval of the Alternative Baseline Emissions Request based on evaluation of the information provided by the Major Stationary Source.
 - (9) Alternative Baseline Emissions Request Payment
 - (A) The owner or operator of a Major Stationary Source electing to submit an Alternative Baseline Emissions Request pursuant to subparagraph (d)(8)(C) shall pay an hourly staff rate equivalent to the applicable Plan Evaluation Fee for a Non-Title V Facility or Title V Facility, pursuant to Rule 306 – Plan Fees.
 - (B) No later than 60 days from the date the invoice is issued by the Executive Officer for the evaluation of the Alternative Baseline Emission Request, the owner or operator of a Major Stationary source shall submit full payment for the amount invoiced.
- (e) Exemptions
 - (1) Extension Year

The owner or operator of a Major Stationary Source shall not be required to remit the CAA Nonattainment Fee under this rule during any calendar year that is considered a Basin’s Extension Year for the Applicable Ozone Standard.
 - (2) Cessation of Fees

The owner or operator of a Major Stationary Source shall not be required to remit the CAA Nonattainment Fee for an Applicable Ozone Standard beginning the calendar year one when the Basin has been redesignated by the U.S. EPA to attainment for that Applicable Ozone Standard or, for a revoked Applicable Ozone

Standard, if the U.S. EPA has terminated the anti-backsliding requirement associated with the CAA Nonattainment Fee for the Applicable Ozone Standard. The CAA Nonattainment Fee will cease in the same calendar year as the redesignation or termination.

(e) (3) Enforceable Limitation through a Rule 317.1 Exclusion Plan

The owner or operator of a Major Stationary Source that elects to take a federally enforceable limitation such that the facility no longer meets the definition of a Major Stationary Source shall:

- (A) Submit a Rule 317.1 Exclusion Plan and pay fees specified in Rule 306 – Plan Fees;
- (B) Beginning the Fee Assessment Year after the calendar year in which the Executive Officer approves the Rule 317.1 Exclusion Plan, not be required to remit the applicable CAA Nonattainment Fee; and
- (C) Remit the applicable CAA Nonattainment Fee, pursuant to this rule, for all Fee Assessment Years for the Applicable Ozone Standard beginning the calendar year of exceedance of the emission limitation, if the emission limitation specified in the Rule 317.1 Exclusion Plan is exceeded.

ATTACHMENT G

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Staff Report

Proposed Rule 317.1 – Clean Air Act Nonattainment Fees for 8-Hour Ozone Standards

June 2024

Deputy Executive Officer

Planning, Rule Development, and Implementation
Sarah Rees, Ph.D.

Assistant Deputy Executive Officer

Planning, Rule Development, and Implementation
Michael Krause

Planning and Rules Manager

Planning, Rule Development, and Implementation
Kalam Cheung, Ph.D.

Author:

Britney Gallivan – Air Quality Specialist

Contributors:

Jivar Afshar – Air Quality Specialist
Jason Aspell – ~~Assistant~~ Deputy Executive Officer
Cherie Balisi – Air Quality Specialist
Ben Blackburn – Assistant Air Quality Engineer
Fortune Chen – Program Supervisor
Daniel Cho – Air Quality Engineer II
Ranil Dhammapala, Ph.D. – Senior Meteorologist
Scott Epstein, Ph.D. – Planning and Rules Manager
Ryan Finseth, Ph.D. – Air Quality Specialist
Mitch Haimov – Senior Air Quality Engineering Manager
Eugene Kang – Planning and Rules Manager
James Koizumi – Senior Air Quality Engineer
Luke Laue – Air Quality Engineer II
Kevin Ni – Program Supervisor
Tracy Nguyen – Air Quality Engineer II
David Ono – Senior Air Quality Engineering Manager
Rose Rau – Staff Specialist
Barbara Radlein – Planning and Rules Manager
Valerie Rivera – Assistant Air Quality Specialist
Xian-Liang Tian, Ph.D. – Program Supervisor
Jessica Torres – Senior Staff Specialist
Janice West – Senior Air Quality Engineer
Jillian Wong, Ph.D. – Assistant Deputy Executive Officer
Georgina Youssefian – Air Quality Specialist

Reviewed by:

Barbara Baird – Chief Deputy Counsel
Neil Fujiwara – Program Supervisor
Sheri Hanizavareh – Principal Deputy District Counsel
Kathryn Roberts – Senior Deputy District Counsel

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
GOVERNING BOARD**

Chair: VANESSA DELGADO
Senator (Ret.)
Senate Rules Committee Appointee

Vice Chair: MICHAEL A. CACCIOTTI
Councilmember, South Pasadena
Cities of Los Angeles County/Eastern Region

MEMBERS:

ANDREW DO
Supervisor, First District
County of Orange

CURT HAGMAN
Supervisor, Fourth District
County of San Bernardino

GIDEON KRACOV
Governor's Appointee

PATRICIA LOCK DAWSON
Mayor, Riverside
Cities of Riverside County Representative

LARRY MCCALLON
Mayor Pro Tem, Highland
Cities of San Bernardino County

HOLLY J. MITCHELL
Supervisor, Second District
County of Los Angeles

VERONICA PADILLA-CAMPOS
Speaker of the Assembly Appointee

V. MANUEL PEREZ
Supervisor, Fourth District
County of Riverside

NITHYA RAMAN
Councilmember, Fourth District
City of Los Angeles Representative

CARLOS RODRIGUEZ
Councilmember, Yorba Linda
Cities of Orange County

JOSÉ LUIS SOLACHE
Mayor, Lynwood
Cities of Los Angeles County/Western Region

EXECUTIVE OFFICER:

WAYNE NASTRI

TABLE OF CONTENTS

EXECUTIVE SUMMARY	iii
CHAPTER 1 – BACKGROUND.....	1-1
1.1. Introduction.....	1-2
1.2. Ozone Trends and Emissions Sources	1-4
1.3. Clean Air Act Section 185 nonattainment fees Requirements.....	1-6
1.4. Implementation of Clean Air Act Section 185 nonattainment fees Requirements	1-9
1.5. Title V Permit Program.....	1-11
1.6. Use of Funds	1-12
1.7. Need for Rulemaking	1-12
1.8. Affected Industries/Facilities	1-13
1.9. Public Process	1-14
CHAPTER 2 - SUMMARY OF PROPOSED RULE 317.1.....	2-1
2.1. Overview of PR 317.1.....	2-2
2.2. Proposed Rule 317.1	2-2
CHAPTER 3 – IMPACT ASSESSMENT	3-1
3.1. Introduction.....	3-2
3.2. Affected Sources	3-2
3.3. Emissions Impact	3-2
3.4. California Environmental Quality Act Assessment.....	3-2
3.5. Socioeconomic Impact Assessment.....	3-2
3.6. Draft Findings under Health and Safety Code Section 40727	3-3
APPENDIX A: Affected Facilities.....	A-1
APPENDIX B: Responses to Comments.....	B-1

LIST OF FIGURES

Figure 1-1 U.S. EPA Nonattainment Area Designations	1-2
Figure 1-2 Regions in South Coast AQMD's Jurisdiction	1-3
Figure 1-3 8-Hour Ozone Design Values	1-5
Figure 1-4 Source Contributions for Ozone Precursors	1-6
Figure 1-5 Example Calculation of Annual CAA Section 185 Fee Amount for a Major Stationary Source of VOC Emissions for the 1997 8-Hour Ozone Standard	1-8
Figure 1-6 Projected Calendar Year 2025 Title V Facility Universe	1-14
Figure 2-1 1997 8-Hour Ozone NAAQS Reporting and Payment for Hypothetical Major Stationary Source	2-12

LIST OF TABLES

Table 1-1 U.S. EPA Ozone NAAQS Attainment Classifications	1-4
Table 1-2 Major Stationary Source Emissions Thresholds for VOC and NOx	1-7
Table 1-3 Ozone NAAQS Nonattainment Fee Summary and Compliance Pathway Overview	1-11
Table 2-1 Baseline Emissions Applicable Rule Provision Base on when Major Stationary Source Begins Operation	2-5
Table 2-2 1997 8-Hour Ozone NAAQS Assessment Years	2-10
Table A-1 PR 317.1 Potentially Impacted Major Stationary Sources	A-2

EXECUTIVE SUMMARY

Section 185 was included in the 1990 amendments to the federal Clean Air Act (CAA) as a backstop provision for areas that are classified as “severe” or “extreme” and do not attain the national ambient air quality standards (NAAQS or standards) for ozone by their assigned attainment dates. Both volatile organic compounds (VOC) and nitrogen oxides (NOx) are precursors of ozone. Section 185 requires that major stationary sources of VOC and/or NOx in those nonattainment areas either reduce their emissions by 20% from a baseline amount or pay a CAA nonattainment fee. If a major stationary source does not reduce emissions by ~~below~~ 20% from a baseline amount, a nonattainment fee will be assessed annually for each excess ton of VOC and for each excess ton of NOx emissions above their respective 80% thresholds. The fee would be collected from all major stationary sources for each calendar year beginning after the attainment date and shall continue until the area is redesignated as an attainment area for that ozone standard. Additionally, the United States Environmental Protection Agency (U.S. EPA) is required to collect the fees if the state implementation plan (SIP) does not meet the requirements or if a state is not administering and enforcing CAA section 185. As such, South Coast AQMD ~~is required~~ needs to promulgate a rule to fulfill the obligations of CAA section 185.

The objective of Proposed Rule 317.1 – Clean Air Act Nonattainment Fees for 8-Hour Ozone Standards (PR 317.1) is to implement CAA section 185 until the U.S. EPA declares that the nonattainment area is in attainment with the federal 8-hour standard for ozone. PR 317.1 establishes the regulatory pathway necessary to comply with the requirements of the CAA section 185 for the 1997 and 2008 8-hour ozone standards. The provisions of PR 317.1 would address when and how the CAA nonattainment fees would be assessed and collected.

CHAPTER 1 – BACKGROUND

INTRODUCTION

OZONE TRENDS AND EMISSIONS SOURCES

CLEAN AIR ACT SECTION 185 NONATTAINMENT FEES
REQUIREMENTS

IMPLEMENTATION OF CLEAN AIR ACT SECTION 185
NONATTAINMENT FEES

TITLE V PERMIT PROGRAM

USE OF FUNDS

NEED FOR RULEMAKING

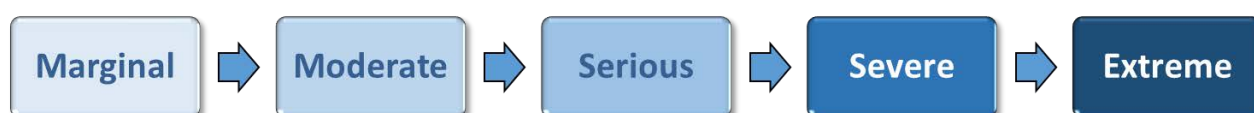
AFFECTED INDUSTRIES/FACILITIES

PUBLIC PROCESS

1.1. INTRODUCTION

The 1990 amendments to the federal Clean Air Act (CAA) require the United States Environmental Protection Agency (U.S. EPA) to establish national ambient air quality standards (NAAQS or standards) for various air pollutants to be protective of human health and the environment. The CAA requires the U.S. EPA to designate areas across the nation as meeting (attainment) or not meeting (nonattainment) the standard.¹ As shown in Figure 1-1, areas not meeting the ozone standards are designated as nonattainment areas and are classified (e.g., “extreme,” “severe,” “serious,” “moderate,” or “marginal”) based on their exceedance level for each standard.

Figure 1-1
U.S. EPA Nonattainment Area Designations



In 1979, the U.S. EPA approved a 1-hour ozone standard (120 ppb) that was replaced in 1997 with a more stringent 8-hour ozone standard (80 ppb). The U.S. EPA subsequently revoked the 1-hour standard entirely effective June 15, 2005. The 8-hour ozone standard was subsequently lowered to 75 ppb in 2008 and to 70 ppb in 2015. The U.S. EPA subsequently revoked the 1997 8-hour ozone standard (80 ppb), effective April 6, 2015, as it was inadequate for protecting public health, but the U.S. EPA still requires adherence due to anti-backsliding measures.

Even though, pursuant to 40 CFR 51.1105(d), CAA sections 181(b)(2) and 179(c) no longer obligate the U.S. EPA to determine whether an area has attained the revoked 1997 8-hour ozone standard by the area’s attainment date, the U.S. EPA is still required to determine whether an area has attained a revoked standard by the area’s attainment date. The purpose of the U.S. EPA determination is to address the applicable requirements for nonattainment contingency measures and CAA section 185 fee programs, such as that of PR 317.1, solely for anti-backsliding purposes.^{2,3} For a revoked standard, an area may submit a request for redesignation accompanied by a maintenance plan, at which point the U.S. EPA would perform a “functional redesignation.”

The jurisdiction of the South Coast AQMD covers (Figure 1-2) an area of approximately 10,743 square miles, consisting of the South Coast Air Basin, and the Riverside County portions of the Salton Sea Air Basin (SSAB, also referred to as Coachella Valley Planning Area or Coachella Valley) and the Mojave Desert Air Basin (MDAB). The boundaries of each air basin are defined in 40 Code of Federal Regulations Section 81.305.⁴ The South Coast Air Basin, which is a sub-region of the South Coast AQMD’s jurisdiction, is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east. It includes all

¹ U.S. EPA. (2023, November 28). *Learn About Ozone Designations*. <https://www.epa.gov/ozone-designations/learn-about-ozone-designations#process>.

² 40 CFR 51.1105(d). <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-51/subpart-AA>.

³ CAA. (2023, November 29). *Part D - Plan Requirements for Nonattainment Areas*. <https://www.epa.gov/clean-air-act-overview/clean-air-act-title-i-air-pollution-prevention-and-control-parts-through-d#id>.

⁴ U.S. EPA. *40 Code of Federal Regulations Section 81.305*. <https://www.govinfo.gov/content/pkg/CFR-2014-title40-vol18/pdf/CFR-2014-title40-vol18-sec81-305.pdf>.

of Orange County and major portions of Los Angeles, Riverside, and San Bernardino counties. The Coachella Valley (Riverside County portion of the SSAB) is a federal nonattainment area that is part of a sub-region of Riverside County in the SSAB that is bounded by the San Jacinto Mountains to the west and the eastern boundary of the Coachella Valley. The Riverside County portion of the MDAB within the South Coast AQMD jurisdiction is bounded by the eastern boundary of the Coachella Valley in the west and spans eastward to the Palo Verde Valley. The SSAB and MDAB were previously included in a single large basin called the Southeast Desert Air Basin (SEDAB).

**Figure 1-2
Regions in South Coast AQMD’s Jurisdiction**

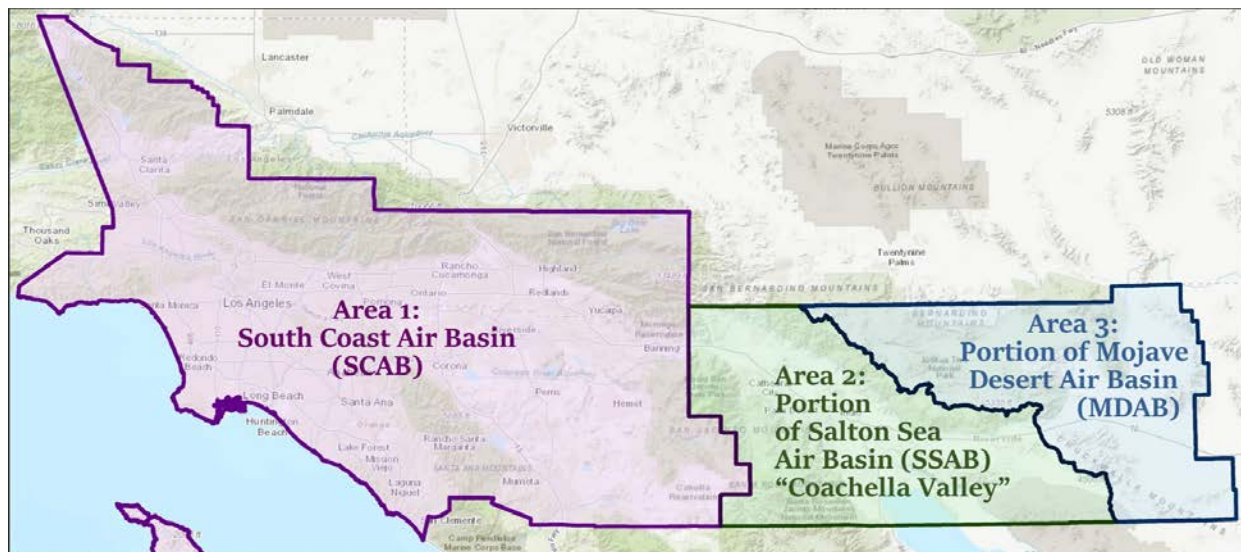


Table 1-1 shows the four U.S. EPA promulgated NAAQS for ozone as well as the attainment status and attainment deadline for each region in the South Coast AQMD’s jurisdiction. As the Riverside County portion of the MDAB is not classified as nonattainment for the 8-hour ozone standards, it is excluded from Table 1-1.^{5, 6, 7} For the 8-hour ozone standards, the South Coast Air Basin and Coachella Valley have been classified as “extreme” nonattainment for the 1997, 2008, and 2015 standards. As an “extreme” ozone nonattainment area for the 1997 8-hour ozone standard, the attainment deadline is June 15, 2024.

⁵ U.S. EPA. (2024, February 29). Green Book. 8-Hour Ozone (1997) Designated Area/State Information with Design Values - NAAQS Revoked. <https://www3.epa.gov/airquality/greenbook/gbtcw.html>.

⁶ U.S. EPA. (2024, February 29). Green Book. 8-Hour Ozone (2008) Designated Area/State Information with Design Values. <https://www3.epa.gov/airquality/greenbook/hbtcw.html>.

⁷ U.S. EPA. (2024, February 29). Green Book. 8-Hour Ozone (2015) Designated Area/State Information with Design Values. <https://www3.epa.gov/airquality/greenbook/jbtcw.html>.

Table 1-1
U.S. EPA Ozone NAAQS Attainment Classifications

NAAQS Year	Averaging Time	NAAQS Concentration (ppb)	Revoked Effective	Region ¹	Attainment Status	Attainment Deadline
1979	1-Hour	120	06/15/2005	SCAB	Extreme Nonattainment	12/31/2022
				Coachella Valley	Attainment ²	11/15/2007
1997	8-Hour	80	04/06/2015	SCAB	Extreme Nonattainment	06/15/2024
				Coachella Valley	Extreme Nonattainment	06/15/2024
2008	8-Hour	75	N/A	SCAB	Extreme Nonattainment	07/20/2032
				Coachella Valley	Extreme Nonattainment	07/20/2032
2015	8-Hour	70	N/A	SCAB	Extreme Nonattainment	08/03/2038
				Coachella Valley	Extreme Nonattainment ³	08/03/2038 ³

¹ South Coast AQMD portion of MDAB is designated as unclassifiable.

² U.S. EPA. (04/15/2015). Finding of Attainment in 80 FR 20166. <https://www.govinfo.gov/content/pkg/FR-2015-04-15/pdf/2015-08582.pdf>.

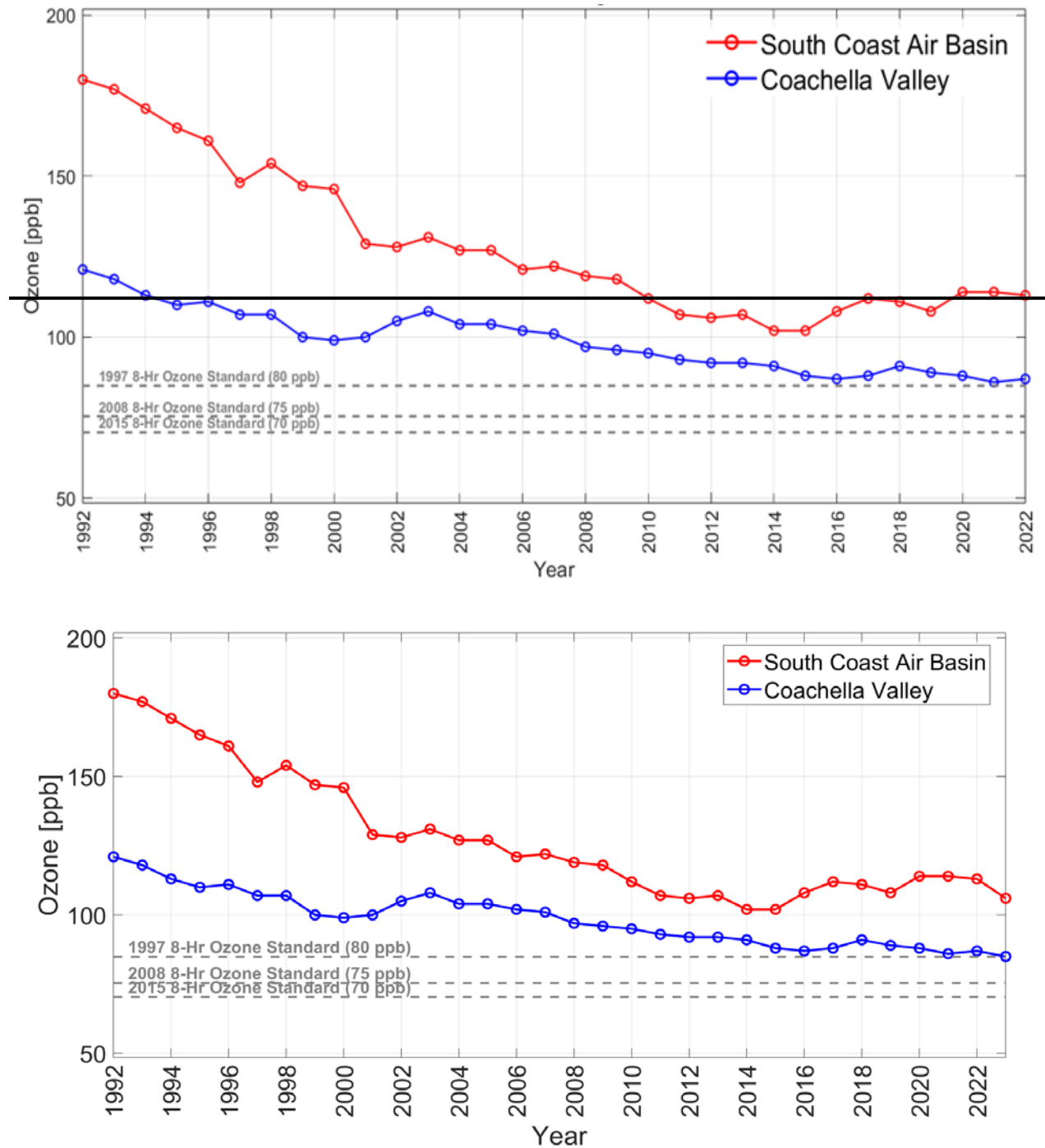
³ Voluntary reclassification to “extreme” nonattainment is pending U.S. EPA approval and would allow 5 more years to attain the standard.

1.2. OZONE TRENDS AND EMISSIONS SOURCES

1.2.1. Ozone Trends

Despite improvements in cleaner technology and strict regulations that have reduced ozone levels since their peak in the mid-twentieth century, ozone levels have remained high over the past decade. This trend is due to the changes in climate and other weather conditions such as the increase in hot stagnant days that can lead to the formation of ozone that have been experienced in recent years. Although the Coachella Valley has reached attainment with the 1-hour ozone standard, the Coachella Valley and SCAB have not yet reached attainment with any of the three 8-hour standards (Figure 1-3). Attainment with the 1997 8-hour standard is due by June 15, 2024 and current ozone concentrations indicate ~~impart~~ that the South Coast AQMD will not be able to meet this deadline. Overall, air quality has improved and continued emissions reductions will be needed to further reduce ozone.

Figure 1-3
8-Hour Ozone Design Values¹



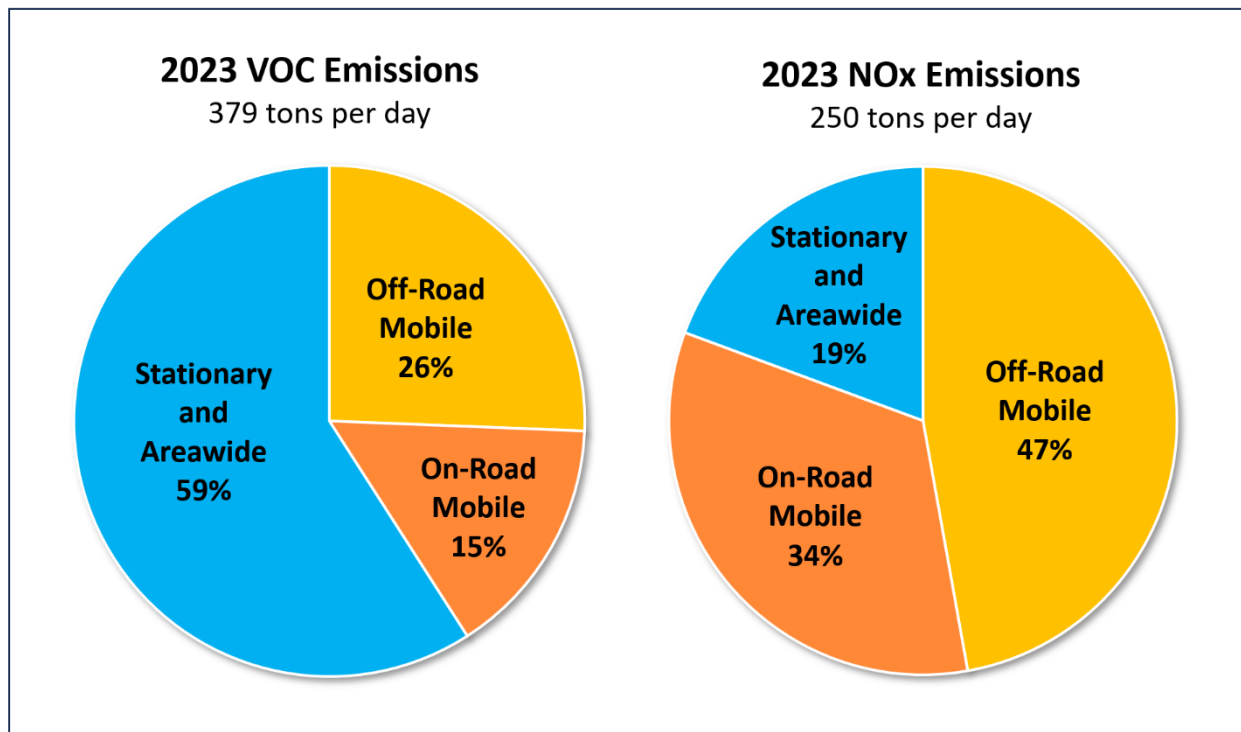
¹ Annual 4th highest 8-hour average concentration, averaged over 3 years.

1.2.2. Emissions Sources of Ozone

Unlike most other air pollutants, ground level ozone is not emitted directly into the atmosphere, but formed by the reaction of ozone precursors, nitrogen oxides (NO_x) and volatile organic

compounds (VOC), in the presence of sunlight. Figure 1-4 illustrates the calendar year 2023 emissions inventory for VOC and NO_x. It shows that 59% of the VOC emissions originate from stationary and area sources while 41% of the VOC emissions originate from mobile sources. Additionally, 19% of the NO_x emissions originate from stationary and area sources while 81% of the NO_x emissions originate from mobile sources. To attain the 8-hour ozone standards, the 2022 Air Quality Management Plan (AQMP) demonstrates that the primary pollutants that must be controlled are NO_x.⁸ Although mobile sources are responsible for more than 80% of the of smog-forming pollution, the majority of South Coast AQMD’s regulatory authority is for stationary sources with only limited authority to control mobile sources.

Figure 1-4
Source Contributions for Ozone Precursors



1.3. CLEAN AIR ACT SECTION 185 NONATTAINMENT FEES REQUIREMENTS

CAA section 185 requires each major stationary source of VOC and/or NO_x, ~~that is~~ located in “severe” or “extreme” ozone nonattainment area where the area has failed to attain the NAAQS by the applicable attainment date, to either reduce their emissions by 20% from a baseline amount or pay a fee.⁹ CAA nonattainment fees only apply to major stationary sources of NO_x and/or VOC. A fee will only apply to a major stationary source of that particular pollutant. If a major stationary

⁸ South Coast Air Quality Management District. (2022, December 2). *2022 Air Quality Management Plan*, Pgs. ES-4 and 2-47. <https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/final-2022-aqmp.pdf?sfvrsn=16>.

⁹ CAA. Part D - Plan Requirements for Nonattainment Areas. *Section 185 [Section 7511d] Enforcement for Severe and Extreme ozone nonattainment areas for failure to attain*. <https://www.govinfo.gov/content/pkg/USCODE-2013-title42/html/USCODE-2013-title42-chap85-subchapI-partD-subpart2-sec7511d.htm>.

source is not a major stationary source of VOC or NO_x, no CAA nonattainment fees will be required.

Major stationary sources are defined in CAA sections 182(d), or 182(e), and 182(f), as applicable.¹⁰ Within South Coast AQMD's jurisdiction a major stationary source is any facility which emits or has the potential to emit the following amounts or more:

Table 1–2
Major Stationary Source Emissions Thresholds for VOC and NO_x

Pollutant	SCAB (tons/year)	Riverside County Portion	
		SSAB (tons/year)	MDAB (tons/year)
Volatile Organic Compounds or Hydrocarbons (VOC)	10	10	100
Nitrogen Oxides (NO _x)	10	10	100

The CAA section 185 nonattainment fees will be calculated separately for each standard the area has failed to attain. The fee shall be collected for each calendar year beginning after the attainment date and shall continue until the area is redesignated as an attainment area for that ozone standard. The fee does not go away when an ozone standard is revoked or a new ozone standard is promulgated. Additionally, the U.S. EPA is required to collect the fees if the state implementation plan (SIP) does not meet the requirements or if a state is not administering and enforcing CAA section 185.

1.3.1. Baseline Emissions

Pursuant to CAA section 185, a source's baseline emissions must be the lower of the amount of actual or allowable emissions under the permit applicable to the source (or if no permit has been issued for the attainment year, the amount of emissions allowed under the applicable implementation plan) during the attainment year. A facility will have separate facility baseline emissions for each applicable pollutant, VOC and/or NO_x, for each of the applicable ozone standards the area has failed to attain.

1.3.2. Alternative Baseline Emissions

The CAA requires that the fee obligation be generally derived using a baseline amount based on applicable source emissions information in the attainment year. In some cases, the baseline emissions amount determined based on emissions in the attainment year may not be considered representative of the source's normal operating conditions and would not be appropriate for purposes of setting the CAA section 185 fee. In cases where a source's annual emissions are "irregular, cyclical, or otherwise vary significantly from year to year" the CAA provides that the U.S. EPA may issue guidance providing an acceptable alternative methodology for calculating an alternative baseline emissions amount.

On March 21, 2008, the U.S. EPA issued a memorandum outlining guidance for establishing alternative emissions baselines for areas that fail to attain the 1-hour ozone NAAQS by their

¹⁰ CAA. (2023, November 29). Part D - Plan Requirements for Nonattainment Areas. <https://www.epa.gov/clean-air-act-overview/clean-air-act-title-i-air-pollution-prevention-and-control-parts-through-d#id>.

attainment deadline.^{11, 12} The alternative methodology should provide an alternative baseline more representative of a source's normal operations.¹³ This alternative method is provided for States to use at their discretion and the adequacy of given source operating data for the selected time period is to be determined on a case-by-case basis by the reviewing authority.

The U.S. EPA has not issued alternative baseline guidance for the 8-hour ozone standards.

1.3.3. Fee Determination

The fee collected shall be the annual CAA section 185 fee rate for each major stationary source of VOC and/or NOx per ton of applicable VOC and/or NOx emitted by the source during the calendar year in excess of 80% ~~percent~~ of the baseline amount for that pollutant. In 1990, the fee rate was set as \$5,000. The fee rate must be annually adjusted beginning in the year after 1990 for inflation based on the consumer price index (CPI) for the most recent calendar year on an annual basis.¹⁴ The annual U.S. EPA fee rates are published annually in the *Clean Air Act Section 185 Fee Rates Memorandum*, and is \$11,922 for calendar year 2023.¹⁵

Figure 1-5

Example Calculation of Annual CAA Section 185 Fee Amount for a Major Stationary Source of VOC Emissions for the 1997 8-Hour Ozone Standard

$$\left[\text{Actual Annual Tons of VOC Emitted} - \left(0.8 \times \text{Baseline Annual Tons of VOC Emitted} \right) \right] \times \text{Annual U.S. EPA CAA §185 Fee Rate (\$/ton)} = \text{Annual CAA Nonattainment Fee for VOC}$$

Hypothetical Facility Calculation for VOCs

- **2024 Baseline Annual Tons of VOCs = 15.00**
- **2025 Annual Tons of VOCs = 13.00**
- **2025 Annual U.S. EPA CAA §185 Fee Rate = \$11,922.00/ton**

$$\text{Annual CAA Nonattainment Fee for VOC} = [13.00 - (0.8 \times 15.00)] \times \$11,922.00/\text{ton} = \$11,922.00$$

The example in Figure 1-5 is for the annual CAA nonattainment fee for VOC from a hypothetical major stationary source of VOC emissions that was subject to the rule prior to the attainment year for the 1997 8-hour ozone standard. The annual CAA nonattainment fee rate used in the calculation should be for the year in which the actual emissions occurred. If the annual actual emissions of VOC emissions in tons are less than or equal to 80% of the baseline emissions of VOC emissions

¹¹ For background on the 1-hour standard, its revocation and relationship to the section 185 fee provisions, see the following documents: 40 CFR 50.9(b); 69 FR 23951 at 23968 (April 30, 2004); 70 FR 44470 (August 3, 2005); and *South Coast Air Quality Management Dist. v. EPA*, 472 F.3d 882 (D.C. Cir. 2006).

¹² U.S. EPA. (2028, March 21). *Guidance on Establishing Emissions Baselines under Section 185 of the Clean Air Act (CAA) for Severe and Extreme Ozone Nonattainment Areas that Fail to Attain the 1-Hour Ozone NAAQ by their Attainment Memorandum*.
https://www3.epa.gov/ttn/naaqs/aqmguide/collection/cp2/20080321_harnett_emissions_baseline_185.pdf.

¹³ The U.S. EPA guidance in Footnote 12 provides a discussion regarding normal conditions.

¹⁴ See <http://www.bls.gov/cpi/> which provides a tool for calculating adjustments based on the CPI.

¹⁵ U.S. EPA. (2023, October 12). *U.S. EPA Clean Air Act Section 185 Fee Rates Memorandum*.
https://www.epa.gov/system/files/documents/2023-10/memorandum_sec-185-penalty-fees-for-year-2023_10-12-2023.pdf.

in tons, there shall be no VOC CAA nonattainment fee assessed for the fee assessment year. If a major stationary source is not a major stationary source for NOx emissions, there shall be no assessment of the CAA Nonattainment Fee for NOx emissions. The same methodology would be used to calculate the annual CAA nonattainment fee for NOx emissions. The total annual CAA nonattainment fees for a major stationary source of both VOC and NOx would be the summation of the annual CAA nonattainment fee for VOC emissions and the annual CAA nonattainment fee for NOx emissions.

The CAA nonattainment fees decrease as emissions decrease from the baseline emissions. The CAA nonattainment fees for a major stationary source of VOC or NOx would not be assessed for the fee assessment year or would cease for the applicable standard, in the following scenarios.:

CAA nonattainment fees would not be assessed for a fee assessment year when:

- Emissions are reduced by 20% from the baseline for the fee assessment year

CAA nonattainment fees would cease for the applicable standards when:

- Facility is no longer classified as a major stationary source of emissions,
- Area is redesignated as an attainment area for the ozone NAAQS, or
- U.S. EPA approves of an air district rule for CAA section 172(e) fee equivalency and the air district has adequate equivalency funds.

1.3.4. Alternative CAA Section 172(e) Fee Equivalency Approach

CAA section 172(e) requires the promulgation of requirements for an area which has not attained a relaxed standard. Such requirements shall provide for controls which are not less stringent than the controls applicable to areas designated nonattainment before such relaxation.¹⁶ The U.S. EPA issued a memorandum in 2010 noting that section 172(e) of the CAA allows for programs that are “not less stringent” than the section 185 program.¹⁷ Fee equivalent and emissions equivalent programs were identified as possible approaches under a section 172(e) construct. Fee equivalency may be approvable under the 172(e) concept if the program “clearly raises at least as much revenue as otherwise required Section 185 fee program [and] if the proceeds are spent to pay for emissions reductions” that will further improve ozone air quality. As the goal of the fee equivalency approach is to achieve further reductions to attain the standard, it should not rely on emissions reductions which are already obligated through an applicable SIP and should only include emissions reductions which are surplus to all the applicable SIPs.

1.4. IMPLEMENTATION OF CLEAN AIR ACT SECTION 185 NONATTAINMENT FEES REQUIREMENTS

1.4.1. Equivalency Approach for 1979 1-Hour Ozone Standard

The existing Rule 317 implements an alternative program to the section 185 fee program for the 1979 1-hour ozone standard. South Coast AQMD continues to submit *Rule 317 Fee Assessment*

¹⁶ CAA, Part D - Plan Requirements for Nonattainment Areas. *Section 172 [Section 7502] Nonattainment plan provisions in general.* <https://www.govinfo.gov/content/pkg/USCODE-2013-title42/html/USCODE-2013-title42-chap85-subchapI-partD-subpart1-sec7502.htm>.

¹⁷ U.S. EPA. (2010, January 5). *Guidance on Developing Fee Programs Required by Clean Air Act Section 185 for the 1-Hour Ozone NAAQS Memorandum.* https://www.epa.gov/sites/default/files/2015-09/documents/1hour_ozone_nonattainment_guidance.pdf.

Reconciliation Reports for failure to demonstrate attainment with this standard by the prior statutory attainment deadline of 11/15/2010. The South Coast AQMD's aggregate CAA nonattainment fees for all major stationary sources has been fully offset by the fee equivalency account. The South Coast AQMD fee equivalency account consists of funds for emissions reductions projects that are surplus to any SIP obligations for the 1979 1-hour ozone standard. In the event that the fee obligation is not fully offset, a backstop provision triggers adoption of a new rule for this standard. Rule 317 has been approved into the California's SIP.

1.4.2. Consideration of Equivalency Approach for 1997 Ozone Standard

The 2016 AQMP outlined the attainment strategies for the 1997 8-hour ozone standard, and it relied heavily on incentives to successfully achieve the emissions reductions needed to reach attainment with the 8-hour ozone NAAQS. CAA section 182(e)(5) emissions reductions account for a substantial portion of the NOx emissions reductions (approximately 200 tons per day) needed to reach attainment with the 8-hour ozone NAAQS. With such substantial emissions reduction obligations, adequate funding to utilize the fee equivalency approach to generate surplus emissions reductions for the 1997 8-hour standard is not available.

1.4.3. Consideration of Equivalency Approach for 2008 and 2015 Ozone Standard

The 2008 and 2015 8-hour ozone standards have not been revoked by the U.S. EPA. Consequently, the U.S. EPA would not allow use of this alternative approach for these standards and requires adherence to CAA section 185 though fee collection.

1.4.4. CAA Section 185 Compliance Pathway for 1997 and 2008 Ozone Standards

For the 1997 8-hour ozone standard, which is a revoked standard, the fee equivalency approach is allowed, but adequate funding to utilize the fee equivalency approach is not available. For the 2008 8-hour ozone standard, which is not a revoked standard, the South Coast AQMD may not utilize a fee equivalency approach. Consequently, CAA nonattainment fee collection is proposed for both of these 8-hour ozone standards. The summary of the ozone NAAQS and an overview of the compliance pathway is provided in Table 1-3.

Table 1-3
Ozone NAAQS Nonattainment Fee Summary and Compliance Pathway Overview

		Rule 317 – Clean Air Act Non-Attainment Fees	PR 317.1 – Clean Air Act Nonattainment Fees for 8-Hour Ozone Standards		TBD
		1979 Standard (revoked)	1997 Standard (revoked)	2008 Standard	2015 Standard
Section 185 Due Date		12/31/2000	Not Established	07/20/2022	08/03/2028
Baseline Year for Existing Major Stationary Source	South Coast	Fiscal Years 2005-06 and 2006-07	2024	2032	2038
	Coachella Valley	2007 ¹	2024	2032	2038 ²
Calendar Year Nonattainment Fees Begin	South Coast	2011	2025	2033	2039
	Coachella Valley	2008 ¹	2025	2033	2039 ²
U.S. EPA Currently Allows District to Utilize CAA §172(e) Fee Equivalency Approach		Yes	Yes	No	No
South Coast AQMD Currently has Emissions Reductions Surplus to Applicable SIP		Yes	No	Not Applicable	Not Applicable

¹ U.S. EPA. (2015, April 15). Finding of Attainment in 80 FR 20166. <https://www.govinfo.gov/content/pkg/FR-2015-04-15/pdf/2015-08582.pdf>.

² Voluntary reclassification to “extreme” nonattainment is pending U.S. EPA approval.

1.5. TITLE V PERMIT PROGRAM

Title V is a federal program designed to standardize air quality permits and the permitting process for any facility which emits, or has the potential to emit (PTE) of, a criteria pollutant or hazardous air pollutant at levels equal to or greater than the major source thresholds. South Coast AQMD uses the U.S. EPA’s definition of a major source (40 CFR Part 70, Section 70.2), which excludes certain emissions from being considered in the facility’s PTE. In South Coast AQMD, this is implemented through Regulation XXX – Title V Permits, which issues federally enforceable permits to facilities required to be in the Title V permitting program. The South Coast AQMD Title V Program universe consists of approximately 320 facilities. These facilities are considered major sources of one or more pollutants described below:

- VOC
- NO_x
- Oxides of sulfur (SO_x)
- Carbon monoxide (CO)
- Particulate matter 10 micrometers or less in diameter (PM₁₀)
- Single hazardous air pollutant
- Combination of hazardous air pollutants

While the Title V permit program is a good starting point in determining the facilities affected by PR 317.1, it is important to note that not all facilities in the Title V permit program are considered Major Stationary Sources, for purposes of PR 317.1, and not all Major Stationary Sources as

defined in PR 317.1 have Title V permits. More details are provided in Chapter 2 when discussing the definition of a Major Stationary Source.

1.6. USE OF FUNDS

PR 317.1 is being developed to set the regulatory framework for collection of CAA nonattainment fees for the 1997 and 2008 ozone standards. The CAA does not provide direction on how these CAA nonattainment fees may be used. Throughout the rule development process, stakeholders have proposed some considerations for the use of funds that include, but are not limited to:

- Implementation and administration of PR 317.1
- Emission reduction projects for:
 - Environmental justice areas located near the major stationary sources,
 - AB 617 areas,
 - Residential sources,
 - Mobile sources, and
 - Stationary source facilities.

Overall, the CAA nonattainment fees collected by the South Coast AQMD would support South Coast AQMD's efforts to improve air quality. Staff anticipates:

- Substantial resources will be needed to properly implement PR 317.1,
- Significant uncertainty in the amount of the future fees the South Coast AQMD will receive and an inability to commit funds which are not guaranteed,
- The fees would not be potentially assessed until calendar year 2026 (for annual emissions in 2025) for the 1997 8-hour ozone standard and calendar year 2034 (for annual emissions in 2033) for the 2008 8-hour ozone standard,
- Readily available technologies will continue to advance, and
- South Coast AQMD emissions reductions strategies will continuously be evolving.

For the aforementioned reasons, guidance on the spending of these potential funds would be determined in the future through a public process that would be separate from this rulemaking.

1.7. NEED FOR RULEMAKING

As shown in Table 1-3, a compliance deadline for rule development addressing the CAA nonattainment fees was not established for the revoked 1997 8-hour ozone standard, but a deadline of July 20, 2022 was established for the 2008 8-hour ozone standard. As the attainment deadline for the 1997 8-hour ozone standard is June 15, 2024, the CAA nonattainment fees for the standard will need to be assessed as early as calendar year 2026. Consequently, it is necessary to promptly adopt a rule demonstrating compliance with section 185 of the CAA for these two ozone standards and that pursuant to a Consent Decree, South Coast AQMD must present this rule to the Governing Board no later than October 31, 2024.

In addition, the U.S. EPA is required to collect the fees if the SIP does not meet the requirements or if a state is not administering and enforcing CAA section 185. If the U.S. EPA makes a finding, disapproval, or determination of a failure to submit certain state implementation plans required for the ozone NAAQS, a federal sanction clock timeline is triggered. Pursuant to CAA section 179, if U.S. EPA has not affirmatively determined that the state has made a complete submission for the areas within 18 months from the effective date of the U.S. EPA making a finding of failure,

disapproval, or determination, the U.S. EPA is to implement a “first sanction” which may be either 1 or 2 below:

1) Increased offset ratio:

The ratio of emissions reductions to increased emissions shall be at least 2 to 1 for a new or modified source or emissions unit for which a permit is required.

2) Highway sanctions:

The highway funding sanction will apply in accordance with CAA section 179(b)(1).

If the U.S. EPA has not affirmatively determined that the state has made a complete submission for the areas within 6 months from the “first sanction” being imposed, the U.S. EPA is to impose the remaining sanction and may withhold “all or part of the grants for support of air pollution planning and control programs.”¹⁸ The CAA section 110(c) requires that no later than 24 months (2 years) after the effective date of the U.S. EPA making a finding of failure to submit or a disapproval, the U.S. EPA must promulgate a federal implementation plan (FIP).

Rulemaking is needed to comply with the requirements of the CAA section 185 for the 1997 and 2008 8-hour ozone NAAQS. PR 317.1 provides a compliance pathway to meet such requirements, and will be submitted into the SIP to fulfill the CAA obligations.

1.8. AFFECTED INDUSTRIES/FACILITIES

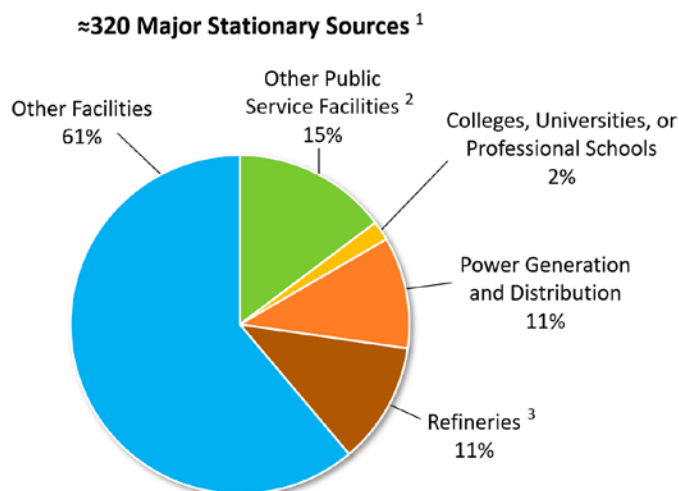
As a conservative approach to identify potentially impacted facilities, all Title V Program facilities are assumed to be major stationary sources of VOC and/or NOx and subject to this rule. Based on the South Coast AQMD permit database, staff estimates that there are approximately 320 major stationary sources in the South Coast AQMD’s jurisdiction that would potentially be affected by PR 317.1. Additionally, based on an assessment of the most recent available AER data (2021) there are an additional 14 facilities that reported emitting more than 10 tons of VOC and/or NOx, but are not part of the Title V program. Some of these were fugitive emissions, which may be excluded for purposes of determining applicability for PR 317.1. A preliminary assessment identified that out of the 14 facilities, 2 facilities may still meet the definition of Major Stationary Source under PR 317.1 after excluding fugitive emissions. The number of facilities that would be impacted by this rule would be due to amount emitted in 2024 and beyond. As the amount emitted vary from year to year, these 2 facilities were not included in the ~~Draft~~ Socioeconomic Impact Assessment. The potentially impacted facilities have been identified either through the Title V permitting program or AER data and are included in Appendix A. Staff performed an assessment to determine if any of the Title V facilities qualify as a small business, as defined in Rule 102 – Definition of Terms, and determined that none of these facilities meet the criteria of a small business.¹⁹ There are 39 facilities which qualify for access to services from the South Coast AQMD’s Small Business Assistance Office and 89 facilities which qualify as a small business

¹⁸ CAA, Part D - Plan Requirements for Nonattainment Areas. *Section 179 (a) [Section 7509] Sanctions and Consequences of Failure to Attain for State Failure*. <https://www.govinfo.gov/content/pkg/USCODE-2013-title42/html/USCODE-2013-title42-chap85-subchapI-partD-subpart1-sec7509.htm>.

¹⁹ South Coast AQMD. (2020, January 10). *Rule 102 – Definition of Terms*. <https://www.aqmd.gov/docs/default-source/rule-book/reg-i/rule-102-definition-of-terms.pdf?sfvrsn=4>.

through the U.S. Small Business Administration. Title V permitting program facilities have been categorized by industry and are presented in Figure 1-6 below.

Figure 1-6
Projected Calendar Year 2025 Title V Facility Universe



¹ As only those facilities that are a major stationary source of VOC and/or NOx will be potentially impacted by PR 317.1, staff estimates that the number of facilities impacted will be fewer than the estimate provided in this PR 317.1 Staff Report.

² Public service facilities include general medical and surgical hospitals; sewage treatment; solid waste landfill; water supply and irrigation systems; natural gas distribution; regulation and administration of communications, electric, gas, and other utilities; and other general government support.

³ Refinery industries include petroleum refineries, petroleum bulk stations and terminals, pipeline transportation of refined petroleum products, and petroleum and petroleum products merchant wholesalers (except bulk stations and terminals).

1.9. PUBLIC PROCESS

The development of PR 317.1 has been a regional, multi-agency effort that includes South Coast AQMD, CARB, and the U.S. EPA. A PR 317.1 Working Group was formed to provide the public and stakeholders an opportunity to discuss important details about the proposed rule and provide staff with input during the rule development process. The Working Group is composed of a wide range of representatives from businesses, environmental groups, public agencies, and consultants.

Staff has held two (2) Working Group Meetings conducted in a virtual format using Zoom. The meetings were held on November 7, 2023 and February 7, 2024. Staff also met with interested stakeholders to discuss the proposed rule. A Public Consultation Meeting was held on April 3, 2024 to present PR 317.1 and receive public comments. Written comments relating to PR 317.1 were accepted through April 17, 2024. The comments and responses to these comments are located in Appendix B – Responses to Comments of this Staff Report. PR 317.1 was also presented at the Stationary Source Committee held on April 19, 2024 and ~~scheduled to be held on May 17, 2024.~~

The public hearing to consider adoption of PR 317.1 is scheduled for Friday, June 7, 2024, at 9 a.m. (subject to change) in the auditorium at the South Coast AQMD's Diamond Bar Headquarters and via a Zoom link that will be available in the June 7, 2024 Governing Board agenda, which will be released no later than 72 hours prior to the Public Hearing.

CHAPTER 2 - SUMMARY OF PROPOSED RULE 317.1

OVERVIEW OF PR 317.1

PROPOSED RULE 317.1

2.1. OVERVIEW OF PR 317.1

The objective of this rule is to implement CAA section 185 until the U.S. EPA declares that the nonattainment area is in attainment with the federal 8-hour standard for ozone. PR 317.1 accomplishes this by incorporating the requirements of CAA section 185 to establish the regulatory pathway necessary to comply with these requirements for the 1997 and 2008 8-hour ozone standards.

PR 317.1 would apply to a major stationary source of VOC and/or NO_x and would become applicable if and when the U.S. EPA makes a final finding that a Basin has failed to attain the 1997 8-hour ozone standard or the 2008 8-hour ozone standard by attainment deadlines of June 15, 2024 (1997 standard) and July 20, 2032 (2008 standard). For the reasons specified in Chapter 1 within section “1.4.4. CAA Section 185 Compliance Pathway for 1997 and 2008 Ozone Standards” of this PR 317.1 Staff Report CAA nonattainment fee collection is proposed for both of these 8-hour ozone standards.

Pursuant to CAA section 185, if an applicable Major Stationary Source does not reduce emissions below 20% from their Baseline Emissions, a CAA Nonattainment Fee will be assessed annually for each excess ton of VOC and for each excess ton of NO_x emissions above 80% of their Baseline Emissions. PR 317.1 includes the following subdivision rule structure for when and how the CAA Nonattainment Fees would be assessed and collected:

- (a) Purpose
- (b) Applicability
- (c) Definitions
- (d) Requirements
- (e) Exemptions

In the event the Congress amends or repeals section 185 of the CAA, or U.S. EPA modifies the guidance for CAA section 185 (e.g., no longer requiring fee equivalency programs to be surplus to the applicable SIP, allowing fee equivalency for unrevoked standards, etc.), the South Coast AQMD may open PR 317.1 for amendment.

2.2. PROPOSED RULE 317.1

2.2.1. Purpose – Subdivision (a)

The purpose of PR 317.1 is to meet the CAA requirements for areas which are classified as “severe” or “extreme” that have failed to meet the federal 1997 or 2008 8-hour ozone standards until the U.S. EPA declares that the nonattainment area is in attainment with the applicable 8-hour ozone standard.

2.2.2. Applicability – Subdivision (b)

This rule shall become applicable to any Major Stationary Source of VOC and/or NO_x in the Basin if and when the U.S. EPA makes a final finding that the Basin has failed to attain the 1997 or 2008 8-hour ozone NAAQS by the applicable Attainment Dates of June 15, 2024 (1997 standard) and July 20, 2032 (2008 standard). Additional information on the U.S. EPA’s determination on whether an area has attained the revoked 1997 8-hour ozone standard is located in the “1.1. Introduction” section of Chapter 1 of this PR 317.1 Staff Report. Further discussion and

explanation of a Major Stationary Source is found later in the definition of a Major Stationary Source.

If the CAA Nonattainment Fee obligations for the 1997 and the 2008 8-hour ozone standards are in effect at the same time, a CAA Nonattainment Fee would be assessed for each 8-hour ozone standard.

2.2.3. Definitions – Subdivision (c)

PR 317.1 includes definitions for specific terms. These terms will be capitalized when they appear in the rule for easy identification of a defined term. Some of the definitions are based on definitions from existing South Coast AQMD rules with slight modifications, while other definitions are unique to PR 317.1. For certain key definitions, additional clarification is provided in this chapter below or in the specific provision where the definition is used. Please refer to PR 317.1 subdivision (c) for definitions used in the proposed rule.

- **ACTUAL EMISSIONS**

Actual Emissions are emissions at the Major Stationary Source which are required to be reported through the South Coast AQMD's Annual Emissions Reporting (AER) program pursuant to Rule 301 – Permitting and Associated Fees (Rule 301) paragraph (e)(2).^{20, 21, 22} The VOC and NOx emissions reported in the AER program will be used to determine the Major Stationary Source's Actual Emissions for the respective calendar year. As described later under the definition of Major Stationary Source, a facility's Actual Emissions might include more emissions than those to be considered when determining PR 317.1 applicability. Annual Emissions should be reported pursuant to "South Coast Air Quality Management District. Annual Emissions Reporting, Reporting Tool - Frequently Asked Questions."²³ In anticipation of implementing PR 317.1, the Annual Emission Reporting Tool – Frequently Asked Questions will be updated prior to the initial Fee Assessment Year to incorporate the changes, including, but not limited to:

- List any additional emission categories that would be required to be reported from sources at the Major Stationary Source (e.g. portable equipment registered under the Statewide Portable Equipment Registration Program (PERP), clean air solvents, architectural coatings, and emissions from charbroilers and deep fat fryers operating by restaurants and eatery establishment directly servicing consumers)
- Clarification regarding the portion of emissions that would be required to be reported for a specified emission category for Major Stationary Sources.

²⁰ South Coast AQMD. (2023, May 5). *Rule 301– Permitting and Associated Fees*.

<https://www.aqmd.gov/docs/default-source/rule-book/reg-iii/rule-301.pdf?sfvrsn=105>.

²¹ For additional information regarding AER, see the following website: *Annual Emissions Reporting Overview Website*. <https://www.aqmd.gov/home/rules-compliance/compliance/annual-emission-reporting>.

²² For additional information on what to report through AER, see the following document: South Coast Air Quality Management District. *South Coast Air Quality Management District Annual Emissions Reporting, Reporting Tool - Frequently Asked Questions*. <https://www.aqmd.gov/docs/default-source/planning/annual-emission-reporting/frequently-asked-questions.pdf?sfvrsn=6>.

²³ South Coast Air Quality Management District. *South Coast Air Quality Management District Annual Emissions Reporting, Reporting Tool - Frequently Asked Questions*. <https://www.aqmd.gov/docs/default-source/planning/annual-emission-reporting/frequently-asked-questions.pdf?sfvrsn=6>.

Additional emissions categories or an additional portion of emissions categories that are currently not required to be reported under the AER program are anticipated to be only assessed a CAA Nonattainment Fee instead of paying both an annual emissions fee and CAA Nonattainment Fee.

- **ACTUAL QUALIFYING EMISSIONS FOR BASELINE**

The Actual Qualifying Emissions For Baseline may be used to determine the Baseline Emissions. The VOC and NO_x emissions reported in the AER program would be used to determine the Major Stationary Source's Actual Emissions for the respective calendar year. The Actual Qualifying Emissions For Baseline would exclude from Actual Emissions any emissions that exceed limits specified in the permit(s), plan(s), applicable rule(s), and implementation plan(s), regardless of whether administratively allowed. Types of emissions which will be excluded are those due to exceeding a limit that may have been administratively allowed including, but are not limited to breakdown relief granted pursuant to Rule 430 – Breakdown Provision and variances granted by the South Coast AQMD Hearing Board. The intent of this restriction is to prevent the inflation of Baseline Emissions through exceedances of requirements. Additionally, certain Actual Emissions that were excluded for purposes of determining PR 317.1 applicability would be included when determining the Actual Qualifying Emissions For Baseline.

Example of Actual Qualifying Emissions For Baseline Evaluation:

The following is an example to calculate the Actual Qualifying Emissions For Baseline for a Major Stationary Source of NO_x only:

- Actual Emissions: 20.00 tons of NO_x
- Actual Emissions due to Violation of Permits: 0.50 tons of NO_x
- Actual Emissions due to Violations of Rules: 0.75 tons of NO_x
- Actual Emissions due to Violations of Implementation Plans: 0.10 tons of NO_x
- Actual Emissions due to Breakdowns: 0.03 tons of NO_x
- Actual Emissions due to Variances: 0.05 tons of NO_x
- **Actual Qualifying Emissions For Baseline:**
 $20.00 \text{ tons} - 0.50 \text{ tons} - 0.75 \text{ tons} - 0.10 \text{ tons} - 0.03 \text{ tons} - 0.05 \text{ tons} = 18.57 \text{ tons}$

If a facility is both a Major Stationary Source of NO_x and a Major Stationary Source of VOCs, the above determination should be performed separately for both NO_x and VOCs.

- **ANNUAL CAA NONATTAINMENT FEE RATE**

The Annual CAA Nonattainment Fee Rate is the amount assessed per ton of VOC and/or NO_x that exceeds 80% of the applicable Baseline Emissions. In 1990, the CAA section 185(b)(2) annual U.S. EPA fee rate was set as \$5,000 per ton of VOC and/or NO_x emitted by the Major Stationary Source during the calendar year in excess of 80% ~~percent~~ of the ~~share~~ Baseline Emissions. The fee must be annually adjusted beginning in the year after 1990 for inflation based on the consumer price index (CPI) for the most recent calendar year on an annual basis.²⁴ The U.S EPA fee rates are published annually in the *Clean Air Act Section 185 Fee Rates Memorandum*.²⁵

²⁴ See <http://www.bls.gov/cpi/> which provides a tool for calculating adjustments based on the CPI.

²⁵ U.S. EPA Clean Air Act Section 185 Fee Rates Memorandum:
https://www.epa.gov/system/files/documents/2023-10/memorandum_sec-185-penalty-fees-for-year-2023_10-12-2023.pdf.

- **BASELINE EMISSIONS**

This definition is consistent with the CAA requirements of section 185 (b)(2). The method to calculate the Baseline Emissions depends on when the Major Stationary Source begins operating as a Major Stationary Source.

A Major Stationary Source will be assigned separate Baseline Emissions for each applicable pollutant, VOC and/or NO_x, for each of the Applicable Ozone Standards the Basin has failed to attain. Table 2-1 summarizes which subparagraph of the Baseline Emissions definition is applicable based on when the Major Stationary Source began/begins operating.

Table 2-1
Baseline Emissions Applicable Rule Provision Based on when
Major Stationary Source Begins Operation

Rule Provision	(c)(8)(A)	(c)(8)(B)	(c)(8)(C)
Began/begins operations as a Major Stationary Source	As of beginning of Attainment Year	During Attainment Year	After Attainment Year

For each Major Stationary Source, the Baseline Emissions for subparagraphs (c)(8)(A), (c)(8)(B), and (c)(8)(C) shall be the lower of clauses (i) or (ii).

PR 317.1 clauses (c)(8)(A)(i), (c)(8)(B)(i), and (c)(8)(C)(i) use the Actual Qualifying Emissions For Baseline which do not exceed the allowable emissions to determine the Baseline Emissions. The Actual Qualifying Emissions For Baseline used to calculate the Baseline Emissions, as set forth in these clauses, will be limited to only include emissions allowed through permit(s), plan(s), applicable rule(s), and implementation plan(s), regardless of whether administratively allowed. The intent of this restriction is to prevent the inflation of Baseline Emissions through exceedances of requirements. These Baseline Emissions would include fugitive emissions from both permitted and unpermitted sources. An example of a permitted source of fugitive emissions is a storage tank, while examples of unpermitted sources are flanges and piping that connect storage tanks. Depending on when the Major Stationary Source began operations as a Major Stationary Source, the facility may also extrapolate the Actual Qualifying Emissions For Baseline over the entire initial year of operation as a Major Stationary Source.

PR 317.1 clauses (c)(8)(A)(ii), (c)(8)(B)(ii), and (c)(8)(C)(ii) are calculated based on the amount of allowable emissions. The allowable emissions used to calculate the Baseline Emissions, as set forth in these clauses, include emissions allowed through permit(s), plan(s), applicable rule(s), and implementation plan(s), regardless of whether administratively allowed.

The following is an example to determine a Major Stationary Source's Baseline Emissions.

- Facility has 21 units, each permitted to emit 1.00 ton
- The Actual Emissions for the year when Baseline Emissions are established is 12 tons with:
 - 20 units report emitting 0.50 tons

- 1 unit report emitting 2.00 tons (exceeding the permit limit of 1.00 ton)
- Baseline Emissions are based on either the PTE or Actual Qualifying Emissions for Baseline, whichever is lower:
 - Potential to Emit: 21 tons
 - Actual Qualifying Emissions for Baseline: $20 \times 0.50 \text{ tons} + 1.00 \text{ ton}$ (cannot exceed what is allowed beyond the permit limit) = 11.00 tons
 - Baseline Emissions would be 11.00 tons.

For the purposes of Baseline Emissions used to calculate the CAA Nonattainment Fees, adding existing equipment to a facility shall be evaluated the same as adding new equipment to an existing Major Stationary Source. If an existing Major Stationary Source adds new equipment or modifies their permit(s) to allow a higher throughput, the Major Stationary Source's Baseline Emissions will not change to reflect the increase in PTE or increase in Actual Emissions from this new equipment or increased throughput. The Baseline Emissions determination process will include the same considerations as determining a Facility under Rule 1302(p). If a facility that is a non-major stationary source merges with a Major Stationary Source located on contiguous properties such that the two facilities are considered one facility, the new Major Stationary Source (consisting of the non-major stationary source and original Major Stationary Source) shall retain the Baseline Emissions from the original Major Stationary Source and no new Baseline Emissions will be calculated. If a Major Stationary Source goes through a change of ownership process to incorporate another Major Stationary Source, the Baseline Emissions shall be that of the Major Stationary Source which is going through the change of ownership process to incorporate the other Major Stationary Source.

Example of Baseline Emissions Evaluation:

For example, during the attainment year, a new facility that is a Major Stationary Source due to PTE obtains permits in July for several boilers that have a PTE of 25 tons of NO_x per year. The facility turns on the equipment and begins operating the boilers in December and reports 2 tons for the month of December. Since it is a brand-new facility, no emissions have been generated from January to November and the Actual Emissions from these boilers would be 2 tons for the calendar year. If the Major Stationary Source is able to demonstrate operational difference between operating as a Major Stationary Source and prior to operating as a Major Stationary Source, it is allowed to extrapolate the data from December. Extrapolating the reported data for the entire year would result in 24 tons (12 months \times 2 tons) of adjusted emissions. As Baseline Emissions are based on the lower of either the Actual Qualifying Emissions For Baseline (24 tons) or the allowed emissions (25 tons) during the calendar year, the facility's Baseline Emissions would be 24 tons.

• MAJOR STATIONARY SOURCE

A Major Stationary Source is as described in CAA sections 182(d), 182(e), or 182(f), as applicable. The major stationary source thresholds established by these CAA requirements are summarized below:

- CAA section 182(d): Establishes a major stationary source threshold for areas classified as "severe" as a facility that emits or has the PTE of at least 25 tons per year of VOCs.
- CAA section 182 (e): Establishes a major stationary source threshold for areas classified as "extreme" as a facility that emits or has the PTE of at least 10 tons per year of VOCs.

- CAA section 182 (f): Establishes that the major stationary source threshold for sources of VOC shall also apply to sources of NOx.

Unlike other rules where the applicability is based on static characteristics, such as processes or equipment, facilities may modify their PTE or reduce emissions to no longer be subject to PR 317.1. As there is no set list of facilities that meet the definition of a Major Stationary Source per the respective sections of the CAA, South Coast AQMD will initially be using established programs to identify potential Major Stationary Sources for PR 317.1. The two programs that will be used are 1) Title V permitting program and 2) AER program.

As described in section “1.5. Title V Permit Program” of this Staff Report, a facility’s permits may have a PTE for VOC or NOx that would qualify the facility as a Major Stationary Source pursuant to CAA sections 182(d), 182(e), or 182(f) and therefore these facilities would be subject to PR 317.1. The types of emissions which are not to be considered in determining whether a facility exceeds an applicable threshold were established based closely on South Coast AQMD’s Title V permit program as described in the definition of Reported Emissions within Rule 3000 – General (Rule 3000). Under PR 317.1, the types of emissions that are not to be considered in determining whether a facility emits or has the PTE equal to or greater than the applicable major stationary source threshold are as follows:

(A) Fugitive emissions of VOC or NOx unless the source belongs to one of the categories listed in paragraph 2 of the definition of major source in 40 CFR Part 70, Section 70.2.

(B) Emissions from the following on-road and off-road mobile equipment:

- Motor vehicle or vehicle as defined by the California Vehicle Code as it exists on [Date of Rule Adoption]
- Marine vessel as defined by Health and Safety Code Section 39037.1 as it exists on [Date of Rule Adoption].
- A motor vehicle or a marine vessel that uses one internal combustion engine to propel the motor vehicle or marine vessel, and the same engine to operate other equipment mounted on the motor vehicle or marine vessel.
- Equipment that is mounted on a vehicle, motor vehicle or marine vessel if such equipment does not emit air contaminants.
- Asphalt pavement heaters (which are any mobile equipment used for the purposes of road maintenance and new road construction)
- Mobile day tankers that only carry fuel oil with an organic vapor pressure of 5 mm Hg (0.1 psi) absolute or less at 21.1 °C (70 °F).

(C) Off-site emissions from portable equipment permitted to operate at various locations.

(D) Emissions from non-road engines, as defined by 40 CFR Part 1039, Section 1039.801.²⁶

²⁶ The Rule 3000 definition of Reported Emissions excludes “[e]missions from non-road engines, as defined by 40 CFR Part 89, Section 89.2, manufactured on or after November 15, 1990 or another date subsequently determined by EPA” while the PR 317.1 definition of Major Stationary Source excludes “[e]missions from non-road engines, as defined by 40 CFR Part 1039~~89~~, Section ~~89~~1039.2801, manufactured on or after November 15, 1990 or another date subsequently determined by U.S. EPA.” 40 CFR Part 89, Section 89.2 was updated to 40 CFR Part 1039~~89~~, Section ~~89~~1039.2801. The new section houses the emissions standards

This list of exclusions applies to the PTE as well as the facility's emissions. The emissions categories used to establish Major Stationary Source applicability are not the same as those used to establish Actual Emissions, Actual Qualifying Emissions for Baseline, Baseline Emissions, or Alternative Baseline Emissions and are not used in the calculation of the CAA Nonattainment Fees. The AER program reported emissions are more comprehensive than the emissions that need to be considered for PR 317.1 applicability. For example, fugitive emissions are reported in the AER program but fugitive emissions, except if the source belongs to one of the categories listed in 40 CFR Part 70, Section 70.2, would be excluded from PR 317.1 emissions for applicability purposes. It is important for facilities to review the amount of VOC and/or NO_x emitted and the PTE of VOC and/or NO_x for applicability in PR 317.1 to confirm if they are subject to this rule and if they will be required to pay CAA Nonattainment Fees. In addition, as described earlier in Chapter 2, the AER program requires the annual reporting of emissions that include NO_x and VOC from facilities that exceed specific reporting thresholds. The AER program requires facilities to report all emissions, including those that would be exempt or excluded from a facility's PTE. The reporting threshold for NO_x and VOC is four tons per year, which is lower than the Major Stationary Source threshold specified in the CAA. Further discussion on emissions reported through the AER program is located in the definition of Actual Emissions.

Staff will review facilities with a Title V permit and data submitted via the AER program as a starting point to identify facilities subject to PR 317.1. This method would ensure that facilities aren't overlooked. Owners or operators of facilities should review the facility's emissions or PTE to confirm whether the facility is subject to PR 317.1.

A Major Stationary Source as defined in PR 317.1 may not be required to pay CAA Nonattainment Fees under the following scenario:

- For a Fee Assessment Year with 20% Emissions Reductions from Baseline:
 - Emissions are reduced by 20% from the Baseline Emissions or Alternative Baseline Emissions, as applicable, for the fee assessment year.

A non-major stationary source is not subject to PR 317.1. A facility may demonstrate to the satisfaction of the Executive Officer that the facility's VOC and/or NO_x emissions, as applicable, have been limited to below the applicable major source threshold by accepting an enforceable condition in an enforceable permit(s) or plan(s). As the CAA Nonattainment Fee is determined on a calendar year basis, a facility that is a Major Stationary Source for any time of the year will be considered as a Major Stationary Source for the Fee Assessment Year. Paragraph (e)(3) describes how facilities can submit a Rule 317.1 Exclusion Plan to take an enforceable limit to no longer be subject to CAA Nonattainment Fee for PR 317.1 purposes.

for non-road engines that were formally part of 40 CFR Part 89, Section 89.2. The U.S. EPA explanation for relocating these standards is included at 86 Federal Register 34308, 34342 (June 29, 2021). The date of manufacture is omitted as it is no longer part of U.S. EPA's definition.

Example of Major Stationary Source Applicability Evaluation:

The following is an example to evaluate if a facility is a Major Stationary Source of VOC only:

- PTE: 8.00 tons of VOC
- Actual Emissions: 15.00 tons of VOC, which includes 6.00 tons of fugitive emissions that should be excluded from determining applicability
- **Major Stationary Source Evaluation for PTE:**
8.00 tons (below 10 tons Major Stationary Source threshold)
- **Major Stationary Source Evaluation for Amount Emitted:**
15.00 tons – 6.00 tons = 9.00 tons (below 10 tons Major Stationary Source threshold)
- **Conclusion: The facility is a not Major Stationary Source pursuant to PR 317.1**

The evaluation must be done for both PTE and amount emitted. If a facility is not below the applicable Major Stationary Source threshold for both PTE and amount emitted, then the facility is a Major Stationary Source pursuant to PR 317.1. If a facility is being evaluated for being both a Major Stationary Source of NO_x and a Major Stationary Source of VOCs, the above determination should be performed separately for both NO_x and VOCs.

2.2.4. Requirements – Subdivision (d)

Subdivision (d) specifies the requirements for the owner or operator of a Major Stationary Source.

2.2.4.1. Fee Assessment Requirements – Paragraph (d)(1)

Paragraph (d)(1) specifies that the Executive Officer will assess the CAA Nonattainment Fees for each Applicable Ozone Standard. The CAA Nonattainment Fees would be assessed in years subsequent to the year used to establish the Baseline Emissions.

Example of Fee Assessment Requirements:

An example of each type of Major Stationary Source rule applicability is diagramed for the 1997 8-hour ozone standard in Table 2-2 below.

Table 2-2
1997 8-Hour Ozone NAAQS Assessment Years

Calendar Year	Begins Operation as a Major Stationary Source:		
	Prior to Beginning of Attainment Year	During Attainment Year	After Attainment Year (e.g., Calendar Year 2026)
	Rule Clause (d)(1)(A)(i)	Rule Clause (d)(1)(A)(ii)	Rule Paragraph (d)(1)(B)
2024	Attainment Year	Attainment Year	Attainment Year
	Baseline Year	Baseline Year	
2025	Assessment Year ¹	Assessment Year ¹	N/A
2026	Assessment Year	Assessment Year	Baseline Year
2027	Assessment Year	Assessment Year	Assessment Year ²
2028	Assessment Year	Assessment Year	Assessment Year

¹ For a Major Stationary Source that begins operating as a Major Stationary Source prior to or during the Attainment Year, the fee assessment will begin the calendar year after the Attainment Year.

² For a Major Stationary Source that begins operation after the Attainment Year, the fee assessment will begin the calendar year after the calendar year used to establish the Baseline Emissions.

2.2.4.2. Fee Determination Requirements – Paragraph (d)(2)

Paragraph (d)(2) establishes the calculation methodology for the CAA Nonattainment Fees. This calculation is consistent with the CAA requirements of section 185. The Annual CAA Nonattainment Fee Rate used in the calculation would be for the year when the Actual Emissions occurred and is adjusted annually for inflation based on the CPI. If the annual Actual Emissions of VOC and/or NOx emissions in tons are less than or equal to 80% of the Baseline Emissions of VOC and/or NOx emissions in tons, there would be no VOC and/or NOx CAA Nonattainment Fee assessed for that pollutant in the Fee Assessment Year. A Major Stationary Source that is not a Major Stationary Source of VOC and/or NOx emissions would not be assessed the CAA Nonattainment Fee for that particular pollutant. A facility which was a Major Stationary Source in the Fee Assessment Year, is required to pay CAA Nonattainment Fees for the year in which they met the PR 317.1 definition of a Major Stationary Source. The total annual CAA Nonattainment Fees for a Major Stationary Source of both VOC and NOx emissions would be the summation of the annual CAA Nonattainment Fee for VOC emissions and the annual CAA Nonattainment Fee for NOx emissions.

The fee is based on Actual Emissions, rounded to the hundredth ton (0.01 ton), that exceeds 80% of their Baseline Emissions. This avoids over or under assessing fees by rounding to the nearest whole ton. This approach is also consistent with the determination of Basin-wide debits for facilities in the annual Rule 317 Fee Equivalency Account Reconciliation Report. Additionally, this approach is consistent with the determination of AER fees where rounding is performed to the hundredth ton at the very end of the summation for a given device (emission source) and at the end for fee calculation. An Alternative Baseline may be substituted for the Baseline Emissions, provided the requirements of PR 317.1 paragraphs (d)(8) and (d)(9) are met.

Example of Fee Determination Requirements:

The following is an example to calculate the annual CAA Nonattainment Fee for a Major Stationary Source of NOx only:

- Baseline Emissions: 20.00 tons of NOx emissions
- 80% of Baseline Emissions: 16.00 tons of NOx emissions

- NO_x Actual Emissions in Fee Assessment Year: 23.40 tons of NO_x
- Emissions subject to CAA Nonattainment Fee: 23.40 tons – 16.00 tons = 7.40 tons of NO_x
- **CAA Nonattainment Fee: 7.40 tons × \$11,922.00/ton = \$88,222.80**

If a facility is both a Major Stationary Source of NO_x and a Major Stationary Source of VOCs, the above determination should be performed separately for both NO_x and VOCs.

2.2.4.3. Annual Reporting and Payment Requirements – Paragraph (d)(3)

Subparagraph (d)(3)(A) requires the reporting of all Actual Emissions annually. This is also required pursuant to Rule 301 paragraph (e)(2) which requires all Major Stationary Sources of VOC and/or NO_x, as defined in Rule 317 and other rule(s) implementing section 185 of the CAA, to annually report and pay the appropriate CAA Nonattainment Fees. The AER for the Major Stationary Sources will be used to determine the CAA Nonattainment Fee.

Subparagraph (d)(3)(B) requires the payment of the appropriate CAA Nonattainment Fees for each applicable Fee Assessment Year. This includes the years prior to the U.S. EPA making a final finding that a Basin has failed to attain the Applicable Ozone standard if such finding is delayed. An example of this requirement is depicted in Figure 2-1 of the next section (2.2.4.4. Payment Due Date Requirements – Paragraph [d](4)) to show that CAA Nonattainment Fee applies to years prior to the U.S. EPA making a finding of failure and after the Attainment Year. A calendar year would not be applicable if it was a calendar year prior to when the facility met the definition of a Major Stationary Source in this rule. A calendar year when a change of ownership occurs would be an applicable year to be assessed CAA Nonattainment Fees.

The owner or operator of the Major Stationary Source shall submit all Actual Emission reports and CAA Nonattainment Fee payment submittals required, regardless of whether the owner or operator received an invoice from the Executive Officer.

2.2.4.4. Payment Due Date Requirements – Paragraph (d)(4)

Paragraph (d)(4) specifies the payment due dates for CAA Nonattainment Fees.

The initial invoice will, at a minimum, bill for the initial year's CAA Nonattainment Fee, however, multiple subsequent years may be included if there is a delay in the finding of failure issued by the U.S. EPA. The initial invoice due date for the applicable standard is 365 days from the date the invoice is issued to provide the Major Stationary Source adequate time to incorporate the initial CAA Nonattainment Fees for the applicable standard into their annual budget.

Subsequent invoices will bill for the subsequent year's CAA Nonattainment Fees. Subsequent invoices are required to be paid no later than December 15th of the year of invoice issuance or no later than 75 days from the date the invoice was issued, whichever is later. After the initial year, a Major Stationary Source should be able to better estimate their future CAA Nonattainment Fees for incorporation into their annual budgets. Based on conversations with stakeholders, prior CAA Nonattainment Fees would be used to estimate future CAA Nonattainment Fees, which is similar to the practice for budgeting for AER emissions fees.

In the event the invoice is not received by the owner or operator, but the invoice was issued by the Executive Officer, the owner or operator would still be subject to the payment due date specified in subparagraph (d)(4)(A). Examples of why an invoice would not be received include: change in

responsible official, change in mailing location, or invoice being lost in the mail. For the first two examples, the facility is responsible for notifying the ~~District~~ South Coast AQMD of the change.

If the Executive Officer has not issued an invoice for the CAA Nonattainment Fees, the owner or operator of the Major Stationary Source would be required to submit payment on December 15th of the second year following either the calendar year when the U.S. EPA makes a final finding that the Basin has failed to attain the Applicable Ozone Standard or the Fee Assessment Year for the Applicable Ozone Standard, whichever is later. This requirement provides assurance that, in the event invoices are not issued, the CAA Nonattainment Fees will still be collected by the South Coast AQMD.

Example of Payment Due Date Requirements:

An example of a Major Stationary Source's reporting and invoice payment for the 1997 8-hour ozone standard from calendar years 2024 through 2030 is provided in Figure 2-1 below. The Attainment Year is 2024 for the 1997 8-hour ozone standard and the Major Stationary Source's Baseline Emissions would be established in 2024. In this example, the U.S. EPA will make a final finding of failure in calendar year 2027. The full payment of the initial invoice, issued on 11/1/27, would be due no later than 365 days later or 10/31/28. Full payment of subsequent invoices would be due either 75 days from issuance or December 15, whichever is later. In this example, years 2028 and 2029 had invoices issued more than 75 days earlier than December 15, therefore, the respective due dates are December 15. For the year 2030, the invoice is issued less than 75 days earlier than December 15, so the due date is 75 days after the date when the invoice was issued or December 31.

Figure 2-1
1997 8-Hour Ozone NAAQS Reporting and Payment for Hypothetical
Major Stationary Source

Year	2026	2027	2028	2029	2030
Submit AER for Year	2025	2026	2027	2028	2029
U.S. EPA Final Finding of Failure		✓			
Invoice for Years		2025, 2026	2027	2028	2029
Invoice Issuance Date		11/01	09/01	07/01	10/17
Invoice Due Date			10/31 ¹ , 12/15 ²	12/15 ²	12/31 ²
Fee Collection for Year(s)			2025, 2026, 2027	2028	2029

¹ +365 days from issuance.

² Later of 12/15 or +75 days from issuance.

2.2.4.5. Failure to Pay Fees Requirements – Paragraph (d)(5)

Violations of requirements set forth in PR 317.1 are subject to penalties as set forth under the Health and Safety Code. Additionally, Paragraph (d)(5) specifies that should one-hundred twenty (120) days lapse after the invoice due date, pursuant to the authority of in Health and Safety Code Section 42307, the Executive Officer has the authority to take action to revoke all Permits to

Operate for equipment on the premises.²⁷ In order for the South Coast AQMD to comply with CAA section 185, it is essential that the CAA Nonattainment Fees are administered and enforced. This requirement promotes compliance with payment of the CAA Nonattainment Fees. A similar requirement exists in Rule 301 to help ensure that all emission fees and surcharges are paid in full for the AER submittals.

2.2.4.6. Process of Challenging Rule Applicability – Paragraph (d)(6)

As described earlier in Chapter 2, the applicability of this rule is dependent on the facility's emissions, either PTE or emissions reported through the South Coast AQMD's AER program. Staff will review facilities with a Title V Program permit and data submitted via the AER program to identify potential facilities subject to PR 317.1. As a courtesy, after identification, the Executive Officer may send out notifications to owners or operators of facilities on the applicability to PR 317.1. Paragraph (d)(6) specifies that, when the Executive Officer sends notification that the facility is subject to Rule 317.1, the owner or operator of the facility shall have no later than 90 days from the notice issue date to challenge the rule applicability. This notice will allow the facility the opportunity to provide any additional information which may be relevant to this determination. The Executive Officer will review evidence and notify the facility of the rule applicability no later than 90 days before the payment due date of the CAA Nonattainment Fees for the initial Fee Assessment Year for the Applicable Ozone Standard, unless the Executive Officer informs the owner or operator of the facility that more time is needed. The facility shall remain subject to PR 317.1 until the Executive Officer has provided notification that they are no longer subject to PR 317.1. Additionally, once the Executive Officer has made a determination on the challenge that the facility meets the definition of a Major Stationary Source and is subject to PR 317.1, the Major Stationary Source shall not be eligible to challenge the rule applicability again. Failure to receive notice of rule applicability does not absolve the owner or operator of a Major Stationary Source of the duty to pay CAA Nonattainment Fees. A notice not contested by the applicable date shall be considered confirmed.

2.2.4.7. Process of Challenging of Baseline Emissions – Paragraph (d)(7)

Paragraph (d)(7) specifies that, when the Executive Officer sends notification to the Major Stationary Source specifying the assigned Baseline Emissions, the owner or operator of the Major Stationary Source shall have no later than 90 days from the notice issue date to challenge the Baseline Emissions. As a courtesy to the Major Stationary Sources, the Executive Officer may send out notifications of their assigned Baseline Emissions. This notice will allow the Major Stationary Source the opportunity to provide any additional information which may be relevant to this determination. The Executive Officer will review evidence and notify the facility of their Baseline Emissions no later than 90 days before the payment due date of the CAA Nonattainment Fees for the initial Fee Assessment Year for the Applicable Ozone Standard, unless the Executive Officer informs the owner or operator of the facility that more time is needed. The Major Stationary Source shall use the originally assigned Baseline Emissions until the Executive Office has provided notification of a revised Baseline Emissions. Additionally, the Major Stationary Source shall not be eligible to challenge the assigned Baseline Emissions after the Executive Officer has made a determination on the challenge to retain or revise the original Baseline Emissions. Failure to receive notice of Baseline Emissions, does not absolve the owner or operator of a Major

²⁷ California Code. *Health and Safety Code Section 42307*. <https://codes.findlaw.com/ca/health-and-safety-code/hsc-sect-42307/>.

Stationary Source of the duty to pay CAA Nonattainment Fees. A notice not contested by the applicable date shall be considered confirmed.

This process is independent from the process to seek Alternative Baseline Emissions. For Major Stationary Sources that seek to use Alternative Baseline Emissions, please refer to the next section.

2.2.4.8. Alternative Baseline Emissions Requirements – Paragraph (d)(8)

Paragraph (d)(8) establishes the requirements for a Major Stationary Source to use Alternative Baseline Emissions instead of the applicable Baseline Emissions to determine their CAA Nonattainment Fees for a Fee Assessment Year. The CAA requires that the fee obligation is generally derived using a Baseline Emissions amount based on applicable source emissions information in the attainment year. In some cases, the Baseline Emissions amount, when calculated in the Attainment Year as required pursuant to under CAA section 185(b)(2), may not be considered representative of the source's normal operating conditions and not appropriate for purposes of setting the CAA Nonattainment Fee. In cases where a source's annual emissions are "irregular, cyclical, or otherwise vary significantly from year to year" the CAA provides that the U.S. EPA may issue guidance providing an acceptable alternative methodology for calculating an Alternative Baseline Emissions amount. Subparagraphs (d)(8)(A) through (D) specify the ~~conditional requirements~~ criteria to be met to use Alternative Baseline Emissions. If all applicable requirements are not met, Alternative Baseline Emissions cannot be used.

This is a tentative pathway and is subject to U.S. EPA review and approval. Subparagraph (d)(8)(A) ~~requires~~ specifies a criterion that U.S. EPA ~~must~~ has issued a guidance approve ~~allowing~~ of an alternative methodology that is consistent with the methodology or requirements specified in subparagraphs (d)(8)(B) through (D). As discussed in Chapter 1, the U.S. EPA had approved an alternative methodology by issuing guidance for establishing Alternative Baseline Emissions for areas that fail to the attain the 1-hour ozone standard by their attainment deadline. However, this approach has not been approved for either of the 8-hour ozone standards. There is a need for an Alternative Baseline Emissions option and a request has been submitted with the U.S. EPA to allow Alternative Baseline Emissions for the 8-hour ozone standards.

Subparagraph (d)(8)(C) requires the submittal of information to demonstrate that a Major Stationary Source meets the criteria of qualifying to use Alternative Baseline Emissions in the form of an Alternative Baseline Emission Request. The requirements for Alternative Baseline Emissions Requests were incorporated and are consistent with prior U.S. EPA issued guidance for establishing alternative emissions baselines. The relevant years used for calculation of the Alternative Baseline Emissions shall only consist of years in which the facility was a Major Stationary Source pursuant to PR 317.1. The Executive Officer may only authorize the use of Alternative Baseline Emissions for calculation of a Major Stationary Source's CAA Nonattainment Fees if the U.S. EPA has issued guidance authorizing methodology for determining the Alternative Baseline Emissions which is consistent with the requirements of PR 317.1 subparagraph (d)(8)(C). Additionally, only a Major Stationary Source which was a Major Stationary Source during the attainment year may be assigned Alternative Baseline Emissions. Once the Executive Officer has provided a written approval of the Alternative Baseline Emissions Request, the Alternative Baseline Emissions would be used for the calculation of future CAA Nonattainment Fees.

An Alternative Baseline Emissions may only be requested within one-hundred twenty (180) days after the end of the Attainment Year or within one-hundred twenty (120) days after the U.S. EPA

makes a final finding that the Basin has failed to attain the Applicable Ozone Standard by the applicable Attainment Date, whichever is later. This is to allow sufficient timing to make a decision on the appropriate baseline level, which will be used to assess the CAA Nonattainment Fees. Additionally, if a Major Stationary Source elects to include additional information as required by the U.S. EPA guidance referenced in subparagraph (d)(8)(A), the additional information shall be submitted to the Executive Officer no later than 120 days after the issuance of such guidance.

2.2.4.9. Alternative Baseline Emissions Request Payment – Paragraph (d)(9)

Paragraph (d)(9) establishes the fee and invoice due date for evaluation of the Alternative Baseline Emissions Request. Since this request is optional and conditional, it is anticipated that only a small number of Major Stationary Sources would proceed with this request. The duration of evaluation time may also vary significantly from facility to facility, depending on completeness of information and complexity of data or facility's operations. The evaluation fee for the Alternative Baseline Emissions Request is equal to the total actual and reasonable time incurred by ~~District~~ South Coast AQMD staff for evaluation of the Alternative Baseline Emissions Request and does not exceed the ~~District's~~ South Coast AQMD's reasonable regulatory costs. As the U.S. EPA guidance has not been issued, there may or may not be additional steps as part of the evaluation, but based on the Harnett Memo,²⁸ the evaluation would consist of the following that include, but are not limited to:

- Reviewing facility supporting information that include:
 - Relevant Actual Emission data for the past five or ten years (depending on the type of facility)
 - Analysis of Actual Emissions of the 24-consecutive month selected
 - Analysis of applicable regulations
- Reviewing the request provided by the facility is consistent of the U.S. EPA guidance for alternate baseline emissions
- Providing a written approval

The evaluation is anticipated to be performed primarily by staff who are classified as an Air Quality Specialist and/or Air Quality Engineer II. This classification is equivalent to staff who would evaluate plans or permits. As there is no past precedent for how long an evaluation would take, the evaluation is assessed at an hourly staff evaluation rate that is equivalent to the applicable Plan Evaluation Fee for a Non-Title V Facility or Title V Facility, pursuant to Rule 306 – Plan Fees, and consistent with the hourly rate for the following, but not limited to:

- Requests to amend emissions report and refund of emission pursuant to Rule 301 subparagraph (e)(9)(A),
- California Environmental Quality Act (CEQA) assistance pursuant to Rule 301 subparagraph (j)(1)(A),
- Review of continuous emissions monitoring systems, fuel sulfur monitoring systems, and alternative continuous emissions monitoring systems pursuant to Rule 301 paragraph (j)(5),

²⁸ Guidance on Establishing Emissions Baselines under Section 185 of the Clean Air Act (CAA) for Severe and Extreme Ozone Nonattainment Areas that Fail to Attain the 1-hour Ozone NAAQS by their Attainment (epa.gov)

- National Emission Standard for Hazardous Air Pollutants evaluation pursuant to Rule 301 (q)(1), and
- ~~Expedited processing requests pursuant to Rule 301 subdivision (v).~~

2.2.5. Exemptions – Subdivision (e)

Subdivision (e) specifies the requirements for exemptions from either specific provisions of the rule or the entire rule.

2.2.5.1. Extension Year – Paragraph (e)(1)

Paragraph (e)(1) establishes that the CAA Nonattainment Fees are not applicable during an Extension Year. This exemption is consistent with CAA section 185(c) that provides an exception to the CAA Nonattainment Fee during an Extension Year which has been granted pursuant to CAA section 181(a)(5).²⁹ However, as there was more than one exceedance in SCAB in the year preceding the Extension Year of the 1997 8-hour ozone standard, the SCAB is not eligible to receive an Extension Year for this standard, but Coachella Valley may be eligible. The South Cost AQMD may be eligible to be granted Extension Years for the 2008 8-hour ozone standard.

2.2.5.2. Cessation of Fees – Paragraph (e)(2)

Paragraph (e)(2) specifies when the CAA Nonattainment Fees will cease. For the Applicable Ozone Standard, the CAA Nonattainment Fees will cease beginning the calendar year when the Basin has been redesignated by U.S. EPA to attainment for that Applicable Ozone Standard. For a revoked Applicable Ozone Standard, this will occur when the U.S. EPA has terminated the anti-backsliding requirement for the applicable standard.

2.2.5.3. Enforceable Limitation Through a Rule 317.1 Exclusion Plan – Paragraph (e)(3)

As described early in Chapter 2, a facility is a Major Stationary Source pursuant to PR 317.1 based on either the amount of VOC or NO_x emitted or the PTE. A facility would be required to demonstrate that it does not meet both criteria in order to no longer be considered a Major Stationary Source as defined in paragraph (c)(13). Currently, the Title V permit program allows for facilities to take such a limitation to exempt the facility from the Title V permit program. This can be a lengthy process due to the time and work needed to evaluate the permit application, ensure that the facility can comply with the facility-wide limitation, reduced equipment PTEs, and possibly convert the facility's Title V permit into individual command and control permits for all pieces of permitted equipment at the facility.

Paragraph (e)(3) establishes an alternate pathway for a Major Stationary Source to expedite this process by establishing limits in a Rule 317.1 Exclusion Plan that would ensure the facility would no longer meet the definition of a Major Stationary Source and therefore be exempt from CAA Nonattainment Fees. Some facilities have already taken similar permit conditions to limit the facility's Title V PTE or have an approved Title V Exclusion Plan to be exempted from the Title V permit program. Since PR 317.1 and the Title V permit program use the same definition of PTE and the permit condition taken by these facilities limits the total reported emissions from the facility by pollutant, the facilities exempted from the Title V permit program will not need to submit an application for a Rule 317.1 Exclusion Plan. Title V facilities may elect to submit an

²⁹ CAA. (2023, November 29). Part D - Plan Requirements for Nonattainment Areas. <https://www.epa.gov/clean-air-act-overview/clean-air-act-title-i-air-pollution-prevention-and-control-parts-through-d#id>.

application for a Rule 317.1 Exclusion Plan, which will allow the facility to not be subject to Rule 317.1, but still stay in the Title V permit program and retain their Title V permit. Subsequent permit applications may be filed to exempt the facility from the Title V permit program, which will take much longer to evaluate and process, due to the need to convert the Title V permit into individual command and control permits, each with the facility-wide limitation on total emissions from the facility. Facilities should also be aware that more than one permit application might be necessary (e.g. application for Title V permit modification) in addition to the application for the Rule 317.1 Exclusion Plan.

In the interim period between ~~plan~~-application and ~~plan~~-issuance of the Rule 317.1 Exclusion Plan, the facility would continue to meet the definition of a Major Stationary Source and be required to pay any applicable CAA Nonattainment Fees. The Rule 317.1 Exclusion Plan would be available to Title V facilities that previously had a permit condition limiting the facility's emissions, but the facility exceeded the limits established in the permit condition and the facility was brought back into the Title V permit program, provided the Title V facility can meet the criteria for approval. The Rule 317.1 Exclusion Plan would be subject the applicable plan fees, including but not limited to Plan Filing Fee and Plan Evaluation Fee, specified in Rule 306 – Plan Fees. The evaluation is anticipated to be performed primarily by staff who are classified as an Air Quality Specialist and/or Air Quality Engineer II. This classification is equivalent to staff who would evaluate plans or permits. As there is no past precedent for how long an evaluation would take, the evaluation is assessed at an hourly staff evaluation rate that is equivalent to the applicable Plan Evaluation Fee for a non-Title V Facility or Title V Facility, pursuant to Rule 306 – Plan Fees, and consistent with the hourly rate for other plans subject to Rule 306 fees. The Plan Filing Fee is \$207.19 for non-Title V facilities and \$259.66 for Title V facilities for fiscal year 2024-2025, and accounts for the time and materials for filing and receiving of a plan, such as work hours by administrative staff. The Plan Evaluation Fee is the amount equal to the total actual and reasonable time incurred by ~~District~~-South Coast AQMD staff for evaluation of a plan, assessed at the hourly rate of \$207.19 for non-Title V facilities and \$259.66 for Title V facilities for fiscal year 2024-2025. Other fees in Rule 306, such as Duplicate Plan Fee and Inspection Fee, might also apply.

While the facility would no longer be subject to the CAA Nonattainment Fees in PR 317.1, the Rule 317.1 Exclusion Plan will still require the reporting of Actual Emissions and recordkeeping to ensure that the facility does not exceed the limits and becomes a Major Stationary Source.

Currently, it is the ~~District's~~-South Coast AQMD's practice in the Title V permitting program to require that a facility's most recent five years of AER data do not exceed 80% of the major source threshold. This provides assurance that the facility will be able to comply with the reduced facility-wide emissions limitation. In a similar manner, approval of the Rule 317.1 Exclusion Plan will be based on, but not limited to, the following criteria:

- Demonstration that the facility's most recent five calendar years of emissions do not exceed 8 tons per year for ~~either both~~ VOC ~~or--and~~ NOx, subject to verification by South Coast AQMD staff. This demonstration will be based on the reported AERs at the time of submittal of the Rule 317.1 Exclusion Plan application, ~~but excluding the emissions listed in~~ inconsistent with this rule's definition of Major Stationary Source in paragraph (c)(13). This criterion provides assurance that the facility will be able to meet the emission limit(s) in the Rule 317.1 Exclusion Plan. The Rule 317.1 Exclusion Plan evaluation process will only consider finalized AER emissions. A facility requesting to amend past AERs for Rule 317.1 purposes, must complete the amendment process prior to submitting a Rule 317.1

Exclusion Plan. Facilities that were previously exempt from reporting through the AER program due to emissions below reporting thresholds will need to demonstrate through records that they were below AER thresholds. Facilities with insufficient records will need to base their emissions on PTE.

- Acceptance of a condition in the Rule 317.1 Exclusion Plan that limits the facility's total VOC and/or NOx emissions, ~~excluding the emissions listed inconsistent with~~ this rule's definition of Major Stationary Source in paragraph (c)(13) to less than the Major Stationary Source thresholds annually. Facilities may choose to take a total facility limit based on the emissions reported through the AER program.
- Acceptance of a condition in the Rule 317.1 Exclusion Plan that requires monthly recordkeeping of all VOC and/or NOx emissions, as applicable, at the facility. Records shall include equipment type, application number, emission factors, and all operating parameters used to calculate emissions subject to the rule.
- Acceptance of a condition in the Rule 317.1 Exclusion Plan that requires the facility to notify the Executive Officer if the facility's annual total VOC and/or NOx emissions exceeded the Major Stationary Source threshold, no later than February 1 of the following year.
- Acceptance of a condition in the Rule 317.1 Exclusion Plan that requires the records of the facility's monthly and annual emissions to be signed and certified for accuracy by the highest ranking individual responsible for compliance with ~~District~~ South Coast AQMD rules.
- Acceptance of a condition in the Rule 317.1 Exclusion Plan that requires the facility to report actual emissions annually either by using the AER program or another mechanism.
- Acceptance of a condition in the Rule 317.1 Exclusion Plan that requires the facility to keep all records in a format acceptable by the ~~District~~ South Coast AQMD and retained at the facility for a minimum of five years. Records shall be made available to ~~District~~ South Coast AQMD representatives upon request.

Note that the criteria reflect ~~the District~~ South Coast AQMD's current practices for implementing the Title V permitting program. Future changes might be reflected in the criteria used for the Rule 317.1 Exclusion Plans, as applicable.

In the event the facility fails to comply with any condition in the Rule 317.1 Exclusion Plan, the facility could be considered a Major Stationary Source and resume being required to or begin to be required to pay the applicable CAA Nonattainment Fee. If the emission(s) limitation is exceeded, the facility will be considered a Major Stationary Source and shall be required to pay the applicable CAA Nonattainment Fees beginning the calendar year of the exceedance or calendar year the emission(s) limitation is no longer enforceable.

A facility that exceeds the emission(s) limitation in the Rule 317.1 Exclusion Plan and becomes a Major Stationary Source will not be eligible to submit another application for a Rule 317.1 Exclusion Plan.

CHAPTER 3 – IMPACT ASSESSMENT

INTRODUCTION

AFFECTED SOURCES

EMISSIONS IMPACT

CALIFORNIA ENVIRONMENTAL QUALITY ACT
ASSESSMENT

SOCIOECONOMIC IMPACT ASSESSMENT

DRAFT FINDINGS UNDER HEALTH AND SAFETY CODE
SECTION 40727

3.1. INTRODUCTION

PR 317.1 is applicable to major stationary sources of VOC and/or NO_x, and will impact major stationary sources of VOC and/or NO_x located in South Coast Air Basin and the Coachella Valley.

3.2. AFFECTED SOURCES

The exact number of facilities subject to PR 317.1 is currently unknown because applicability will be determined from a combination of a subset of the entire universe of Title V program facilities and non-Title V program facilities with actual emissions data provided in 2024 and beyond, which 2024 AER data will not be available until the Spring of 2025. While not all Title V program facilities are Major Stationary Sources of VOC and/or NO_x, it is estimated that there are 316 facilities with Title V program permits in the SCAB and 3 facilities with Title V program permits in the Coachella Valley. As the Title V permitting program excludes or exempts certain emissions, it may not completely identify all the facilities that may be subject to PR 317.1. As indicated in Chapter 2, PR 317.1 would be applicable to a facility based on either the facility's PTE or the facility's actual emissions. Therefore, it is estimated that 2 additional facilities might be subject to this rule based on analysis of 2021 AER emissions of VOC and/or NO_x. To determine applicability to PR 317.1, a facility's emissions in 2024 and later will be used.

3.3. EMISSIONS IMPACT

Staff does not anticipate any direct emissions impact from PR 317.1 as it does not have any emissions requirements. However, as CAA section 185 requires that major stationary sources of VOC and/or NO_x in nonattainment areas either reduce their emissions by 20% from a baseline amount or pay a CAA nonattainment fee, PR 317.1 may incentivize Major Stationary Sources to reduce their emissions to below the baseline amount.

3.4. CALIFORNIA ENVIRONMENTAL QUALITY ACT ASSESSMENT

PR 317.1 has been developed as a government funding mechanism to satisfy federal requirements without involving a commitment to any specific project that could result in a potentially significant physical impact on the environment. Therefore, PR 317.1 is not considered a "project" within the meaning of the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15378 (b)(4).

3.5 SOCIOECONOMIC IMPACT ASSESSMENT

Health and Safety Code Section 40440.8 requires a socioeconomic impact assessment for proposed and amended rules resulting in significant impacts to air quality or emission limitations. However, PR 317.1 would not result in significant impacts to air quality or emission limitations. Nevertheless, a Draft Socioeconomic Impact Assessment has been ~~conducted~~ prepared and was released for public review on May 7, 2024. The Final Socioeconomic Impact Assessment is available in Attachment H of the June 7, 2024, Governing Board Package ~~as a separate document~~ at least 30 days prior to the South Coast AQMD Governing Board Hearing for PR 317.1, which is ~~anticipated to be heard on June 7, 2024.~~

3.6. DRAFT FINDINGS UNDER HEALTH AND SAFETY CODE SECTION 40727

3.6.1. Requirements to Make Findings

Health and Safety Code Section 40727 requires that prior to adopting, amending, or repealing a rule or regulation, the South Coast AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing and in the staff report.

3.6.2. Necessity

PR 317.1 is needed to comply with the requirements of the CAA Section 185 requirements for the 1997 or 2008 8-hour ozone standard.

3.6.3. Authority

The South Coast AQMD Governing Board has authority to adopt PR 317.1 pursuant to the Health and Safety Code Sections 39002, 40000, 40001, 40440, 40441, 40702, 40725 through 40728, 41511, and 42300 et seq. and CAA Sections 172(e), 182(d), 182(e), 182(f) and 185.

3.6.4. Clarity

PR 317.1 is written or displayed so that its meaning can be easily understood by the persons directly affected by it.

3.6.5. Consistency

PR 317.1 is in harmony with and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.

3.6.6 Non-Duplication

PR 317.1 will not impose the same requirements as or in conflict with any existing state or federal regulations. The proposed amended rule is necessary and proper to execute the powers and duties granted to, and imposed upon, the South Coast AQMD.

3.6.7. Reference

By adopting PR 317.1, the South Coast AQMD Governing Board will be implementing, interpreting or making specific the provisions of the Health and Safety Code Sections ~~39002 (authority for control of air pollution)~~, 40000 (non-vehicular air pollution), ~~40001 (rules to achieve ambient air quality standards)~~, 40440 (rules to carry out the Air Quality Management Plan), ~~40441, , 40440 (adopt regulation to carry out plan)~~, ~~40702 (adopt regulations and execute duties)~~, ~~40725 through 40728 (public hearings)~~, ~~41510 (right of entry)~~, 41511 (rules to require source to determine emissions), ~~42300 et seq. (permitting)~~, ~~42303 (requests for information)~~, and CAA Sections ~~116 (Retention of State authority)~~, 172(e), 181, 182, 185 (42 U.S.C. Section 7511d), and ~~502(b)(3)(B)(v)~~.

APPENDIX A: AFFECTED FACILITIES

Table A-1
PR 317.1 Potentially Impacted Major Stationary Sources

ID	Name	County	City
56	University So California, Health Sciences	LA	Los Angeles
136	Press Forge Co	LA	Paramount
222	Architectural Woodworking Co	LA	Monterey Park
346	Frito-Lay, Inc.	SB	Rancho Cucamonga
392	Taylor-Dunn Mfg Co	OR	Anaheim
550	LA Co., Internal Service Dept	LA	Los Angeles
1034	Builders Fence Co Inc	LA	Sun Valley
1073	Westlake Royal Roofing LLC	RV	Corona
1334	Soc-Co Plastic Coating Co	SB	Rancho Cucamonga
1703	Eastern Municipal Water District	RV	Temecula
2044	G B Mfg Inc/Calif Acrylic, Dba Cal Spas	LA	Pomona
2526	Chevron USA Inc	LA	Van Nuys
2619	Martin Luther King Jr Medical Campus	LA	Los Angeles
2825	MCP Foods Inc	OR	Anaheim
2846	Vista Paint Corp	OR	Fullerton
3093	LA Co., Olive View/UCLA Medical Center	LA	Sylmar
3417	Air Prod & Chem Inc	LA	Carson
3513	Irvine Ranch Water Dist	OR	Irvine
3704	All American Asphalt, Unit No.01	RV	Corona
3721	Dart Container Corp of California	RV	Corona
3968	Tabc, Inc	LA	Long Beach
4242	San Diego Gas & Electric	RV	Moreno Valley
4477	So Cal Edison Co	LA	Avalon
5723	Ducommun Aerostructures Inc	OR	Orange
5973	Socal Gas Co	LA	Valencia
6384	LA Co., Rancho Los Amigos Nat. Rehab Ctr	LA	Downey
6979	Riv Co., Waste Mgmt, Badlands Landfill	RV	Moreno Valley
7068	San Brdo Cnty Solid Waste Mgmt	SB	Redlands
7371	San Ber Cnty Solid Waste Mgmt- Milliken	SB	Ontario
7411	Davis Wire Corp	LA	Irwindale
7416	Linde Inc.	LA	Wilmington
7417	Eastern Municipal Water Dist	RV	Perris
7427	Owens-Brockway Glass Container Inc	LA	Vernon
8220	Providence St Joseph Med Ctr	LA	Burbank
8309	Cambro Manufacturing Co	OR	Huntington Beach
8547	Ecobat Resources California, Inc.	LA	City Of Industry
8582	So Cal Gas Co/Playa Del Rey Storage Fac	LA	Playa Del Rey
9163	Inland Empire Utl Agen, A Mun Water Dis	SB	Ontario
9755	United Airlines Inc	LA	Los Angeles
9898	Scientific Spray Finishes Inc	OR	Fullerton

ID	Name	County	City
9978	Peter Pepper Products	LA	Compton
10245	LA City, Terminal Island Treatment Plant	LA	San Pedro
10656	Newport Laminates	OR	Santa Ana
10966	Weber Metals Inc	LA	Paramount
11245	Hoag Hospital	OR	Newport Beach
11435	Pq LLC	LA	South Gate
11716	Fontana Paper Mills Inc	SB	Fontana
11887	Nasa Jet Propulsion Lab	LA	Pasadena
12182	Park La Brea	LA	Los Angeles
12332	Gatx Corporation	SB	Colton
12428	Gold Bond Building Products, LLC.	LA	Long Beach
12876	Foam Fabricators	LA	Compton
13011	The Gill Corporation	LA	El Monte
13854	East Los Angeles College	LA	Monterey Park
13920	Providence Saint Joseph Hospital	OR	Orange
13990	US Govt, Veterans Affairs Medical Center	LA	Long Beach
14150	Cal. St., Inst. for Women	RV	Corona
14213	Long Beach Memorial Medical Center	LA	Long Beach
14437	San Antonio Regional Hospital	SB	Upland
14492	Johnson Laminating & Coating Inc	LA	Carson
14495	Vista Metals Corporation	SB	Fontana
14502	Vernon Public	LA	Vernon
14871	Sonoco Products Co	LA	City Of Industry
14966	Va Greater Los Angeles Healthcare Sys	LA	Los Angeles
15504	Schlosser Forge Company	SB	Rancho Cucamonga
15793	Riv Co, Waste Resources Mgmt Dist, Lamb	RV	Beaumont
16338	Kaiser Aluminum Fabricated Products, LLC	LA	Los Angeles
16389	Cedars-Sinai Medical Ctr	LA	Los Angeles
16639	Shultz Steel Co	LA	South Gate
16642	Anheuser-Busch LLC., (LA Brewery)	LA	Van Nuys
17104	So Cal Edison Co	LA	Norwalk
17301	Orange County Sanitation District	OR	Fountain Valley
17841	Mc Dowell & Craig Mfg. Co.	LA	Norwalk
17953	Pacific Clay Products Inc	RV	Lake Elsinore
18294	Northrop Grumman Systems Corp	LA	El Segundo
18452	University of California, Los Angeles	LA	Los Angeles
19194	Eppink of California	LA	South Gate
20197	LAC/USC Medical Center	LA	Los Angeles
22092	Western Tube & Conduit Corp	LA	Long Beach
22911	Carlton Forge Works	LA	Paramount
23194	City of Hope Medical Center	LA	Duarte
23401	Hood Mfg Inc	OR	Santa Ana

ID	Name	County	City
23487	Royal Paper Box Co	LA	Montebello
23752	Aerocraft Heat Treating Co Inc	LA	Paramount
24450	Trend Manor Furniture Mfg Co Inc	LA	City Of Industry
24647	J. B. I. Inc	LA	Rancho Dominguez
25070	LA Cnty Sanitation District-Puente Hills	LA	City Of Industry
25513	Six Flags Themes Pks Inc,Six Flags Magic	LA	Valencia
25638	Burbank City, Burbank Water & Power	LA	Burbank
29110	Orange County Sanitation District	OR	Huntington Beach
29411	LA Co., Sheriff'S Dept	LA	Los Angeles
35302	Owens Corning Roofing and Asphalt, LLC	LA	Compton
36738	Sorenson Engineering Inc, Frank Sorenson	SB	Yucaipa
39855	Mizkan America, Inc	SB	Rancho Cucamonga
40806	New Basis	RV	Riverside
40841	The Dot Printer Inc	OR	Irvine
40915	Freund Baking Co	LA	Glendale
42514	LA County Sanitation Dist (Calabasas)	LA	Agoura
42633	LA County Sanitation Districts (Spadra)	LA	Pomona
43436	Tst, Inc.	SB	Fontana
44577	Long Beach City, Serrf Project	LA	Long Beach
45262	LA County Sanitation Dist Scholl Canyon	LA	Glendale
45489	Abbott Cardiovascular Systems, Inc.	RV	Temecula
45746	Pabco Bldg Products LLC, Pabco Paper, Db	LA	Vernon
45938	E.M.E. Inc/Electro Machine & Engineering	LA	Compton
46268	California Steel Industries Inc	SB	Fontana
47781	Ols Energy-Chino	SB	Chino
49111	Sunshine Cyn Landfill Republic Serv Inc	LA	Sylmar
49805	LA City, Bureau of Sanit(Lopez Canyon)	LA	Lake View Terrace
50299	San Ber Cnty Solid Waste Mgmt Mid Valley	SB	Rialto
50310	Waste Mgmt Disp &Recy Servs Inc (Bradley)	LA	Sun Valley
50418	O C Waste & Recycling, Olinda Alpha	OR	Brea
51003	So Cal Edison Co	SB	Ontario
51475	So Cal Edison Co	OR	Stanton
52742	Storopack Inc	LA	Downey
52743	Oc Waste & Recycling, Santiago	OR	Orange
52753	Oc Waste & Recycling, Prima Deshecha	OR	San Juan Capistrano
57390	Advance Truck Painting Inc	LA	Pico Rivera
58044	San Ber Cnty Solid Waste Mgmt - Colton	SB	Colton
58563	Mercury Plastics Inc	LA	City Of Industry
59225	Americh Corp	LA	North Hollywood
59237	American Security Products Co Inc	SB	Fontana
62862	Imperial Irrigation District/ Coachella	RV	Coachella
69646	Oc Waste & Recycling, Frb	OR	Irvine
70021	Xerxes Corp (A Delaware Corp)	OR	Anaheim
73367	Monarch Litho Inc	LA	Montebello
74060	Engineered Polymer Solutions Inc	LA	Los Angeles

ID	Name	County	City
74529	K. F. Fiberglass, Inc.	LA	Downey
74830	Thoro Packaging Inc	RV	Corona
79691	Vacmet, Inc.	SB	Rancho Cucamonga
80066	Laird Coatings Corporation	OR	Huntington Beach
82207	All American Asphalt, All Amer Aggregates	OR	Irvine
82657	Quest Diagnostics Inc	OR	San Juan Capistrano
83102	Light Metals Inc	LA	City Of Industry
83508	The Termo Company	LA	Northridge
84273	Teva Parenteral Medicines, Inc	OR	Irvine
89248	Old Country Millwork Inc	LA	Los Angeles
89710	Royal Cabinets	LA	Pomona
94272	Rgf Enterprises Inc	RV	Corona
94872	Metal Container Corp	RV	Mira Loma
100145	Harbor Fumigation Inc	LA	San Pedro
100806	Robinson Helicopter Co Inc	LA	Torrance
101656	Air Products and Chemicals, Inc.	LA	Wilmington
101667	Ag-Fume Service Inc	LA	Long Beach
102268	Preproduction Plastics, Inc	RV	Corona
104004	Micrometals, Inc	OR	Anaheim
104806	Mm Lopez Energy LLC	LA	Sylmar
106897	Ag-Fume Services Inc	LA	San Pedro
113518	Brea Parent 2007, LLC	OR	Brea
113674	Usa Waste of Cal (El Sobrante Landfill)	RV	Corona
113873	Mm West Covina LLC	LA	West Covina
114083	Solutions Unlimited, Wilson's Art Studio	OR	Fullerton
115314	Long Beach Generation, LLC	LA	Long Beach
115389	Aes Huntington Beach, LLC	OR	Huntington Beach
115394	Aes Alamitos, LLC	LA	Long Beach
115536	Aes Redondo Beach, LLC	LA	Redondo Beach
115663	El Segundo Energy Center, LLC	LA	El Segundo
116931	Equilon Ent LLC, Shell Oil Prod. U S	LA	Signal Hill
117140	AOC, LLC	RV	Perris
117290	B Braun Medical, Inc	OR	Irvine
117560	Equilon Enter, LLC-Shell Oil Prod. US	LA	Wilmington
118379	Arrowhead Regional Medical Ctr	SB	Colton
119219	Chiquita Canyon LLC	LA	Castaic
119741	Jensen Precast	SB	Fontana
119940	Building Materials Manufacturing Corp	SB	Fontana
121727	Pacific Pipeline System LLC	LA	Long Beach
124808	Ineos Polypropylene LLC	LA	Carson
124904	Los Angeles Times Communications LLC	LA	Los Angeles

ID	Name	County	City
126498	Steelscape, Inc	SB	Rancho Cucamonga
127299	Wildflower Energy Lp/Indigo Gen., LLC	RV	North Palm Springs
127749	Ultramar, Inc	LA	Wilmington
128243	Burbank City, Burbank Water & Power, SCPPA	LA	Burbank
129497	Thums Long Beach Co	LA	Long Beach
132368	QG Printing II LLC	RV	Riverside
134018	Industrial Container Services-CA LLC	LA	Montebello
136148	E/M Coating Services	LA	North Hollywood
136173	E/M Coating Services	LA	Chatsworth
136202	Epsilon Plastics Inc	LA	Rancho Dominguez
138103	Transcontinental Ontario Inc	SB	Ontario
139796	City of Riverside Public Utilities Dept	RV	Riverside
139799	Lithographix Inc	LA	Hawthorne
139808	Inland Empire Regional Composting Author	SB	Rancho Cucamonga
139938	Sunshine Gas Producers LLC	LA	Sylmar
140373	Ameresco Chiquita Energy LLC	LA	Valencia
140552	Performance Composites, Inc	LA	Compton
140811	Ducommun Aerostructures Inc	LA	Monrovia
141555	Castaic Clay Products, LLC	LA	Castaic
144455	Lifoam Industries, LLC	LA	Vernon
145232	Air Industries Company, LLC	OR	Garden Grove
146536	Walnut Creek Energy, LLC	LA	City Of Industry
147371	Inland Empire Utilities Agency	SB	Chino
148236	Air Liquide Large Industries U.S., Lp	LA	El Segundo
148568	Southwest Moulding	LA	Sun Valley
149620	Southern California Edison	SB	Rancho Cucamonga
149814	Sierracin/Sylmar Corp	LA	Sylmar
150233	Pacific Mfg Mgmt, Inc Dba Greneker Solut	LA	Los Angeles
151798	Tesoro Refining and Marketing Co, LLC	LA	Carson
151843	Insulfoam	SB	Chino
152707	Sentinel Energy Center LLC	RV	North Palm Springs
153992	Canyon Power Plant	OR	Anaheim
156741	Harbor Cogeneration Co, LLC	LA	Wilmington
157152	Bowerman Power Lfg, LLC	OR	Irvine
157259	Graphic Packaging International, Inc	OR	Irvine
157359	Henkel Electronic Materials, LLC	LA	Compton
157363	International Paper Co	OR	Anaheim
159492	Woodward Hrt- Valencia	LA	Valencia
160437	Southern California Edison	SB	Redlands
162556	Glendale City, Glendale Water and Power	LA	Glendale
163177	Fleetwood Homes, Inc.	RV	Riverside
166073	Beta Offshore	OR	Huntington Beach
167981	Tesoro Logistics, Wilmington Terminal	LA	Wilmington
169990	Sps Technologies, LLC	LA	Gardena
171107	Phillips 66 Co/LA Refinery Wilmington PI	LA	Wilmington

ID	Name	County	City
171109	Phillips 66 Company/Los Angeles Refinery	LA	Carson
171320	Phillips 66 Colton Terminal - West	SB	Bloomington
171326	Phillips 66 Pipeline LLC	LA	Los Angeles
171327	Phillips 66 Pipeline LLC	LA	Torrance
171329	Phillips 66 Colton Terminal - East	SB	Rialto
172005	New- Indy Ontario, LLC	SB	Ontario
172077	City of Colton	SB	Colton
172878	Tesoro Logistics Long Beach Terminal	LA	Long Beach
173846	Azusa Land Reclamation, Inc	LA	Azusa
174406	Arlon Graphics LLC	OR	Placentia
174655	Tesoro Refining & Marketing Co, LLC	LA	Carson
174694	Tesoro Logistics, Carson Crude Terminal	LA	Carson
174703	Tesoro Logistics, Carson Prod Terminal	LA	Carson
174704	Tesoro Logistics, East Hynes Terminal	LA	Long Beach
174705	Tesoro Logistics, Colton Terminal	SB	Bloomington
174710	Tesoro Logistics, Vinvale Terminal	LA	South Gate
174711	Tesoro Logistics, Hathaway Terminal	LA	Signal Hill
174727	Tesoro Refining Marketing Company LLC	LA	South Gate
176339	Becker Specialty Corp.	SB	Fontana
176377	Tesoro Logistics Marine Terminal 2	LA	Long Beach
180908	Eco Services Operations Corp.	LA	Carson
181426	Oc Waste & Recycling, Coyote	OR	Newport Coast
181667	Torrance Refining Company LLC	LA	Torrance
182157	Baxalta US Inc	LA	Los Angeles
182561	Colton Power, Lp	SB	Colton
182563	Colton Power, Lp	SB	Colton
182752	Torrance Logistics Company LLC	LA	Vernon
182753	Torrance Logistics Company, LLC	LA	Terminal Island
183415	Ontario International Airport Authority	SB	Ontario
183501	Stanton Energy Reliability Center, LLC	OR	Stanton
183567	Gs II, Inc.	LA	Wilmington
185352	Snow Summit, LLC	SB	Big Bear Lake
185600	Bridge Energy, LLC	OR	Brea
186899	Enery Holdings Llc/Lghthp_6_Icegen	LA	Carson
187165	Altair Paramount, LLC	LA	Paramount
187823	Kirkhill Inc	OR	Brea
187885	Smithfield Packaged Meats Corp	LA	Vernon
188380	Valence Surface Technologies - Lynwood	LA	Lynwood
189790	Fleischmann's Vinegar Company, Inc	LA	Montebello
191386	The Newark Group, Inc. DbA Greif, Inc	LA	Commerce
191415	Sierra Aluminum, Div of Samuel, Son & Co	SB	Fontana
191420	Sierra Aluminum, Div of Samuel, Son & Co	RV	Riverside
193314	Zenith Energy West Coast Terminals LLC	LA	Compton
193318	Zenith Energy West Coast Terminals LLC	LA	Long Beach
193344	Sfpp, L.P. - Colton South	SB	Bloomington
193552	Vernon Environmental Response Trust	LA	Vernon

ID	Name	County	City
193561	IBY, LLC	LA	Irwindale
193691	M & J Design Corporation	OR	Anaheim
194023	Fabri Cote	LA	Los Angeles
194175	Silver Creek Industries, LLC	RV	Perris
194203	Oldcastle Infrastructure	RV	Nuevo
194343	Emd Specialty Materials, LLC	SB	Rancho Cucamonga
194733	LGM Pharma	OR	Irvine
195338	Wg Holdings Spv, LLC	LA	Los Angeles
195423	Air Products West Coast Hydrogen LLC	LA	Torrance
195802	Vernon Public Utilities	LA	Vernon
195849	Mittera California LLC	OR	Los Alamitos
195925	Olympus Terminals LLC	LA	Carson
196103	Shadow Wolf Energy, LLC	LA	Santa Clarita
198222	Bluescope Coated Products LLC	SB	Rancho Cucamonga
199197	Tex-Tech Engineered Composites Inc	LA	Gardena
800003	Honeywell International Inc	LA	Torrance
800016	Baker Commodities Inc	LA	Vernon
800022	Calnev Pipe Line, LLC	SB	Bloomington
800026	Ultramar Inc	LA	Wilmington
800030	Chevron Products Co.	LA	El Segundo
800032	Chevron Usa Inc	LA	Montebello
800037	Demunno-Kerdoon DbA World Oil Recycling	LA	Compton
800057	Kinder Morgan Liquids Terminals, LLC	LA	Carson
800074	LA City, DWP Haynes Generating Station	LA	Long Beach
800075	LA City, DWP Scattergood Generating Stn	LA	Playa Del Rey
800080	Lunday-Thagard Co DbA World Oil Refining	LA	South Gate
800088	3M Company	RV	Corona
800113	Rohr, Inc.	RV	Riverside
800128	So Cal Gas Co	LA	Northridge
800129	Sfpp, L.P.	SB	Bloomington
800168	Pasadena City, DWP	LA	Pasadena
800170	LA City, DWP Harbor Generating Station	LA	Wilmington
800189	Disneyland Resort	OR	Anaheim
800193	LA City, DWP Valley Generating Station	LA	Sun Valley
800198	Ultramar Inc	LA	Wilmington
800202	Universal City Studios, LLC.	LA	Universal City
800209	BKK Corp (Eis Use)	LA	West Covina
800214	LA City, Sanitation Bureau (Htp)	LA	Playa Del Rey
800234	Loma Linda Univ	SB	Loma Linda
800236	LA Co. Sanitation Dist	LA	Carson
800263	U.S. Govt, Dept of Navy	OR	San Clemente
800265	Univ of So Cal	LA	Los Angeles
800278	Sfpp, L.P.	LA	Carson
800279	Sfpp, L.P.	OR	Orange

ID	Name	County	City
800288	Univ Cal Irvine	OR	Irvine
800302	Chevron Products Company	OR	Huntington Beach
800312	LA Co Harbor-UCLA Medical Center	LA	Torrance
800313	Laxfuel Corp	LA	Los Angeles
800327	Glendale City, Glendale Water & Power	LA	Glendale
800335	LA City, Dept of Airports	LA	Los Angeles
800367	Ips Corporation	LA	Gardena
800369	Equilon Enter.LLC , Shell Oil Prod. US	LA	Van Nuys
800372	Equilon Enter. LLC, Shell Oil Prod. US	LA	Carson
800380	Certified Enameling Inc	LA	Los Angeles
800387	Cal Inst of Tech	LA	Pasadena
800393	Valero Wilmington Asphalt Plant	LA	Wilmington
800398	Mask-Off Company, Inc	LA	Monrovia
800408	Northrop Grumman Systems	LA	Manhattan Beach
800409	Northrop Grumman Systems Corporation	LA	Redondo Beach
800428	Lamps Plus Inc/ Pacific Coast Lighting	LA	Chatsworth
800429	Kaiser Foundation Hospital	LA	Los Angeles
800436	Tesoro Refining and Marketing Co, LLC	LA	Wilmington

APPENDIX B: RESPONSES TO COMMENTS

TABLE OF CONTENTS

1. Clean Water SoCal Comment Email (03/29/24)
2. Hoag Memorial Hospital Presbyterian Comment Letter (04/16/24)
3. Earthjustice, California Communities Against Toxics, California Safe Schools, Center for Community Action and Environmental Justice, Coalition for Clean Air, Communities for a Better Environment, Industrious Labs, Natural Resources Defense Council, Sierra Club, and West Long Beach Association Comment Letter (04/17/2024)
4. RadTech Comment Letter (04/17/2024)
5. Western States Petroleum Association (WSPA) Comment Letter (04/17/2024)
6. Stoel Rives, LLP Comment Letter (04/23/2024)
7. Latham and Watkins, LLC Comment Letter (04/30/2024)
8. Los Angeles County Business Federation (BizFed) Comment Letter (05/02/24)

1. Clean Water SoCal Comment Letter, Submitted 03/29/24

March 29, 2024

Sent via email to: Britney Gallivan, bgallivan@aqmd.gov
Neil Fujiwara, nfujiwara@aqmd.gov
Kalam Cheung, kcheung@aqmd.gov
Michael Krause, mkrause@aqmd.gov

South Coast Air Quality Management District
Attn: Planning, Rule Development, and Implementation
21865 Copley Drive
Diamond Bar, CA 91765

Re: PROPOSED RULE 317.1 – CLEAN AIR ACT NONATTAINMENT FEES FOR 8-HOUR OZONE STANDARDS

Clean Water SoCal appreciates the opportunity to comment on the Proposed Rule 317.1– Clean Air Act Nonattainment Fees for 8-hour Ozone Standards.

Clean Water SoCal represents over 80 public water/wastewater agencies in Southern California. Clean Water SoCal members provide essential water supply and wastewater treatment for approximately 20 million people in San Diego, Orange, Los Angeles, Santa Barbara, Riverside, San Bernardino, and Ventura counties. Our wastewater members provide environmentally sound, cost-effective management of more than two billion gallons of wastewater each day and, in the process, convert wastewater into resources for beneficial uses such as recycled water and renewable energy.

Proposed Rule 317.1 will require major stationary sources, including publicly owned wastewater facilities, to pay for the regions inability to achieve attainment with the 1997 and 2008 federal 8-hour ozone standards pursuant to Section 185 of the Clean Air Act (CAA). This makes little sense today because most of the pollution leading to nonattainment is caused by mobile and federal sources such as cars, trucks, trains, boats, and planes. These sources are regulated by State and Federal agencies beyond the control of the SCAQMD, but only the major stationary sources will be required to pay these penalties. Even with the elimination of all stationary sources, the South Coast Air Basin will not achieve the 1997 or 2008 federal 8-hour ozone standards. Instead, the penalty should be imposed upon ozone precursor sources that lack adequate emission controls (i.e., mobile and federal sources). Proposed Rule 317.1 places an unnecessary burden on the wastewater facilities in the SCAQMD that are classified as major stationary sources. These facilities provide essential wastewater treatment to the communities in the South Coast Air Basin; therefore, they cannot relocate or reduce treatment capacity to avoid the inequitable penalties that Proposed Rule 317.1 will impose. Moreover, these facilities are already required to meet

Comment
1-1

P.O Box 231565
Encinitas, CA 92024

email: info@scap1.org
phone: 760.415.4332



stringent SCAQMD Best Available Control Technology standards and cannot reduce emissions to avoid this penalty. It is unfortunate that the fees imposed on these essential public service facilities won't even address the source of the subject pollution, as intended by the CAA.

} Comment
1-1 Cont.

As Congressman Henry Waxman, one of the primary authors of the 1990 CAA amendments, told us in 2010, it was never the intent of the CAA to penalize stationary sources when mobile and federal sources, beyond the control of air districts, are the reason for nonattainment. Due to this disconnect, USEPA accepted the concept of "not less stringent" fee or emission reduction programs in response to nonattainment with the 1-hour federal ozone standard. To our knowledge, USEPA has not performed a critical high-level review of the 8-hour nonattainment problem and the principles contained in their 2010 Section 185 Guidance¹ should be considered to avoid illogical results. In other words, Congress never intended to penalize sources that were not responsible for ozone nonattainment. Even with the complete closure of all major stationary sources in the South Coast Air Basin, attainment of the 8-hour standards would not be possible due to the fact that the majority of ozone-forming emissions are derived from mobile and federal sources.

} Comment
1-2

The Mojave Desert Air Quality Management District (MDAQMD) adopted Rules [315.1](#), [315.2](#) and [315.3](#) to implement Section 185 penalties for nonattainment with the 1997, 2008, and 2015 ozone standards. All three rules include Section 185 equivalency provisions for USEPA's consideration. As described in [MDAQMD's staff report](#) USEPA expressed concerns about the approvability of these rules, but further discussions with USEPA are needed to determine whether potential "not less stringent" requirements could be acceptable. The San Joaquin Valley Air Pollution Control District (SJVAPCD) nonattainment fee rules also have equivalency language. We respectfully request the inclusion of language in Proposed Rule 317.1 that allows SCAQMD to implement equivalency in the event that USEPA develops new equivalency guidance. We understand that SCAQMD staff believe equivalency criteria cannot be met for the 1997 and 2008 standards, however the exclusion of such language could set an unreasonable precedence. It is important for local air districts to have a uniform approach to Section 185 compliance which would encourage USEPA to draft new guidance clearly allowing for equitable equivalency programs.

} Comment
1-3

As such, SCAQMD Proposed Rule 317.1 should include additional provision language for the Cessation of Fees if either of the following occur:

1. If the USEPA approves an equivalent alternative Section 185 fee program.
2. If the USEPA provides guidance for acceptable fee equivalency for non-revoked standard and/or revoked standards for which the SCAQMD can demonstrate fee equivalency.

¹ Although this guidance was vacated by the D.C. Circuit Court of Appeals in [NRDC v. EPA, 643 F.3d 322 \(D.C. Cir. 2011\)](#) on procedural grounds, the Court did not prohibit alternative programs.

P.O Box 231565
Encinitas, CA 92024

email: info@scap1.org
phone: 760.415.4332



In addition, Clean Water SoCal requests some additional clarifications in the rule language related to the fee applicability for synthetic minor source facilities, and the applicability for multiple fees. The MDAQMD rules include provisions limiting the fee collection to a single standard. Clean Water SoCal requests a similar approach in Proposed Rule 317.1 to reduce the economic burden and ratepayer impact to public wastewater facilities that will be magnified by the collection of fees for multiple standards.

Recommended Rule Language:

Clean Water SoCal requests the addition of the following language to the “*Exemptions*” section of the “*Preliminary Draft Rule Language-Version 2024/03/22*” to further clarify the rule.

Cessation of Fees:

- The owner or operator of a Major Stationary Source shall not be required to remit CAA Nonattainment Fees, if the USEPA has approved an equivalent alternative Section 185 fee program for the Applicable Ozone Standard for the Basin. The CAA Nonattainment Fees will cease in the same calendar year as the approved alternative program approval.
- The owner or operator of a Major Stationary Source shall not be required to remit CAA Nonattainment Fees if the District has demonstrated fee equivalency in accordance with USEPA guidance for acceptable fee equivalency for the Basin. The CAA Nonattainment Fees will cease in the same calendar year as the demonstrated fee equivalency.

Additional clarifying exemption language:

- No Major Stationary Source permitted as a Synthetic Minor Source facility shall be required to remit CAA Nonattainment Fees under this rule.
- No facility otherwise subject to this rule shall be required to remit CAA Nonattainment Fees under this rule for any calendar year in which the Facility emits verified Actual Emissions equal to or less than 80 percent of its Baseline Emissions
- No Facility otherwise subject to this Rule shall be required to remit CAA Nonattainment Fees for more than one Federal ozone standard for any specific calendar year. A Facility's applicable CAA Nonattainment Fees for any calendar year shall be the largest of all such applicable CAA Nonattainment Fees.

Comment
1-3 Cont.

Use of Funds:

In addition, affected Clean Water SoCal agencies strongly urge the SCAQMD to develop a fee distribution program that would facilitate the use of funds collected from the public wastewater sector to return to the sector for use towards Clean Air Projects implemented by public wastewater agencies. Clean Water SoCal understands that the focus of the current rule development for

Comment
1-4

P.O Box 231565
Encinitas, CA 92024

email: info@scap1.org
phone: 760.415.4332



Proposed Rule 317.1 is on the regulatory framework for collection of the CAA nonattainment fees and not the use of funds, however a mechanism for the funds collected from public wastewater agencies for CAA nonattainment fees to be allocated towards Clean Air Projects by public wastewater agencies should be considered as part of the program for the use of funds collected from CAA nonattainment fees.

} Comment
1-4 Cont.

If there are any questions regarding these comments, please contact the Clean Water SoCal Air Quality Committee Chair, David Rothbart directly at (714) 878-9655 drothbart@lacsdc.org or contact me directly at (760) 415-4332 sjepsen@cleanwatersocal.org

Sincerely,

Steve Jepsen

Executive Director – Clean Water SoCal

cc: Clean Water SoCal Air Quality Committee

P.O Box 231565
Encinitas, CA 92024

email: info@scap1.org
phone: 760.415.4332

1-1 Response

Staff disagrees that PR 317.1 will “place an unnecessary burden on the wastewater facilities” as the CAA Nonattainment Fees will be collected from Major Stationary Sources of VOC and/or NOx regardless of whether PR 317.1 is adopted. PR 317.1 is being developed to implement the existing requirements of CAA section 185 for the 1997 and 2008 8-hour ozone NAAQS. If a regulatory pathway is not developed, these Major Stationary Sources would still be required to comply with CAA section 185 and CAA Nonattainment Fees would instead be collected by the U.S. EPA.

Additionally, Best Available Control Technology (BACT) standards are implemented at the time of permitting and new BACT standards would only be triggered if the equipment was modified with an emissions increase. Equipment which was permitted several years ago, for which there have been more recent BACT standards established, may not be at current BACT standards. Examples include the new Tier 4 Final Emergency Engines that were established as BACT/ Lowest Achievable Emission Rate (LAER), or the Rule 1118.1 – Control of Emissions from Non-Refinery Flares NOx standards. Staff is clarifying how BACT is implemented and acknowledges that some facilities which have very recently been issued permits for all of their equipment could be at current BACT levels.

1-2 Response

To clarify, the U.S. EPA allows for a fee equivalency approach for the revoked 1979 1-hour standard as well as the revoked 1997 8-hour ozone standard, but has determined that it should not be used for any standard that is not revoked. Please see section “1.4.4. CAA Section 185 Compliance Pathway for 1997 and 2008 Ozone Standards” of this PR 317.1 Staff Report for an explanation of why CAA Nonattainment Fee collection is necessary for the 1997 and 2008 8-hour ozone standards.

1-3 Response

Fee Equivalency Approach:

San Joaquin Valley Air Pollution Control District (SJVAPCD) has implemented the following rules for implementing section 185 requirements:

- Rule 3170 – Federally Mandated Ozone Nonattainment Fee,
- Rule 3171 – Federally Mandated Ozone Nonattainment Fee – 1997 8-Hour Standard
- Rule 3172 – Federally Mandated Ozone Nonattainment Fee – 2008 8-Hour Standard, and
- Rule 3173 – Federally Mandated Ozone Nonattainment Fee – 2015 8-Hour Standard.³⁰

SJVAPCD has only proposed the fee equivalency approach for Rules 3170 and 3171 which are both for revoked standards where a fee equivalency approach is allowed by the U.S. EPA. Rules 3172 and 3173 are unable to utilize the fee equivalency approach as both address ozone standards that have not been revoked.

³⁰ San Joaquin Valley Air Pollution Control District. *Rules and Regulations*. <https://ww2.valleyair.org/rules-and-planning/current-district-rules-and-regulations/>.

Mojave Desert Air Quality Management District's (MDAQMD) has implemented a fee equivalency approach in:

- Rule 315 – Federal Clean Air Act Section 185 Penalty (1979 Ozone Standard),
- Rule 315.1 – Federal Clean Air Act Section 185 Penalty (1997 Standard),
- Rule 315.2 – Federal Clean Air Act Section 185 Penalty (2008 Standard), and
- Rule 315.3 – Federal Clean Air Act Section 185 Penalty (2015 Ozone Standard).³¹

These MDAQMD regulations have not been approved by the U.S. EPA and the U.S. EPA staff has indicated that the fee equivalency approach is not available for unrevoked ozone standards. Incorporation of such language would make the rule vulnerable to disapproval as part of the U.S. EPA state implementation plan (SIP) review process. Please see section “1.4.4. CAA Section 185 Compliance Pathway for 1997 and 2008 Ozone Standards” of this PR 317.1 Staff Report for why CAA Nonattainment Fee collection is necessary for South Coast AQMD the 1997 and 2008 8-hour ozone standards.

Payment of Single Largest Standard in Year:

Mojave Desert Air Quality Management District's (MDAQMD) requires a major stationary source to only remit the largest applicable CAA Nonattainment Fee for a single ozone standard in any calendar year in:

- Rule 315.1 – Federal Clean Air Act Section 185 Penalty (1997 Standard),
- Rule 315.2 – Federal Clean Air Act Section 185 Penalty (2008 Standard), and
- Rule 315.3 – Federal Clean Air Act Section 185 Penalty (2015 Ozone Standard).

These MDAQMD regulations have not been approved by the U.S. EPA and the U.S. EPA staff has indicated that only paying the largest of the applicable CAA Nonattainment Fees in MDAQMD's Rules 315.1 may not be approvable.^{32, 33} Incorporation of such language would make the rule vulnerable to disapproval as part of the U.S. EPA SIP review process. Please see section “1.4.4. CAA Section 185 Compliance Pathway for 1997 and 2008 Ozone Standards” of this PR 317.1 Staff Report for why CAA Nonattainment Fee collection is necessary for the 1997 and 2008 8-hour ozone standards.

Applicability to Non-Major Stationary Sources:

PR 317.1 is applicable to facilities that meet this rule's definition of a Major Stationary Source. Please refer to the definition of Major Stationary Source in “2.2.3. Definitions – Subdivision (c)” of this PR 317.1 Staff Report for an explanation of how a Major Stationary Source may no longer be subject to PR 317. Additionally, please refer to section “2.2.5.3. Enforceable Limitation Through a Rule 317.1 Exclusion Plan– Paragraph (e)(3)” of this PR 317.1 Staff Report for an explanation of the enforceable limit to not be subject to nonattainment fee through a Rule 317.1 Exclusion Plan.

³¹ Mojave Desert Air Quality Management District. *Rules and Regulations*. <https://www.mdaqmd.ca.gov/rules/rule-book/regulation-iii-fees>.

³² Mojave Desert Air Quality Management District. (2022, March). *Governing Board Meeting Agenda for March 28, 2022*. See Doris Lo. (August 16, 2018). *Preliminary Review of Mojave Desert AQMD Rule 315.1*. <https://www.mdaqmd.ca.gov/home/showpublisheddocument/9292/637835283042130000>.

³³ Mojave Desert Air Quality Management District. (2022, March). *Governing Board Meeting Agenda for March 28, 2022*. See Donnique Sherman. (March 10, 2022). *EPA Comments on MDAQMD Rule 315.1 RE: Amendment/Adoption of MDAQMD Rule 315 Series*. <https://www.mdaqmd.ca.gov/home/showpublisheddocument/9292/637835283042130000>.

Actual Emissions Below 80% of Baseline Emissions:

Pursuant to PR 317.1 paragraph (d)(2), no CAA Nonattainment Fees are charged when actual emissions are less than 80%~~percent~~ of the Baseline Emissions or Alternative Baseline Emissions. Therefore, there is no need for an exemption from PR 317.1 in this scenario.

1-4 Response

Please see section “1.6. Use of Funds” of this PR 317.1 Staff Report for an explanation of why guidance on the spending of these potential funds would be determined in the future through a public process that would be separate from this rulemaking. The South Coast AQMD may consider prioritizing monies collected to be spent on emissions reduction projects near essential public services, environmental justice areas, and stationary sources.

2. Hoag Memorial Hospital Presbyterian Comment Letter, Submitted 04/16/24



April 16, 2024

Ms. Britney Gallivan
Air Quality Specialist
South Coast Air Quality Management District (SCAQMD)
21865 Copley Drive
Diamond Bar, CA 91765
Work: (909) 396-2792
E-mail: bgallivan@aqmd.gov

Subject: Proposed Rule Language to Include Title V Exclusions and Processes; Proposed Rule 317.1

Dear Ms. Gallivan:

Hoag Memorial Hospital Presbyterian (Hoag Hospital, Facility ID: 11245) is an acute care, not-for-profit hospital that offers a comprehensive mix of health care services, including Centers of Excellence in cancer, heart and vascular, neurosciences, women's health, and orthopedics.

Proposed Rule (PR) 317.1 would impose penalty fees on facilities that have already reduced emissions to below major source threshold levels. Moreover, the rule does not adequately provide for facilities with actual emissions below major source thresholds to leave the Title V program through a Synthetic Minor facility-wide limit, commonly referred to as a Title V Exclusion. Hoag Hospital provides an example of why the PR language must include provisions that allow low-emitting facilities the opportunity to exclude themselves from Title V in a timely manner to avoid undue fees.

Comment
2-1

Comment
2-2

Hoag Hospital currently holds a Title V permit, which is a federal operating permit required for Major Sources of air emissions. The facility submitted the Initial Title V application in 2006 under Application Number (A/N) 454723 and currently remains a Title V facility. Initially considered a Major Source based on the potential to emit (PTE) for nitrogen oxides (NO_x) and volatile organic compound (VOC) emissions, Hoag Hospital has been below Major Source thresholds for all pollutant emissions since 2019 due to emission reduction retrofit projects and reduced actual emissions. In May 2023, Hoag Hospital submitted a Title V Exclusion application with the request that the facility be made a Synthetic Minor by accepting a 12-month PTE limit for all criteria pollutants. Hoag Hospital has been working diligently with the South Coast Air Quality Management District (SCAQMD) to complete processing this Title V Exclusion application. Since June 2023, Hoag Hospital has been in regular communication with SCAQMD staff, providing additional supporting data to justify the request for Synthetic Minor status.

Below is a timeline of Hoag Hospital's Title V Exclusion activities based on agency correspondence and records obtained from the SCAQMD's online Facility Information Detail (F.I.N.D.) system:

Comment
2-3

- May 2023 – Hoag Hospital submitted a Title V Exclusion application package;
- June 8, 2023 – Title V Exclusion application received by the SCAQMD (as noted in F.I.N.D.);
- June 22, 2023 – E-mail submitted to the SCAQMD in regards to their initial rejection of the application;
- June 26, 2023 – E-mail submitted to the SCAQMD (Li Chen) in regards to the initial determination;
- July 18, 2023 – Letter submitted to the SCAQMD challenging the application refusal;
- August 3, 2023 – Met with SCAQMD staff to discuss the letter and their reservations about the application;

hoag.
hoag.org

- October 4, 2023 – Letter submitted to the SCAQMD challenging additional points made by SCAQMD staff;
- October 31, 2023 – March 28, 2024 – Continued follow-up for a status update;
- March 29, 2024 – Adan Velasco of the SCAQMD replied that the application cannot be processed based on internal policy;
- April 8, 2024 – Requested the internal SCAQMD policy; and
- April 9, 2024 – SCAQMD cannot provide the internal SCAQMD policy.

Comment
2-3 Cont.

Processing Title V Exclusions can and should be an important aspect in the implementation of PR 317.1. Hoag Hospital, like many Title V facilities, does not significantly cause or contribute to the South Coast Air Basin's nonattainment status. Hoag Hospital supports the SCAQMD's efforts to comply with the Clean Air Act should the South Coast Air Basin fail to attain the 1997 and/or 2008 8-hour standard with the implementation of Rule 317.1, but the primary objective of this fee is as a penalty levied on Major Sources of emissions that have caused or contributed to failure of the region to meet its attainment goals.

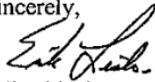
We reviewed the PR 317.1 dated March 22, 2024, as part of the Public Consultation Meeting held April 3, 2024, during which the SCAQMD did not consider applicability of the rule to Title V facilities who have applied and are currently in the process of being excluded from the Title V program. As mentioned above, Hoag Hospital has applied to the SCAQMD for a Title V Exclusion; therefore, we are requesting that the SCAQMD examine the following for inclusion into Rule 317.1 implementation:

Comment
2-4

- Allow an exemption or deferral period in Rule 317.1 (e), Exemptions, for Title V facilities who have applied for Title V Exclusions with the submittal of Form 500-E and are awaiting SCAQMD final approval; and
- Create a streamlined process and guidelines for Title V facilities submitting a Form 500-E, Title V Exclusion/Exemption Request, per Rule 301(p)(13) and Rule 306.

We appreciate your assistance in addressing this matter.

Sincerely,



Erik Lidecis
Director of Facilities, Energy, & Sustainability
Hoag Hospital
(949) 764-6574
erik.lidecis@hoag.org

cc: Duane Suby, Hoag Memorial Hospital Presbyterian
Corina Chang, Yorke Engineering, LLC
Peter Moore, Yorke Engineering, LLC
Greg Wolffe, Yorke Engineering, LLC
Corey Luth, Yorke Engineering, LLC
Gerard Randolph, Yorke Engineering, LLC
Jason Aspell, South Coast Air Quality Management District
Adan Velasco, South Coast Air Quality Management District
Shannon Lee, South Coast Air Quality Management District
Li Chen, South Coast Air Quality Management District
Kelland Chow, South Coast Air Quality Management District

hoag.
hoag.org

2-1 Response

The CAA Nonattainment Fees will be collected ~~from~~ from Major Stationary Sources of VOC and/or NO_x regardless of whether PR 317.1 is adopted. The CAA section 185 requires that a Major Stationary Source of VOC and/or NO_x in an area classified as “severe” or “extreme” that has failed to attain the ozone standard by the assigned attainment dates, either reduce their emissions by 20% from a baseline amount or pay a CAA nonattainment fee. PR 317.1 is being developed to implement the existing requirements of CAA section 185 for the 1997 and 2008 8-hour ozone NAAQS. If a regulatory pathway is not developed, these Major Stationary Sources would still be required to comply with CAA section 185 and CAA Nonattainment Fees would instead be collected by the U.S. EPA.

2-2 Response

PR 317.1 applies to Major Stationary Sources that emit or have the PTE more than 10 tons per year of either VOC or NO_x. Pathways already exist for facilities to exit the Title V permitting program and these pathways are specified on South Coast AQMD website at <https://www.aqmd.gov/home/permits/title-v/what-is-title-v->. Please refer to the definition of Major Stationary Source in “2.2.3. Definitions – Subdivision (c)” of this PR 317.1 Staff Report for an explanation of how a Major Stationary Source may no longer be subject to PR 317.1. Additionally, please refer to section “2.2.5.3. Enforceable Limitation Through a Rule 317.1 Exclusion Plan – Paragraph (e)(3)” of this PR 317.1 Staff Report for an explanation of the enforceable limit to not be subject to the nonattainment fee through a Rule 317.1 Exclusion Plan.

2-3 Response

South Coast AQMD Engineering and Permitting staff reviews every Title V exclusion application to ensure that facilities meet the criteria to exit the Title V permit program. A facility may be excluded from the Title V permit program by either demonstrating that the facilities actual emissions are below 50% of the Title V major source thresholds pursuant to Rule 3008 or below 80% of the Title V major source thresholds to take a permit limit pursuant to Rule 3001. So it is not an arbitrary analysis, it has been staff’s practice to require facilities to demonstrate that the most recent five years of actual emissions reported through the AER program are under 80% of the Title V major source thresholds to provide assurance that the facility can and will comply with the permit condition that limits the facility’s total emissions to less than the Title V major source threshold. As explained in this Staff Report, PR 317.1 includes an exemption for facilities electing to accept federally enforceable limits through a Rule 317.1 Exclusion Plan. The facility would have to demonstrate that the facility’s emissions, excluding the emissions listed in this rule’s definition of Major Stationary Source, were below the major source threshold for the most recent five calendar years, and be willing to accept conditions to ensure that the facility’s emissions do not exceed the threshold. Please refer to section “2.2.5.3. Enforceable Limitation Through a Rule 317.1 Exclusion Plan – Paragraph (e)(3)” of this PR 317.1 Staff Report for additional details. Alternatively, a facility could also request to reduce their permitted PTEs below Major Stationary Source thresholds, however this approach is dependent on business decisions and process needs by the facility.

2-4 Response

PR 317.1 has been modified to clarify that facilities with enforceable conditions that reduce emissions to below the Major Stationary Source thresholds are exempt from payment of applicable

CAA Nonattainment Fees beginning the calendar year after the calendar year such conditions are added.

South Coast AQMD's Title V permit program is separate from PR 317.1. Please contact the South Coast AQMD engineer assigned to your facility for the process for exiting the Title V permit program.

3. Earthjustice, California Communities Against Toxics, California Safe Schools, Center for Community Action and Environmental Justice, Coalition for Clean Air, Communities for a Better Environment, Industrious Labs, Natural Resources Defense Council, Sierra Club, and West Long Beach Association Comment Letter, Submitted 04/17/24



April 17, 2024

Britney Gallivan
South Coast Air Quality Management District (South Coast AQMD)
21865 Copley Dr.
Diamond Bar, CA 91765
bgallivan@aqmd.gov

Re: Proposed Rule 317.1

Dear Ms. Gallivan:

The undersigned organizations are grateful for the opportunity to comment on Proposed Rule 317.1. Overall, we remain pleased that the South Coast AQMD has proposed to actually adopt a fee on the largest stationary sources, as opposed to using an “equivalency” approach for the 1997 and 2008 8-hour ozone standards. A fee rule is not only a welcome sight but also a legal requirement under Section 185 of the Clean Air Act, which requires that major stationary sources in regions classified “severe” or “extreme” for ozone that fail to attain are subject to fees. Many of the large facilities that will be subject to Proposed Rule 317.1 would have paid fees under the originally adopted Rule 317, but the South Coast AQMD decided to exempt these entities from fees by taking credit for other incentive programs the legislature and voters approved (e.g. Proposition 1B, Carl Moyer Program, etc.). The end result of this “equivalency” approach has been corporations – some of them amongst the largest and most profitable in the world – not having to pay fees or reduce emissions by 20%. The unfortunate reality is this decadal free pass has meant more pollution in communities, particularly those living in the shadows of oil and gas infrastructure and in an air basin that is habitually in non-compliance with federal air quality standards. We anticipate that industry and major polluters will push South Coast AQMD to again develop a program outside of the clear requirements of Section 185 of the Clean Air Act. As the following sections outline, a direct fee approach is not only the soundest approach legally, but also makes the most sense if the South Coast AQMD desires to reduce emissions and address rampant and persistent environmental injustice.

I. Commenters Continue to Object to Rule 317 – the 1-hour Ozone Fee Rule – Because It Was Adopted Under a False Premise and Exacerbates Environmental Injustice.

In its initial promulgation of a fee program for the 1979 one-hour ozone standard, South Coast

} Comment
3-1

AQMD provided that major polluters in non-attainment areas can either pay a fee representative of 20% of their NOx and VOCs emissions or reduce their emissions by 20% to comply.¹ However, lawyers for industry invented and sold the air district on a credit equivalency program – fundamentally a scheme under which no polluting facility would have to pay a single cent for their emissions.

In promulgating the final rule, SCAQMD admitted to the fossil fuel lobby's efforts stating:

“[T]here is substantial opposition to [an initial 2010] fee rule by the regulated community as the fee burden is significant while the relative contribution by major stationary sources to ground level ozone is small relative to area and mobile sources. Further, the applicability of the fee solely to major stationary sources is seen as unfair given the fact that major stationary sources in the South Coast air basin are subject to the nation's most stringent regulations and have reduced their emissions significantly over the years.”²

Ignoring calls for stronger fee provisions, South Coast AQMD capitulated to fossil fuel lobbyists and instituted an alternative fee program pursuant to Section 172(e), called Rule 317. Rule 317, as amended on February 4, 2011, and approved as a revision to the California State Implementation Plan (SIP) by U.S. EPA on December 14, 2012, provides the framework for implementing an alternative fee program to Section 185, as authorized under CAA Section 172(e). Rule 317 requires the Executive Officer (“EO”) to establish and maintain a Section 172(e) fee equivalency account (“FEA”).³

Under Rule 317 FEA, South Coast AQMD tracks expenditures from “qualified programs” and uses them as credits to offset any Section 185 non-attainment fee obligation incurred by major stationary sources.⁴ The expenditures for which South Coast AQMD could take credit were “designed to result or have resulted in direct VOC or NOx reductions in the South Coast AQMD; or have facilitated VOC or NOx reductions in the South Coast AQMD through vehicle/engine fueling infrastructure or advanced technology development and demonstration efforts for implementation within the next 10 years.”⁵ *In theory*, the hope was that these credits would avoid the need for a facility-specific fee.

Stated differently, instead of collecting a fee from large stationary sources like refineries, South Coast AQMD decided to take credit for a grab bag of programs fundamentally untethered to limiting ozone precursors. For example, instead of making Tesoro Refinery pay a fee or reduce emissions by 20%, South Coast AQMD took credit for programs like California Natural Gas Vehicle Partnership to promote the greater deployment of natural gas vehicles in California, the “Prop 1B Program,” which provides funding for projects that reduce emissions from goods movement operations, and the Carl Moyer Program, a voluntary program that provides incentives to private companies to purchase cleaner than-required engines, equipment, and emission reduction technologies.⁶ Tesoro has paid no fees under

Comment
3-1 Cont.

¹ Memorandum from EPA Office of Air Quality Planning and Standards, *Guidance on Developing Fee Programs Required by Clean Air Act Section 185 for the 1-hour Ozone NAAQS* (Jan. 5, 2010)

https://www3.epa.gov/ttn/naaqs/aqmguidance/collection/cp2/20100105_page_section_185_fee_programs.pdf.

² *Id.*

³ *Rule 317*, *supra* note 1, at 5.

⁴ FEA Report, *supra* note 2, at 2.

⁵ *Id.* at 4.

⁶ *Id.* at 5-7.

Rule 317 and did not even have to find and fund the programs that it was credited for itself.

Since no fees are levied on stationary sources, there is also no incentive mechanism to undertake abatement actions that would reduce emissions by 20%. Thus, SCAQMD's fee program for the 1-hour ozone standard amounts to no penalty and instead a paper exercise providing the veneer of a penalty.

Worse yet, incorrect data informed the Rule 317 credit approach. In the 2011 Staff Report supporting the revisions to Rule 317, staff noted the following: "Staff's approach builds on that concept as major stationary sources are already at BACT ["Best Available Control Technology"] or BARCT ["Best Available Retrofit Control Technology"] with limited potential for further VOC/NOx reductions through additional control."⁷ We now know that this was absolutely incorrect, as many of the largest stationary sources were not at BACT/BARCT in 2011 and continue to not be at BACT/BARCT today.

In fact, in its effort to dismantle the Regional Clean Air Incentives Market ("RECLAIM"), staff noted the following: "Based on South Coast AQMD's permit database, well over half of the equipment at RECLAIM facilities is currently not at BARCT. Much of this equipment resides at some of the largest NOx emitting facilities in the Basin."⁸ Thus, this failure to impose a fee or compel cleanup of these highly toxic and polluting facilities was based on an error that gravely understated the extent of uncontrolled emissions in the South Coast.

The biggest beneficiaries of this "equivalency approach" are some of the largest oil corporations in the world, the U.S. Department of Defense, investor owned utilities, amongst others. The following chart uses data from the South Coast AQMD's equivalency reports to show what facilities have benefited most from not paying fees under Rule 317 over a period from 2018 to 2022.

ID	Facility Name	2022	2021	2020	2019	2018	Total
800436	TESORO REFINING AND MARKETING CO, LLC	2,285,791	2,905,909	3,198,819	5,072,875	5,941,797	19,405,191
181667	TORRANCE REFINING COMPANY, LLC	1,193,653	3,066,523	7,728,775	5,044,733	4,694,000	21,727,684
800026	ULTRAMAR, INC	807,107	1,427,858	2,075,271	1,823,493	1,098,514	7,232,243
166073	BETA OFFSHORE	1,552,687	1,802,625	1,735,421	1,624,791	1,556,991	8,272,515
113518	BREA PARENT 2007, LLC	789,406	805,791	867,659	918,229	865,192	4,246,277
800263	U.S. GOVT, DEPT OF NAVY	903,397	901,679	926,956	914,510	895,107	4,541,649
18931	TAMCO	0	0	239,241	830,788	410,454	1,480,483
155877	MOLSON COORS USA, LLC	0	0	0	782,043	786,171	1,568,214
160437	SOUTHERN CALIFORNIA EDISON	241,759	416,510	1,002,284	765,057	1,180,388	3,605,998
171107	PHILLIPS 66 CO/LA REFINERY WILMINGTON PL	269,142	625,204	1,081,722	763,951	1,270,234	4,010,253
151843	INSULFOAM	469,933	462,289	367,802	562,234	562,394	2,424,652
49111	SUNSHINE CYN LANDFILL REPUBLIC SERV, INC	160,270	182,678	865,090	536,706	478,355	2,223,099
94872	METAL CONTAINER CORP	525,596	576,372	536,545	529,067	308,407	2,475,987
800236	LA CO. SANITATION DIST	325,445	459,152	466,355	487,156	485,440	2,223,548
800129	SFPP, L.P.	523,250	344,756	443,438	800,129	372,469	2,484,042

Proponents of facilities subject to Rule 317 might try to point to the ongoing dismantling of the RECLAIM program as evidence that South Coast is on track to rectifying its ozone pollution problem.

⁷ SCAQMD, Proposed Amended Rule 317 Staff Report, at p. p. 317-1 (Feb. 4, 2011), <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2011/2011-feb4-029.pdf?sfvrsn=2>.

⁸ RECLAIM Transition Plan Draft Version 2.0, S. Coast AQMD vii (Dec. 2020), <http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/regx111/reclaim-transition-plan-draft-version-2-0.pdf?sfvrsn=6> ("South Coast AQMD retains broad statutory authority to adopt emission-control requirements for stationary sources, and that authority may include equipment replacement, as long as the requirement is not arbitrary and capricious").

We remind South Coast AQMD, however, that many compliance dates for RECLAIM facility equipment have been outdated for a decade or more, so deadly and archaic equipment could continue to poison communities for years, as the South Coast Air Basin fails to achieve both the 1979 standard and the 1997 eight-hour ozone standard.

Comment
3-1 Cont.

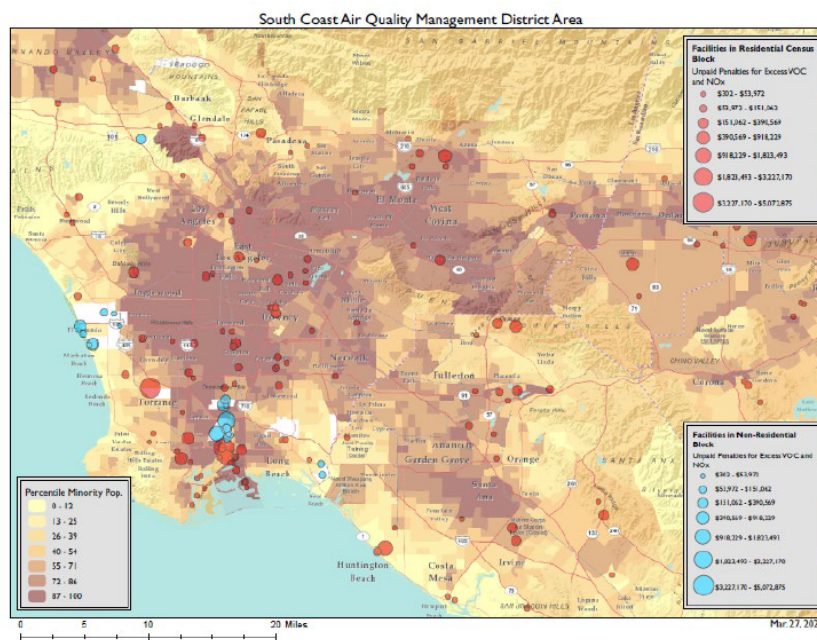
II. The Current Proposal for Rule 317.1 Makes More Sense Than the Rule 317 Approach.

The current staff proposal for the 1997 ozone nonattainment fee makes sense from an air quality and environmental justice perspective. In fact, if implemented correctly, Proposed Rule 317.1 could be used as a start to address the environmental injustice associated with the location of some of the largest polluting facilities in the region. In addition, it could result in oil refineries and other polluting sources hastening implementation of BARCT to turn off the penalties. This would provide desperately needed relief to communities.

Comment
3-2

A. Data From Rule 317 Shows the Largest Stationary Sources Have a Disparate Impact on Overburdened Communities.

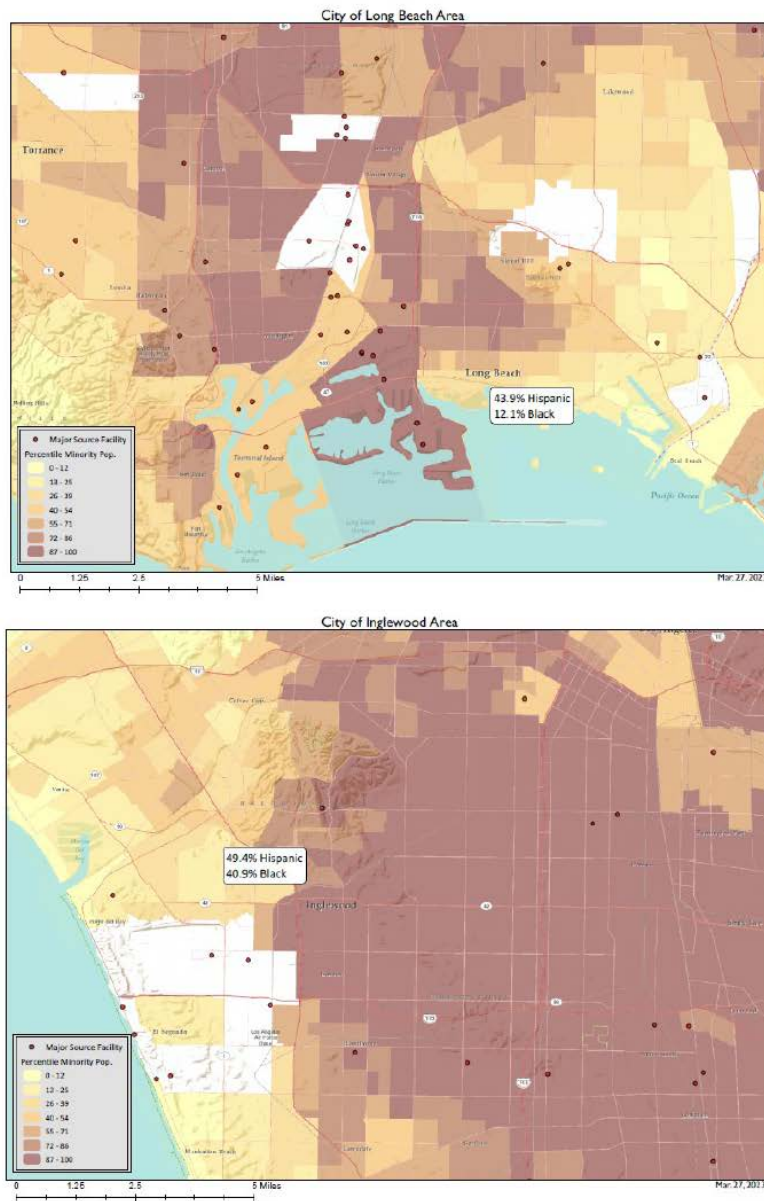
The following maps show the concentration of and proximity of major source facilities that are subject Rule 317 that are adding a significant amount of pollution to these already over-burdened areas.



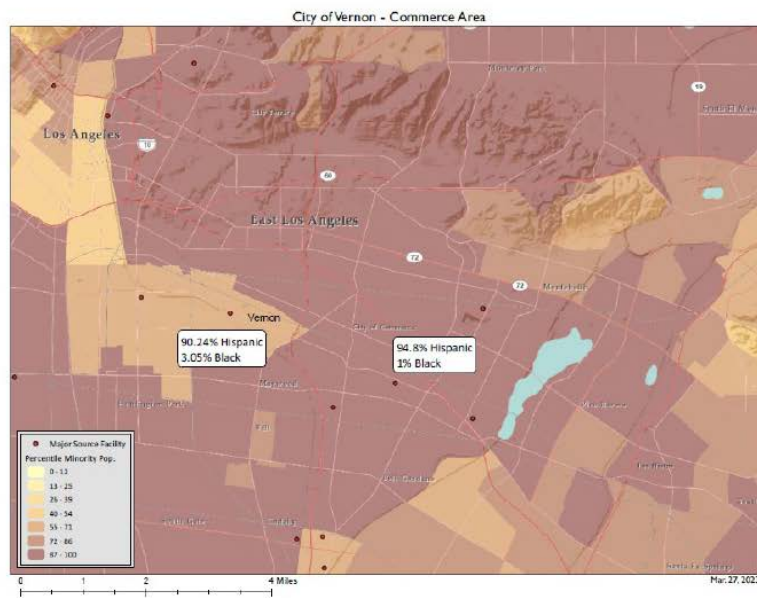
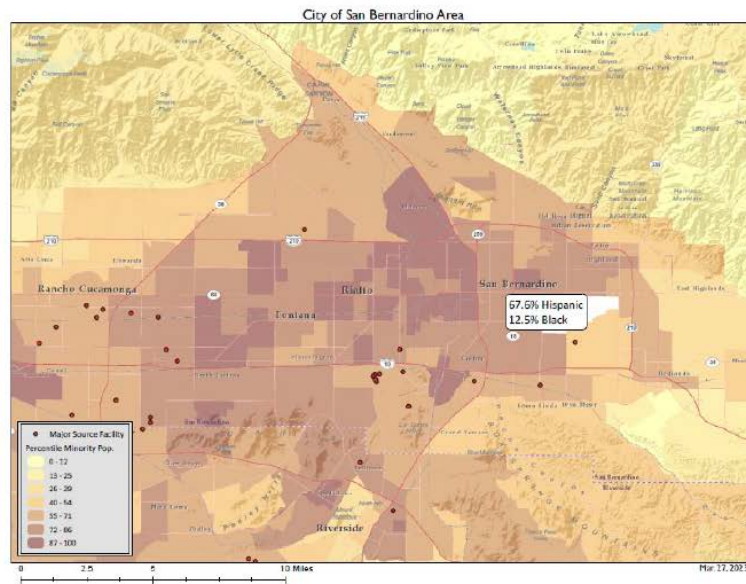
Comment
3-2 A Cont.

While the above map clearly demonstrates the pattern and practice of major sources in communities of color, the maps below also show a more granular view of the cities in the Air Basin. The red dots represent facilities covered under South Coast AQMD Rule 317.

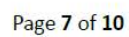
The maps below show locations of Rule 317 facilities in various communities throughout the South Coast Air Basin.

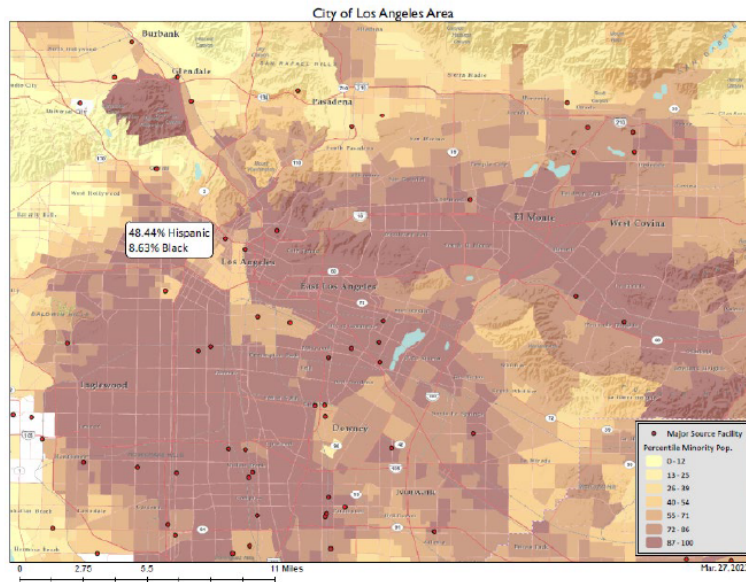


Comment
3-2 A Cont.



Comment
3-2 A Cont.





Comment
3-2 A Cont.

The disparate impacts demonstrated by these maps are clear. Communities that are majority Black and Hispanic/Latinx are disproportionately burdened. Importantly, failing to collect the required fee on these stationary sources – as some working group participants suggest – means the precursors to ozone pollution – VOC and NO_x are emitted in these communities, in addition to cumulative impacts from air toxic reductions that would be foregone if large facilities had to actually pay a fee. So, by not taking a straight-forward fee approach, South Coast AQMD would forego “section 185’s powerful incentive for major stationary sources to reduce emissions,”⁹ which would continue this legacy of disparate impact.

Besides, since passage of Rule 317, the California Legislature has confirmed the importance of addressing the harm from industrial sources in Assembly Bill (AB) 617.¹⁰ Several of the communities that have been identified as overburdened pursuant to the AB 617 process host or are impacted by dozens or more of facilities covered by Rule 317. It is imperative to assess the fee to create an incentive for emissions reductions.

B. In Addition to Addressing Environmental Justice, the Fee Provides a Powerful Incentive to Move to Zero-Emissions.

During the workgroup meeting, several commenters raised concerns about facilities at BACT and BARCT having to pay fees. To the extent staff seeks to dig into this issue, we want to highlight several clarifying points. We remind the Air District that BARCT is constantly evolving. With South Coast AQMD revising cost effectiveness thresholds in the last AQMP, it is likely that BARCT levels are not set at appropriate levels for some categories of equipment. Thus, some facilities claiming to be at

Comment
3-2 B Cont.

⁹ *NRDC v. EPA*, 643 F.3d 311, 318 (D.C. Cir. 2011).

¹⁰ *See generally* Cal. Health & Safety Code § 44391.2.

BARCT may have some additional technologies that could be deployed to reduce emissions. Moreover, this fee will provide a powerful incentive for facilities with combustion equipment to shift to zero-emitting equipment as the most recent air plan says needs to happen. Finally, we would be amenable to discussions of allocating some portion of incentive funds for facilities that are at BARCT to move to zero-emissions.

Comment
3-2 B Cont.

III. Specific Comments on Proposed Rule 317.1.

Commenters provide the following feedback on the text of Proposed Rule 317.1:

- The South Coast AQMD should post all requests for Alternative Baseline Emissions on the South Coast AQMD website. It will be critical to have transparency if industrial sources seek an alternative baseline.
- The Proposed Rule should require payments sooner. The current rule provides a full 12 months from invoicing. That is an absurd amount of time, and the South Coast AQMD should consider moving the payment date to four (4) months after invoicing.
- In section (d)(5) of Proposed Rule 317.1, the proposal provides 120 days for companies that are truants and do not pay their bills on time. It is not clear why there should be 4 months of penalty-free amnesty for companies that decide not to pay their fees on time. This is especially important because facilities will have a full 365 days to pay invoices under the rule.
- Some commenters suggested using the Mojave Air District approach of only requiring one fee be paid when a region violates multiple standards. This request is patently unlawful, and we suggest this type of language, which would make the rule legally vulnerable, not be included in the final rule.

Comment
3-3

Comment
3-4

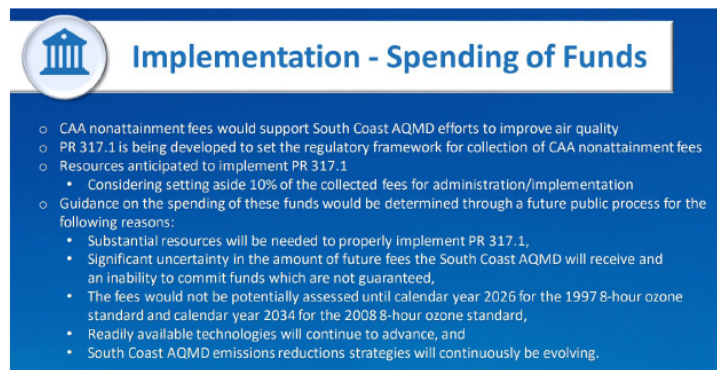
Comment
3-5

Comment
3-6

To the extent language changes, we will likely provide additional comments on the proposal.

IV. Discussions on How Funds Should Be Used Must Center Communities.

We appreciate staff recognition in the slide provided below that a public process is needed to decide how funding is allocated.



Implementation - Spending of Funds

- o CAA nonattainment fees would support South Coast AQMD efforts to improve air quality
- o PR 317.1 is being developed to set the regulatory framework for collection of CAA nonattainment fees
- o Resources anticipated to implement PR 317.1
 - Considering setting aside 10% of the collected fees for administration/implementation
- o Guidance on the spending of these funds would be determined through a future public process for the following reasons:
 - Substantial resources will be needed to properly implement PR 317.1,
 - Significant uncertainty in the amount of future fees the South Coast AQMD will receive and an inability to commit funds which are not guaranteed,
 - The fees would not be potentially assessed until calendar year 2026 for the 1997 8-hour ozone standard and calendar year 2034 for the 2008 8-hour ozone standard,
 - Readily available technologies will continue to advance, and
 - South Coast AQMD emissions reductions strategies will continuously be evolving.

Comment
3-7

In implementing Proposed Rule 317.1, there must be full engagement of stakeholders from overburdened communities. The “equivalency” approach used in Rule 317, which allowed large stationary sources to emit without a fee, had disparate impacts on certain communities, including several that have been identified as AB 617 communities. To repair the harm of allowing this to happen for the last decade, the South Coast AQMD should center communities in its decisions.

} Comment
3-7 Cont.

We appreciate your consideration of these comments, and we look forward to the adoption of these rule amendments to get one step closer to the emissions reductions the region desperately needs.

Sincerely,

Adrian Martinez
Earthjustice

Jane Williams
California Communities Against Toxics

Robina Suwol
California Safe Schools

Ana Gonzalez
Center for Community Action & Environmental Justice

Chris Chavez
Coalition for Clean Air

Julia May
Communities for a Better Environment

Evan Gillespie
Industrious Labs

Ali Hahm
Natural Resources Defense Council

Nihal Shrinath
Sierra Club

Theral Golden
West Long Beach Association

3-1 Response

We appreciate your comment. Rule 317, or the pathway to implement section 185 requirement for the 1979 1-hour ozone standard, is outside the scope of this rule development effort under PR 317.1.

3-2 Response

- A. Staff appreciates your comment and support for the proposed approach under PR 317.1. South Coast AQMD agrees that emissions reductions from Major Stationary Sources will improve the air quality surrounding overburdened communities. However, this comment fails to consider that the emissions reductions from the incentive programs under Rule 317 are also primarily located in overburdened communities, either as a requirement of the program or due to how they have been implemented. Moreover, the comment's assertion that the incentive programs are "untethered" to emissions reductions is simply incorrect, as all of the programs currently used for Rule 317 do reduce emissions.
- B. South Coast AQMD agrees that transition from combustion equipment to zero-emission equipment is necessary to achieve attainment with our clean air goals. The CAA Nonattainment Fees may promote the conversion to zero-emission equipment. Please see section "1.6. Use of Funds" of this PR 317.1 Staff Report for an explanation of why guidance on the spending of these potential funds would be determined in the future through a public process that would be separate from this rulemaking.

3-3 Response

Applications/requests from facilities are not posted on the South Coast AQMD website as they may contain confidential business information and contain unevaluated information. The final determinations for any facilities requesting Alternative Baseline Emissions will be available through the Public Records Request process. Requests may be made here: <https://www.aqmd.gov/nav/online-services/public-records>.

3-4 Response

Please refer to section "2.2.4.4. Payment Due Date Requirements – Paragraph (d)(4)" of this PR 317.1 Staff Report for additional details regarding the payment due date for the invoice that includes the CAA Nonattainment Fees for the initial Fee Assessment Year for the Applicable Ozone Standard. The initial invoice will, at a minimum, bill for the initial year's CAA Nonattainment Fees, however, multiple subsequent years may be included if there is a delay in the finding of failure by the U.S. EPA. Impacted facilities have raised concerns about the payment due date for the initial invoice as the fee obligation may not be included in the budget and about the uncertainty of the fee amount for the initial invoice. As such, the initial invoice due date for the applicable standard is 365 days from the date the invoice is issued to provide the Major Stationary Source adequate time to incorporate the initial CAA Nonattainment Fees for the Applicable Ozone Standard into their annual budget. Subsequent invoices would be required to be paid sooner with a deadline of no later than December 15th of the year of invoice issuance or no later than 75 days from the date the invoice was issued, whichever is later.

3-5 Response

A Major Stationary Source will only have a payment due date which is 365 days after issuance for the invoice that includes the CAA Nonattainment Fees for the initial Fee Assessment Year for the

Applicable Ozone Standard. Please refer to section “2.2.4.5. Failure to Pay Fees Requirements – Paragraph (d)(5)” of this PR 317.1 Staff Report for additional details regarding the one-hundred twenty (120) days lapse after the invoice due date before the Executive Officer has the authority to take action to revoke all Permits to Operate for equipment on the premises. The one-hundred twenty (120) days are based on a similar requirement which exists in Rule 301 subparagraph (c)(10)(F) to help ensure that all emission fees and surcharges are paid in full for the AER submittals.

3-6 Response

PR 317.1 requires CAA Nonattainment Fees for each Applicable Ozone Standard. Please refer to the “Payment of Single Largest Standard in Year” section of the “1-3 Response” in this PR 317.1 Staff Report for an explanation of why the South Coast AQMD would not require a Major Stationary Source to only remit the largest applicable CAA Nonattainment Fees for a single ozone standard in any calendar year.

3-7 Response

PR 317.1 is being developed to set the regulatory framework for collection of CAA Nonattainment Fees for the 1997 and 2008 ozone standards. Overburdened communities may be considered in the implantation phase of PR 317.1. Please see section “1.6. Use of Funds” of this PR 317.1 Staff Report for an explanation of why guidance on the spending of these potential funds would be determined in the future through a public process that would be separate from this rulemaking.

4. RadTech Comment Letter, Submitted 04/17/24

April 17, 2024

Mr. Michael Krause
Assistant Deputy Executive Officer
South Coast Air quality Management District
mkrause@aqmd.gov

Re: Public Comments Rule 371.1 -- Clean Air Act Nonattainment Fees

Dear Mr. Krause:

RadTech is pleased to comment on the District's Proposed Amended Rule 317.1. Our Association represents over 800 members who are involved in industry sectors ranging from printing and packaging to nail polish. UV/EB/LED processes are all electric, eliminating the need for add-on control devices thereby preventing NOx and Greenhouse Gases. The materials are not formulated with conventional solvents and therefore the emissions of VOCs are negligible. They are "super-compliant" as they go above and beyond current rule requirements and provide the district with excess emission reductions. Our recommendations are as follows:

Baseline Emissions Calculation

We urge the district to recognize the efforts of facilities who have voluntarily reduced their emissions. There should be an exemption for companies that have invested in clean technology early on. The baseline calculation may penalize operators who have been good environmental stewards. Presumably, the emissions from facilities that have implemented clean technology will be lower than those who have not done so. The baseline emissions of the good stewards will be lower than those of facilities that did not implement early voluntary emission reductions. The good operators will have less flexibility because their baseline emissions will be lower. The district should provide exemptions from Rule 317.1 fees for facilities that have gone above and beyond district requirements and have done so voluntarily. As an example, facilities that have transitioned to energy curable processes have most likely phased out processes that generate Greenhouse Gases like afterburners.

} Comment
4-1

Title V Applicability

During the public consultation meeting, permit holders expressed concern that they may have been advised by district staff to participate in the Title V program. One commenter stated that the emissions from his facility were well below the Title V applicability threshold but that permit engineers had encouraged the facility to stay in the Title V program. Since Proposed Amended

} Comment
4-2

Rule 317.1 specifically targets Title V facilities, it is now even more important for facilities to avoid applicability. Currently, there is no clear procedure on how facilities can petition the district if they want to get out of the Title V program. We urge the district to explain the process in the staff report.

} Comment
4-2 Cont.

Relief from Fees for Clean Technology

In 2010, UV/EB processes were included in Table 1 of district Rule 3008 h (1)(B)(6) (Potential to Emit Limitations) as alternative operational limits. We urge the district to provide relief from Rule 317.1 fees to companies that have UV/EB/LED operations that meet the specified limits in Rule 3008. Rule 317.1 should mirror the existing Title V program rules and the staff report should provide clarification that the processes listed in Table 1 of Rule 3008 will not be subject to the Clean Air Act fees contemplated by Rule 317.1.

} Comment
4-3

As I mentioned during the public consultation meeting, we are concerned that Rule 317.1 is extremely punitive to stationary sources who are not responsible for the majority of emissions in the South Coast Basin. We hope the district will provide incentives for facilities who have achieved voluntary emission reductions. We thank you for your consideration, and look forward to further conversations on our suggestions.

} Comment
4-4

Regards,

Rita M. Loof
Director, Environmental Affairs

4-1 Response

Please refer to section “1.4.4. CAA Section 185 Compliance Pathway for 1997 and 2008 Ozone Standards of this Staff Report for an explanation of why CAA Nonattainment Fee collection is necessary for South Coast AQMD for the 1997 and 2008 8-hour ozone standards.

4-2 Response

Please refer to the “2-2 Response”, “2-3 Response”, and “2-4 Response” of this PR 317.1 Staff Report for an explanation of what qualifies as a Major Stationary Source and the existing pathway for facilities to exit the Title V permit program. The process to exit Title V has been implemented since the beginning of the ~~District’s~~ South Coast AQMD’s Title V program and there is a dedicated permit application form posted on the ~~District’s~~ South Coast AQMD’s webpage. Each facility deciding whether to remain or request to exit the Title V permit program is a case-by-case situation and is dependent on each facility’s actual emissions and PTE at the time of the request. Staff does not consult facilities on their business decisions, and those decisions are left to the facility based on their process and economic needs. Staff may provide explanations on each of the permit application processes for businesses seeking information to support their decisions.

4-3 Response

The Alternative Operational Limits of Table 1 in Rule 3008 – Potential to Emit Limitations (Rule 3008) are not part of Rule 3008 (h)(6). Rather, Table 1 of Rule 3008 is referenced in Rule 3008 (d)(2) for alternative operational limits that require that “[a]ny facility for which 90 percent of the facility’s emissions from the permitted emission units in every 12-month period are associated with one of the operations identified in Table 1 shall comply with the corresponding operational limits in Table 1.” Facilities may elect to use Table 1, which requires a usage limit in every 12-month period for “Ultraviolet/Electron Beam Cured Operations” be “21,582 gallons of ultraviolet/electron beam materials not to exceed 50 grams/liter.” Table 1 does not address LED technologies. Facilities meeting the applicable requirements of Rule 3008 (d)(2) do not meet the definition of a Major Stationary Source in Regulation XXX - Title V Permits. Similarly, they would not meet the PR 317.1 definition of a Major Stationary Source and, therefore, not be applicable to PR 317.1. Please refer to the definition of Major Stationary Source in section “2.2.3. Definitions – Subdivision (c)” of this PR 317.1 Staff Report for an explanation of what qualifies as a Major Stationary Source.

4-4 Response

Staff disagrees that PR 317.1 would be “extremely punitive” as the CAA Nonattainment Fees will be collected from Major Stationary Sources of VOC and/or NOx regardless of whether PR 317.1 is adopted. PR 317.1 is being developed to implement the existing requirements of CAA section 185 for the 1997 and 2008 8-hour ozone NAAQS. If a regulatory pathway is not developed, these Major Stationary Sources would still be required to comply with CAA section 185 and CAA Nonattainment Fees would instead be collected by the U.S. EPA. Please see section “1.6. Use of Funds” of this PR 317.1 Staff Report for an explanation of why guidance on the spending of these potential funds would be determined in the future through a public process that would be separate from this rulemaking.

5. Western States Petroleum Association (WSPA) Comment Letter, Submitted 04/17/24**Ramine Ross**

Senior Manager, Southern California Region

April 17, 2024

Dr. Kalam Cheung
Planning & Rules Manager
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Via e-mail at: kcheung@aqmd.gov

Re: SCAQMD Proposed Rule 317.1, Clean Air Act Nonattainment Fees for the 8-Hour Ozone Standards: WSPA Comments on Preliminary Draft Rule Language

Dear Dr. Cheung,

Western States Petroleum Association (WSPA) appreciates the opportunity to participate in South Coast Air Quality Management District (SCAQMD or District) Proposed Rule 317.1, Clean Air Act Nonattainment Fees for the 8-Hour Ozone Standards (PR 317.1). The stated purpose of this rulemaking is to satisfy requirements as specified in Sections 182(d), 182(e), 182(f) and 185 of the 1990 amendments to the federal Clean Air Act (CAA) for the 1997 8-hour ozone National Ambient Air Quality Standard (NAAQS) and the 2008 8-hour ozone NAAQS.¹ PR 317.1 is proposed to apply to any Major Stationary Source of volatile organic compounds (VOCs) and/or oxides of nitrogen (NOx) pursuant to Section 185 of the federal CAA.²

WSPA is a non-profit trade association representing companies that explore for, produce, refine, transport, and market petroleum, petroleum products, natural gas, renewable fuels, and other energy supplies in five western states including California. WSPA has been an active participant in air quality planning issues for over 30 years. WSPA member companies operate petroleum refineries and other facilities in the South Coast Air Basin that are within the purview of the SCAQMD and thus will be impacted by PR 317.1.

SCAQMD published the Preliminary Draft Rule Language on March 22, 2024.³ WSPA offers the following comments.

¹ SCAQMD Proposed Rule 317.1 Preliminary Draft Rule Language. Available at: https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/317.1/pdrl-317-1_2024-03-22_final.pdf?sfvrsn=16.

² Ibid.

³ Ibid.

April 17, 2024
Page 2

1. The United States Environmental Protection Agency (U.S. EPA) previously issued guidance for alternative methodologies for establishing emissions baselines under Section 185 of the CAA for the 1-hour Ozone Standard. This methodology should be allowed under PR 317.1 without accruing additional fees.

PR 317.1(d)(8) states that once EPA issues guidance authorizing an alternative methodology for calculation of baseline emissions, facilities may submit a request for alternative baseline conditions if the attainment year is not representative of normal operating conditions. This would allow facilities to select an alternative baseline using twenty-four consecutive months out of the past 10 years that are representative of normal operating conditions.⁴ This policy is presented in the U.S. EPA Guidance on Establishing Emissions Baselines under Section 185 of CAA for Severe and Extreme Ozone Nonattainment Areas that Fail to Attain the 1-hour Ozone NAAQS by their Attainment (Guidance).⁵ The policy is consistent with the method for calculating "baseline actual emissions" found in U.S. EPA's regulations for Prevention of Significant Deterioration of Air Quality (PSD) (40 CFR 52.21(b)(48)).⁶

According to the Guidance, U.S. EPA determined it is fair and reasonable for a source to use a 10-year look back period for baseline calculating "actual emissions" because it allows the source to consider a full business cycle in setting a baseline emissions rate that represents normal operation of the source for that time period.⁷ According to SCAQMD staff, U.S. EPA may be amenable to the use of this methodology within PR 317.1.

PAR 317.1 is written such that an alternative baseline can be established for facilities only if the attainment year is not representative of normal operations. WSPA members have taken a significant number of actions to reduce VOC and NOx emissions as a result of the reduction of NOx RECLAIM Trading Credits over the past 15 years and the 2016 Air Quality Management Plan (AQMP) and associated transition of RECLAIM facilities to command and control rules.⁸ Facilities should be able to receive credit under PR 317.1 for these reductions in emissions.

Additionally, PAR 317.1(d)(9)(A) states:

The owner or operator of a Major Stationary Source electing to submit an Alternative Baseline Emissions Request, pursuant to subparagraph (d)(8)(c), shall pay an hourly staff evaluation rate of \$209.31, unless Regulation III - Fees assigns a fee amount associated with evaluating the Alternative Baseline Emissions Request that shall be paid in lieu of this rate.

Comment
5-1

⁴ Ibid.

⁵ U.S. EPA Guidance on Establishing Emissions Baselines under Section 185 of the Clean Air Act for Severe and Extreme Ozone Nonattainment Areas that Fail to Attain the 1-hour Ozone NAAQS by their Attainment. Available at:

https://www3.epa.gov/ttn/naaqs/aqmguidance/collection/cp2/20080321_harnett_emissions_baseline_185.pdf.

⁶ 40 CFR Part 52. Available at: <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-52/subpart-A/section-52.21>.

⁷ U.S. EPA Guidance on Establishing Emissions Baselines under Section 185 of the Clean Air Act for Severe and Extreme Ozone Nonattainment Areas that Fail to Attain the 1-hour Ozone NAAQS by their Attainment. Available at:

https://www3.epa.gov/ttn/naaqs/aqmguidance/collection/cp2/20080321_harnett_emissions_baseline_185.pdf.

⁸ SCAQMD 2016 AQMP. Available at: <https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf>.

April 17, 2024
Page 3

It is unclear why the District proposes charging an hourly staff evaluation fee if a facility were to pursue this alternative baseline emissions approach. It is reasonable to expect the District to engage with facilities and evaluate baseline emissions without additional fees. As stated in the Public Consultation Meeting on April 3, 2024, staff is considering reserving 10% of the collected fees for administration and implementation purposes.⁹ According to the Preliminary Draft Staff Report, the total collected funds in 2025 are (conservatively) approximated to be ~\$26 million per year from 320 Major Stationary Sources in SCAQMD's jurisdiction in calendar year 2025, so ~\$2.6 million could be set aside in the first year alone.¹⁰ Staff would need to demonstrate that the administrative burden for the one-time assessment of alternative baseline year methodologies would exceed the cumulative funds reserved for administrative purposes over the timeline of these fee schedules in order to justify the additional hourly staff evaluation fee. For these reasons, WSPA recommends that the hourly evaluation fee be removed from the rule.

Comment
5-1 Cont.

- 2. SCAQMD should follow the example set by Mojave Desert Air Quality Management District and revise PR 317.1 such that facilities would be required to pay only one nonattainment fee should the air basin remain in nonattainment NAAQS, rather than pay fees on all three NAAQS.**

Mojave Desert Air Quality Management District (MDAQMD) Rules 315.1, 315.2, and 315.3 state:^{11,12,13}

No Facility otherwise subject to this Rule shall be required to remit a FCAA Section 185 penalty for more than one Federal ozone standard for any specific calendar year. A Facility's applicable FCAA Section 185 penalty for any calendar year shall be the largest of all such applicable penalties.

Comment
5-2

SCAQMD stated in the April 3rd Public Consultation Meeting that facilities would be required to pay nonattainment penalties on each of the 1997, 2008, and 2015 federal ozone standards, should the basin remain in nonattainment with each standard through 2033 and 2039, effectively "triple dipping" on facilities' emissions.¹⁴

U.S. EPA's periodic review and revision of the NAAQS is intended to set standards that adequately protect public health and public welfare based on the evolving understanding of the environmental and health impacts of criteria pollutants. The revisions to the standards do not represent a level of ambient air concentrations corresponding to a separate public health benchmark, rather they are the standards that would have been established in prior years had the public health and welfare impacts of these pollutants been better understood. Consequently, treating nonattainment under each standard for the same pollutant as a

⁹ SCAQMD Public Consultation Meeting for PR 317.1. Available at: https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/317.1/pr317-1_pcm_032924.pdf?sfvrsn=8.

¹⁰ SCAQMD Preliminary Draft Staff Report for PR 317.1. Available at: https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/317.1/pdsr-317-1_2024-03-22_final.pdf?sfvrsn=8.

¹¹ MDAQMD Rule 315.1. Available at: <https://www.mdaqmd.ca.gov/home/showpublisheddocument/9306/637847640024930000>.

¹² MDAQMD Rule 315.2. Available at: <https://www.mdaqmd.ca.gov/home/showpublisheddocument/9308/637847619490870000>.

¹³ MDAQMD Rule 315.3. Available at: <https://www.mdaqmd.ca.gov/home/showpublisheddocument/9733/638156003537770000>.

¹⁴ SCAQMD PR 317.1 Public Consultation Meeting, April 3, 2024.

April 17, 2024
Page 4

separate violation rather than a continuous evolution of public health sciences unjustly penalizes stationary sources within the basin.

Revising the approach to the collection of fees would not compromise SCAQMD's ability to apply enforcement actions to facilities located in severe or extreme ozone nonattainment areas, as defined under Section 185 of the Clean Air Act.¹⁵ As it currently stands, the South Coast Air Basin is designated as extreme nonattainment for all three of the 1997, 2008, and 2015 ozone standards.¹⁶ WSPA strongly recommends that the District incorporate language into PR 317.1 similar to that in the MDAQMD rules that address CAA Section 185 penalties, allowing facilities to remit fees for only one ozone standard in any calendar year.

Comment
5-2 Cont.

3. Emissions from equipment that are not federal sources, such as those registered under the Portable Equipment Registration Program (PERP), should be excluded from the calculation of Baseline and Actual Emissions.

PR 317.1 (c)(1) defines Actual Emissions as:¹⁷

The mass of emissions of NO_x or VOCs emitted by a Major Stationary Source as reported through SCAQMD's Annual Emission Report (AER) program and shall include, but not be limited to the following:

- (i) Permitted emissions;
- (ii) Regulated emissions;
- (iii) Fugitive emissions; and
- (iv) Unregulated emissions

Comment
5-3

Baseline Emissions would be calculated based on the lower of Actual Emissions, adjusted for emission exceedances, or the amount of emissions allowed under permits, plans, applicable rules, etc.¹⁸ Some of the emissions reported under the AER program do not meet the definition of Major Stationary Source emissions and are not required to be counted under federal source requirements. Therefore, those emissions should not count towards a facility's Baseline or Actual Emissions.

PR 317.1 references CAA section 182(e) for extreme Nonattainment Areas, which defines a "Major Stationary Source" as:¹⁹

Any stationary source or group of sources located within a contiguous area and under common control that emits, or has the potential to emit, at least 10 tons per year of volatile organic compounds.

¹⁵ Clean Air Act Enforcement for Severe and Extreme ozone nonattainment areas for failure to obtain. Available at:

<https://www.govinfo.gov/content/pkg/USCODE-2013-title42/html/USCODE-2013-title42-chap85-subchapl-partD-subpart2-sec7511d.htm>.

¹⁶ U.S. EPA Current Nonattainment Counties for All Criteria Pollutants. Available at: <https://www3.epa.gov/airquality/greenbook/and.html>.

¹⁷ SCAQMD Proposed Rule 317.1 Preliminary Draft Rule Language. Available at: https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/317.1/pdrl-317-1_2024-03-22_final.pdf?sfvrsn=16.

¹⁸ Ibid.

¹⁹ CAA Section 182(e). Available at: <https://www.govinfo.gov/content/pkg/USCODE-2013-title42/html/USCODE-2013-title42-chap85-subchapl-partD-subpart2-sec7511a.htm>

April 17, 2024
Page 5

Mobile and portable sources are not required to be counted under federal source requirements. The inclusion of emissions of these sources within the Actual Emissions impacts the difference between Actual and Baseline Emissions in a given year and misrepresents the progress being made by stationary sources towards the attainment goals. WSPA suggests aligning the baseline and actual emission inventories with federal act requirements.

Comment
5-3 Cont.

4. WSPA encourages SCAQMD to develop a resolution to direct the fees collected under this rule towards programs that facilitate VOC and NOx emission reductions projects at the Major Stationary Sources from which the fees were paid.

SCAQMD currently plans to defer the decision on how to allocate the funds collected under PR 317.1 until future proceedings due to uncertainties in the resources necessary to implement the rule and the amount of future fees that will be collected.²⁰ The South Coast Air Basin's nonattainment status primarily results from emissions from mobile sources, and yet the penalties of nonattainment are solely felt by Major Stationary Sources.²¹ As such, WSPA recommends SCAQMD to allocate the funds raised back to those facilities to implement emission reduction projects.

Comment
5-4

WSPA appreciates the opportunity to provide these comments related to PR 317.1. We look forward to continued discussion of this important rulemaking. If you have any questions, please contact me at (310) 808-2146 or via e-mail at ross@wspa.org.

Sincerely,



Cc: Wayne Nastri, Executive Officer, SCAQMD
Sarah Rees, Deputy Executive Officer, SCAQMD
Michael Krause, Assistant Deputy Executive Officer, SCAQMD
Neil Fujiwara, Program Supervisor, SCAQMD
Britney Gallivan, Air Quality Specialist, SCAQMD
Patty Senecal, Senior Director, WSPA

²⁰ SCAQMD Public Consultation Meeting for PR 317.1. Available at: https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/317.1/pr317-1_pcm_032924.pdf?sfvrsn=8

²¹ SCAQMD Final 2022 AQMP Chapter 3: Base Year and Future Emissions. Available at: <https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/06-ch3.pdf?sfvrsn=18>.

5-1 Response

South Coast AQMD is appreciative of the efforts WSPA members have made to improve air quality. Unfortunately, these efforts alone were not enough to achieve attainment with the 1997 8-hour ozone standard. As such, the SCAB and Coachella Valley are subject to the fee collection requirements of CAA section 185, which determines fee obligations based on emissions relative to the established Baseline Emissions or Alternative Baseline Emissions. Please refer to the “2.2.4.9. Alternative Baseline Emissions Request Payment – Paragraph (d)(9)” section of this PR 317.1 Staff Report for an explanation of why South Coast AQMD has set a fee for evaluation of the Alternative Baseline Emissions Request. At this time, no funds have been reserved for administration and implementation of PR 317.1.

5-2 Response

Please refer to the “Payment of Single Largest Standard in Year” section of the “1-3 Response” in this PR 317.1 Staff Report for an explanation of why the South Coast AQMD would not require a Major Stationary Source to only remit the largest applicable CAA Nonattainment Fee for a single ozone standard in any calendar year.

5-3 Response

The definition of Actual Emissions has been revised since the release of the Preliminary Draft Rule Language. Please refer to the definition of Actual Emissions in section “2.2.3. Definitions – Subdivision (c)” of this PR 317.1 Staff Report. Actual Emissions are VOC and/or NO_x emissions reported to or amended by the Executive Office through the AER program. Actual Emissions during the Fee Assessment Year would be used to establish Baseline Emissions. Portable equipment may qualify as emissions from stationary sources as certain portable equipment is required to be permitted by South Coast AQMD. Also, there could be emissions from PERP equipment that operates at a Major Stationary Source. As such, staff disagrees that emissions from PERP shall not be included in determination of the CAA Nonattainment Fees. For questions regarding which emissions would or would not be included in reporting to the AER program, please refer to the AER program.³⁴

5-4 Response

PR 317.1 is being developed to set the regulatory framework for collection of CAA Nonattainment Fees for the 1997 and 2008 ozone standards. Please see section “1.6. Use of Funds” of this PR 317.1 Staff Report for an explanation of why guidance on the spending of these potential funds would be determined in the future through a public process that would be separate from this rulemaking. The South Coast AQMD may consider prioritizing monies collected to be spent on emissions reduction projects at or near essential public services, environmental justice areas, and stationary sources.

³⁴ For additional information on what to report through AER, see the following document: South Coast Air Quality Management District. *South Coast Air Quality Management District Annual Emissions Reporting, Reporting Tool - Frequently Asked Questions*. <https://www.aqmd.gov/docs/default-source/planning/annual-emission-reporting/frequently-asked-questions.pdf?sfvrsn=6>.

6. Stoel Rives, LLP Comment Letter, Submitted 04/23/24

April 23, 2024

Allison C. Smith
500 Capitol Mall, Suite 1600
Sacramento, CA 95814
D. 916.319.4759
allison.smith@stoel.com

VIA E-MAIL

Mr. Michael Krause
Assistant Deputy Executive Director
South Coast Air Quality Management District
21865 Copley Dr.
Diamond Bar, CA 91765
mkrause@aqmd.gov

Ms. Britney Gallivan
Air Quality Specialist
South Coast Air Quality Management District
21865 Copley Dr.
Diamond Bar, CA 91765
bgallivan@aqmd.gov

Re: Proposed Rule 317.1

Dear Mr. Krause and Ms. Gallivan:

We would like to take this opportunity to provide comments on the South Coast Air Quality Management District proposed Rule 317.1, which has the potential to deal a significant economic blow to regulated businesses in the air basins within the District's jurisdiction. With this Rule, the District should aim to satisfy Section 185 of Clean Air Act in a manner that imposes the least possible burden on the facilities within the District that will be subject to the rule's requirements. Our comments and proposed revisions to the proposed Rule, provided below, are reasonable and practical adjustments that the District can make to ease the burden on its local businesses without compromising timely compliance with the Clean Air Act.

Alternative Baseline Emissions

We propose certain revisions to the Alternative Baseline Emissions provisions under proposed Rule 317.1. We appreciate the District proposed an Alternative Baseline Emissions pathway to help make sure that the new nonattainment fees will be calculated more fairly and accurately. Our proposed changes would capture this intent, by ensuring that regulated facilities can appropriately utilize the Alternative Baseline Emissions option.

} Comment
6-1

123090529.4 0045631-00062

Mr. Michael Krause
 April 23, 2024
 Page 2

Definition of Alternative Baseline Emissions

In proposed Rule 317.1(c)(2), “Alternative Baseline Emissions” is defined as the average annual actual emissions for two consecutive years within the last ten calendar years. This definition should be revised to allow for average annual emissions data from two *non-consecutive* years. This revision would also be reflected in proposed Rule 317.1(d)(8)(C)(ii) with removal of the word “consecutive.” For many regulated facilities, the most representative years of emissions may not be in consecutive years, due to normal fluctuations in production or operations. Flexibility to incorporate emissions data from two consecutive – or non-consecutive years – would allow for calculation of the most representative Alternative Baseline Emissions period for a given source.

Comment
 6-2

Determination of Alternative Baseline Emissions

We propose a revision to Rule 317.1(d)(8)(D), for approval of Alternative Baseline Emissions by the Executive Officer where all requirements delineated in the preceding clause (d)(8)(C) are met. As currently drafted, proposed clause (d)(8)(D) implies that the Executive Officer has discretion to disallow use of a proposed Alternative Baseline Emissions calculation, even where all of the requirements of clause (d)(8)(C) have been demonstrated. This would introduce the potential for a regulated source to be held to an undefined, ambiguous standard, outside of the delineated requirements of clause (d)(8), in order to use Alternative Baseline Emissions. We do not believe that is the District’s intent. We would suggest revision of this clause to remove this ambiguity, and also include a timeline for approval by the Executive Officer:

Comment
 6-3

The Executive Officer shall approve ~~has authorized~~ a Major Stationary Source to use this Alternative Baseline Emissions within 90 days if all requirements identified in clause (d)(8)(C) are met.

This revision would allow the Executive Office to evaluate a request for Alternative Baseline Emissions and determine whether all the delineated requirements of clause (d)(8)(C) have been met prior to authorization of Alternative Baseline Emissions, but would avoid the potential for rejection of a proposed Alternative Baseline Emissions based on some unspecified or additional criteria.

We also propose revisions to certain criteria in clause (d)(8)(C), where requirements are unnecessary to adequately demonstrate alternative representative emissions, or unnecessarily burdensome. First, we propose deletion of proposed Rule 317.1(d)(8)(C)(iv), requiring analysis of all adopted local, state, and federal rules or regulations that would have restricted a source’s operations and emissions during the proposed 24-month Alternative Baseline Emissions period. Such a comprehensive, hypothetical legal analysis is unnecessarily burdensome and complicated for regulated entities. Clause (d)(8)(C)(iii) already requires that a regulated entity provide an analysis demonstrating that Actual Emissions from the proposed 24-month period represent typical operations. With this analysis, the District can adequately evaluate whether proposed

Comment
 6-4

123090529.4 0045631-00062

Mr. Michael Krause
 April 23, 2024
 Page 3

Alternative Baseline Emissions are representative. To the extent new regulations have impacted a facility's operations or emissions in recent times, this would be implicated in the analysis prepared under clause (d)(8)(C)(iii) to support use of an alternative two-year period.

Comment
 6-4 Cont.

Second, we also propose deletion of proposed Rule 317.1(d)(8)(C)(vi), requiring certification that a source's emissions are irregular, cyclical, or otherwise vary significantly from year to year. This certification is unnecessary. If a facility's pattern of emissions is substantially variable, this alone shows that emissions are irregular and vary significantly from year to year. Moreover, the analysis required under clause (d)(8)(C)(iii), demonstrating that a proposed 24-month period represents typical operations, would include an explanation of any irregular, cyclical, or variable emissions at the source. Therefore, no additional certification is needed.

Comment
 6-5

Lastly, we request that the timeline for submission of an Alternative Baseline Emissions Report in clause (d)(8)(C) be revised from 120 days to 180 days, from U.S. EPA's final nonattainment finding. The preparation of a complete and supported Alternative Baseline Emissions Report will require significant efforts by a regulated entity and additional time is necessary to meet this burden.

Comment
 6-6

Stationary Source Status During the Attainment Year

We propose deletion of proposed Rule 317.1(d)(8)(B), providing that a stationary source be major during the entirety of the Attainment Year, as defined, in order to use an alternative baseline. A facility is subject to the proposed Rule and potentially substantial Nonattainment Fees whether it is a major stationary source prior to, during, or following the defined Attainment Year. There is no reason for the Alternative Baseline Emissions pathway to be available only to those facilities that are major during the entirety of the Attainment Year.

Comment
 6-7

Timing of Compliance

We would request that certain timelines in the proposed Rule be revised to allow sufficient time for evaluation and compliance. Regulated businesses need time to manage compliance with a new program with the potential for such significant impact.

Proposed Rule 317.1(d)(6) provides 60 days for a source to confirm or contest the Rule's applicability. We request that this timeline be revised to 90 days to allow regulated entities sufficient time to evaluate the applicability of this new program to their facilities. Likewise, we request that the timeline to confirm or contest assigned Baseline Emissions under proposed Rule 317.1(d)(5) be revised from 60 days to 90 days. Regulated entities need adequate time to evaluate the District's assignment of Baseline Emissions.

Comment
 6-8

The timeline for the District to take action under proposed Rule 317.1(d)(5) for failure to pay fees should be extended to one year. California Health and Safety Code Section 42307 provides the District with authority to request a hearing to revoke a permit, but does not dictate a

Comment
 6-9

123090529.4 0045631-00062

Mr. Michael Krause
April 23, 2024
Page 4

timeline for such action. The District should allow for more than 120 days before this rather significant step is taken for a late payment of Rule 317.1 fees.

} Comment
6-9 Cont.

Revise Exemptions for Clarity

We propose an additional clause in proposed Rule 317.1(e) to make explicit the exemption offered to sources that emit less than 80% of their baseline in a given year. The fee determination provisions of proposed Rule 317.1(d)(2) stipulate that if actual emissions are less than or equal to 80% of baseline emissions, no nonattainment fee is assessed for that year. We suggest a new subsection (e)(3) to provide:

} Comment
6-10

No VOC or NOx CAA Nonattainment Fee shall be assessed for a Fee Assessment Year where Actual Emissions of VOC or NOx do not exceed 80% of Baseline Emissions or Alternative Baseline Emissions for VOC or NOx, as applicable.

Conclusions

We recognize that factors outside of the District's control have placed it in a difficult position and led to the proposed Rule 317.1. Yes, proposed Rule 317.1 represents a significant new economic burden on regulated stationary sources in the District, unrelated to the sources' contribution (or lack thereof) to the District's nonattainment status. It is widely acknowledged that certain air basins in the District would not be able to meet applicable air quality standards, even if all emitting industries were eliminated in the District. Over 80% of ozone forming emissions in the District derive from mobile sources, including trucks, cars, airplanes, trains, and ships. None of these sources are subject to these nonattainment fees. For all these reasons, we urge the District to revise proposed Rule 317.1 where feasible, to comply with the Clean Air Act while lessening unnecessary burdens on major stationary sources.

Very truly yours,



Allison C. Smith

Enclosure

cc: Ivan Tether, Esq., Tether Law

123090529.4 0045631-00062

(Preliminary Draft Rule Language - Version 2024/03/22)

RULE 317.1 CLEAN AIR ACT NONATTAINMENT FEES FOR 8-HOUR OZONE STANDARDS

(a) Purpose

The purpose of this rule is to satisfy requirements as specified in Sections 182(d), 182(e), 182(f) and 185 of the 1990 amendments to the federal Clean Air Act (CAA) for the 1997 8-hour ozone National Ambient Air Quality Standard (NAAQS) and the 2008 8-hour ozone NAAQS.

(b) Applicability

- (1) This rule shall become applicable if and when the U.S. Environmental Protection Agency (EPA) makes a final finding that a Basin has failed to attain the 1997 8-hour ozone NAAQS or the 2008 8-hour ozone NAAQS by the applicable Attainment Date.
- (2) Except as otherwise provided as exempt in subdivision (e), this rule is applicable to any Major Stationary Source of Volatile Organic Compounds (VOC) and/or Nitrogen Oxides (NOx).

(c) Definitions

For the purpose of this rule, the following definitions shall apply:

- (1) ACTUAL EMISSIONS means the mass of emissions of NOx or VOCs, which are emitted by a Major Stationary Source to the atmosphere during a calendar year, reported to or amended by the Executive Officer, through the South Coast AQMD's Annual Emissions Report (AER) program and shall include, but not be limited to the following:
 - (i) Permitted emissions;
 - (ii) Regulated emissions;
 - (iii) Fugitive emissions; and
 - (iv) Unregulated emissions
- (2) ALTERNATIVE BASELINE EMISSIONS means a Major Stationary Source's VOCs or NOx average annual Actual Emissions for two ~~consecutive~~ years within up to the last ten (10) calendar years prior to and including the Attainment Year, not to exceed emissions allowed through the permit(s), plan(s), applicable rules(s), and implementation plan(s).

123091083.1 0045631-00062

PR 317.1 - 1

Proposed Rule 317.1 (Cont.)

(Version 2024/03/22)

- (3) ANNUAL CAA NONATTAINMENT FEE RATE means \$5,000 (in 1990 dollars), adjusted for inflation annually, beginning in the year after 1990, by the percent change in consumer price index (CPI), if any, pursuant to CAA Sections 185(b)(3) and 502(b)(3)(B)(v). The Annual CAA Nonattainment Fee Rate is published annually for each calendar year in a memorandum by the U.S. EPA.
- (4) APPLICABLE OZONE STANDARD means either the 1997 8-hour ozone NAAQS or 2008 8-hour ozone NAAQS, as applicable.
- (5) ATTAINMENT DATE means the U.S. EPA approved date, established pursuant to the CAA, by which a Basin must attain a federal NAAQS. Where no such U.S. EPA approval exists, the date of the Basin's maximum statutory attainment date for that standard.
- (6) ATTAINMENT YEAR means the calendar year containing the Attainment Date.
- (7) BASELINE EMISSIONS means a Major Stationary Source's VOC and/or NOx emissions, for which a source qualifies as a Major Stationary Source. Baseline Emissions for VOC and/or NOx are calculated separately for each Applicable Ozone Standard, and as follows:
 - (A) For a Major Stationary Source which was a Major Stationary Source during the entirety of the Attainment Year, the Baseline Emissions is the lower of:
 - (i) The Actual Emissions, not to exceed emissions allowed through the permit(s), plan(s), applicable rule(s), and implementation plan(s), during the Attainment Year or
 - (ii) The amount of emissions allowed under permit(s), plan(s), applicable rule(s), and implementation plan(s) during the Attainment Year.
 - (B) For a Major Stationary Source that becomes subject to this rule during the Attainment Year, the Baseline Emissions is the lower of:
 - (i) The Actual Emissions, not to exceed emissions allowed through the permit(s), plan(s), applicable rule(s), and implementation plan(s), for the operational period as a Major Stationary Source in the Attainment Year, extrapolated over the entire Attainment Year or
 - (ii) The amount of emissions allowed under permit(s), plan(s), applicable rule(s), and implementation plan(s) for the operational period as a Major Stationary Source in the Attainment Year, extrapolated over the entire Attainment Year.
 - (C) For a Major Stationary Source that becomes subject to this rule after the Attainment Year, the Baseline Emissions is the lower of:

123091083.1 0045631-00062

PR 317.1 - 2

Proposed Rule 317.1 (Cont.)

(Version 2024/03/22)

- (i) The Actual Emissions for the operational period in the initial calendar year of operation as a Major Stationary Source, not to exceed emissions allowed through the permit(s), plan(s), applicable rule(s), and implementation plan(s), extrapolated over the entire initial year of operation as a Major Stationary Source or
 - (ii) The amount of emissions allowed under permit(s), plan(s), applicable rule(s), and implementation plan(s), for the facility for the operational period in the initial calendar year as a Major Stationary Source, extrapolated over the entire initial year as a Major Stationary Source.
- (8) BASIN means either the South Coast Air Basin or Riverside County portion of the Salton Sea Air Basin (Coachella Valley). The boundaries of each Basin shall be as defined by 40 Code of Federal Regulations, Section 81.305.
- (9) CAA NONATTAINMENT FEE means the federally mandated ozone NAAQS nonattainment fee assessed to a Major Stationary Source for excess emissions of VOC and NO_x air contaminants pursuant to Section 185 of the CAA. It is the summation of the annual VOC CAA Nonattainment Fee and the annual NO_x CAA Nonattainment Fee.
- (10) EXTENSION YEAR means the year that the U.S. EPA may grant, pursuant to Section 181(a)(5) of the CAA and upon the state's request, an extension of the Attainment Date.
- (11) FEE ASSESSMENT YEAR means the calendar year in which emissions occurred for which the CAA Nonattainment Fees are being calculated and assessed under the provisions of this rule for each Applicable Ozone Standard.
- (12) MAJOR STATIONARY SOURCE means a Major Stationary Source as defined in CAA sections 182(d), 182(e), 182(f) and 185 and is required to operate under the authority of a Title V Program facility permit.
- (13) NITROGEN OXIDES (NO_x) means the sum of nitric oxides and nitrogen dioxides emitted, calculated as nitrogen dioxide.
- (14) VOLATILE ORGANIC COMPOUNDS (VOC) means the sum of any volatile compound of carbon, excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and exempt compounds.
- (d) Requirements
 - (1) Fee Assessment

The Executive Officer shall assess the CAA Nonattainment Fees for each Applicable Ozone Standard:

123091083.1 0045631-00062

PR 317.1 - 3

Proposed Rule 317.1 (Cont.)

(Version 2024/03/22)

- (A) Beginning the calendar year after the Attainment Year for a:
 - (i) Major Stationary Source which was a Major Stationary Source during the entirety of the Attainment Year; or
 - (ii) Major Stationary Source that becomes subject to this rule during the Attainment Year; or
- (B) Beginning the calendar year after the calendar year used to establish Baseline Emissions for a Major Stationary Source that becomes subject to this rule after the Attainment Year.

(2) Fee Determination

Beginning the calendar year after the applicable Attainment Year, the CAA Nonattainment Fee shall be the Annual CAA Nonattainment Fee Rate for the applicable Fee Assessment Year per ton of Actual Emissions of VOC and/or NOx during the Fee Assessment Year that exceed 80% of the Baseline Emissions or Alternative Baseline Emissions. For each Major Stationary Source, the CAA Nonattainment Fee shall be calculated as follows:

VOC CAA Nonattainment Fees =

$$\text{Annual CAA Nonattainment Fee Rate} \times [A_V - (0.8 \times B_V)]$$

NOx CAA Nonattainment Fees =

$$\text{Annual CAA Nonattainment Fee Rate} \times [A_N - (0.8 \times B_N)]$$

CAA Nonattainment Fees =

$$\text{NOx CAA Nonattainment Fees} + \text{VOC CAA Nonattainment Fees}$$

Where:

- For a Major Stationary Source of VOC:
 - A_V = Actual Emissions of VOC for the applicable Fee Assessment Year (in tons per year). If A_V is less than or equal to 80% of B_V , there shall be no VOC CAA Nonattainment Fee assessed for the Fee Assessment Year.
 - B_V = Baseline Emissions or Alternative Baseline Emissions for VOC (in tons per year).
- For a Major Stationary Source of NOx:
 - A_N = Actual Emissions of NOx for the applicable Fee Assessment Year (in tons per year). If A_N is less than or equal to 80% of B_N , there shall be no NOx CAA Nonattainment Fee assessed for the Fee Assessment Year.
 - B_N = Baseline Emissions or Alternative Baseline Emissions for NOx (in tons per year).

123091083.1 0045631-00062

PR 317.1 - 4

Proposed Rule 317.1 (Cont.)

(Version 2024/03/22)

- (3) Annual Reporting and Payment
 - (A) The owner or operator of a Major Stationary Source shall annually report all Actual Emissions, regardless of whether the owner or operator received notice from the Executive Officer.
 - (B) The owner or operator of a Major Stationary Source shall, for each applicable Fee Assessment Year, which includes the years prior to the U.S. EPA making a final finding that a Basin has failed to attain the Applicable Ozone standard, pay the appropriate CAA Nonattainment Fees, determined pursuant to paragraph (d)(2), regardless of whether the owner or operator received notice from the Executive Officer.
- (4) Payment Due Date

Unless a later date, not to exceed 365 days from the applicable due date, is specified by the Executive Officer, the owner or operator of a Major Stationary Source, regardless of whether the owner or operator received notice from the Executive Officer, shall submit full payment for:

 - (A) The invoice that includes the CAA Nonattainment Fee for the initial Fee Assessment Year for the Applicable Ozone Standard for the Major Stationary Source, no later than 365 days from the date the invoice is issued by the Executive Officer; and
 - (B) An invoice subsequent to the first invoice that included the CAA Nonattainment Fee for the initial Fee Assessment Year for the Applicable Ozone Standard for the Major Stationary Source, either:
 - (i) No later than December 15th of the year the invoice is issued by the Executive Officer; or
 - (ii) No later than 75 days from the date the invoice is issued by the Executive Officer, whichever is later.
- (5) Failure to Pay Fees

If ~~one hundred twenty (120) days have~~ one year has elapsed since the invoice due date and all CAA Nonattainment Fees have not been paid in full, the Executive Officer may take action to revoke all Permits to Operate for equipment on the premises, as authorized in California Health and Safety Code Section 42307.
- (6) Notice of Rule Applicability

No later than ~~60~~90 days after a notice is issued by the Executive Officer that the facility is a Major Stationary Source subject to this rule, the owner or operator of a Major Stationary Source shall confirm or contest the Major Stationary Source's rule applicability.

123091083.1 0045631-00062

PR 317.1 - 5

Proposed Rule 317.1 (Cont.)

(Version 2024/03/22)

(7) Notice of Baseline Emissions

No later than ~~60~~90 days after a notice is issued by the Executive Officer specifying the Baseline Emissions for the Major Stationary Source, the owner or operator of a Major Stationary Source shall confirm or contest the assigned Baseline Emissions.

(8) Alternative Baseline Emissions

If the owner or operator of a Major Stationary Source requests to use an Alternative Baseline Emissions to determine the CAA Nonattainment Fee, the following requirements shall be met:

- (A) U.S. EPA has issued guidance authorizing an alternative methodology for calculation of a Major Stationary Source's Baseline Emissions, pursuant to CAA Section 185(b)(2) for the Applicable Ozone Standard, that is consistent with the methodology specified in subparagraph (d)(8)(C) and requirements specified in subparagraphs (d)(8)(B) and (d)(8)(D).
- (B) The Major Stationary Source was a Major Stationary Source during the entirety of the Attainment Year;
- (C) No later than 120 days after the end of the Attainment Year or no later than ~~120~~180 days after the U.S. EPA makes a final finding that the Basin has failed to attain the Applicable Ozone Standard by the applicable Attainment Date, whichever is later, the owner or operator of a Major Stationary Source submits to the Executive Officer an Alternative Baseline Emissions Request that contains the following:
 - (i) An Alternative Baseline Emissions Report including Actual Emissions, not to exceed emissions allowed through the permit(s), plan(s), applicable rule(s), and implementation plan(s), for each of the relevant ten (10) calendar years preceding and including the Attainment Year;
 - (ii) Identification of the twenty-four ~~consecutive~~ months representing typical operations:
 - (a) For a Major Stationary Source without an electrical steam generating unit(s), within the last relevant ten (10) calendar years prior to and including the Attainment Year selected; or
 - (b) For a Major Stationary Source with an electrical steam generating unit(s), within the last relevant five (5) calendar years prior to and including the Attainment Year selected or, with justification, the relevant five (5) calendar years prior to the aforementioned calendar years;

123091083.1 0045631-00062

PR 317.1 - 6

Proposed Rule 317.1 (Cont.)

(Version 2024/03/22)

- (iii) An analysis demonstrating that the Actual Emissions, not to exceed emissions allowed through the permit(s), plan(s), applicable rules(s), and implementation plan(s), from the average of the twenty-four months, identified pursuant to clause (d)(8)(C)(ii), represent typical operations;
- ~~(iv) Analysis of adopted local, state, and federal rules or regulations that would have restricted the source's ability to either operate or emit a particular pollutant, had they been in effect during the consecutive twenty-four months selected;~~
- (iv) The average annual emissions of the twenty-four months, identified in clause (d)(8)(C)(ii), not to exceed emissions allowed through the permit(s), plan(s), applicable rules(s), and implementation plan(s), considering the impacts identified in clause (d)(8)(C)(iv);
- ~~(vi) Certification, in writing, by the highest ranking executive on site that the source's emissions are irregular, cyclical, or otherwise vary significantly from year to year; and~~
- ~~(vii) Any other information as required by the U.S. EPA guidance; and~~
- (D) The Executive Officer ~~shall approve~~has authorized a Major Stationary Source to use this Alternative Baseline Emissions within 90 days if all requirements identified in clause (d)(8)(C) are met.
- (9) Alternative Baseline Emissions Request Payment
 - (A) The owner or operator of a Major Stationary Source electing to submit an Alternative Baseline Emissions Request, pursuant to subparagraph (d)(8)(c), shall pay an hourly staff evaluation rate of \$209.31, unless Regulation III - Fees assigns a fee amount associated with evaluating the Alternative Baseline Emissions Request that shall be paid in lieu of this rate.
 - (B) The owner or operator of a Major Stationary Source shall submit full payment of the amount invoiced no later than 60 days from receiving the invoice for evaluation of the Alternative Baseline Emissions Request.
- (e) Exemptions
 - (1) Extension Year

The owner or operator of a Major Stationary Source shall not be required to remit CAA Nonattainment Fees under this rule during any calendar year that is considered a Basin's Extension Year for the Applicable Ozone Standard.
 - (2) Cessation of Fees

123091083.1 0045631-00062

PR 317.1 - 7

Proposed Rule 317.1 (Cont.)

(Version 2024/03/22)

The owner or operator of a Major Stationary Source shall not be required to remit CAA Nonattainment Fees for an Applicable Ozone Standard once the Basin has been redesignated by U.S. EPA to attainment for that Applicable Ozone Standard or, for a revoked Applicable Ozone Standard, if U.S. EPA has terminated the anti-backsliding requirement associated with the CAA Nonattainment Fees for the Applicable Ozone Standard. The CAA Nonattainment Fees will cease in the same calendar year as the redesignation or termination.

(3) Baseline Emissions Threshold

No VOC or NOx CAA Nonattainment Fee shall be assessed for a Fee Assessment Year where Actual Emissions of VOC or NOx do not exceed 80% of Baseline Emissions or Alternative Baseline Emissions for VOC or NOx, as applicable.

123091083.1 0045631-00062

PR 317.1 - 8

6-1 Response

The South Coast AQMD appreciates your support of the inclusion of an Alternative Baseline Emissions pathway.

6-2 Response

As discussed in section “1.3.2. Alternative Baseline Emissions” of the PR 317.1 Staff Report, the requirements in PR 317.1 are in alignment with the Alternative Baseline Emissions guidance, established by the U.S. EPA on March 21, 2008, in which the U.S. EPA determined that 24-consecutive month period is reasonable. The guidance did not allow the use of non-consecutive months or years.

6-3 Response

A Major Stationary Source shall be allowed to use Alternative Baseline Emissions only if such request has been evaluated and approved by the Executive Officer to ensure the conditions described in the guidance established by U.S. EPA are met. Submission of an Alternative Baseline Emissions Request alone does not allow the use of Alternative Baseline Emissions. The Alternative Baseline Emissions Request requires evaluation by the South Coast AQMD and will only be approved if the South Coast AQMD believes there is adequate evidence to authorize the use of Alternative Baseline Emissions. The proposed rule language has been revised since the release of the Preliminary Draft Rule Language to clarify the basis of approval of the request.

6-4 Response

The intent is that the impacts from other requirements are evaluated to ensure Alternative Baseline Emissions represent typical operations. As the Major Stationary Source is most knowledgeable of their process and business decisions, they are required to identify if any changes in emissions are due to changes made in response to any local, state, or federal rules or regulations. Without this analysis, a facility may present a proposed Alternative Baseline Emissions which does not account for emissions reductions which are currently required.

6-5 Response

As discussed in section “1.3.2. Alternative Baseline Emissions” of the PR 317.1 Staff Report, the South Coast AQMD is establishing these requirements in alignment with the Alternative Baseline Emissions guidance established by the U.S. EPA on March 21, 2008, which requires that Alternative Baseline only be used if a source’s annual emissions are “irregular, cyclical, or otherwise vary significantly from year to year.” PR 317.1 clause (d)(8)(C)(ii) requires an analysis for representation of typical operations and makes no mention of requirements that the emissions be “irregular, cyclical, or otherwise vary significantly from year to year.” PR 317.1 clause (d)(8)(C)(ii) would not be duplicative of PR 317.1 clause (d)(8)(C)(vi).

6-6 Response

A facility may begin preparing their Alternative Baseline Emissions Request at any time and does not need to delay preparation until after the Attainment Year or until after the U.S. EPA makes a final finding that the Basin has failed to attain the Applicable Ozone Standard by the applicable Attainment Date. In consideration of this comment, PR 317.1 has been revised to from “no later than one-hundred twenty (120) days” to “no later than one-hundred eighty (180) days” after the end of the Attainment Year or no later than one-hundred twenty (120) days after the U.S. EPA makes a final finding that the Basin has failed to attain the Applicable Ozone Standard by the

applicable Attainment Date, whichever is later. In making a finding of failure to attain, the U.S. EPA typically first issues a proposed rule and adopts a final rule within a few months (sometimes longer). As this requirement is the later of two options, one-hundred twenty (120) days from whenever the U.S. EPA makes a final finding that the Basin has failed to attain the Applicable Ozone Standard by the applicable Attainment Date should allow ample time (more than one-hundred eighty (180) days after U.S. EPA's proposed rule) for the preparation of an Alternative Baseline Emissions Request.

6-7 Response

A facility qualifying as a Major Stationary Source after the start of the Attainment Year shall not be eligible to use Alternative Baseline Emissions as the Alternative Baseline Emissions would then be representative of their operations as a non-major stationary source instead of those as a Major Stationary Source.

6-8 Response

PR 317.1 has been revised as recommended to allow 90 days to challenge rule applicability and Baseline Emissions.

6-9 Response

PR 317.1 was revised from one-hundred twenty (120) days from the invoice due date to one-hundred twenty (120) days from the payment due date to provide clarity. Please refer to the section "2.2.4.5. Failure to Pay Fees Requirements – Paragraph (d)(5)" of the PR 317.1 Staff Report for an explanation of why the Executive Officer may take action to revoke all Permits to Operate for equipment on the premises if one-hundred twenty (120) days have lapsed since the payment due date.

6-10 Response

Please refer to the "Actual Emissions Below 80% of Baseline Emissions" section of the "1-3 Response" in this PR 317.1 Staff Report for an explanation of why an exemption is not necessary when actual emissions are less than 80% ~~percent~~ of the Baseline Emissions or Alternative Baseline Emissions.

7. Latham and Watkins, LLC Comment Letter, Submitted 04/30/24

LATHAM & WATKINS LLP

April 30, 2024

Britney Gallivan, Air Quality Specialist
Michael Krause, Assistant Deputy Executive Officer
Planning, Rule Development and Implementation
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

355 South Grand Avenue, Suite 100
Los Angeles, California 90071-1560
Tel: +1.213.485.1234 Fax: +1.213.891.8763
www.lw.com

FIRM / AFFILIATE OFFICES

Austin	Milan
Beijing	Munich
Boston	New York
Brussels	Orange County
Century City	Paris
Chicago	Riyadh
Dubai	San Diego
Düsseldorf	San Francisco
Frankfurt	Seoul
Hamburg	Silicon Valley
Hong Kong	Singapore
Houston	Tel Aviv
London	Tokyo
Los Angeles	Washington, D.C.
Madrid	

Re: Regulatory Flexibility Group Comments on Proposed Rule 317.1

Dear Ms. Gallivan and Mr. Krause,

We write on behalf of our client, the Regulatory Flexibility Group (“RFG”), with comments on Proposed Rule 317.1 (“PR 317.1”). RFG members include companies in the refining, utility, and aerospace sectors that operate facilities within the South Coast Air Quality Management District (“SCAQMD” or the “District”) and that will be required to pay fees pursuant to PR 317.1.

The RFG appreciates the opportunity to participate in the rulemaking process and provide these comments. We recognize that Section 185 of the federal Clean Air Act requires the District to collect nonattainment penalty fees from stationary sources, and that the District’s discretion in developing PR 317.1 is limited. Where the District does have discretion, however, it should be used to minimize the burden on the region’s already heavily controlled stationary sources that have limited feasible opportunities to reduce emissions and avoid penalty fees. Below, we provide background comments and propose three primary ways in which the District can partially alleviate the substantial burden of this rule.¹

Clean Air Act Section 185 Was Not Intended to Penalize Well-Controlled Stationary Sources

As a backdrop for our proposals, it should be noted that Congress designed Section 185 as a penalty backstop for failures by a state to regulate major stationary sources. But here, the State of California and the District have not failed, and the stationary sources potentially subject to PR 317.1 are among the most – if not the most – controlled sources in the country. The legislative history of Section 185 acknowledges that Congress intended the fee to function as a penalty for an

} Comment
7-1

¹ RFG’s proposed amendments in Attachment A also suggest certain revisions to alleviate certain timing burdens and provide additional certainty for sources looking to utilize the alternative baseline approach.

April 30, 2024
Page 2

LATHAM & WATKINS LLP

area's failure to attain the ozone standard, but it was not intended to punish individual sources.² Rather, the Section 185 fee mechanism was designed to serve as an economic incentive if an area failed to regulate major stationary sources. The fee was intended to encourage stationary sources to implement the controls that the state had failed to require in order to reduce emissions and avoid paying the fee.

As the District is well aware, stationary sources in the District's jurisdiction are already heavily controlled, leaving scant yet-to-be-implemented controls that will reduce emissions from these sources. Indeed, as stated in the District's recent comment letter to EPA, "[SCAQMD has] established Best Available Retrofit Control Technology (BARCT) standards in rules that impose strict emission limits for virtually every combustion category of stationary sources to reduce NOx emissions to the greatest extent feasible."³ The only remaining options, therefore, are to reduce emissions by curtailing operations or pay the penalty fee.

Moreover, the District's nonattainment stems primarily from emissions from mobile and federal sources, not from the stationary sources singled out by Section 185. The District itself forcefully made this point in response to EPA's proposed disapproval of SCAQMD's Contingency Measure Plan for the 1997 Ozone Standard:

Today, over 80 percent of NOx emissions are from mobile sources, and of these, it is the trucks, ships, aircraft, locomotives, and similar heavy-duty engines that are responsible for about three-quarters of these emissions. Indeed, . . . since 1997 emissions under South Coast AQMD's and CARB's control have declined by 70 percent; yet the emissions subject to EPA's authority have only declined 15 percent. . . . It is not possible for our region to meet the 1997 and future standards without the federal government addressing the sources under its control.⁴

The District went on to argue that "[it] does not make sense that a region with the most stringent rules and largest investments in advanced clean air technology deployment should face perpetual nonattainment and *looming harsh economic sanctions with no ability to resolve the situation*."⁵ The same is true here. Because nonattainment is a mobile and federal source problem, it does not make sense to sanction stationary sources that have no ability to resolve the situation.

Owners of stationary sources have been doing their part for decades to improve air quality in the region, while mobile and federal sources remain under-controlled. Contrary to

Comment
7-1 Cont.

² See Report of the Committee on Energy and Commerce on H.R. 3030, Report 101-490 (May 17, 1990) at 257 ("[Section 185] is a State penalty for failure to attain.").

³ SCAQMD, Comments of the South Coast Air Quality Management District Staff Regarding U.S. EPA's Proposed Disapproval of the South Coast Air Basin Contingency Measure Plan for the 1997 Ozone Standard [Docket ID No. EPA-R09-OAR-2023-0626-0001] (March 27, 2024), pp.1-2.

⁴ *Id.* at 2-3.

⁵ *Id.* at 4.

April 30, 2024
Page 3

LATHAM & WATKINS LLP

Congressional intent and ordinary logic, the imposition of Section 185 fees on stationary sources within the District is an unfair penalty simply for doing business in the region. The District should therefore take every opportunity it has to relieve this burden.

Comment
7-1 Cont.

The Alternative Baseline Approach Should Be Established Prior to Rule Adoption

The Clean Air Act uses a default baseline of actual emissions during the attainment year to calculate Section 185 fees, but it allows EPA to issue guidance authorizing the use of actual emissions averaged over multiple years for sources with emissions that vary from year to year.⁶ PR 317.1 incorporates an alternative baseline option by allowing a facility to identify a two-year period that is representative of a source's typical emissions within the prior ten years.⁷ The District used the same alternative baseline approach in Rule 317, consistent with EPA guidance issued for the 1-hour ozone standard.⁸ However, EPA has not issued guidance authorizing the alternative baseline for the 8-hour ozone standard. Accordingly, we understand PR 317.1 only authorizes the alternative baseline approach once EPA has issued the requisite guidance. We further understand that Staff has submitted a request for EPA to issue guidance authorizing use of the alternative baseline for the 8-hour ozone standard.⁹

The RFG supports the District's proposal to include an alternative calculation for a source's baseline emissions, and it is grateful for the District requesting that EPA issue guidance that will allow such alternative calculation. With respect to the specifics of the alternative calculation approach itself, given the significant variability of emissions at certain major sources, we do recommend revising the language to give the Executive Officer authority to approve an alternative time period to the twenty-four consecutive months during the preceding 10-years.¹⁰

Comment
7-2

Because a source's emissions baseline is determined once and used to calculate fees for every subsequent year, *it is incredibly important that the baseline accurately represents the source's typical actual emissions*. As Staff is aware, a source's emissions during the attainment year may not be representative of the source's typical emissions. The alternative baseline approach therefore provides the needed flexibility to ensure that a source will not be assessed fees calculated using an unrepresentative baseline.

Because of the critical importance of the baseline to the fundamental accuracy of the fee determination, *the District should not adopt PR 317.1 until EPA issues guidance that definitively authorizes use of the alternative baseline as proposed in the rule.*

⁶ 42 U.S.C. § 7511d(b)(2).

⁷ PR 317.1(d)(8)(C)(ii). The two-year period must be within the prior five years for sources with an electrical steam generating unit. (*Id.*)

⁸ Rule 317(c)(6)(A); see also EPA, Guidance on Establishing Emissions Baselines under Section 185 of the Clean Air Act (CAA) for Severe and Extreme Ozone Nonattainment Areas that Fail to Attain the 1-hour Ozone NAAQS by their Attainment (March 21, 2008), available at https://www3.epa.gov/ttn/naaqs/aqmguide/collection/cp2/20080321_hamett_emissions_baseline_185.pdf.

⁹ SCAQMD, Preliminary Draft Staff Report, Proposed Rule 317.1 (March 2024) p. 2-8.

¹⁰ Proposed revisions are shown in Attachment A to this letter.

April 30, 2024
Page 4

LATHAM & WATKINS LLP

Collected Fees Should Be Used to Generate Offsets for RECLAIM Facilities Transitioning to Command-and-Control

The Clean Air Act does not dictate how the District must use the Section 185 fees that it collects. As described above, the fees unfairly single out highly controlled stationary sources. Accordingly, we propose that fees be used in part to generate offsets that will be made available to Regional Clean Air Incentives Market (“RECLAIM”) facilities as they exit the program.¹¹

Background

As you are aware, the District is in the process of transitioning facilities out of the RECLAIM regulatory program for nitrogen oxides (NO_x) emissions and into a command-and-control regulatory structure. One of the more challenging aspects of the proposed transition from RECLAIM’s market-based design to a command-and-control structure relates to the nature of SCAQMD’s current new source review (“NSR”) programs and, in particular, the offsetting provisions that would apply to former NO_x RECLAIM sources in the future. When the RECLAIM program was launched in 1993, facilities were granted RECLAIM Trading Credits (“RTCs”) equal to their initial allocation of emissions. Under the RECLAIM program, RTCs are used as both a BARCT compliance instrument and as NSR offsets.

EPA has taken the position that a NO_x RECLAIM facility exiting the program must surrender its RTCs.¹² Without RTCs, the current supply of NO_x ERCs on the open market is far below anticipated future demand if former NO_x RECLAIM facilities were transitioned into the Regulation XIII NSR program.¹³ The lack of NO_x ERCs on the open market to meet the needs of all sources means that a transitioning facility that is unable to generate or acquire sufficient offsets will be unable to obtain a permit to install new equipment. If such offsets are not available, permits for the new equipment cannot be issued. Such a facility would be prevented from expanding its operations or from modernizing its equipment to increase efficiency and throughput, even when the modernization would include using newer, lower emitting equipment than the equipment currently in use. Preventing modernization due to a lack of offsets would impede achieving important modernization co-benefits, including lower air toxics and GHG emissions.

Comment
7-3

¹¹ We recognize that a portion of the fees will need to be used to cover the costs of administering the fee program.

¹² It should be noted that RFG fundamentally disagree with this position. If the NO_x RECLAIM NSR program were to be replaced by a program in which NO_x RTCs are no longer available as NSR offsets, then existing NO_x RTCs should be convertible to ERCs. In particular, a facility that holds RTCs in excess of its actual emissions at the time it exits RECLAIM should be allowed to retain the benefit of that corresponding emission reduction by converting the surplus RTCs to ERCs.

¹³ The District previously estimated that the average annual offset demand for RECLAIM facilities could be 1,000 lbs/day, which would exceed the total NO_x ERCs in the open market, which is roughly 800 lbs/day. See RECLAIM Working Group Meeting Presentation (Feb. 14, 2019) at slide 18; see also SCAQMD, Current and Historical Active ERC and STERC Lists, available at <http://www.aqmd.gov/home/permits/emission-reduction-credits/historical-active-erc-and-sterc-lists>.

April 30, 2024
Page 5

LATHAM & WATKINS LLP

Proposal

The District anticipates that it will collect approximately \$26 million in Section 185 fees for the 1997 ozone standard in calendar year 2025 pursuant to PR 317.1.¹⁴ We propose that the District deposit the fees into a “Rule 317.1 RECLAIM Transition Fund” that will be used to, among other things,¹⁵ subsidize the adoption of surplus emission-reducing control equipment and technologies throughout the District. Reductions in NOx emissions realized through these efforts would be banked as offsets while the reduction of co-pollutant emissions would benefit overall air quality. The NOx offsets generated by the Rule 317.1 RECLAIM Transition Fund would then be banked to be made available to RECLAIM facilities in need of offsets when exiting the program. To facilitate this, we propose the amendments to PR 317.1 shown in Attachment A to this letter.

Using the fees in this way would alleviate some of the offset burden associated with exiting the RECLAIM program, would aid the District in realizing a successful RECLAIM transition, and would benefit air quality overall.

Comment
7-3 Cont.

The Definition of Actual Emissions Should Be Clarified

The definition of “actual emissions” in the preliminary draft rule language introduces ambiguity regarding the emissions that will be used to calculate a facility’s fee determination. Paragraph (c)(1) states that actual emissions means the emissions a facility reports through the District’s Annual Emissions Report (“AER”) program and “shall include, but not be limited to (i) Permitted emissions; (ii) Regulated emissions; (iii) Fugitive emissions; and (iv) Unregulated emissions.”¹⁶ According to the Staff Report, these emissions include, among other things, emissions from portable equipment, solvents, and architectural coatings.¹⁷ However, the AER Reporting Tool – Frequently Asked Questions, cited in the Staff Report as providing additional information on what emissions to report through AER, states that certain portable equipment, solvents, and architectural coatings are *not* subject to reporting under the AER program.¹⁸

Comment
7-4

To avoid confusion, we suggest revising the definition of “actual emissions” in PR 317.1 to refer directly to a facility’s emissions reported through the District’s AER program pursuant to Rule 301. It should also specifically exclude emissions from equipment registered under CARB’s

¹⁴ SCAQMD, Preliminary Draft Staff Report, Proposed Rule 317.1 (March 2024), p. 3-5. Staff estimates the total collected for the 1997 standard will gradually decline before leveling out around \$19 million in 2029. *Id.* For the 2008 standard, the District estimates it will collect approximately \$20 million beginning in 2033. *Id.*

¹⁵ We propose the Fund could also purchase available offsets (e.g. ERCs) in the market and provide them to the transitioning RECLAIM sources.

¹⁶ PR 317.1(c)(1) (preliminary draft rule language released March 22, 2024).

¹⁷ SCAQMD, Preliminary Draft Staff Report, Proposed Rule 317.1 (March 2024), p. 2-3.

¹⁸ See SCAQMD, Annual Emissions Reporting, Reporting Tool - Frequently Asked Questions (FAQ) (March 2023) pp. 1-2, available at <https://www.aqmd.gov/docs/default-source/planning/annual-emission-reporting/frequently-asked-questions.pdf?sfvrsn=6>. Specifically, the FAQ states that emissions need not be reported from portable equipment registered under CARB’s Statewide Portable Equipment Registration Program (unless otherwise required), Clean Air Solvents, and architectural coatings used on structures defined by Rule 1113. *Id.*

April 30, 2024
Page 6

LATHAM & WATKINS LLP

Portable Equipment Registration Program (“PERP”), as these emissions should not be categorized as emitted by the regulated facility. Because the PERP equipment are not owned by or permitted at the facility, we believe the emissions need not be attributed to the facility under Section 185.¹⁹ As shown in Table 1, major sources, like all sources, already pay fees based on emissions. Section 185 fees are punitive and duplicative, so the District should not further punish major sources unfairly with another layer of duplicative fees not required by the Clean Air Act. We believe exclusion of PERP emissions is also consistent with other California air district rules addressing Section 185 penalties.²⁰

Table 1: Fees Paid to District by Facility Type

	Major Sources	Minor Sources
AER/Rule 301 Fees	Yes	Yes
Section 185 Fees	Yes	No
PERP 185 Fees (under current draft of PR 317.1)	Potentially Unless Amended ²¹	No

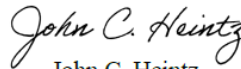
Comment
7-4 Cont.

Suggested revisions to the definition to address this inequity are shown in Attachment A.²² We believe our proposed approach remains consistent with the Clean Air Act.

Conclusion

We greatly appreciate the opportunity to provide these comments on PR 317.1. We would also appreciate a meeting to discuss the proposals discussed in this letter. Please contact me at (213) 891-7395, or by email at john.heintz@lw.com with your availability to schedule a discussion.

Best regards,



John C. Heintz
of LATHAM & WATKINS LLP

¹⁹ See 42 U.S.C. §7511d

²⁰ See Mojave Desert AQMD (see MDAQMD Rules 315, 315.1, 315.2, and 315.3; see also MDAQMD, Comprehensive Emission Inventory Guidelines (Nov. 2023) at 7, available at <https://www.mdaqmd.ca.gov/home/showpublisheddocument/10031/638362505853570000>); Antelope Valley AQMD (see AVAQMD Rules 315, 315.1, and 315.2; see also AVAQMD, Comprehensive Emission Inventory Guidelines (Dec. 2020) at 7, available at <https://avaqmd.ca.gov/files/9ce7b3ca0/AV+CEI+Guidance+2020.pdf>); and San Joaquin Valley APCD (see SJVAPCD Rules 3170, 3171, 3172, and 3173 [fees for permitted emissions only].)

²¹ We understand that some facilities are required to report PERP emissions to the District for tracking purposes pursuant to CARB’s Criteria Air Pollutants and Toxic Air Contaminant Reporting Regulation. A requirement to report for tracking purposes does not mean such emissions are attributable to the facility under Section 185.

²² We note that corresponding revisions should be made to PAR 301 paragraph (e)(2) to exclude PERP equipment from emissions fees. Specifically, we propose adding to paragraph (e)(2) the following sentence: “Emissions from Statewide Equipment emitted at any facility shall be excluded from emissions fees, including from clean air act nonattainment fees under any rule implementing section 185 of the federal Clean Air Act.”

April 30, 2024
Page 7

LATHAM & WATKINS LLP

Cc: Neil Fujiwara, SCAQMD
Kalam Cheung, Ph.D., SCAQMD
RFG Members
Nick Cox, Latham & Watkins LLP

April 30, 2024
Page 8

LATHAM & WATKINS LLP

Attachment A: RFG Suggested Revisions to Proposed Rule 317.1

RULE 317.1 CLEAN AIR ACT NONATTAINMENT FEES FOR 8-HOUR OZONE STANDARDS

(a) Purpose

The purpose of this rule is to satisfy requirements as specified in Sections 182(d), 182(e), 182(f) and 185 of the 1990 amendments to the federal Clean Air Act (CAA) for the 1997 8-hour ozone National Ambient Air Quality Standard (NAAQS) and the 2008 8-hour ozone NAAQS.

(b) Applicability

- (1) This rule shall become applicable if and when the U.S. Environmental Protection Agency (EPA) makes a final finding that a Basin has failed to attain the 1997 8-hour ozone NAAQS or the 2008 8-hour ozone NAAQS by the applicable Attainment Date.
- (2) Except as otherwise provided as exempt in subdivision (e), this rule is applicable to any Major Stationary Source of Volatile Organic Compounds (VOC) and/or Nitrogen Oxides (NOx).

(c) Definitions

For the purpose of this rule, the following definitions shall apply:

- (1) ACTUAL EMISSIONS means the mass of emissions of NOx or VOCs, which are emitted by a Major Stationary Source to the atmosphere during a calendar year, reported to or amended by the Executive Officer, through the South Coast AQMD's Annual Emissions Report (AER) program pursuant to Rule 301, excluding emissions from equipment registered pursuant to the Air Resources Board's Portable Equipment Registration Program. ~~and shall include, but not be limited to the following:~~
 - ~~(i) Permitted emissions;~~
 - ~~(ii) Regulated emissions;~~
 - ~~(iii) Fugitive emissions; and~~
 - ~~(iv) Unregulated emissions~~
- (2) ALTERNATIVE BASELINE EMISSIONS means a Major Stationary Source's VOCs or NOx average annual Actual Emissions for two consecutive years within up to the last ten (10) calendar years prior to and including the Attainment Year, not to exceed emissions allowed through the permit(s), plan(s), applicable rules(s), and implementation plan(s).

April 30, 2024
Page 9

LATHAM & WATKINS LLP

- (3) ANNUAL CAA NONATTAINMENT FEE RATE means \$5,000 (in 1990 dollars), adjusted for inflation annually, beginning in the year after 1990, by the percent change in consumer price index (CPI), if any, pursuant to CAA Sections 185(b)(3) and 502(b)(3)(B)(v). The Annual CAA Nonattainment Fee Rate is published annually for each calendar year in a memorandum by the U.S. EPA.
- (4) APPLICABLE OZONE STANDARD means either the 1997 8-hour ozone NAAQS or 2008 8-hour ozone NAAQS, as applicable.
- (5) ATTAINMENT DATE means the U.S. EPA approved date, established pursuant to the CAA, by which a Basin must attain a federal NAAQS. Where no such U.S. EPA approval exists, the date of the Basin's maximum statutory attainment date for that standard.
- (6) ATTAINMENT YEAR means the calendar year containing the Attainment Date.
- (7) BASELINE EMISSIONS means a Major Stationary Source's VOC and/or NOx emissions, for which a source qualifies as a Major Stationary Source. Baseline Emissions for VOC and/or NOx are calculated separately for each Applicable Ozone Standard, and as follows:
 - (A) For a Major Stationary Source which was a Major Stationary Source during the entirety of the Attainment Year, the Baseline Emissions is the lower of:
 - (i) The Actual Emissions, not to exceed emissions allowed through the permit(s), plan(s), applicable rule(s), and implementation plan(s), during the Attainment Year or
 - (ii) The amount of emissions allowed under permit(s), plan(s), applicable rule(s), and implementation plan(s) during the Attainment Year.
 - (B) For a Major Stationary Source that becomes subject to this rule during the Attainment Year, the Baseline Emissions is the lower of:
 - (i) The Actual Emissions, not to exceed emissions allowed through the permit(s), plan(s), applicable rule(s), and implementation plan(s), for the operational period as a Major Stationary Source in the Attainment Year, extrapolated over the entire Attainment Year or

April 30, 2024
Page 10

LATHAM & WATKINS LLP

- (ii) The amount of emissions allowed under permit(s), plan(s), applicable rule(s), and implementation plan(s) for the operational period as a Major Stationary Source in the Attainment Year, extrapolated over the entire Attainment Year.
- (C) For a Major Stationary Source that becomes subject to this rule after the Attainment Year, the Baseline Emissions is the lower of:
 - (i) The Actual Emissions for the operational period in the initial calendar year of operation as a Major Stationary Source, not to exceed emissions allowed through the permit(s), plan(s), applicable rule(s), and implementation plan(s), extrapolated over the entire initial year of operation as a Major Stationary Source or
 - (ii) The amount of emissions allowed under permit(s), plan(s), applicable rule(s), and implementation plan(s), for the facility for the operational period in the initial calendar year as a Major Stationary Source, extrapolated over the entire initial year as a Major Stationary Source.
- (8) BASIN means either the South Coast Air Basin or Riverside County portion of the Salton Sea Air Basin (Coachella Valley). The boundaries of each Basin shall be as defined by 40 Code of Federal Regulations, Section 81.305.
- (9) CAA NONATTAINMENT FEE means the federally mandated ozone NAAQS nonattainment fee assessed to a Major Stationary Source for excess emissions of VOC and NOx air contaminants pursuant to Section 185 of the CAA. It is the summation of the annual VOC CAA Nonattainment Fee and the annual NOx CAA Nonattainment Fee.
- (10) EXTENSION YEAR means the year that the U.S. EPA may grant, pursuant to Section 181(a)(5) of the CAA and upon the state's request, an extension of the Attainment Date.
- (11) FEE ASSESSMENT YEAR means the calendar year in which emissions occurred for which the CAA Nonattainment Fees are being calculated and assessed under the provisions of this rule for each Applicable Ozone Standard.
- (12) MAJOR STATIONARY SOURCE means a Major Stationary Source as defined in CAA sections 182(d), 182(e), 182(f) and 185 and is required to operate under

April 30, 2024
Page 11

LATHAM & WATKINS LLP

the authority of a Title V Program facility permit.

- (13) NITROGEN OXIDES (NO_x) means the sum of nitric oxides and nitrogen dioxides emitted, calculated as nitrogen dioxide.
- (14) VOLATILE ORGANIC COMPOUNDS (VOC) means the sum of any volatile compound of carbon, excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and exempt compounds.

(d) Requirements

(1) Fee Assessment

The Executive Officer shall assess the CAA Nonattainment Fees for each Applicable Ozone Standard:

- (A) Beginning the calendar year after the Attainment Year for a:
 - (i) Major Stationary Source which was a Major Stationary Source during the entirety of the Attainment Year; or
 - (ii) Major Stationary Source that becomes subject to this rule during the Attainment Year; or
- (B) Beginning the calendar year after the calendar year used to establish Baseline Emissions for a Major Stationary Source that becomes subject to this rule after the Attainment Year.

(2) Fee Determination

Beginning the calendar year after the applicable Attainment Year, the CAA Nonattainment Fee shall be the Annual CAA Nonattainment Fee Rate for the applicable Fee Assessment Year per ton of Actual Emissions of VOC and/or NO_x during the Fee Assessment Year that exceed 80% of the Baseline Emissions or Alternative Baseline Emissions. For each Major Stationary Source, the CAA Nonattainment Fee shall be calculated as follows:

VOC CAA Nonattainment Fees =

$$\text{Annual CAA Nonattainment Fee Rate} \times [AV - (0.8 \times BV)]$$

NO_x CAA Nonattainment Fees =

$$\text{Annual CAA Nonattainment Fee Rate} \times [AN - (0.8 \times BN)]$$

CAA Nonattainment Fees =

April 30, 2024
Page 12

LATHAM & WATKINS LLP

NOx CAA Nonattainment Fees + VOC CAA Nonattainment

Fees Where:

- For a Major Stationary Source of VOC:
 - AV = Actual Emissions of VOC for the applicable Fee Assessment Year (in tons per year). If AV is less than or equal to 80% of BV, there shall be no VOC CAA Nonattainment Fee assessed for the Fee Assessment Year.
 - BV = Baseline Emissions or Alternative Baseline Emissions for VOC (in tons per year).
- For a Major Stationary Source of NOx:
 - AN = Actual Emissions of NOx for the applicable Fee Assessment Year (in tons per year). If AN is less than or equal to 80% of BN, there shall be no NOx CAA Nonattainment Fee assessed for the Fee Assessment Year.
 - BN = Baseline Emissions or Alternative Baseline Emissions for NOx (in tons per year).

(3) Annual Reporting and Payment

- (A) The owner or operator of a Major Stationary Source shall annually report all Actual Emissions, regardless of whether the owner or operator received notice from the Executive Officer.
- (B) The owner or operator of a Major Stationary Source shall, for each applicable Fee Assessment Year, which includes the years prior to the U.S. EPA making a final finding that a Basin has failed to attain the Applicable Ozone standard, pay the appropriate CAA Nonattainment Fees, determined pursuant to paragraph (d)(2), regardless of whether the owner or operator received notice from the Executive Officer.

(4) Payment Due Date

Unless a later date, not to exceed 365 days from the applicable due date, is specified by the Executive Officer, the owner or operator of a Major Stationary Source, regardless of whether the owner or operator received notice from the Executive Officer, shall submit full payment for:

- (A) The invoice that includes the CAA Nonattainment Fee for the initial Fee

April 30, 2024
Page 13

LATHAM & WATKINS LLP

Assessment Year for the Applicable Ozone Standard for the Major Stationary Source, no later than 365 days from the date the invoice is issued by the Executive Officer; and

- (B) An invoice subsequent to the first invoice that included the CAA Nonattainment Fee for the initial Fee Assessment Year for the Applicable Ozone Standard for the Major Stationary Source, either:
 - (i) No later than December 15th of the year the invoice is issued by the Executive Officer; or
 - (ii) No later than 75 days from the date the invoice is issued by the Executive Officer, whichever is later.
- (5) Failure to Pay Fees

If ~~one hundred twenty (120) days~~ one (1) year has~~ve~~ elapsed since the invoice due date and all CAA Nonattainment Fees have not been paid in full, the Executive Officer may take action to revoke all Permits to Operate for equipment on the premises, as authorized in California Health and Safety Code Section 42307.
- (6) Notice of Rule Applicability

No later than 60 days after a notice is issued by the Executive Officer that the facility is a Major Stationary Source subject to this rule, the owner or operator of a Major Stationary Source shall confirm or contest the Major Stationary Source's rule applicability.
- (7) Notice of Baseline Emissions

No later than ~~60~~ 90 after a notice is issued by the Executive Officer specifying the Baseline Emissions for the Major Stationary Source, the owner or operator of a Major Stationary Source shall confirm or contest the assigned Baseline Emissions.
- (8) Alternative Baseline Emissions

If the owner or operator of a Major Stationary Source requests to use an Alternative Baseline Emissions to determine the CAA Nonattainment Fee, the following requirements shall be met:

 - (A) U.S. EPA has issued guidance authorizing an alternative methodology for calculation of a Major Stationary Source's Baseline Emissions, pursuant to CAA Section 185(b)(2) for the Applicable Ozone Standard, that is consistent with the methodology specified in subparagraph (d)(8)(C) and requirements specified in subparagraphs (d)(8)(B) and (d)(8)(D).

April 30, 2024
Page 14

LATHAM & WATKINS LLP

- (B) The Major Stationary Source was a Major Stationary Source during the entirety of the Attainment Year;
- (C) No later than 120 days after the end of the Attainment Year or no later than 120 days after the U.S. EPA makes a final finding that the Basin has failed to attain the Applicable Ozone Standard by the applicable Attainment Date, whichever is later, the owner or operator of a Major Stationary Source submits to the Executive Officer an Alternative Baseline Emissions Request that contains the following:
 - (i) An Alternative Baseline Emissions Report including Actual Emissions, not to exceed emissions allowed through the permit(s), plan(s), applicable rule(s), and implementation plan(s), for each of the relevant ten (10) calendar years preceding and including the Attainment Year;
 - (ii) Identification of the twenty-four consecutive months or alternative time period approved by the Executive Officer, representing typical operations:
 - (a) For a Major Stationary Source without an electrical steam generating unit(s), within the last relevant ten (10) calendar years prior to and including the Attainment Year selected; or
 - (b) For a Major Stationary Source with an electrical steam generating unit(s), within the last relevant five (5) calendar years prior to and including the Attainment Year selected or, with justification, the relevant five (5) calendar years prior to the aforementioned calendar years;
 - (iii) An analysis demonstrating that the Actual Emissions, not to exceed emissions allowed through the permit(s), plan(s), applicable rules(s), and implementation plan(s), from the average of the twenty-four months (or approved alternative time period), identified pursuant to clause (d)(8)(C)(ii), represent typical operations;
 - (iv) Analysis of adopted local, state, and federal rules or regulations that would have restricted the source's ability to either operate or emit a particular pollutant, had they been in effect during the

April 30, 2024
Page 15

LATHAM & WATKINS LLP

- consecutive twenty-four months (or approved alternative time period) selected;
- (v) The average annual emissions of the twenty-four months (or approved alternative time period), identified in clause (d)(8)(C)(ii), not to exceed emissions allowed through the permit(s), plan(s), applicable rules(s), and implementation plan(s), considering the impacts identified in clause (d)(8)(C)(iv);
 - (vi) Certification, in writing, by the highest-ranking executive on site that the source's emissions are irregular, cyclical, or otherwise vary significantly from year to year; and
 - (vii) Any other information as required by the U.S. EPA guidance; and
- (D) In the event a Major Source submits an application establishing the required elements in 8(C), ~~the~~ Executive Officer shall ~~has~~ authorized a Major Stationary Source to use this Alternative Baseline Emissions.
- (9) Alternative Baseline Emissions Request Payment
- (A) The owner or operator of a Major Stationary Source electing to submit an Alternative Baseline Emissions Request, pursuant to subparagraph (d)(8)(c), shall pay an hourly staff evaluation rate of \$209.31, unless Regulation III - Fees assigns a fee amount associated with evaluating the Alternative Baseline Emissions Request that shall be paid in lieu of this rate.
 - (B) The owner or operator of a Major Stationary Source shall submit full payment of the amount invoiced no later than 60 days from receiving the invoice for evaluation of the Alternative Baseline Emissions Request.
- (e) Use of CAA Nonattainment Fees
- (1) CAA Nonattainment Fees collected pursuant to paragraph (d)(3)(B) shall be used in the following ways:
- (A) Ten (10) percent of the fees shall be retained by the District for costs in administering the CAA Nonattainment Fee collection program;
 - (B) The remaining ninety (90) percent of collected fees shall be deposited into a Rule 317.1 RECLAIM Transition Fund, created pursuant to paragraph (f).
- (f) RECLAIM Transition Fund

April 30, 2024
Page 16

LATHAM & WATKINS LLP

- (1) The Executive Officer shall establish a RECLAIM Transition Fund (“RTF”) for investment in emerging low-emission technologies and/or incentive programs that the Governing Board determines will benefit attainment of National Ambient Air Quality Standards, meet the District’s public health objectives, and generate federally verifiable NOx emissions offsets that may be used by RECLAIM facilities in order to satisfy offset requirements upon exiting the RECLAIM program.
- (2) The RTF shall be funded by CAA Nonattainment Fees deposited pursuant to paragraph (e)(1)(B).
- (3) Funds in the RTF may be used to generate offsets in the following way:

 - (A) Emission reduction projects approved by the Governing Board. Emission reductions achieved by approved projects shall be banked as offsets in the RTF if the Executive Officer determines that the emission reductions achieved:

 - (i) are not used to demonstrate equivalency with federal or state NSR requirements;
 - (ii) are not used to demonstrate attainment in any Air Quality Management Plan; and
 - (iii) meet the requirements of each of Rule 1309(b)(4), 42 U.S.C. § 7503(c)(1), and 40 CFR 51.165(a)(3)(ii)(C)(i).
 - (B) Purchase of available NOx emission reduction credits from the open market;
 - (C) Other methods as approved by the Executive Officer.
- (4) The Executive Officer shall account for reductions in each pollutant for which emissions are reduced by a RTF-funded project and that meet the requirements of paragraph (f)(2)(A) of this Rule. The Executive Officer shall generate NOx offsets for any reduction in NOx emissions.

 - (A) NOx offsets generated in accordance with (f)(3) shall be banked in the RTF and made available at no cost to RECLAIM facilities that have paid CAA Nonattainment Fees. A RECLAIM facility that has paid CAA Nonattainment Fees shall be granted access to offsets in the RTF to satisfy any offset requirements necessary to facilitate the facility’s exit from the RECLAIM program.

 - (i) No individual RECLAIM facility shall receive a portion of the total offsets available in the RTF that is greater than the total CAA

April 30, 2024
Page 17

LATHAM & WATKINS LLP

Nonattainment Fees collected from that facility divided by the total CAA Nonattainment Fees collected from all RECLAIM facilities in the prior calendar year.

(B) The Executive Officer may use reductions in emissions of any non-NOx pollutant to demonstrate attainment or for any other purpose it deems appropriate.

~~(e)~~ (g) Exemptions

(1) Extension Year

The owner or operator of a Major Stationary Source shall not be required to remit CAA Nonattainment Fees under this rule during any calendar year that is considered a Basin's Extension Year for the Applicable Ozone Standard.

(2) Cessation of Fees

The owner or operator of a Major Stationary Source shall not be required to remit CAA Nonattainment Fees for an Applicable Ozone Standard once the Basin has been redesignated by U.S. EPA to attainment for that Applicable Ozone Standard or, for a revoked Applicable Ozone Standard, if U.S. EPA has terminated the anti-backsliding requirement associated with the CAA Nonattainment Fees for the Applicable Ozone Standard. The CAA Nonattainment Fees will cease in the same calendar year as the redesignation or termination

7-1 Response

PR 317.1 is being developed to implement the existing requirements of CAA section 185 for the 1997 and 2008 8-hour ozone NAAQS. If a regulatory pathway is not developed, these Major Stationary Sources would still be required to comply with CAA section 185 and CAA Nonattainment Fees would instead be collected by the U.S. EPA. The South Coast AQMD has explored many options with the U.S. EPA and did not identify a pathway to relieve the burden of CAA Nonattainment Fees from Major Stationary Sources for the 1997 and 2008 ozone standards.

7-2 Response

If a state is not administering and enforcing CAA section 185, the CAA Nonattainment Fees will instead be collected by the U.S. EPA. As the 1997 8-hour ozone standard attainment date is this year, the South Coast AQMD is unable to accommodate a request to postpone adoption of PR 317.1 until after the U.S. EPA issues guidance that definitively authorizes the use of Alternative Baseline Emissions. The requirements for Alternative Baseline Emissions Requests were incorporated and are consistent with the prior U.S. EPA issued guidance. The CAA requires that the Alternative Baseline Emissions must be in alignment with guidance established by the U.S. EPA. The U.S. EPA guidance for the 1979 1-hour ozone standard does not provide authority to approve Alternative Baseline Emissions based on any time period, other than for electrical steam generating unit(s), that is not twenty-four consecutive months during the preceding ten years. Incorporation of such language would make the rule vulnerable to disapproval as part of the U.S. EPA SIP review process. Please refer to section “2.2.4.8. Alternative Baseline Emissions Requirements – Paragraph (d)(8)” of this PR 317.1 Staff Report for an explanation of the basis for the requirements to use an Alternative Baseline Emissions.

7-3 Response

Please refer to section “1.6. Use of Funds” of this PR 317.1 Staff Report for an explanation of why guidance on the spending of these potential funds would be determined in the future through a public process that would be separate from this rulemaking.

7-4 Response

Please refer to the definition of “Actual Emissions” in section “2.2.3. Definitions – Subdivision (c)” of this PR 317.1 Staff Report for an explanation of what emissions should be included in the AER. Please refer to the “5-3 Response” of this PR 317.1 Staff Report for an explanation of including portable emissions in AER.

8. Los Angeles County Business Federation (BizFed) Comment Letter, Submitted 05/02/24



May 2, 2024

Via e-mail at:
mkrause@aqmd.gov

Michael Krause
Assistant Deputy Executive Officer
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: SCAQMD Proposed Rule (PR) 317.1 Clean Air Act Nonattainment Fees for the 8-Hour Ozone Standards

Dear Mr. Krause,

We are contacting you on behalf of BizFed, the Los Angeles County Business Federation. We are an alliance of over 240 business organizations who represent over 420,000 employers in Los Angeles County, including large and small businesses from a wide range of industries throughout the South Coast Air Basin (SCAB). Many of the businesses we represent have or will be writing their own individual comment letters that specifically address the impacts to their industries. Our comments address the impacts to the business community as a whole and include overarching concerns of our diverse membership.

SCAQMD is in the process of rule development for Proposed Rule 317.1 (PR 317.1), Clean Air Act Nonattainment Fees for the 8-Hour Ozone Standards. While SCAQMD has already addressed several concerns expressed by stakeholders as part of their working group meeting (WGM) #2 presentation, BizFed would like to raise additional thoughts for the District to consider as they refine PR 317.1. BizFed offers the following comments on the proposed rule concepts for PR 317.1:

- 1. The District has stated that the fee equivalency approach utilized in existing Rule 317 – Clean Air Act Non-Attainment Fees for the revoked 1979 standard is not available for use in PR 317.1. BizFed requests that SCAQMD provide additional information on the funding limitations that restrict use of this funding pathway for the revoked 1997 standard.**

SCAQMD outlined the existing fee equivalency approach established in existing Rule 317 and noted that the U.S. EPA has advised that such an approach may be approvable under CAA section 172(e) only for revoked standards as an equivalent pathway to satisfy requirements of CAA Section 185.¹ The fee

} Comment
8-1

¹ SCAQMD PR 317.1, Working Group Meeting #1. Available at: https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/317.1/pr317-1_wgm1_110723.pdf?sfvrsn=20.

equivalency approach would allow Districts to satisfy Section 185 requirements by:²

"...comparing expected fees and/or emissions reductions directly attributable to application of Section 185 to the expected fees, pollution control project funding, and/or emissions reductions from the proposed alternative program."

SCAQMD noted in their presentation to the Stationary Source Committee that fee collection is the only pathway available for the 1997 and 2008 ozone standards.³ For the 1997 standard, SCAQMD noted that adequate funding is not available.

BizFed requests that SCAQMD provide additional information on funding needs for a fee equivalency approach, including details on the amount of incentive funding that would be required to utilize the fee equivalency option.

Comment
8-1 Cont.

2. The District has acknowledged the need for an alternative baseline option. BizFed requests that SCAQMD engage with EPA staff to reiterate the need for issuance of an alternative baseline guidance document for the 8-hour ozone standards.

In WGM #2, SCAQMD responded to concerns related to the 2024 attainment baseline, agreeing with the need for an alternative baseline option.⁴ Implementation of an alternative baseline policy would allow facilities to establish a baseline year that is reflective of normal operating conditions in the event that emissions in the default baseline year are irregular. Due to legal constraints established by the Clean Air Act (CAA), an alternative baseline can only be utilized if U.S. EPA has issued guidance for establishing an alternative baseline. SCAQMD has submitted a request to U.S. EPA for allowing an alternative baseline for the 8-hour ozone standards.

BizFed requests that SCAQMD take actions to engage with EPA to advocate for the issuance of the 8-hour ozone standard alternative baseline guidance document and consider this as a key remaining issue for the development of PR 317.1.

Comment
8-2

3. As drafted, PR 317.1 would require facilities to pay nonattainment fees on each individual Federal ozone standard. BizFed recommends that SCAQMD revise the proposed rule language to instead require facilities to pay nonattainment fees on only one standard for any specific calendar year, similar to the example set by the Mojave Desert Air Quality Management District.

Comment
8-3

² 40 CFR Part 52, Revisions to the California State Implementation Plan, South Coast Air Quality Management District. Available at: <https://www.federalregister.gov/documents/2012/01/12/2012-447/revisions-to-the-california-state-implementation-plan-south-coast-air-quality-management-district>.

³ SCAQMD Stationary Source Committee, April 19, 2024. Available at: <https://www.aqmd.gov/docs/default-source/Agendas/ssc/ssc-agenda-4-19-2024.pdf?sfvrsn=10>.

⁴ SCAQMD PR 317.1 Working Group Meeting #2. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/317.1/pr-317-1---wgm-2-presentation-020224.pdf?sfvrsn=14>.

National Ambient Air Quality Standards (NAAQS) are reviewed and may be revised by U.S. EPA on a 5-year cycle to reflect the most recent scientific findings, including the review of relevant scientific literature as summarized in an Integrated Science Assessment (ISA) report and an assessment of risk and exposure as summarized in the Risk and Exposure Assessment (REA) report.^{5,6} Each revision is intended to reflect an updated understanding of impacts associated with exposure to a given criteria air pollutant. Establishing a requirement for facilities to pay fees on each Federal ozone standard suggests that the revised NAAQS are independent in nature when instead they are intended to reflect a more appropriate threshold of impact to human wellbeing.

PR 317.1(d)(1) states:

"The Executive Officer shall assess the CAA Nonattainment Fees for Each Applicable Ozone Standard..."

Per PR 317.1(e)(2):

"The owner or operator of a Major Stationary Source shall not be required to remit CAA Nonattainment Fees for an Applicable Ozone Standard once the Basin has been redesignated by U.S. EPA to attainment for that Applicable Ozone Standard or, for a revoked Applicable Ozone Standard, if U.S. EPA has terminated the antibacksliding requirement associated with the CAA Nonattainment Fees for the Applicable Ozone Standard. The CAA Nonattainment Fees will cease in the same calendar year as the redesignation or termination."

Comment
8-3 Cont.

So if the basin is found to be in nonattainment with the 1997, 2008, and 2015 8-hour ozone standards beyond the 2032 and 2038 attainment deadlines, facilities would be required to pay annual nonattainment fees associated with all three NAAQS under this draft PR 317.1.

In contrast, the Mojave Desert Air Quality Management District (MDAQMD) has taken an approach to nonattainment fees that better aligns with the spirit of NAAQS revisions established by the U.S. EPA. The MDAQMD nonattainment fee policy is established in Rules 315.1, 315.2, and 315.3, including the following language:^{7,8,9}

"No Facility otherwise subject to this Rule shall be required to remit a FCAA Section 185 penalty for more than one Federal ozone standard for any specific calendar year. A Facility's applicable FCAA Section 185 penalty for any calendar year shall be the largest of all such applicable penalties."

⁵ U.S. EPA Integrated Science Assessment (ISA) for Ozone and Related Photochemical Oxidants. Available at: <https://www.epa.gov/isa/integrated-science-assessment-isa-ozone-and-related-photochemical-oxidants>.

⁶ U.S. EPA Risk Assessment and Modeling – Ozone Risk Analyses. Available at: <https://www.epa.gov/fera/risk-assessment-and-modeling-ozone-risk-analyses>.

⁷ MDAQMD Rule 315.1. Available at: <https://www.mdaqmd.ca.gov/home/showpublisheddocument/9306/637847640024930000>.

⁸ MDAQMD Rule 315.2. Available at: <https://www.mdaqmd.ca.gov/home/showpublisheddocument/9308/637847619490870000>.

⁹ MDAQMD Rule 315.3. Available at: <https://www.mdaqmd.ca.gov/home/showpublisheddocument/9733/63815600353770000>.

BizFed requests that SCAQMD consider revising the draft rule language to incorporate nonattainment fee payment procedures similar to those established by MDAQMD and allow for the payment of one ozone standard in a given calendar year to satisfy CAA Section 185 requirements.

Comment
8-3 Cont.

Finally, BizFed would be interested in joining any effort to address the Section 185 provision in the Clean Air Act directly with a legislative fix. While EPA and others refer to the Section 185 requirement as a "fee", it is in reality a penalty on businesses that have not violated the Clean Air Act. As BizFed understands the SCAQMD's position, the failure to attain is directly attributable to EPA's failure to regulate sources that it cannot regulate, and further that even if SCAQMD regulated all sources to the maximum extent possible, the revoked ozone standard could not be attained. The businesses that are being penalized have no control over when the fines will cease because they have no control over abatement of the violation. Only EPA does. It is imperative that this issue be addressed with the Congress.

Comment
8-4

We look forward to continuing our work with the District to see progress made in a way that is equitable and lasting.

Thank you for your consideration of our letter. If you have any questions, please contact BizFed's Director of Advocacy Sarah Wiltfong at sarah.wiltfong@bizfed.org.

Sincerely,



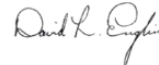
Fran Inman
BizFed 2024 Chair
Majestic Realty



David Fleming
BizFed Founding Chair



Tracy Hernandez
BizFed Founding CEO
IMPOWER, Inc.



David Englin
BizFed President

Cc: Wayne Nastri, SCAQMD
Sarah Rees, SCAQMD
Healthier Farr, SCAQMD
Sarady Ka, SCAQMD
Chris Bradley, SCAQMD

BizFed Association Members

<p>Action Apartment Association Advanced Medical Technology Association Alhambra Chamber American Beverage Association Antelope Valley Chamber formerly Lancaster Chamber of Commerce Apartment Association of Greater Los Angeles Apartment Association of Orange County Apartment Association, CA Southern Cities, Inc. Arcadia Association of Realtors AREAA North Los Angeles SFV SCV Armenian American Business Association Armenian Trade & Labor Association Arts District Los Angeles ASCM Inland Empire Chapter Asian American Advertising Federation- 3AF Associated Builders & Contractors SoCal (ABC SoCal) Associated General Contractors Association of Independent Commercial Producers AV Edge California Azusa Chamber Bell Chamber Beverly Hills Bar Association Beverly Hills Chamber BioCom Black Business Association BNIASUCCESS Boyle Heights Chamber of Commerce Bridge Compton Org Building Industry Association - LA/Ventura Counties Building Industry Association of Southern California Building Industry Association- Baldyview Building Owners & Managers Association of Greater Los Angeles Burbank Association of Realtors Burbank Chamber of Commerce Business and Industry Council for Emergency Planning and Preparedness Business Resource Group Calabasas Chamber of Commerce CalAsian Chamber CalChamber California Apartment Association- Los Angeles California Asphalt Pavement Association California Bankers Association California Business Properties California Business Roundtable California Cleaners Association California Contract Cities Association California Fashion Association California Fuels & Convenience Alliance- Formerly California Independent Oil Marketers Association (CIOMA) California Gaming Association California Grocers Association California Hispanic Chamber California Hotel & Lodging Association California Independent Petroleum Association California Life Sciences Association California Manufacturers & Technology Association California Metals Coalition California Natural Gas Producers Association California Restaurant Association California Retailers Association California Self Storage Association California Small Business Alliance California Society of CPAs - Los Angeles Chapter California Trucking Association Carson Chamber of Commerce Carson Dominguez Employers Alliance Central City Association Century City Chamber of Commerce Chatsworth Porter Ranch Chamber of Commerce Citrus Valley Association of Realtors Civil Justice Association of California CJAC Claremont Chamber of Commerce Commerce Business Council formerly Commercial Industrial Council/Chamber of Commerce Community Foundation of the Valleys Compton Chamber of Commerce Compton Community Development Corporation Compton Entertainment Chamber of Commerce Construction Industry Air Quality Coalition Construction Industry Coalition on Water Quality Council of Infill Builders Crenshaw Chamber of Commerce Culver City Chamber of Commerce</p>	<p>Downey Chamber of Commerce Downtown Center Business Improvement District Downtown Long Beach Alliance DTLA Chamber of Commerce El Monte/South El Monte Chamber El Segundo Chamber of Commerce Employers Group Energy Independence Now EIN Engineering Contractor's Association EXP The Opportunity Engine FastLink DTLA Filipino American Chamber of Commerce Friends of Hollywood Central Park FuturePorts Gardena Valley Chamber Gateway to LA Glendale Association of Realtors Glendale Chamber Glendora Chamber Greater Antelope Valley AOR Greater Bakersfield Chamber of Commerce Greater Coachella Valley Chamber of Commerce Greater Downey Association of REALTORS Greater Lakewood Chamber of Commerce Greater Leimert Park Crenshaw Corridor BID Greater Los Angeles African American Chamber Greater Los Angeles Association of Realtors Greater Los Angeles New Car Dealers Association Greater San Fernando Valley Chamber Harbor Association of Industry and Commerce Harbor Trucking Association Historic Core BID of Downtown Los Angeles Hollywood Chamber Hospital Association of Southern California Hotel Association of Los Angeles ICBWA- International Cannabis Women Business Association Independent Cities Association Independent Hospitality Coalition Industrial Environmental Association Industry Business Council Inglewood Board of Realtors Inland Empire Economic Partnership Irwindale Chamber of Commerce Kombucha Brewers International La Calada Filinridge Chamber LA County Medical Association LA Fashion District BID LA South Chamber of Commerce Larchmont Boulevard Association Latin Business Association Latino Food Industry Association Latino Restaurant Association LAX Coastal Area Chamber Licensed Adult Residential Care Association- LARCA Long Beach Area Chamber Long Beach Economic Partnership Long Beach Major Arts Consortium Los Angeles Area Chamber Los Angeles Economic Development Center Los Angeles Gateway Chamber of Commerce Los Angeles Latino Chamber Los Angeles LGBTQ Chamber of Commerce Los Angeles Parking Association Los Angeles Regional Food Bank Los Angeles World Affairs Council/Town Hall Los Angeles MADIA Tech Launch Malibu Chamber of Commerce Manhattan Beach Chamber of Commerce Marina Del Rey Lessees Association Marketplace Industry Association Monrovia Chamber Motion Picture Association of America, Inc. MoveLA MultiCultural Business Alliance NATOP Southern California Chapter NAREIT National Association of Minority Contractors National Association of Theatre Owners CA/Nevada National Association of Women Business Owners National Association of Women Business Owners - LA National Association of Women Business Owners- California National Federation of Independent Business Owners California</p>	<p>National Hookah National Latina Business Women's Association Norwegian American Chamber of Commerce Orange County Business Council Orange County Hispanic Chamber of Commerce Pacific Merchant Shipping Association Panorama City Chamber of Commerce Paramount Chamber of Commerce Pasadena Chamber Pasadena Foothills Association of Realtors PGA Pharmaceutical Care Management Association PhRMA Pico Rivera Chamber of Commerce Pomona Chamber Rancho Southeast REALTORS ReadyNation California Recording Industry Association of America Regional CAL Black Chamber, SVF Regional Hispanic Chambers San Dimas Chamber of Commerce San Gabriel Valley Economic Partnership San Pedro Peninsula Chamber of Commerce Santa Clarita Valley Chamber Santa Clarita Valley Economic Development Corp. Santa Monica Chamber of Commerce Secure Water Alliance Sherman Oaks Chamber South Bay Association of Chambers South Bay Association of Realtors South Gate Chamber of Commerce South Pasadena Chamber of Commerce Southern California Contractors Association Southern California Golf Association Southern California Grantmakers Southern California Leadership Council Southern California Minority Suppliers Development Council Inc. Southern California Water Coalition Southland Regional Association of Realtors Specialty Equipment Market Association Sportfishing Association of California Structural Engineers Association of Southern California Sunland/Tujunga Chamber Sunset Strip Business Improvement District Swiss American Chamber of Commerce Thai American Chamber of Commerce The LA Coalition for the Economy & Jobs The Los Angeles Taxpayers Association The Two Hundred for Homeownership Torrance Area Chamber Tri-Counties Association of Realtors United Chambers - San Fernando Valley & Region United States-Mexico Chamber Unmanned Autonomous Vehicle Systems Association Urban Business Council US Green Building Council US Resiliency Council Valley Economic Alliance, The Valley Industry & Commerce Association Venice Chamber of Commerce Vermont Slauson Economic Development Corporation Veterans in Business Vietnamese American Chamber Warner Center Association West Hollywood Chamber West Hollywood Design District West Los Angeles Chamber West San Gabriel Valley Association of Realtors West Valley/Warner Center Chamber Westchester BID Western Electrical Contractors Association Western Manufactured Housing Association Western Propane Gas Association Western States Petroleum Association Westside Council of Chambers Westwood Community Council Whittier Chamber of Commerce Wilmington Chamber World Trade Center</p>
---	--	---

Los Angeles County Business Federation / 1150 S Olive St Floor 10, Los Angeles, CA 90015 / T:323.889.4348 / www.bizfed.org

8-1 Response

The 2016 Air Quality Management Plan (AQMP) is the applicable SIP for the 1997 ozone standard. In the 2016 AQMP, emissions reduction strategies relied heavily on incentives and yet to be determined programs to successfully achieve the emissions reductions needed to attain the 1997 standard. Emissions reductions from incentives account for a substantial portion of NO_x emissions reductions (approximately 200 tons per day). The 2016 AQMP also indicated approximately \$1 billion per year would be needed from 2017 to achieve such emissions reductions (cost not adjusted per inflation). Despite many actions undertaken to solicit additional and sustainable funding, the incentive funding implemented in South Coast AQMD has been considerably below \$1 billion per year since the adoption of 2016 AQMP. As such, it is infeasible to identify incentive programs surplus to the SIP for the fee equivalency approach.

8-2 Response

Please refer to section “2.2.4.8. Alternative Baseline Emissions Requirements – Paragraph (d)(8)” of this PR 317.1 Staff Report for an explanation of the requirements to use Alternative Baseline Emissions. The requirements for Alternative Baseline Emissions Requests were incorporated and are consistent with U.S. EPA guidance issued for the 1979 1-hour ozone standard. The CAA requires that the Alternative Baseline Emissions must be in alignment with guidance established by the U.S. EPA. As the U.S. EPA has not issued guidance for Alternative Baseline Emissions for the 8-hour ozone standards, South Coast AQMD will continue to engage with the U.S. EPA to advocate the need for such guidance documents for 8-hour ozone standards.

8-3 Response

PR 317.1 requires CAA Nonattainment Fees for each applicable ozone standard. Please refer to the “Payment of Single Largest Standard in Year” section of the “1-3 Response” in this PR 317.1 Staff Report for an explanation of why the South Coast AQMD would not require a Major Stationary Source to only remit the largest applicable CAA Nonattainment Fee for a single ozone standard in any calendar year.

8-4 Response

The South Coast AQMD appreciates your understanding of the limitations of the South Coast AQMD and support for reaching attainment.

ATTACHMENT H

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

**Final Socioeconomic Impact Assessment For:
Proposed Rule 317.1 – Clean Air Act Nonattainment Fees for 8-Hour
Ozone Standards**

June 2024

Deputy Executive Officer

Planning, Rule Development, and Implementation
Sarah L. Rees, Ph.D.

Assistant Deputy Executive Officer

Planning, Rule Development, and Implementation
Michael Krause

Planning and Rules Manager

Planning, Rule Development, and Implementation
Barbara Radlein

Author: Valerie Rivera – Assistant Air Quality Specialist

Technical Assistance: Kalam Cheung, Ph.D. – Planning and Rules Manager
Neil Fujiwara – Program Supervisor
Britney Gallivan – Air Quality Specialist

Reviewed By: Xian-Liang (Tony) Tian, Ph.D. – Program Supervisor
Shah Dabirian, Ph.D. – Consultant
Daniel Penoyer – Air Quality Specialist
Chris Yu – Assistant Air Quality Specialist
Sheri Hanizavareh – Principal Deputy District Counsel
Barbara Baird – Chief Deputy Counsel
Kathryn Roberts – Senior Deputy District Counsel

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
GOVERNING BOARD**

Chair: VANESSA DELGADO
Senator (Ret.)
Senate Rules Committee Appointee

Vice Chair: MICHAEL A. CACCIOTTI
Councilmember, South Pasadena
Cities of Los Angeles County/Eastern Region

MEMBERS:

ANDREW DO
Supervisor, First District
County of Orange

CURT HAGMAN
Supervisor, Fourth District
County of San Bernardino

GIDEON KRACOV
Governor's Appointee

PATRICIA LOCK DAWSON
Mayor, Riverside
Cities of Riverside County Representative

LARRY MCCALLON
Mayor Pro Tem, Highland
Cities of San Bernardino County

HOLLY J. MITCHELL
Supervisor, Second District
County of Los Angeles

VERONICA PADILLA-CAMPOS
Speaker of the Assembly Appointee

V. MANUEL PEREZ
Supervisor, Fourth District
County of Riverside

NITHYA RAMAN
Councilmember, Fourth District
City of Los Angeles Representative

CARLOS RODRIGUEZ
Councilmember, Yorba Linda
Cities of Orange County

JOSE LUIS SOLACHE
Mayor, Lynwood
Cities of Los Angeles County/Western Region

EXECUTIVE OFFICER:

WAYNE NASTRI

TABLE OF CONTENTS

EXECUTIVE SUMMARY	ES-1
INTRODUCTION.....	1
LEGISLATIVE MANDATES	1
AFFECTED FACILITIES.....	2
SMALL BUSINESS	5
COMPLIANCE COST.....	6
Utilities Sector.....	9
MACROECONOMIC IMPACTS ON THE REGIONAL ECONOMY	10
Impact of PR 317.1.....	10
Regional Job Impacts	11
Price Impact and Competitiveness	13
REFERENCES.....	14

EXECUTIVE SUMMARY

On March 17, 1989, the South Coast Air Quality Management District (South Coast AQMD) Governing Board adopted a resolution which requires an analysis of the economic impacts associated with adopting and amending rules and regulations. In addition, Health and Safety Code Section 40440.8 requires a socioeconomic impact assessment for any proposed rule, rule amendment or rule repeal which will “significantly affect air quality or emission limitations.” Lastly, Health and Safety Code Section 40728.5 requires the South Coast AQMD Governing Board to actively consider the socioeconomic impacts of rules and regulations and make a good faith effort to minimize adverse socioeconomic impacts.

Proposed Rule 317.1– Clean Air Act Nonattainment Fees for 8-Hour Ozone Standards (PR 317.1) has been developed to implement requirements as specified in Section 185 of the 1990 amendments to the federal Clean Air Act (CAA) for the 1997 8-hour ozone National Ambient Air Quality Standard (NAAQS) and the 2008 8-hour ozone NAAQS. A socioeconomic impact assessment was conducted to provide information to Governing Board and stakeholders but is not required per Health and Safety Code Sections 40440.8 and 40728.5 because air quality or emission limitations will not be significantly affected by PR 317.1.

The following presents a summary of the analysis and findings of the Socioeconomic Impact Assessment conducted for PR 317.1:

Key Elements of PR 317.1

PR 317.1 would implement federal CAA section 185, which requires major stationary sources of volatile organic compounds (VOC) and/or nitrogen oxides (NOx), located within “severe” or “extreme” ozone nonattainment areas, where that area has failed to attain the 1997 8-hour ozone and 2008 8-hour ozone NAAQS by the applicable attainment dates, to either reduce their emissions by 20 percent from a baseline amount or pay CAA nonattainment fee. The fee will be calculated as the annual CAA section 185 nonattainment fee rate per ton of actual VOC and/or NOx emissions during the fee assessment year that exceed 80 percent of a facility’s baseline emissions in the attainment year, for each applicable pollutant.

Affected Facilities and Industries

The fee provisions in PR 317.1 will affect facilities which are major stationary sources of VOC and/or NOx. A major stationary source is a facility that emits or has the potential to emit VOC and/or NOx emissions equal to or greater than the applicable major stationary source threshold, specified in CAA sections 182(d), 182(e), or 182(f). The precise number of facilities that may be subject to PR 317.1 is currently unknown because applicability will be determined from a combination of a subset of the entire universe of Title V program facilities and non-Title V program facilities with actual emissions data provided in the 2024 Annual Emissions Report (AER) (e.g., data which will not be available until 2025). While not all Title V program facilities are major stationary sources of VOC and/or NOx, for the purpose of conducting a conservative analysis, all Title V program facilities are assumed to be

major stationary sources of VOC and NO_x and will be subject to this rule. Based on the South Coast AQMD permit database of Title V program facilities, there are approximately 319 facilities in the South Coast AQMD's jurisdiction that would potentially be affected by PR 317.1, with 196 located in Los Angeles County, 48 located in Orange County, 47 located in San Bernadino County, and 28 located in Riverside County.

A small business analysis was also conducted for the facilities affected by PR 317.1. Affected facilities that were governmental institutions were excluded from the analysis, resulting in 259 non-governmental facilities. The following table presents the number of affected facilities that qualify as small businesses which is dependent on the specific applicable definition used in the analysis:

Definition	Number of Facilities
South Coast AQMD Rule 102	0
South Coast AQMD's Small Business Assistance Office	39
U.S. Small Business Administration	89

Assumptions for the Analysis

For the major stationary sources of VOC and/or NO_x in “severe” or “extreme” ozone nonattainment areas that have failed to attain the 1997 and 2008 8-hour ozone NAAQS by their applicable attainment dates, PR 317.1 requires these facilities to either pay a CAA nonattainment fee or reduce emissions by 20 percent from their baseline emissions amount. Staff recognizes that there will be no CAA nonattainment fee collected from any facility which reduces its emissions by 20 percent from the baseline emissions in a given fee assessment year, is no longer a major stationary source due to VOC and/or NO_x emissions or is located in an area that is redesignated as in attainment for the applicable ozone NAAQS. As there is great uncertainty in future emissions reductions for each facility and the timelines for these emissions reductions, staff used a conservative approach of assuming no emission reductions from the projected baseline emissions, except for the emission reductions anticipated from implementation of South Coast AQMD Rule 1109.1– Emissions of Oxides of Nitrogen from Petroleum Refineries (Rule 1109.1). The two areas within the South Coast AQMD jurisdiction that are anticipated to be affected by PR 317.1 are the South Coast Air Basin (SCAB) and the Riverside County portions of the Salton Sea Air Basin (SSAB, also referred to as Coachella Valley Planning Area), both of which are classified as “extreme” nonattainment for the 1997 and 2008 8-hour ozone standards.

Compliance Cost: The compliance cost analysis uses a forecast period from 2025-2035. The total present value of the compliance cost of implementing PR 317.1 is estimated at \$258.42 million and \$214.84 million with a 1 percent and 4 percent discount rate, respectively. The annual average compliance cost of PR 317.1 is estimated to be \$25.07 million. This is a conservative estimate and the CAA nonattainment fees for a major stationary source of VOC and/or NOx would not be assessed for the fee assessment year or would cease for the applicable standard for the following scenarios:

CAA nonattainment fees would not be assessed for a fee assessment year when:

- Emissions are reduced by 20% from the baseline for the fee assessment year.

CAA nonattainment fees would cease for the applicable standards when:

- The facility is no longer classified as a major stationary source of emissions, or
- Area the facility resides in is redesignated as an attainment area for the applicable ozone NAAQS.

The Petroleum and Coal Products Manufacturing sector, with a North American Industrial Classification System (NAICS) code 324 is expected to incur the largest share of the total annual average compliance costs which is estimated to be about \$8.93 million or 36 percent of the total annual average cost. The Utilities sector (NAICS 22) is expected to incur the second largest share of the total annual average cost of about \$3.51 million or 14 percent. The facilities in the Utilities sector which are subject to PR 317.1 are mostly fossil fuel electric power generation facilities, other electric power generating facilities, or sewage treatment facilities.

Job Impacts

Direct costs and corresponding revenues of PR 317.1 are used as inputs to the Regional Economic Models, Inc (REMI) PI+ v3 model to assess job impacts and secondary/induced impacts for all the industries in the four-county economy on an annual basis. The forecast time horizon used in the REMI model was from 2025 to 2035.

The REMI analysis projects 81 jobs foregone annually on average from 2025-2035 in the four-county region, relative to the baseline scenario. The 81 annual jobs foregone represent approximately 0.001 percent of total annual jobs in the four-county area.

The largest job impacts are projected to occur in 2034 and 2035, when

facilities are required to pay both the 1997 and 2008 8-hour ozone NAAQS nonattainment fees. In 2035, PR 317.1 is projected to result in roughly 132 jobs foregone relative to the baseline scenario according to the REMI model simulation.

**Competitiveness
and Price Impact**

The overall impact of PR 317.1 on production cost and delivered prices in the region is not expected to be substantial. Based on the REMI analysis, the implementation of PR 317.1 is projected to increase the relative cost of production by 0.003 percent and increase the relative delivered price of goods by 0.002 percent for all the industries in the South Coast AQMD jurisdiction in the year 2033, which is when implementation of PR 317.1 will have the greatest impact upon cost of production and delivered price of goods in the region.

INTRODUCTION

The federal CAA section 185 requires that major stationary sources of VOCs and/or NOx, which are precursors of ozone, located in a “severe” or “extreme” ozone nonattainment areas, where the area has failed to attain the NAAQS, to either reduce their emissions by 20 percent from a baseline amount or pay a CAA nonattainment fee.¹ If a major stationary source does not reduce their emissions by 20 percent from the baseline amount, a CAA nonattainment fee will be assessed annually for each excess ton of VOC and/or NOx emissions above their respective 80 percent thresholds, for each ozone standard.¹ The fee would be collected for each calendar year beginning after the attainment date and shall continue until the area is redesignated as an attainment area for that ozone standard.

PR 317.1 outlines the regulatory pathway necessary to comply with the requirements of federal CAA section 185 for the 1997 and 2008 8-hour ozone standards. PR 317.1 addresses when and how the federal CAA section 185 nonattainment fee would be assessed and collected from major stationary sources of VOC and/or NOx within the SCAB and Coachella Valley Planning area, which have been classified as “extreme” nonattainment for both the 1997 and 2008 8-hour ozone NAAQS. The provisions of PR 317.1 will become applicable if/when the United States Environmental Protection Agency (U.S. EPA) makes a final finding that the SCAB or Coachella Valley Planning Area have failed to attain the 1997 8-hour ozone NAAQS or the 2008 8-hour ozone NAAQS by attainment deadlines of June 15, 2024 (1997 standard) and July 20, 2032 (2008 standard).

LEGISLATIVE MANDATES

The legal mandates directly related to the socioeconomic impact assessment of PR 317.1 include the South Coast AQMD Governing Board resolution and various sections of the Health and Safety Code.

South Coast AQMD Governing Board Resolution

On March 17, 1989, the South Coast AQMD Governing Board adopted a resolution that requires an analysis of the economic impacts associated with adopting and amending rules and regulations that considers all of the following elements:

- Affected industries;
- Range of probable costs;
- Cost-effectiveness of control alternatives; and
- Public health benefits.

Health and Safety Code Requirements

The state legislature adopted legislation which reinforces and expands the South Coast AQMD Governing Board resolution requiring socioeconomic impact assessments for rule development projects. Health and Safety Code Section 40440.8, which went into effect on January 1, 1991, requires a socioeconomic impact assessment for any proposed rule, rule amendment, or rule repeal which “will significantly affect air quality or emissions limitations.”

¹ U.S. EPA, Clean Air Act Overview, Clean Air Act, Title I-Air Pollution Prevention and Control, Parts A through D, Part D - Plan Requirements for Nonattainment Areas, Subpart 2 - Additional Provisions for Ozone Nonattainment Area, Enforcements for Severe and Extreme Ozone Nonattainment Areas for Failure to Attain, <https://www.govinfo.gov/content/pkg/USCODE-2013-title42/html/USCODE-2013-title42-chap85-subchapI-partD-subpart2-sec7511d.htm>, accessed March 21, 2024.

To satisfy the requirements in Health and Safety Code Section 40440.8, the scope of the socioeconomic impact assessment should include all of the following information:

- Type of affected industries;
- Impact on employment and the regional economy;
- Range of probable costs, including those to industry;
- Availability and cost-effectiveness of alternatives to the rule;
- Emission reduction potential; and
- Necessity of adopting, amending, or repealing the rule in order to attain state and federal ambient air quality standards.

Additionally, Health and Safety Code Section 40728.5, which went into effect on January 1, 1992, requires the South Coast AQMD Governing Board to: 1) actively consider the socioeconomic impacts of regulations; 2) make a good faith effort to minimize adverse socioeconomic impacts; and 3) include small business impacts. To satisfy the requirements in Health and Safety Code Section 40728.5, the socioeconomic impact assessment should include the following information:

- Type of industries or business affected, including small businesses; and
- Range of probable costs, including costs to industry or business, including small business.

PR 317.1 does not directly affect air quality or establish an emission limitation within the meaning of Health and Safety Code Section 40440.8. However, a socioeconomic impact assessment was conducted to provide information to the Governing Board and stakeholders although it is not required per Health and Safety Code Sections 40440.8 and 40728.5.

Finally, Health and Safety Code Section 40920.6, which went into effect on January 1, 1996, requires an incremental cost-effectiveness analysis for a proposed rule or amendment which imposes Best Available Retrofit Control Technology (BARCT) or “all feasible measures” requirements relating to emissions of ozone, carbon monoxide (CO), sulfur oxides (SO_x), NO_x, VOC, and their precursors. However, since PR 317.1 does not include new BARCT requirements, Health and Safety Code Section 40920.6 does not apply to the proposed rule.

AFFECTED FACILITIES

PR 317.1 requires major stationary sources of VOC and/or NO_x within the SCAB and Coachella Valley Planning Area to pay a CAA nonattainment fee if the areas fail to attain the 1997 and 2008 8-hour ozone NAAQS by applicable attainment dates. A major stationary source for the purposes of PR 317.1 is a facility that emits or has the potential to emit VOC and/or NO_x emissions equal to or greater than the applicable major stationary source threshold, as specified in CAA sections

182(d), 182(e), or 182(f).^{2,3} The major stationary source thresholds established by these CAA requirements are summarized as follows:

- CAA section 182(d): Establishes a major stationary source threshold for areas classified as “severe” as a facility that emits or has a PTE of at least 25 tons per year of VOCs.
- CAA section 182 (e): Establishes a major stationary source threshold for areas classified as “extreme” as a facility that emits or has a PTE of at least 10 tons per year of VOCs.
- CAA section 182 (f): Establishes that the major stationary source threshold for sources of VOC shall also apply to sources of NOx.

The federal Title V program is designed to standardize air quality permits and the permitting process for major sources of emissions. South Coast AQMD uses U.S. EPA’s definition of a major source (40 CFR Part 70, Section 70.2), which excludes certain emissions from being considered in the facility’s PTE. The South Coast AQMD implements the federal Title V program permits through Regulation XXX – Title V Permits, which issues federally enforceable permits to facilities that are major stationary sources of emissions.^{4,5}

The precise number of facilities that may be subject to PR 317.1 is currently unknown because applicability will be determined from a combination of the following:

- A subset of the entire universe of Title V program facilities, since some Title V program facilities may be a major source for pollutants other than VOC and/or NOx; and
- Certain non-Title V program facilities with actual emissions data provided in the 2024 AER which will not be available until 2025.

Since the precise number of facilities that may be subject to PR 317.1 is unknown at this time, due to absence of actual emissions data for calendar year 2024 from non-Title V facilities, for the purpose of conducting a conservative analysis, all Title V program facilities are assumed to be major stationary sources of VOC and NOx and will be subject to this rule. The actual universe of Title V program facilities subject to PR 317.1 is expected to be smaller than the entire Title V program universe of facilities. In addition, based on an assessment of the most recent available AER data (2021) there are up to an additional 14 facilities that reported emitting more than 10 tons of VOC and/or NOx, but are not part of the Title V program. Some of these were fugitive emissions, which may qualify to be excluded in determining applicability for PR 317.1. A preliminary assessment identified that out of the 14 facilities, two facilities may still meet the definition of major stationary source after excluding fugitive emissions. For these reasons, the

² U.S. EPA, Clean Air Act Overview, Clean Air Act, Title I-Air Pollution Prevention and Control, Parts A through D, Part D - Plan Requirements for Nonattainment Areas, Subpart 2 - Additional Provisions for Ozone Nonattainment Area, Plan Submissions and Requirements, <https://www.epa.gov/clean-air-act-overview/clean-air-act-title-i-air-pollution-prevention-and-control-parts-through-d#id>, accessed May 01, 2024.

³ Please note there are certain emissions that are not to be considered in determining whether a facility emits or has the PTE equal to or greater than the applicable major stationary source threshold. For more information see Draft Rule Language for PR 317.1, <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-317-1>. The Final Rule Language is located in Attachment F of the June 7, 2024, Governing Board package for PR 317.1, which upon posting, will be available 72 hours prior to the Governing Board meeting at <https://www.aqmd.gov/home/news-events/meeting-agendas-minutes>.

⁴ South Coast AQMD, Home-Permits-Title V-What is Title V?, <http://www.aqmd.gov/home/permits/title-v/what-is-title-v-who>, accessed March 20, 2024.

⁵ South Coast AQMD, Regulation XXX – Title V Permits, <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/regulation-xxx>, Accessed April 25, 2024.

entire Title V program universe is being relied upon as a conservative surrogate for the actual number of affected facilities that may be subject to PR 317.1.

Based on the South Coast AQMD permit database of Title V program facilities, there are approximately 319 facilities in the South Coast AQMD's jurisdiction that would potentially be affected by PR 317.1, with 196 located in Los Angeles County, 48 located in Orange County, 47 located in San Bernadino County, and 28 located in Riverside County. Regarding the distribution of the affected facilities across different sectors, Table 1 presents the number/share of affected facilities within each sector. The Utilities sector hosts the largest proportion of the facilities (15.0%), followed by the Fabricated metal product manufacturing sector (8%), and the Wholesale trade sector (7.8%). Within the Utilities sector, the affected facilities are mostly fossil fuel electric power generators, other electric power generators, and sewage treatment facilities.

Table 1
Number and Share of Affected Facilities by Sector

NAICS	Sector Name	Number of Facilities	Percentage of Facilities
22	Utilities	48	15.0%
332	Fabricated metal product manufacturing	26	8.2%
42	Wholesale trade	25	7.8%
325	Chemical manufacturing	22	6.9%
562	Waste management and remediation services	21	6.6%
324	Petroleum and coal products manufacturing	18	5.6%
326	Plastics and rubber product manufacturing	15	4.7%
622	Hospitals	14	4.4%
92	State and Local Government	12	3.8%
322	Paper manufacturing	10	3.1%
3364-3369	Other transportation equipment manufacturing	9	2.8%
331	Primary metal manufacturing	8	2.5%
337	Furniture and related product manufacturing	8	2.5%
61	Educational services	7	2.2%
311	Food manufacturing	7	2.2%
486	Pipeline transportation	7	2.2%
323	Printing and related support activities	6	1.9%
327	Nonmetallic mineral product manufacturing	6	1.9%
487-488	Scenic and sightseeing transportation; Support activities for transportation	6	1.9%
334	Computer and electronic product manufacturing	5	1.6%
561	Administrative and support services	4	1.3%
211	Oil and gas extraction	3	0.9%
335	Electrical equipment and appliance manufacturing	3	0.9%
621	Ambulatory health care services	3	0.9%

NAICS	Sector Name	Number of Facilities	Percentage of Facilities
713	Amusement, gambling, and recreation	3	0.9%
54	Professional, scientific, and technical services	2	0.6%
213	Support activities for mining	2	0.6%
312	Beverage and tobacco product manufacturing	2	0.6%
321	Wood product manufacturing	2	0.6%
333	Machinery manufacturing	2	0.6%
493	Warehousing and storage	2	0.6%
512	Motion picture and sound recording industries	2	0.6%
44-45	Retail trade	2	0.6%
23	Construction	1	0.3%
212	Mining (except oil and gas)	1	0.3%
339	Miscellaneous manufacturing	1	0.3%
811	Repair and maintenance	1	0.3%
313-314	Textile mills; Textile product mills	1	0.3%
3361-3363	Motor vehicles, bodies and trailers, and parts manufacturing	1	0.3%
532-533	Rental and leasing services; Lessors of nonfinancial intangible assets	1	0.3%
Total		319	100%

SMALL BUSINESS

The South Coast AQMD defines a “small business” in Rule 102 for the purpose of determining the applicable fee as one which employs 10 or fewer persons and which earns less than \$500,000 in gross annual receipts. The South Coast AQMD also defines “small business” for the purpose of qualifying for access to services from the South Coast AQMD’s Small Business Assistance Office as a business with an annual receipt of \$5 million or less, or with 100 or fewer employees. In addition to the South Coast AQMD’s definition of a small business, the United States (U.S.) Small Business Administration and the federal 1990 Clean Air Act Amendments (1990 CAAA) each have their own definition of a small business.

The 1990 CAAA classifies a business as a “small business stationary source” if it: 1) employs 100 or fewer employees; 2) is not a major stationary source; and 3) is a small business as defined by the U.S. Small Business Administration. Based on firm revenue and employee count, the U.S. Small Business Administration definition of a small business varies by the six-digit NAICS codes.⁶ For example, according to the U.S. Small Business Administration definition, a business with less than 950 employees in the industry of Fossil fuel electric power generations (NAICS 221112) is classified as a small business, while a business in the Petroleum Refineries industry (NAICS 324110) is considered a small business with 1,500 employees.

⁶ U.S. Small Business Administration, 2023 Small Business Size Standards, <https://www.sba.gov/document/support-table-size-standards>, accessed March 20, 2024.

South Coast AQMD generally relies on Dun & Bradstreet data to conduct small business analyses on private companies. In cases where the Dun & Bradstreet revenue and/or employee data are unreliable, other external data sources such as Manta, Hoover, company websites, and LinkedIn are used. The determination of data reliability is based on data quality confidence codes in the Dun & Bradstreet data as well as staff's discretion. Revenue and employee data for publicly owned companies is gathered from Securities and Exchange Commission (SEC) filings. Since subsidiaries under the same parent company are interest-dependent, the revenue and employee count of each facility's parent company is used for determining its small business status. For the purpose of the small business analysis, staff excluded governmental facilities and assessed only 259 of the 319 affected facilities. Employment and revenue data from Dun and Bradstreet as well as other external sources is available for 254 out of the 259 facilities assessed in the small business analysis. All potentially affected facilities are assumed to be major stationary sources of VOC and NOx, and thus, the facilities will not be classified as small businesses under the 1990 CAAA small business definition. The number of affected facilities that are small businesses based on each of the three definitions is presented in Table 2.

Table 2
Number of Affected Small Business Facilities Based on Various Definitions

Definition	Number of Facilities
South Coast AQMD Rule 102	0
South Coast AQMD's Small Business Assistance Office	39
U.S. Small Business Administration	89

COMPLIANCE COST

The 319 potentially affected facilities, which are assumed to be major stationary sources of VOC and/or NOx, are located in the SCAB or Coachella Valley Planning area, which are both classified as "extreme" nonattainment areas for the 1997 and 2008 8-hour ozone standards. The attainment year for the 1997 8-hour ozone standard and 2008 8-hour ozone standard for "extreme" nonattainment areas are 2024 and 2032, respectively. The CAA nonattainment fee shall be calculated separately for the ozone NAAQS if either the SCAB or Coachella Valley Planning Area fails to achieve attainment with either of the ozone standards, as determined by the U.S. EPA.

When estimating baseline emissions, the analysis relies on a conservative approach which assumes no emission reductions from the projected baseline emissions, except for the emissions reductions anticipated from certain facilities subject to the NOx emission reduction requirements in South Coast AQMD Rule 1109.1 because it contains established emission reduction targets for each affected facility to meet by certain dates.⁷

However, no CAA nonattainment fee would be assessed if a major stationary source of VOC and/or NOx: 1) reduces their emissions by 20 percent from the baseline emissions; 2) is no longer a major stationary source of VOC and/or NOx, or 3) is located in an area which is redesignated as in attainment for the applicable ozone NAAQS. If any of these aforementioned conditions occur,

⁷ South Coast AQMD, Rule 1109.1 – Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Operations, , <https://www.aqmd.gov/docs/default-source/rule-book/reg-xi/r1109-1.pdf>, accessed March 22, 2024.

a major stationary source would not be required to pay a PR 317.1 nonattainment fee.

The CAA nonattainment fee is calculated separately for VOC and NO_x. The fee is calculated by multiplying the difference between actual emissions in a fee assessment year and 80 percent of baseline emissions by the annual CAA section 185 nonattainment fee rate for that pollutant.⁸ In 1990, the fee rate for both VOC and NO_x was set at \$5,000 per ton. The fee rate must be annually adjusted beginning in the year after 1990 for inflation based on the consumer price index (CPI) for the most recent calendar year.⁹ The annual U.S. EPA fee rates are published in the federal Clean Air Act section 185, fee rates memorandum. For the year 2023, the fee rate is \$11,922 for both VOC and NO_x.¹⁰ Figure 1 provides an example of how the CAA nonattainment Fee would be calculated.¹¹

Figure 1
Example Calculation of Annual CAA Section 185 Fee Amount for a Major Stationary Source of VOC Emissions for the 1997 8-Hour Ozone Standard

$$\text{Actual Annual Tons of VOC Emitted} - \left(0.8 \times \text{Baseline Annual Tons of VOC Emitted} \right) \times \text{Annual U.S. EPA CAA §185 Fee Rate (\$/ton)} = \text{Annual CAA Nonattainment Fee for VOC (\$)}$$

Hypothetical Facility Calculation for VOCs

- **Baseline Annual Tons of VOCs = 15 tons**
- **2023 Annual Tons of VOCs = 13 tons**
- **2023 Annual U.S. EPA CAA §185 Fee Rate = \$11,922.00/ton**

$$\text{Annual CAA Nonattainment Fee for VOC} = [13 - (0.8 \times 15)] \text{ tons} \times \$11,922.00/\text{ton} = \$11,922.00$$

For the purpose of this analysis, the potential baseline emissions were estimated by relying upon the most recent emission data from the AERs from calendar year 2021 for all facilities. However, there are four facilities in the PR 317.1 universe which are also subject to Rule 1109.1, but their emission reductions were calculated on a calendar year basis as reported in the 2017 AER, instead of the 2021 AER. The actual emissions for NO_x were estimated by using baseline emissions while

⁸ Baseline emissions are calculated based on 1990 CAA Section 185 guidelines mentioned in introduction of this report and when a facility becomes a Major Stationary Source based on PR 317.1. The baseline emission calculation guidelines based on when a facility becomes a Major Stationary Source can be found in the PR 317.1 Draft Rule Language, Subdivision (c) – Definitions, <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-317-1>, accessed May 2024. The Final Rule Language is located in Attachment F of the June 7, 2024, Governing Board package for PR 317.1, which upon posting, will be available 72 hours prior to the Governing Board meeting at <https://www.aqmd.gov/home/news-events/meeting-agendas-minutes>.

⁹ U.S. Bureau of Labor Statistics, Data Tools-Data Retrieval Tools-BLS Popular Series-CPI for All Urban Consumers (CPI-U), 1982-84=100 (Unadjusted), <https://data.bls.gov/cgi-bin/surveymost?bls>, accessed March 22, 2024.

¹⁰ U.S. EPA, Ground-level Ozone Pollution, Guidance on Developing Fee Programs Required by Clean Air Act Section 185 for the Ozone National Ambient Air Quality Standards (NAAQS), https://www.epa.gov/system/files/documents/2024-01/memorandum_sec-185-penalty-fees-for-year-2023_10-12-2023.pdf, accessed March 22, 2024.

¹¹ South Coast AQMD, Draft Staff Report for Proposed Amended Rule 317.1 – Clean Air Act Nonattainment Fees for the 8-Hour Ozone Standards, <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-317-1>, accessed May 2024. The Final Staff Report is located in Attachment G of the June 7, 2024, Governing Board package for PR 317.1, which upon posting, will be available 72 hours prior to the Governing Board meeting at <https://www.aqmd.gov/home/news-events/meeting-agendas-minutes>.

accounting for NO_x emission reductions from all facilities subject to Rule 1109.1. Lastly, the analysis applied the CAA section 185 fee rate for calendar year 2023, since future CPI adjustments are unknown. The calendar year 2023 CAA section 185 fee rate is \$11,922.

The analysis models the impact of CAA nonattainment fees for both the 1997 and 2008 8-hour ozone NAAQS. The 1997 and 2008 8-hour NAAQS nonattainment fees are assumed to begin in calendar years 2025 and 2033, respectively. The analysis spans from 2025 to 2035 and assumes that the fees are paid in the same year they are assessed, with a starting fee assessment year of 2025. The actual timing of South Coast AQMD collecting the nonattainment fee payments may differ based on provisions of PR 317.1.¹² The total present value of the compliance cost of PR 317.1 is estimated at \$258.42 million and \$214.84 million with a 1 percent and 4 percent discount rate, respectively. The annual average compliance cost of implementing PR 317.1 is estimated to be \$25.07 million. Table 3 presents the breakdown of total annual average compliance costs during 2025 - 2035 across different sectors. The Petroleum and Coal Products Manufacturing sector (NAICS 324) is expected to incur the largest share of the total annual average compliance costs, which is estimated to be \$8.93 million or 36 percent of the total annual average cost. The sectors of Utilities (NAICS 22) and Waste Management and Remediation Services (NAICS 562) follow with an estimated total annual average compliance cost of \$3.51 million and \$1.59 million, respectively.

Table 3
Annual Average Compliance Costs by Sector

NAICS	Sector Name	Annual Average Compliance Costs	Percentage
324	Petroleum and coal products manufacturing	\$8,930,250	35.62%
22	Utilities	\$3,511,380	14.01%
562	Waste management and remediation services	\$1,589,662	6.34%
332	Fabricated metal product manufacturing	\$1,509,607	6.02%
326	Plastics and rubber product manufacturing	\$1,246,651	4.97%
42	Wholesale trade	\$1,208,323	4.82%
325	Chemical manufacturing	\$939,597	3.75%
92	State and Local Government	\$879,484	3.51%
486	Pipeline transportation	\$764,257	3.05%
211	Oil and gas extraction	\$441,881	1.76%
322	Paper manufacturing	\$404,464	1.61%
311	Food manufacturing	\$394,631	1.57%
331	Primary metal manufacturing	\$388,531	1.55%
622	Hospitals	\$374,420	1.49%
61	Educational services	\$371,598	1.48%
3364-3369	Other transportation equipment manufacturing	\$295,033	1.18%
312	Beverage and tobacco product manufacturing	\$267,720	1.07%
327	Nonmetallic mineral product manufacturing	\$233,125	0.93%
487-488	Scenic and sightseeing transportation; Support activities for transportation	\$219,135	0.87%

¹² For more information about Payment Requirements and timing, see Chapter 2 of the Draft Staff Report for PR 317.1, <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-317-1>. The Final Staff Report is located in Attachment G of the June 7, 2024, Governing Board package for PR 317.1, which upon posting, will be available 72 hours prior to the Governing Board meeting at <https://www.aqmd.gov/home/news-events/meeting-agendas-minutes>.

NAICS	Sector Name	Annual Average Compliance Costs	Percentage
621	Ambulatory health care services	\$180,928	0.72%
561	Administrative and support services	\$129,217	0.52%
323	Printing and related support activities	\$119,719	0.48%
334	Computer and electronic product manufacturing	\$96,989	0.39%
333	Machinery manufacturing	\$86,276	0.34%
44-45	Retail trade	\$81,026	0.32%
213	Support activities for mining	\$73,348	0.29%
335	Electrical equipment and appliance manufacturing	\$64,214	0.26%
713	Amusement, gambling, and recreation	\$63,729	0.25%
212	Mining (except oil and gas)	\$50,528	0.20%
512	Motion picture and sound recording industries	\$40,908	0.16%
321	Wood product manufacturing	\$20,909	0.08%
493	Warehousing and storage	\$19,361	0.08%
532-533	Rental and leasing services; Lessors of nonfinancial intangible assets	\$18,785	0.07%
339	Miscellaneous manufacturing	\$16,266	0.06%
3361-3363	Motor vehicles, bodies and trailers, and parts manufacturing	\$13,929	0.06%
54	Professional, scientific, and technical services	\$12,199	0.05%
337	Furniture and related product manufacturing	\$10,712	0.04%
811	Repair and maintenance	\$3,065	0.01%
Total		\$25,071,858	100%

Utilities Sector

The Utilities sector (NAICS 22) has multiple industries within the sector that are expected to be affected by PR 317.1. To provide more information about these industries, the annual average compliance costs that each industry under the Utilities sector is expected to incur was assessed. Table 4 presents the annual average compliance costs during 2025 - 2035 across the various industries within the Utilities sector. The Fossil Fuel Electric Power Generation industry (NAICS 221112) is expected to incur the largest share of the total annual average compliance costs of the Utilities sector, which is estimated to be \$1.30 million. The industries of Other Electric Power Generation (NAICS 221118) and Sewage Treatment Facilities (NAICS 221320) follow with an estimated total annual average compliance cost of \$1.18 million and \$0.69 million, respectively.

Table 4
Annual Average Compliance Costs under Utilities Sector

NAICS	Industry	Annual Average Compliance Costs
221112	Fossil Fuel Electric Power Generation	\$1,297,421
221117	Biomass Electric Power Generation	\$28,617
221118	Other Electric Power Generation	\$1,181,162
221122	Electric Power Distribution	\$5,038
221210	Natural Gas Distribution	\$249,057
221310	Water Supply and Irrigation Systems	\$60,906
221320	Sewage Treatment Facilities	\$689,178
Total		\$3,511,380

MACROECONOMIC IMPACTS ON THE REGIONAL ECONOMY

The REMI model was used to assess the socioeconomic impacts of the proposed rule.¹³ The model links the economic activities in the counties of Los Angeles, Orange, Riverside, and San Bernardino, and it is comprised of five interrelated blocks: 1) output and demand; 2) labor and capital; 3) population and labor force; 4) wages, prices, and costs; and 5) market shares.¹⁴

It should be noted that the REMI model is not designed to assess impacts on individual operations. The model was used to assess the impacts of PR 317.1 on various industries that make up the local economy. Cost impacts on individual operations were assessed outside of the REMI model and were aggregated to the 70-sector NAICS code level to be used as inputs into the REMI model.

Impact of PR 317.1

This assessment is performed relative to a baseline (“business as usual”) forecast where the proposed rule would not be implemented. The analysis assumed that the 319 affected facilities would pay the nonattainment fee during the corresponding fee assessment years from 2025 to 2035.

The nonattainment fee is the only direct cost of PR 317.1 and is used as an input in the REMI model which uses this information to assess secondary and induced impacts for all the industries in the four-county economy on an annual basis over the 2025 – 2035 period.

The facilities subject to PR 317.1, as listed in Table 1 and as modeled in REMI across 70 sectors, are anticipated to pay nonattainment fees would incur direct costs. South Coast AQMD will be the agency collecting the nonattainment fees from the affected facilities.

¹³ Regional Economic Modeling Inc. (REMI). Policy Insight® for the South Coast Area (70-sector model). Version 3. 2023.

¹⁴ Within each county, producers are made up of 156 private non-farm industries and sectors, three government sectors, and a farm sector. Trade flows are captured between sectors as well as across the four counties and the rest of U.S. Market shares of Within each county, producers are made up of 156 private non-farm industries and sectors, three government sectors, and a farm sector. Trade flows are captured between sectors as well as across the four counties and the rest of U.S. Market shares of industries are dependent upon their product prices, access to production inputs, and local infrastructure. The demographic/migration component has 160 ages/gender/race/ethnicity cohorts and captures population changes in births, deaths, and migration. (For details, please refer to REMI online documentation at <http://www.remi.com/products/pi>).

Regional Job Impacts

As presented in Table 5, the REMI modeling analysis projects that there would be 81 foregone jobs annually on average over the 2025 – 2035 period relative to the baseline forecast. The Construction and Retail trade industries are the most negatively impacted sectors with 19 and 12 foregone jobs annually relative to the baseline, respectively. These jobs foregone may be attributed to the labor-intensive nature of these two industries and can also be viewed as less job growth within these industries relative to the baseline. The Transit and Ground Passenger Transportation industry will have 14 additional jobs gained annually, relative to the baseline scenario. The greatest job impacts are projected to occur in 2034 and 2035, when both the 1997 and 2008 8-hour ozone NAAQS nonattainment fees are assumed to be paid by the affected facilities. The REMI model forecasts 132 foregone jobs annually in the regional economy in 2034 and 2035, relative to the baseline scenario. The “Other industries” row in Table 5 presents the sum of job impacts for all the other industries excluding the 10 selected industries in the table. The small number of foregone jobs relative to the high compliance cost of PR 317.1 is mainly attributed to the capital-intensive nature of the most impacted industries, characterized by a substantial proportion of equipment/machinery relative to labor.

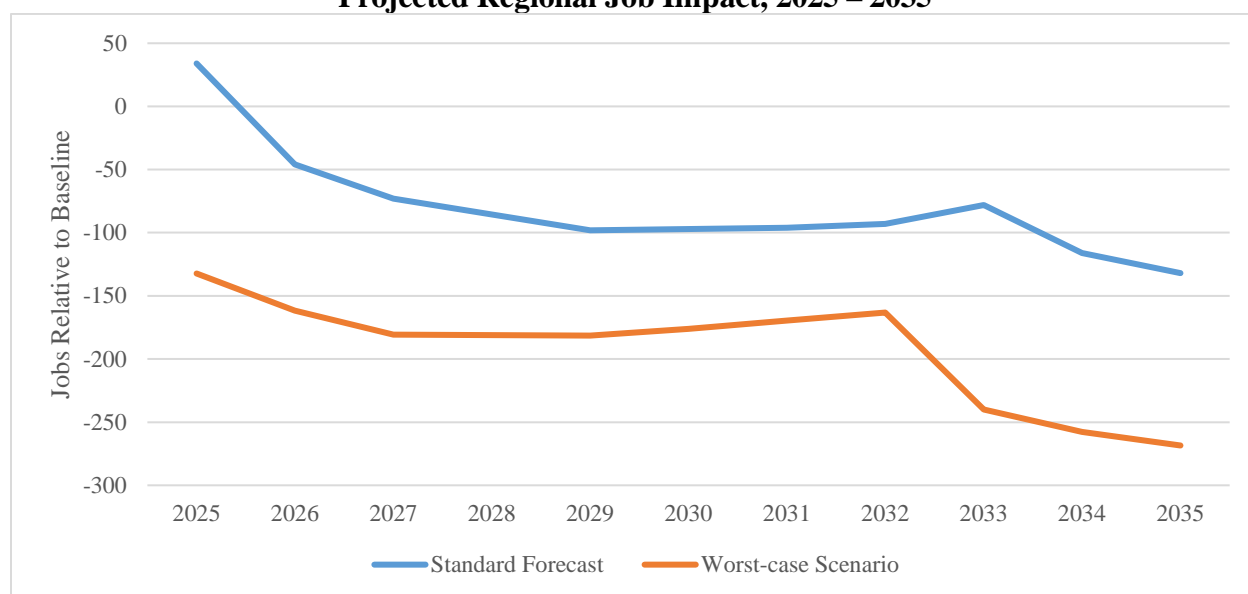
Table 5
Projected Job Impacts of PR 317.1 by Selected Industries and Years

Industry (NAICS)	2025	2030	2035	Annual Average (2025-2035)	Baseline Job Counts (Average, 2025-2035)	Percent Relative to Baseline
Construction (23)	-5	-20	-24	-19	490,499	-0.0039%
Retail Trade (44-45)	-7	-11	-17	-12	797,155	-0.0015%
State and Local Government (92)*	2	-9	-11	-6	932,416	-0.0007%
Ambulatory Health Care Services (621)	-1	-5	-8	-6	597,405	-0.0009%
Fabricated Metal Product Manufacturing (332)	-1	-5	-9	-5	88,372	-0.0061%
Real Estate (531)	0	-5	-7	-5	553,746	-0.0008%
Administrative and Support Services (561)	9	-2	-1	1	786,720	0.0001%
Federal Military (92)*	1	1	1	1	42,258	0.0024%
Securities, Commodity Contracts, Other Investments; Funds, Trusts, Other Financial Vehicles (523)	5	1	3	2	280,027	0.0008%
Transit and Ground Passenger Transportation (485)	19	9	17	14	312,337	0.0044%
Other Industries	13	-50	-76	-44	6,296,744	-0.0007%
All Industries	34	-97	-132	-81	11,177,679	0.0007%

*REMI software models Federal Military industry separate from State and Local Government industry. Please note that the NAICS Association encompasses both industries under the same primary NAICS code (92). The Federal Military industry specifically falls under NAICS code 928, which is National Security and International Affairs.

In addition, in 2013, South Coast AQMD contracted with Abt Associates Inc. to review the South Coast AQMD socioeconomic assessments for Air Quality Management Plans and individual rules with the goal of providing recommendations that could enhance South Coast AQMD's socioeconomic analyses. In 2014, Abt Associates Inc. published a report which included a recommendation for South Coast AQMD to enhance socioeconomic analyses by testing major assumptions through conducting a scenario analysis. As such, South Coast AQMD generally includes an alternative worst-case scenario in Socioeconomic Impact Assessments which analyzes a scenario that assumes the affected facilities would purchase all feasible monitoring equipment and services from providers located outside of the South Coast AQMD's jurisdiction.¹⁵ In short, this alternative worst-case scenario only models the impacts of the costs of compliance. This hypothetical scenario is designed to test the sensitivity of the embedded assumptions in the REMI model about how compliance costs and revenues would be distributed inside and outside of South Coast AQMD's jurisdiction. However, PR 317.1 does not require the purchase of equipment or services and is only designed to implement the framework by which South Coast AQMD assesses and collects the CAA nonattainment fee from affected facilities. For this reason, the worst-case scenario for PR 317.1 instead models the impacts of the nonattainment fees paid by affected facilities, and eliminates the revenue associated with the collection of these fees from South Coast AQMD. This worst-case scenario would result in an annual average of approximately 192 jobs foregone relative to the baseline scenario. The 192 jobs foregone represent only 0.0017 percent of the forecasted average baseline jobs in the regional economy. Figure 2 presents the projected regional job impacts over the 2025 – 2035 period for both the standard and worst-case scenario forecasts.

Figure 2
Projected Regional Job Impact, 2025 – 2035



¹⁵ Abt Associates Inc., August 2014, Review of the SCAQMD Socioeconomic Assessments, Chapter 6, Section 3, <https://www.aqmd.gov/docs/default-source/Agendas/aqmp/scaqmd-report---review-socioeconomic-assessments.pdf>, accessed April 2, 2024.

Price Impact and Competitiveness

The overall impacts of PR 317.1 on production cost and delivered prices in the region is not expected to be substantial. Based on the REMI analysis, the implementation of PR 317.1 is projected to increase the relative cost of production by 0.003 percent and increase the relative delivered price of goods by 0.002 percent for all the industries in the South Coast AQMD jurisdiction in the year 2033, when implementation of PR 317.1 will have the greatest impact upon cost of production and delivered price of goods in the region.

REFERENCES

Abt Associates Inc., August 2014, Review of the SCAQMD Socioeconomic Assessments, Chapter 6, Section 3, <https://www.aqmd.gov/docs/default-source/Agendas/aqmp/scaqmd-report--review-socioeconomic-assessments.pdf>.

Regional Economic Modeling Inc. (REMI), Policy Insight® for the South Coast Area (70-sector model). Version 3, 2023.

South Coast AQMD, May 2024, Proposed Rule 317.1 – Clean Air Act Nonattainment Fees for 8-Hour Ozone Standards, Draft Rule Language, <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-317-1>.

South Coast AQMD, May 2024, Proposed Rule 317.1 – Clean Air Act Nonattainment Fees for 8-Hour Ozone Standards, Draft Staff Report, <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-317-1>.

South Coast AQMD, November 2021, Rule 1109.1 – Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Operations, <https://www.aqmd.gov/docs/default-source/rule-book/reg-xi/r1109-1.pdf>.

South Coast AQMD, Permits - Title V - What is Title V?, <http://www.aqmd.gov/home/permits/title-v/what-is-title-v-#who>.

South Coast AQMD, Regulation XXX – Title V Permits, <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/regulation-xxx>.

U.S. Bureau of Labor Statistics, Data Tools, Data Retrieval Tools, BLS Popular Series, Price Indexes, CPI for All Urban Consumers (CPI-U), 1982-84=100 (Unadjusted) - CUUR0000SA0, <https://data.bls.gov/cgi-bin/surveymost?bls>, accessed March 20, 2024.

U.S. EPA, November 1990, Clean Air Act, Title I – Air Pollution Prevention and Control, Part D, Section 185, U.S. Code 7511d, <https://www.govinfo.gov/content/pkg/USCODE-2013-title42/html/USCODE-2013-title42-chap85-subchapI-partD-subpart2-sec7511d.htm>.

U.S. EPA, November 1990, Clean Air Act, Title I – Air Pollution Prevention and Control, Part D, Section 182, U.S. Code 7511a, <https://www.govinfo.gov/content/pkg/USCODE-2013-title42/html/USCODE-2013-title42-chap85-subchapI-partD-subpart2-sec7511a.htm>.

U.S. EPA, October 2023, Memorandum for Clean Air Act Section 185 Fee Rates Effective for Calendar Year 2023, https://www.epa.gov/system/files/documents/2024-01/memorandum_sec-185-penalty-fees-for-year-2023_10-12-2023.pdf.

U.S. Small Business Administration, March 2023, Table of Small Business Size Standards, <https://www.sba.gov/document/support-table-size-standards>.

Proposed Rule 317.1

Clean Air Act Nonattainment Fees
for 8-Hour Ozone Standards

Cleaning The Air That We Breathe...



Board Meeting

June 7, 2024



Background – CAA Section 185

- Federal Clean Air Act (CAA) Section 185 requires collection of nonattainment fees if the South Coast Air Basin or Coachella Valley fails to attainment a federal ozone standard
 - Fee applies to facilities with 10 tons or more of VOC or NOx emissions per year (Major Stationary Sources)
 - Fees collected until attainment
- PR 317.1 implements Section 185 for the 1997 (revoked) and 2008 ozone standards
 - Attainment deadline for 1997 standard: June 15, 2024
 - Attainment deadline for 2008 standard: July 20, 2032

Nondiscretionary Action – U.S. EPA is required to collect the fees if South Coast AQMD does not



Pathways to Comply with CAA Section 185

Fee Collection

- Available for unrevoked and revoked standards
- Collect fees each year based on the amount of emissions that exceed 80% of the baseline emissions

Fee Equivalency Alternative

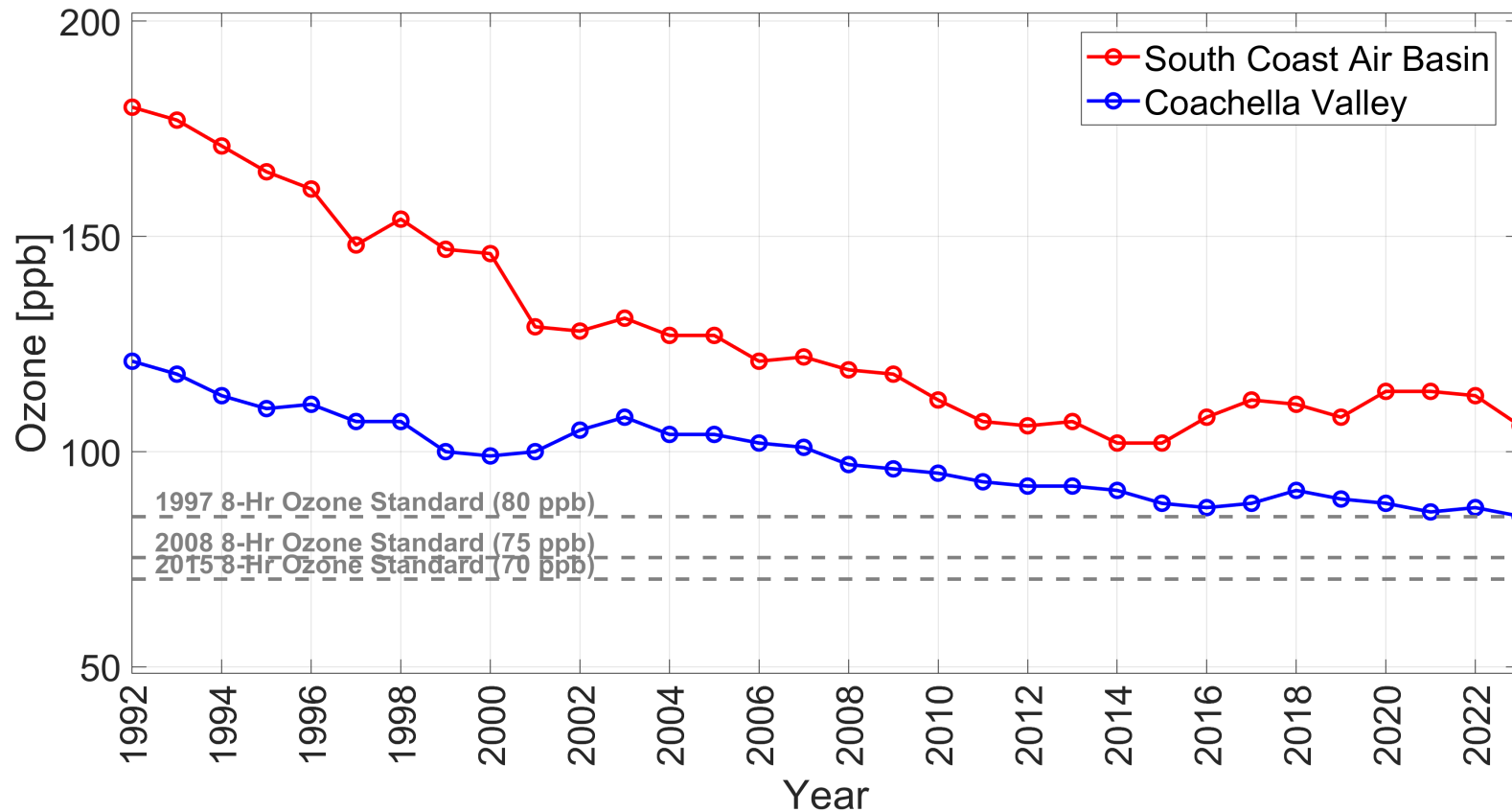
- Only available if both conditions are met:
1. Ozone standard has been revoked by U.S. EPA
 2. Utilizes funds beyond commitments in the applicable Air Quality Management Plan

Fee equivalency alternative is not available for 1997 and 2008 ozone standards for South Coast AQMD



8-Hour Ozone Trends

8-Hour Ozone Design Values¹



- Overall air quality has improved
- For 1997 standard, South Coast Air Basin will not be in attainment by 2024 but Coachella Valley will likely attain following an extension²

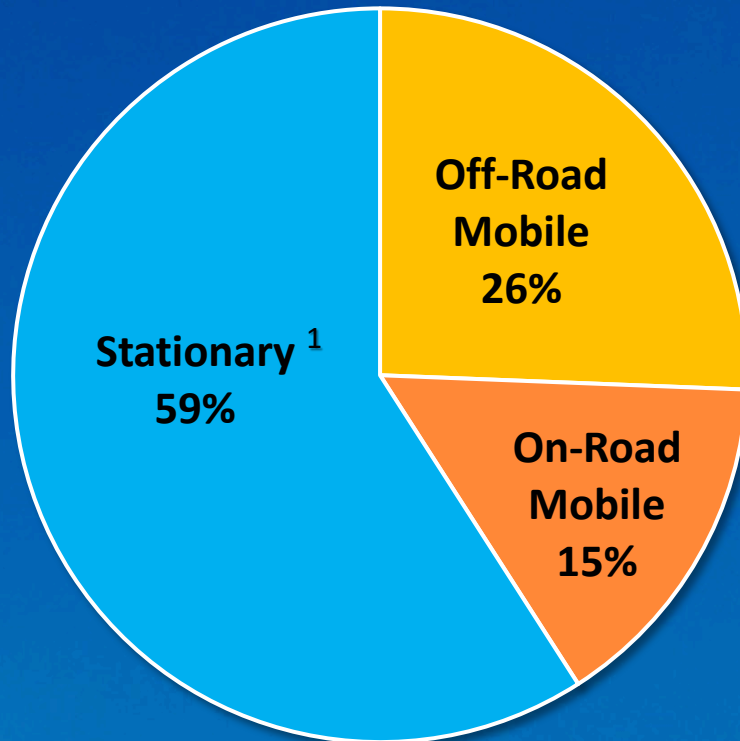
¹ – Annual 4th highest 8-hour average concentration, averaged over 3 years
² – Facilities are exempt from PR 317.1 fees in the extension year



Source Contributions for Ozone Precursors of VOC and NOx

2023 VOC Emissions

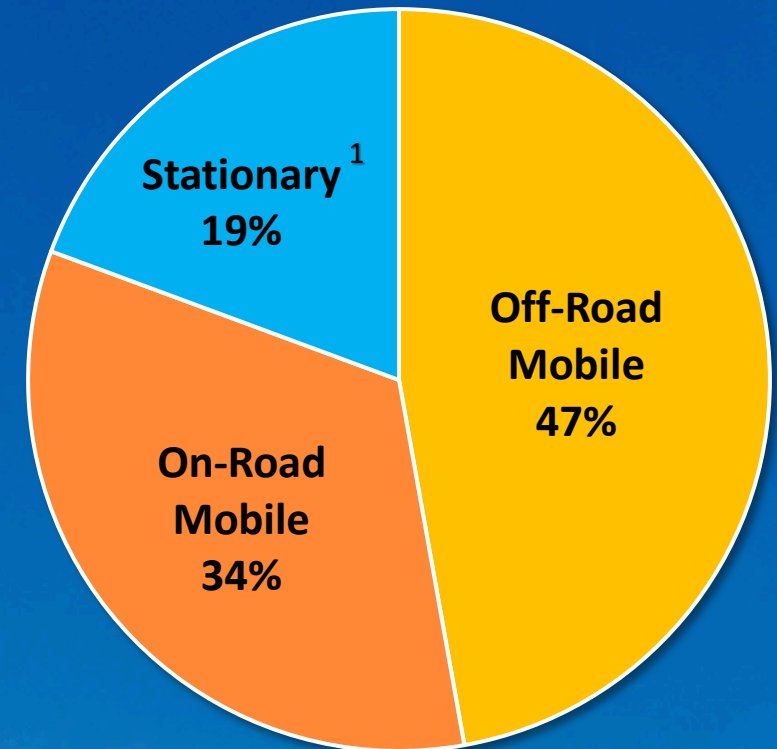
379 tons per day



- The primary pollutants that must be controlled to achieve 8-hour ozone standards are NOx
- Over 80% of the NOx emissions in 2023 are from mobile sources

2023 NOx Emissions

250 tons per day



1 – Includes point and areawide sources. Major stationary sources potentially impacted by PR 317.1 represent 4% of the VOC emissions and 7% of the NOx emissions.



PR 317.1 Key Requirement

Affected Facilities

- About 320 facilities (estimated based on number of Title V facilities)

Fee Obligations

- Applies to emissions¹ that exceed 80 percent of baseline emissions
 - Baseline emissions are based on emissions in the attainment year
 - Fee rate was \$11,922 per ton in 2023²
- Applicable facilities are responsible for paying fees for each applicable standard

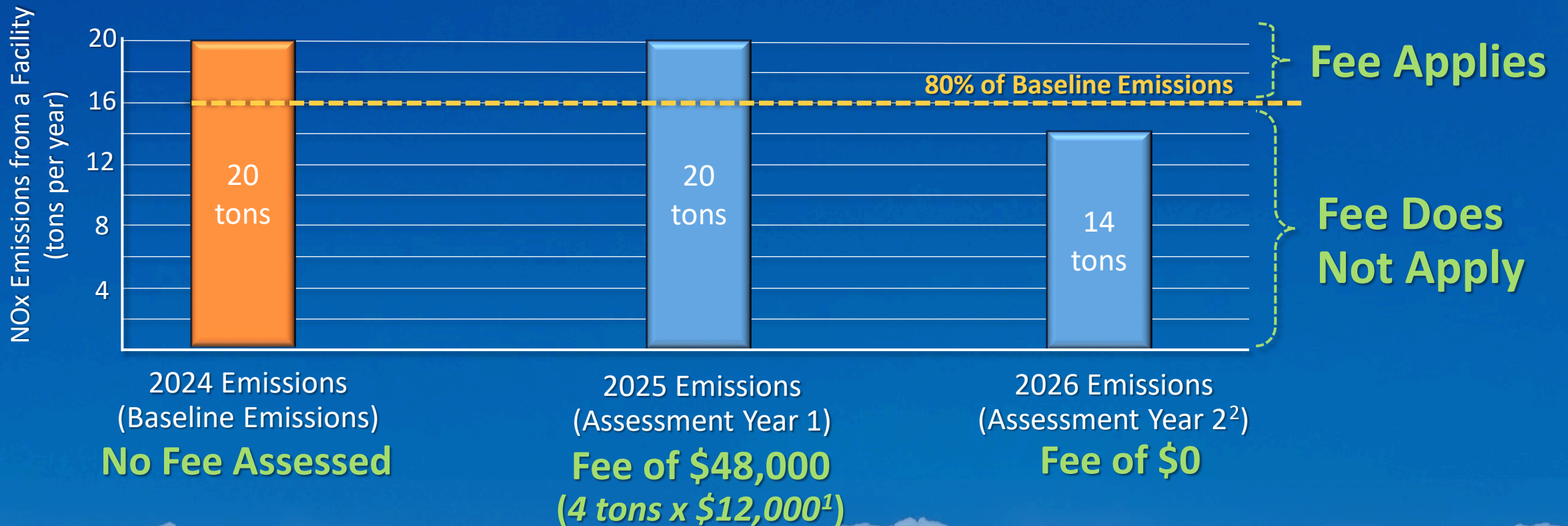
Criteria	8-Hour Ozone NAAQS	
	Revoked 1997	2008
Baseline Emissions	2024	2032
Year Fee Obligation Begins	2025	2033

1 – Major stationary source only pays for pollutant which qualifies them as a major stationary source
2 – U.S. EPA annually adjusts the fee rate by CPI



CAA Section 185 NO_x Fee Example for 1997 Ozone Standard

Fee applies to emissions above 80% of baseline



1 – Assuming rounded 2023 fee rate, subject to future CPI adjustment

2 – Assessment would continue for future years until area is in attainment with 1997 standard



Alternative Baseline Option

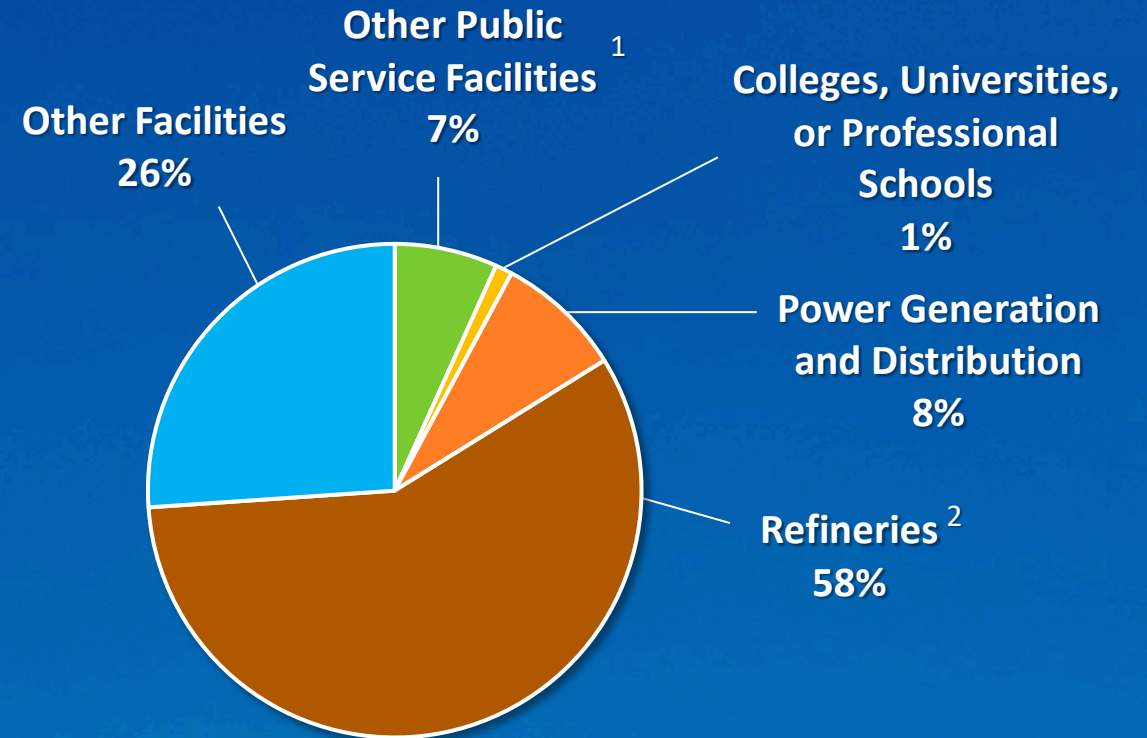
Alternative Baseline Emissions Option

- Facility may propose alternate method to determine baseline emissions level if emissions are irregular, cyclical, or vary
- Alternate baseline shall reflect emissions from normal operating conditions
- Alternate method conditioned upon U.S. EPA issuing a guidance document



Socioeconomic Impacts

- In 2025, total fees estimated conservatively to be \approx \$26 million
 - Assumed all Title V facilities (\approx 320) to be major stationary sources of VOCs and NO_x and emissions remain the same as baseline except for Rule 1109.1 implementation
- Estimated about 80 jobs foregone annually on average with \approx 20 jobs foregone from construction sector



1 – Other public service facilities include general medical & surgical hospitals; sewage treatment; solid waste landfill; water supply & irrigation systems; natural gas distribution; regulation & administration of communications, electric, gas, & other utilities; and other general government support.

2 - Refinery industries include petroleum refineries, petroleum bulk stations and terminals, pipeline transportation of refined petroleum products, and petroleum and petroleum products merchant wholesalers (except bulk stations and terminals).



Key Remaining Issue

Comment: PR 317.1 may require fee collection even when facilities are no longer required to pay due to potential changes in the CAA or the implementation guidance

Response:

- No foreseeable changes are anticipated
- Uncertainties with the potential changes, if any
- Staff is committed to evaluate the updates and take any necessary actions to reflect these updates, if appropriate



Next Steps - Spending of Funds

- Stakeholders have commented on the use of the fees collected through PR 317.1
 - CAA does not specify how to spend the funds
 - Usage will be determined through a future public process



Recommended Actions

- **Recommended actions:**
 - Determine that PR 317.1 is not considered subject to CEQA and
 - Adopt Rule 317.1



BOARD MEETING DATE: June 7, 2024

AGENDA NO. 25

PROPOSAL: Certify the Final Environmental Assessment for Proposed Amended Rule 463 – Organic Liquid Storage; and Amend Rule 463

SYNOPSIS: Proposed Amended Rule 463 (PAR 463) establishes enhanced leak detection using optical gas imaging, more stringent control requirements to dome external floating roof tanks, and other requirements. Additionally, PAR 463 will include contingency measures for both the Coachella Valley and the South Coast Air Basin, which will require more frequent use of optical gas imaging, if triggered.

COMMITTEE: Stationary Source, April 19, 2024, Reviewed

RECOMMENDED ACTIONS:

Adopt the attached Resolution:

1. Certifying the Final Environmental Assessment for Proposed Amended Rule 463 – Organic Liquid Storage; and
2. Amending Rule 463 – Organic Liquid Storage.

Wayne Natri
Executive Officer

SR:MK:MM:IS:JE

Background

Rule 463 – Organic Liquid Storage (Rule 463) limits VOC emissions from storage tanks that store organic liquids. Rule 463 applies to above-ground stationary tanks with approximate capacity of 19,800 gallons or more, above-ground tanks with approximate capacity between 250 gallons and 19,800 gallons that are used to store gasoline, and any stationary tank with a potential for VOC emissions of six tons per year or greater used in crude oil and natural gas production operations.

California Assembly Bill 617 (AB 617) was signed into law in 2017 to develop a new community-focused program to reduce emissions and exposure to sources of air pollution and preserve public health. Objectives in the Wilmington, Carson, West Long Beach (WCWLB) and South Los Angeles (SLA) Community Emission Reduction Plans (CERPs) specify initiating rule development to require the use of enhanced leak detection tools and other leak prevention and emission reduction technologies (e.g., domed roofs) in various South Coast AQMD rules. Rule 463 was not identified as an objective for rule development within the two CERPs; however, Rule 463 regulates the same emission sources within the affected WCWLB and SLA communities.

Amendments to Rule 463 will help reduce VOC emissions from storage tanks in WCWLB, SLA, and in other communities within the South Coast AQMD jurisdiction. Recommendations for proposed amendments to Rule 463 focus on improving leak detection requirements with the use of advanced leak detection technologies and requiring additional emission controls.

Clean Air Act (CAA) Section 182(c)(9) requires that ozone nonattainment areas classified as “serious” or above provide for contingency measures to be implemented if the area fails to meet any applicable milestone. Amendments to Rule 463 include contingency measures to fulfill the CAA requirement.

Proposal

PAR 463 establishes enhanced leak detection and more stringent control requirements by requiring optical gas imaging (OGI) inspections for tank farms every other week for all tanks. Furthermore, PAR 463 requires semi-annual OGI inspections on individual floating roof tank components, in addition to existing provisions that require semi-annual seal gap inspections. The proposed amended rule requires doming for external floating roof tanks that store organic liquids with a true vapor pressure (TVP) of 3.0 psia or greater. Domes must be installed during the next internal API 653 inspection or the next time a tank is cleaned and degassed, but no later than 23 years after a test indicates the organic liquid stored has a TVP of 3.0 psia or greater. Secondary seals are also required on all floating roof tanks. Installation of secondary seals on internal floating roof tanks will be required the next time the tank is cleaned and degassed, but no later than 22 years after date of rule adoption. Additionally, PAR 463 will include federal seal gap requirements by reference for floating roof tanks and require an increased emission control efficiency of 98 percent by weight for fixed roof tanks. These requirements will be effective immediately. PAR 463 also establishes additional requirements for true vapor pressure and vapor recovery unit testing, reporting, and recordkeeping.

Public Process

PAR 463 was developed through a public process. Two Working Group meetings were held on January 3, 2024, and March 7, 2024. Working Group Meeting participants included attendees from affected businesses, environmental and community

representatives, public agencies, consultants, and other interested parties. A Public Workshop was held on March 27, 2024, where staff presented the proposed amended rule to the general public and stakeholders and solicited comments. Staff also held individual meetings regarding PAR 463 with stakeholders, including facilities to understand specific concerns and how the rule may uniquely affect them. Staff also met with technology and leak detection service providers. In addition, staff conducted multiple site visits to understand facility operations.

Emission Reductions

The total VOC emission reductions associated with the implementation of PAR 463 are 1.65 tons per day. Optical gas imaging inspections will result in 0.40 tons per day of VOC reductions. Doming will result in 0.05 ton per day of VOC reductions. Internal floating roof seal requirements will result in 0.01 tons per day of VOC reductions. Increased emission control efficiency for fixed roof tanks will result in 1.19 tons per day of VOC emission reductions.

Key Issues

Throughout the rulemaking process, staff worked with stakeholders to resolve key issues. Staff is not aware of any remaining key issues.

California Environmental Quality Act

PAR 463 is considered a “project” as defined by the California Environmental Quality Act (CEQA), and the South Coast AQMD is the designated lead agency. Pursuant to South Coast AQMD’s Certified Regulatory Program (Public Resources Code Section 21080.5 and CEQA Guidelines Section 15251(l); codified in South Coast AQMD Rule 110) and CEQA Guidelines Section 15070, the South Coast AQMD has prepared an Environmental Assessment (EA) for PAR 463, which is a substitute CEQA document pursuant to CEQA Guidelines Section 15252, prepared in lieu of a Negative Declaration. Implementation of the proposed project is estimated to reduce VOC emissions by 1.65 ton per day, and the Final EA did not identify any environmental topic areas that would be significantly adversely affected by physical modifications resulting from the proposed project. The Final EA is included as an attachment to this Board package (see Attachment H).

Socioeconomic Impact Assessment

Approximately 1,600 storage tanks at 429 facilities are subject to PAR 463 requirements with the majority belonging to the Oil and Gas Extraction (NAICS 211) sector. Of the 429 facilities, up to 282 facilities may qualify as small businesses based on various small business definitions. The key requirements of PAR 463 that would have cost impacts for the affected facilities include: 1) periodic OGI inspections; 2) doming of external floating roof storage tanks; 3) installation of secondary seals on internal floating roof storage tanks; and 4) periodic performance testing on vapor recovery units of fixed-roof storage tanks. The total present value of compliance costs of implementing PAR 463 over the 2024 – 2080 period is estimated to be \$147.60

million and \$71.77 million with a 1 percent and 4 percent discount rate, respectively. The annual average compliance costs of PAR 463 are estimated to range from \$2.95 million to \$3.47 million for a 1 percent to 4 percent real interest rate, respectively. When the compliance costs are amortized using a 4 percent interest rate, 25 net jobs foregone annually are projected in the four-county economy over the period from 2024 to 2080, relative to the baseline scenario. The Final Socioeconomic Impact Assessment is included as an attachment to this Board package (see Attachment I).

AQMP and Legal Mandate

PAR 463 implements requirements aligned with objectives stated in the WCWLB and SLA CERPs to reduce VOC emissions from refineries and oil and gas operations, respectively. Additionally, PAR 463 updates BARCT requirements by establishing more stringent leak detection and control requirements pursuant to Health and Safety Code section 40920.6.

Furthermore, PAR 463 partially implements control measure FUG-01 – Improved Leak Detection and Repair in the 2022 Final Air Quality Management Plan. Control Measure FUG-01 seeks to reduce VOC emissions through utilizing advanced remote sensing technologies to allow for faster identification and repair of leaks from equipment at oil and gas sites and other facilities that are currently required to maintain a leak detection and repair program.

In addition, South Coast AQMD is amending Rule 463 to introduce a contingency measure to partially satisfy CAA Section 182(c)(9) that requires that ozone nonattainment areas classified as “serious” or above provide for contingency measures to be implemented if the area fails to meet any applicable milestone. PAR 463 introduces periodic OGI inspections at more frequent intervals as contingency measures to fulfill ozone attainment plan requirements for the applicable National Ambient Air Quality Standards.

Implementation and Resource Impacts

Existing staff resources are adequate to implement the proposed amendments.

Attachments

- A. Summary of Proposal
- B. Key Issues and Responses
- C. Rule Development Process
- D. Key Contacts List
- E. Resolution
- F. Proposed Amended Rule 463
- G. Final Staff Report
- H. Final Environmental Assessment
- I. Final Socioeconomic Impact Assessment
- J. Board Presentation

ATTACHMENT A

SUMMARY OF PROPOSAL

Proposed Amended Rule 463 — Organic Liquid Storage

Purpose

- Contains a new purpose to establish contingency measures in the South Coast Air Basin and Coachella Valley for applicable ozone standards

Requirements

- U.S. EPA seal gap requirements are incorporated by reference
- Tanks must be maintained free of visible vapors resulting from a defect in equipment
- Domes required on all external floating roof (EFR) tanks storing organic liquids with a true vapor pressure (TVP) of 3.0 psia or greater except for waste water tanks where the installation of a dome could lead to the buildup of pyrophoric materials
- True vapor pressure testing for EFR tanks without domes
- Domes required to be maintained free of gaps and other openings that are not part of the dome design
- Secondary seals required on all internal floating roof (IFR) tanks
- Fixed roof tanks required to have 98% by weight emission control
- Performance testing for vapor recovery units
- Contingency measures for the applicable 8-hour ozone standards in the South Coast Air Basin and the Coachella Valley that would require more frequent optical gas imaging (OGI) tank farm inspections

Compliance Schedules

- Starting three years after the date of adoption, EFR tanks must install domes at the next internal API 653 inspection or the next time a tank is cleaned and degassed, whichever is sooner, but not to exceed 23 years after a test verifies that an organic liquid stored has a TVP of 3 psia or greater
- Starting two years after date of adoption, IFR tanks are required to have secondary seals installed at the next internal API 653 inspection or when the tank is next cleaned or degassed, but no later than 22 years after date of adoption

Monitoring

- Tank farm inspections required at least once every other calendar week
- Component inspections required for floating roof tanks twice a year at four-to-eight month intervals

Maintenance

- Tanks found in non-compliance during an inspection with an OGI device must be repaired within 72 hours after the inspection

Recordkeeping and Reporting

- Reporting when defects or visible vapors from vapor tight components are identified during a tank farm inspection
- Written records for tank farm and component inspections
- Digital time-stamped recordings of visible vapors identified during tank farm inspections
- Submittal of TVP test results of 3.0 psia or greater for EFR tanks
- Allowance for electronic report forms that contain all information required in the Compliance Report Form
- Allowance of electronic submittal of written and electronic inspection and non-compliance reports
- Reporting for vapor recovery system performance tests
- Maintain all records for a minimum of three years

Test Methods and Procedures

- Contains two new vapor pressure test methods: ASTM – 6377 and ASTM – 6378

Exemptions

- Exemptions from the provisions of Rule 463 for tanks regulated by Rule 1178, with the exception of other performance requirements, seal categories, and the definition for Product Change
- Exemption from OGI inspections when a tank is out of service
- Exemption from certain OGI inspection requirements when required procedure is deemed unsafe

ATTACHMENT B

KEY ISSUES AND RESPONSES

Proposed Amended Rule 463 – Organic Liquid Storage

Throughout the rulemaking process, staff worked with stakeholders to resolve key issues. Staff is not aware of any key remaining issues.

ATTACHMENT C

RULE DEVELOPMENT PROCESS

Proposed Amended Rule 463 – Organic Liquid Storage

Fourteen (14) months spent in rule development

Two (2) Working Group Meetings

One (1) Public Workshop

One (1) Stationary Source Committee Meeting

ATTACHMENT D

KEY CONTACTS LIST

Community Environmental Services
Kinder Morgan Liquids Terminal
Marathon Petroleum
Olympus Terminals
Phillips 66
Tank and Environmental Technologies Inc.
Torrance Refining Company LLC
Western States Petroleum Association
World Oil Recycling
Zenith Energy West Coast Terminals LLC

ATTACHMENT E

RESOLUTION NO. 24-_____

A Resolution of the Governing Board of the South Coast Air Quality Management District (South Coast AQMD) certifying the Final Environmental Assessment for Proposed Amended Rule 463 – Organic Liquid Storage.

A Resolution of the South Coast AQMD Governing Board amending Rule 463 – Organic Liquid Storage.

WHEREAS, the South Coast AQMD Governing Board finds and determines that Proposed Amended Rule 463 is considered a “project” as defined by the California Environmental Quality Act (CEQA); and

WHEREAS, the South Coast AQMD has had its regulatory program certified pursuant to Public Resources Code Section 21080.5 and CEQA Guidelines Section 15251(l) and has conducted a CEQA review and analysis of the proposed project pursuant to such program (South Coast AQMD Rule 110); and

WHEREAS, the South Coast AQMD Governing Board has determined that the requirements for a Negative Declaration have been triggered pursuant to its Certified Regulatory Program and CEQA Guidelines Section 15070, and that an Environmental Assessment (EA), a substitute document allowed pursuant to CEQA Guidelines Section 15252 and South Coast AQMD’s Certified Regulatory Program, is appropriate; and

WHEREAS, the South Coast AQMD prepared a Draft EA pursuant to its Certified Regulatory Program and CEQA Guidelines Sections 15070 and 15252 setting forth the potential environmental consequences of Proposed Amended Rule 463 and determined that the proposed project would not have the potential to generate significant adverse environmental impacts; and

WHEREAS, a Draft EA was prepared and circulated for a 30-day public review and comment period from March 27, 2024 to April 26, 2024 and no comments were received relative to the analysis such that it is now a Final EA; and

WHEREAS, it is necessary that the South Coast AQMD Governing Board review the Final EA prior to its certification, to determine that it provides adequate information on the potential adverse environmental impacts that may occur as a result of adopting Proposed Amended Rule 463; and

WHEREAS, pursuant to CEQA Guidelines Section 15252 (a)(2)(B), since no significant adverse impacts were identified, no alternatives or mitigation measures are required for project approval; thus, a Mitigation, Monitoring, and Reporting Plan pursuant to Public Resources Code Section 21081.6 and CEQA Guidelines Section 15097, has not been prepared; and

WHEREAS, Findings pursuant to Public Resources Code Section 21081.6 and CEQA Guidelines Section 15091 and Statement of Overriding Considerations pursuant to CEQA Guidelines Section 15093 were not prepared because the analysis shows that Proposed Amended Rule 463 would not have a significant adverse effect on the environment, and thus, are not required; and

WHEREAS, the South Coast AQMD Governing Board voting to adopt Proposed Amended Rule 463 has reviewed and considered the information contained in the Final EA and all other supporting documentation, prior to its certification, and has determined that the Final EA, has been completed in compliance with CEQA; and

WHEREAS, Proposed Amended Rule 463 and supporting documentation, including but not limited to, the Final EA, the Final Staff Report, and the Final Socioeconomic Impact Assessment were presented to the South Coast AQMD Governing Board and the South Coast AQMD Governing Board has reviewed and considered this information, as well as has taken and considered staff testimony and public comment prior to approving the proposed project; and

WHEREAS, the Final EA reflects the independent judgment of the South Coast AQMD; and

WHEREAS, the South Coast AQMD Governing Board finds and determines that all changes made in the Final EA after the public notice of availability of the Draft EA were not substantial revisions and do not constitute significant new information within the meaning of CEQA Guidelines Sections 15073.5 and 15088.5, because no new significant effects and no substantial increase in the severity of an environmental effect were identified that would require new mitigation measures or project revisions to reduce impacts to less than significant levels, and all changes merely clarify, amplify, or make insignificant modifications to the Draft EA, and recirculation is therefore not required; and

WHEREAS, the South Coast AQMD Governing Board finds and determines, taking into consideration the factors in Section (d)(4)(D) of the Governing Board Procedures (Section 30.5(4)(D)(i) of the Administrative Code), that there were no modifications to Proposed Amended Rule 463 since the Notice of Public Hearing was published; and

WHEREAS, the South Coast AQMD Governing Board has determined that the Final Socioeconomic Impact Assessment of Proposed Amended Rule 463 is consistent with the March 17, 1989 Governing Board Socioeconomic Resolution for rule amendment; and

WHEREAS, the South Coast AQMD Governing Board has determined that the Final Socioeconomic Impact Assessment is consistent with the provisions of Health and Safety Code Sections 40440.8, 40728.5, and 40920.6; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Amended Rule 463 will result in increased costs to the affected industries, yet such costs are considered to be reasonable, with a total annualized cost as specified in the Final Socioeconomic Impact Assessment; and

WHEREAS, the South Coast AQMD Governing Board has actively considered the Final Socioeconomic Impact Assessment and has made a good faith effort to minimize such impacts; and

WHEREAS, the South Coast AQMD staff conducted a Public Workshop regarding Proposed Amended Rule 463 on March 27, 2024; and

WHEREAS, Proposed Amended Rule 463 will be submitted for inclusion into the State Implementation Plan; and

WHEREAS, Health and Safety Code Section 40727 requires that prior to adopting, amending, or repealing a rule or regulation, the South Coast AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing and in the Final Staff Report; and

WHEREAS, the South Coast AQMD Governing Board has determined that a need exists to amend Rule 463 to implement Best Available Retrofit Control Technology, partially implement Control Measure FUG-01 of the 2022 Final Air Quality Management Plan, fulfill a commitment contained in the Wilmington, Carson, West Long Beach Community Emission Reduction Plan, fulfill a commitment contained in the South Los Angeles Community Emission Reduction Plan, and partially satisfy Clean Air Act Section 182(c)(9) requirements for ozone nonattainment areas classified as “serious” or above to included contingency measures to be implemented if the area fails to meet any applicable milestone; and

WHEREAS, the South Coast AQMD Governing Board has determined, pursuant to Health and Safety Code Section 40001(c), that there is a problem that the proposed amended rule will alleviate, namely nonattainment of several federal ozone standards, and the rule will help attain state and federal ambient air quality standards; and

WHEREAS, the South Coast AQMD Governing Board obtains its authority to adopt, amend or repeal rules and regulations from Health and Safety Code Sections 39002, 40000, 40001, 40440, 40702, 40725 through 40728, 40920.6, 41508; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Amended Rule 463 is written and displayed so that its meaning can be easily understood by persons directly affected by it; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Amended Rule 463 is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Amended Rule 463 does not impose the same requirements as any existing state or federal regulations, and the proposed amended rule is necessary and proper to execute the powers and duties granted to, and imposed upon, the South Coast AQMD; and

WHEREAS, the South Coast AQMD Governing Board, in amending Rule 463, references the following statutes which the South Coast AQMD hereby implements, interprets, or makes specific: Health and Safety Code Sections 39002, 40001, 40406, 40702, 40440(a), 40725 through 40728.5; and

WHEREAS, Health and Safety Code Section 40727.2 requires the South Coast AQMD to prepare a written analysis of existing federal air pollution control requirements applicable to the same source type being regulated whenever it adopts, or amends a rule, and the South Coast AQMD's comparative analysis of Proposed Amended Rule 463 is included in the Final Staff Report; and

WHEREAS, the Public Hearing has been properly noticed in accordance with all provisions of Health and Safety Code Sections 40725 and 40440.5; and

WHEREAS, the South Coast AQMD Governing Board has held a Public Hearing in accordance with all provisions of state and federal law; and

WHEREAS, the South Coast AQMD specifies the Planning and Rules Manager overseeing the rule development for Proposed Amended Rule 463 as the custodian of the documents or other materials which constitute the record of proceedings upon which the adoption of this proposed project is based, which are located at the South Coast Air Quality Management District, 21865 Copley Drive, Diamond Bar, California; and

NOW, THEREFORE BE IT RESOLVED, that the South Coast AQMD Governing Board has considered the Final EA for Proposed Amended Rule 463, and, on the basis of the whole record before it, the South Coast AQMD Governing Board: 1) finds that the Final EA, was completed in compliance with CEQA and the South Coast AQMD's Certified Regulatory Program, 2) finds that the Final EA and all supporting documents were presented to the South Coast AQMD Governing Board, whose members exercised

their independent judgment and reviewed, considered, and approved the information therein prior to acting on Proposed Amended Rule 463, and 3) certifies the Final EA; and

BE IT FURTHER RESOLVED, that because no significant adverse environmental impacts were identified as a result of adopting Proposed Amended Rule 463, Findings, a Statement of Overriding Considerations, and a Mitigation, Monitoring, and Reporting Plan are not required and were not prepared; and

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board does hereby adopt, pursuant to the authority granted by law, Proposed Amended Rule 463 as set forth in the attached, and incorporated herein by reference; and

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board requests that Proposed Amended Rule 463 be submitted into the State Implementation Plan; and

BE IT FURTHER RESOLVED, that the Executive Officer is hereby directed to forward a copy of this Resolution and Proposed Amended Rule 463 to the California Air Resources Board for approval and subsequent submittal to the U.S. Environmental Protection Agency for inclusion into the State Implementation Plan.

DATE: _____

CLERK OF THE BOARDS

ATTACHMENT F

(Adopted August 15, 1977)(Amended June 1, 1984)(Amended December 7, 1990)
(Amended March 11, 1994)(Amended May 6, 2005)
(Amended November 4, 2011)(Amended May 5, 2023)(Amended TBD)

PROPOSED AMENDED RULE 463. **ORGANIC LIQUID STORAGE**

[RULE INDEX TO BE ADDED AFTER RULE ADOPTION]

(a) ~~Purpose and Applicability~~

The purpose of this rule is to reduce emissions of Volatile Organic Compounds (VOC) from the storage of ~~o~~Organic ~~L~~iquids in stationary above-ground ~~t~~Tanks and establish contingency measures for applicable ozone standards for the reduction of VOCs. ~~This rule applies to any above-ground stationary tank with a capacity of 75,000 liters (19,815 gallons) or greater used for storage of organic liquids, and any above-ground tank with a capacity between 950 liters (251 gallons) and 75,000 liters (19,815 gallons) used for storage of gasoline. This rule also applies to any stationary tank with a Potential For VOC Emissions of 6 tons per year or greater used in Crude Oil And Natural Gas Production Operations.~~

(b) Applicability

This rule applies to any above-ground stationary Tank with a capacity of 75,000 liters (19,815 gallons) or greater used for storage of Organic Liquids, and any above-ground Tank with a capacity between 950 liters (251 gallons) and 75,000 liters (19,815 gallons) used for storage of Gasoline. This rule also applies to any stationary Tank with a Potential For VOC Emissions of 6 tons per year or greater used in Crude Oil And Natural Gas Production Operations.

(~~b~~c) Definitions

For purposes of this rule, the following definitions apply:

- (1) ACCESS HATCH is an opening in the roof with a vertical well and a cover attached to it. Access Hatch provides passage for workers and materials through the roof for construction or maintenance.
- (42) ACTUAL STORAGE CONDITIONS means the temperature at which a product is stored in an above-ground stationary ~~t~~Tank.
- (23) AMBIENT TEMPERATURE is the temperature of an ~~o~~Organic ~~L~~iquid within a storage ~~t~~Tank that has been influenced by atmospheric conditions only and is not elevated by a non-atmospheric means of heating at the

- (b)(c) €Tank which includes but is not limited to steam, hot water, heaters, heat exchangers, €Tank insulation, or €Tank jacketing.
- (34) CERTIFIED PERSON is ~~an individual~~ a person who has successfully completed the ~~District~~ South Coast AQMD €Tank self-inspection program and a South Coast AQMD approved fugitive emissions compliance inspection program, and who holds a certificate issued by the Executive Officer evidencing that such ~~individual-person~~ is in good standing in this program.
- (5) CLEANING is the process of washing or rinsing a stationary Tank, reservoir, pipelines, or other container or removing vapor, sludge, or rinsing liquid from a stationary Tank, reservoir, or other container.
- (6) COMPONENT is any valve, fitting, pump, compressor, pressure relief device, diaphragm, hatch, sight-glass, Roof Opening, Rim Seal System, pressure vacuum vents, Guidepoles, Roof Legs, or meter in VOC service.
- (7) COMPONENT INSPECTION is monitoring for Visible Vapors with a handheld Optical Gas Imaging Device of a Storage Tank roof and individual Components, including but not limited to Roof Openings and Rim Seal Systems, viewable from the Tank platform or a vantage point capable of seeing the Tank roof, and ground for Components not viewable from the Tank platform or vantage point but viewable at ground level.
- (48) CRUDE OIL AND NATURAL GAS PRODUCTION OPERATIONS are any operations from a crude oil well to the point of custody transfer to a refinery and any operations from a natural gas well to the natural gas customer.
- (9) DOMED ROOF is a self-supporting Fixed Roof attached to the top of an External Floating Roof Tank to reduce evaporative losses. An External Floating Roof Tank equipped with a Domed Roof is a Domed External Floating Roof Tank.
- (510) DRAIN-DRY BREAKOUT TANK is an above-ground ~~s~~Storage €Tank designed such that the floating roof rests on support legs no higher than one foot along the €Tank shell with a bottom sloped to a sump or sumps such that no product or sludge remains on the €Tank bottom and walls after emptying except clingage and is primarily used to receive product from pipelines and to distribute product back into pipelines.
- (11) EMISSION INVENTORY YEAR is the annual emission-reporting period

specified by the Annual Emission Reporting (AER) Program requirements for a given year.

(612) EXEMPT COMPOUND is as defined in Rule 102.

(13) EXTERNAL FLOATING ROOF TANK is a Storage Tank with a roof consisting of a double deck or pontoon single deck which rests or floats on the liquid being contained and is not equipped with a Fixed Roof above the floating roof.

(c)

(14) FACILITY is any equipment or group of equipment or other VOC-emitting activities, which are located on one or more contiguous properties within the South Coast AQMD, in actual physical contact or separated solely by a public roadway or other public right-of-way, and are owned or operated by the same person (or by persons under common control), or an outer continental shelf (OCS) source as determined in 40 CFR Section 55.2. Such above- described groups, if noncontiguous, but connected only by land carrying a pipeline, shall not be considered one Facility.

(15) FIXED ROOF SUPPORT COLUMN AND WELL is a column made of round pipe or of structural shape with an irregular cross section that passes through the floating roof via a peripheral vertical well and is used to support the roof of an Internal Floating Roof Tank.

(16) FIXED ROOF TANK is a Storage Tank with a permanently affixed roof.

(17) FLEXIBLE ENCLOSURE SYSTEM is a VOC emission reduction system made of a VOC impervious material which is resistant to ultraviolet radiation, completely enclosing a Slotted Guidepole and controls the vapor emission pathway from inside the storage vessel through the Guidepole slots to the outside air.

(18) FUEL GAS SYSTEM is the piping and control system that gathers gaseous stream(s) generated by onsite operations and transports the gaseous stream for sale or for use as fuel gas in combustion devices, or in-process combustion equipment such as furnaces and gas turbines, either singly or in combination.

(719) GASOLINE means any petroleum distillate having a Reid vapor pressure of 200 mm Hg (3.9 pounds per square inch), or greater.

(20) GAUGE FLOAT is a device that is used to indicate the level of liquid within the Tank. The float rests on the liquid surface and is housed inside a well that is closed by a removable cover.

- (c) (21) GAUGE HATCH/SAMPLE PORT is an opening in the roof that provides access for gauging or sampling. A Gauge Hatch/Sample Port is usually equipped with a closing cover or a funnel and slit-fabric Seal to cover the opening.
- (22) GUIDEPOLE is an anti-rotation device that is fixed to the top and bottom of the Tank, passing through a well that is equipped with a sliding cover. The Guidepole is used to prevent adverse movement of the roof and subsequent damage to the roof fittings and rim Seals, or as access for level gauging or sampling of the liquid stock. The Guidepole can be solid or equipped with slots or holes for gauging purpose.
- (823) HEAVY CRUDE OIL means a crude oil with American Petroleum Institute (API) gravity 20 degrees or less.
- (24) INTERNAL FLOATING ROOF TANK is a Storage Tank equipped with a fixed roof and a floating roof which rests on the liquid being contained.
- (25) LADDER AND WELL is a ladder that passes through a well and is used to access the Tank bottom of an Internal Floating Roof Tank.
- (26) LIQUID MOUNTED PRIMARY SEAL is a Primary Seal that is mounted in full contact with the liquid in the annular space between the Tank shell and the floating roof.
- (27) MECHANICAL SHOE PRIMARY SEAL is a metallic band attached to the floating roof sliding in contact with the Tank shell. The shoes are supported and held against the Tank shell by a mechanical device, and are joined together to form a ring. The vapor space between the shoe and the roof is sealed from the atmosphere by a Primary Seal of coated or VOC impervious fabric.
- (28) OPTICAL GAS IMAGING DEVICE is an infrared camera with a detector capable of visualizing gases in the 3.2-3.4 micrometer waveband.
- (929) ORGANIC LIQUID is any liquid containing VOC.
- (30) POLE FLOAT is a device located inside a Guidepole that floats on the surface of the stored liquid, and is used to indicate the liquid level inside the Tank.
- (31) POLE SLEEVE is a device that extends from either the cover or the rim of an opening in a floating roof deck to the outer surface of a pole that passes through the opening.

- (32) POLE WIPER is a Seal that extends from either the cover or the rim of an opening in a floating roof deck to the outer surface of a pole that passes through the opening.
- (4033) POTENTIAL FOR VOC EMISSIONS means emissions calculated using a generally accepted model or calculation methodology, based on permitted throughput limits or, when permitted throughput limits are not available, based on the maximum throughput in a calendar month, where at least 30-days of production occurred, in years 2019 to 2022.
- (4434) PRESSURE RELIEF VALVE (PRV) is a valve which is automatically actuated by upstream static pressure, and used for safety or emergency purposes.
- (c) (35) PRIMARY SEAL is a Seal mounted below a Secondary Seal of a Rim Seal System that consists of two Seals. A Primary Seal, which is in contact with the floating roof Tank shell, can be either Mechanical Shoe, Resilient Filled, or a Seal with multiple wipers, drip curtain and weight.
- (36) PRODUCT CHANGE is the process of changing the Tank contents from one Organic Liquid to another Organic Liquid that has different characteristics i.e. vapor pressure, viscosity, etc.
- (37) RESILIENT FILLED PRIMARY SEAL is an envelope filled with resilient foam (non-metallic polyurethane) mounted at the rim of the floating roof that makes contact with the shell.
- (38) RIM MOUNTED SECONDARY SEAL is a Secondary Seal mounted on the rim of the floating roof of a Storage Tank. Rim Mounted Secondary Seals are effective at reducing losses from the Primary Seal fabric.
- (39) RIM SEAL SYSTEM is a closure device between the shell of the Storage Tank and the floating roof edge. A Rim Seal System may consist of two Seals, one above the other. The lower Seal is referred to as the Primary Seal and the upper Seal is referred to as the Secondary Seal.
- (40) RIM VENT is a device consisting of a weighted pallet that rests on a valve seat. Rim Vents are used to release any excess pressure or vacuum present in the vapor pocket between the Seal and the rim area of a floating roof Tank.
- (41) ROOF DRAIN is a drain on the roof of a floating roof Tank that is used to remove rainwater from the floating roof. There are two types of Roof Drains. A closed Roof Drain removes the rainwater from the surface of the roof through a flexible hose through the stored liquid prior to exiting the

Tank. With a closed Roof Drain, the rainwater does not come in contact with the liquid stored in the Tank. An open Roof Drain is any drain other than the closed Roof Drain. An open Roof Drain is typically used only during an emergency.

(42) ROOF LEG is a device that holds the floating roof at a predetermined distance from the Tank bottom to allow for Tank Cleaning or repair. There are two types of Roof Legs, adjustable or fixed. Fixed legs are attached to the floating roof or hangers suspended from the roof, whereas adjustable legs pass through a well or sleeve, and penetrate the roof.

(c)

(43) ROOF OPENING is any opening through a floating roof of a Storage Tank for any roof fitting including but not limited to Access Hatch, Fixed Roof Support Column And Well, Gauge Float, Gauge Hatch, Sample Port, Guidepole, Ladder And Well, Rim Vent, Roof Drain, Roof Leg, and Vacuum Breaker, and excluding Rim Seal System.

(1244) SEAL is a closure device between the Tank wall and the floating roof edge that controls emissions of VOCs. Approved floating roof Tank sSeals are categorized as follows:

(A) Category "A" sSeals are sSeals approved by the Executive Officer as most effective in the control of VOCs and are deemed Best Available Control Technology (BACT) according to the criteria set forth in Attachment A - "Floating Roof Tank Seal Categories."

(B) Category "B" sSeals are sSeals approved by the Executive Officer that are considered more effective than Category "C" sSeals based on the criteria set forth in Attachment A - "Floating Roof Tank Seal Categories."

(C) Category "C" sSeals are sSeals approved by the Executive Officer which are currently in service but are considered least effective in the control of VOCs.

(45) SECONDARY SEAL is a Seal mounted above the Primary Seal of a Rim Seal System that consists of two Seals.

(46) SLOTTED GUIDEPOLE is a Guidepole that has slots or holes through the wall of the Guidepole. The slots or holes allow the stored liquid to flow into the pole at liquid levels above the lowest operating level.

(13) ~~TANK is any stationary reservoir or any other stationary container used for storage of an organic liquid primarily constructed of non earthen materials.~~

- (47) STORAGE TANK or TANK is a stationary container primarily constructed of non-earthen materials that meets the applicability criteria of this rule.
- (48) TANK FARM INSPECTION is monitoring for Visible Vapors with a handheld Optical Gas Imaging Device of all applicable Storage Tanks at a Facility where the person conducting the inspection views the top of the Tank shell, and fixed roof or dome if applicable. Tank Farm Inspections may be conducted from an elevated position and/or from ground level.
- (49) TRUE VAPOR PRESSURE is the vapor pressure of a liquid at Actual Storage Conditions.
- (c) (50) VACUUM BREAKER is a device used to equalize the pressure of the vapor space across the deck as the floating roof is either being landed on or floated off its legs. A Vacuum Breaker consists of a well with a cover. Attached to the underside of the cover is a guided leg long enough to contact the Tank bottom as the floating roof is being landed. When in contact with the Tank bottom, the guided leg mechanically lifts the cover off the well.
- (451) VAPOR TIGHT is a condition that exists when the reading on a portable hydrocarbon meter is less than 500 parts per million (ppm), expressed as methane, above background.
- (52) VISIBLE GAP is a gap of more than 1/8 inch between any gasket or Seal and the opening that it is intended to control. Visible Gap for Primary and Secondary Seals is a gap that does not meet the requirements specified in subdivision (d).
- (53) VISIBLE VAPORS are any VOC vapors detected with an Optical Gas Imaging Device, when operated and maintained in accordance with manufacturer training or certification, or equivalent California Air Resources Board (CARB) training, user manuals, specifications, and recommendations.
- (454) VOLATILE ORGANIC COMPOUND (VOC) is as defined in Rule 102.
- (55) WASTE STREAM TANK is a Storage Tank containing at least 75% water by volume, and some liquid waste stream generated in a manner which contains petroleum liquid, emulsified oil, VOC or other hydrocarbons. For the purpose of this rule, Waste Stream Tanks include waste water Tanks and recovered oil (or slop oil) Tanks.

(~~465~~6) WORKING DAY is Monday through Friday and includes holidays that fall on any of the days Monday through Friday.

(~~ed~~) Tank Roof Requirements

No person shall place, store or hold in any ~~£~~Tank with a capacity of 150,000 liters (39,630 gallons) or greater, any ~~ø~~Organic ~~H~~Liquid having a ~~£~~True ~~¥~~Vapor ~~p~~Pressure of 25.8 mm Hg (0.5 psi) absolute or greater under a ~~a~~Actual ~~s~~Storage ~~e~~Conditions, in any ~~£~~Tank of more than 75,000 liters (19,815 gallons) capacity, any ~~ø~~Organic ~~H~~Liquid having a ~~£~~True ~~¥~~Vapor ~~p~~Pressure of 77.5 mm Hg (1.5 psi) absolute or greater under a ~~a~~Actual ~~s~~Storage ~~e~~Conditions, or any ~~£~~Tank with a Potential For VOC Emissions of 6 tons per year or greater used in Crude Oil And Natural Gas Production Operations, unless such ~~£~~Tank is a pressure ~~£~~Tank maintaining working pressures sufficient at all times to prevent organic vapor loss to the atmosphere, or is designed and equipped with one of the following vapor control devices, or other vapor control device that has been determined to be equivalent after review by ~~the staffs of the District~~South Coast AQMD, the Air Resources Board (ARB)~~CARB~~, and the United States Environmental Protection Agency (U.S. EPA), and approved in writing by the ~~District~~ Executive Officer, ~~ARB~~CARB, and U.S. EPA, which is properly installed and continuously maintained in good operating condition:

(1) External Floating Roof

An external floating roof shall consist of a pontoon-type or double deck-type cover that continuously rests on the surface of the ~~ø~~Organic ~~H~~Liquid and is equipped with a closure device between the ~~£~~Tank shell and roof edge. The closure device shall consist of two ~~s~~Seals, with one ~~s~~Seal placed above the other. The ~~s~~Seal below shall be designated as the ~~p~~Primary ~~s~~Seal, and the ~~s~~Seal above shall be designated as the ~~s~~Secondary ~~s~~Seal. An owner or operator shall not install or use A-a sSeal which is not identified on the current list of sSeals approved by the Executive Officer shall not be installed or used unless the Executive Officer determines that such sSeal meets the applicable criteria of subparagraphs (ed)(1)(A) through (ed)(1)(C). The owner or operator of an External Floating Roof Tank shall equip the tank with a Rim Seal System meeting the following requirements:

- (ed) (A) A closure device on a welded or a riveted ~~€~~Tank shell which uses a ~~metallic shoe type seal as its primary seal~~ Mechanical Shoe Primary Seal shall comply with the following requirements:
- (i) Gaps between the ~~€~~Tank shell and the ~~p~~Primary ~~s~~Seal shall not exceed 1.3 centimeters (1/2 inch) for a cumulative length of 30 percent of the circumference of the ~~€~~Tank, and 0.32 centimeter (1/8 inch) for 60 percent of the circumference of the ~~€~~Tank. No gap between the ~~€~~Tank shell and the ~~P~~Primary ~~s~~Seal shall exceed 3.8 centimeters (1-1/2 inches). No continuous gap between the ~~€~~Tank shell and the ~~p~~Primary ~~s~~Seal greater than 0.32 centimeter (1/8 inch) shall exceed 10 percent of the circumference of the ~~€~~Tank.
 - (ii) Gaps between the ~~€~~Tank shell and the ~~s~~Secondary ~~s~~Seal shall not exceed 0.32 centimeter (1/8 inch) for a cumulative length of 95 percent of the circumference of the ~~€~~Tank. No gap between the ~~€~~Tank shell and the ~~s~~Secondary ~~s~~Seal shall exceed 1.3 centimeters (1/2 inch).
 - (ed) (iii) ~~Metallic shoe type seals~~ Mechanical Shoe Primary Seals installed on or after August 1, 1977 shall be installed so that one end of the shoe extends into the stored ~~ø~~Organic ~~H~~Liquid and the other end extends a minimum vertical distance of 61 centimeters (24 inches) above the stored ~~ø~~Organic ~~H~~Liquid surface.
 - (iv) The geometry of the shoe shall be such that the maximum gap between the shoe and the ~~€~~Tank shell is no greater than double the gap allowed by the ~~s~~Seal gap criteria specified in clause (ed)(1)(A)(i) for a length of at least 46 centimeters (18 inches) in the vertical plane above the liquid surface.
 - (v) Primary and Secondary Seals for Tanks subject to U.S. EPA CFR 40 Part 60 Subpart Kb must meet the Seal gap requirements specified in U.S. EPA CFR 40 Part 60 Subpart Kb.
- (B) A closure device which uses a resilient toroid-type ~~s~~Seal as its ~~p~~Primary ~~s~~Seal shall comply with the applicable requirements of subparagraph (ed)(1)(A).

(C) The ~~p~~PPrimary and ~~s~~SSecondary ~~s~~SSeals shall comply with the following requirements:

(i) The ~~p~~PPrimary ~~s~~SSeal envelope shall be made available for unobstructed inspection by the Executive Officer along its circumference. In the case of riveted ~~t~~Tanks with resilient toroid-type seals, at least eight such locations shall be made available; for all other types of ~~s~~SSeals, at least four such locations shall be made available. If the Executive Officer deems it necessary, further unobstructed inspection of the ~~p~~PPrimary ~~s~~SSeal may be required to determine the ~~s~~SSeal's condition along its entire circumference.

(ii) The ~~s~~SSecondary ~~s~~SSeal shall be installed in a way that permits the Executive Officer to insert probes up to 3.8 centimeters (1-1/2 inches) in width to measure gaps in the ~~p~~PPrimary ~~s~~SSeal.

(iii) The ~~s~~SSecondary ~~s~~SSeal shall extend from the roof to the ~~t~~Tank shell and shall not be attached to the ~~p~~PPrimary ~~s~~SSeal.

(d)

(iv) Notwithstanding the ~~s~~SSecondary and the ~~p~~PPrimary ~~s~~SSeal requirements of paragraph ~~(ed)~~(1), a secondary or ~~p~~PPrimary ~~s~~SSeal may be loosened or removed for preventive maintenance, inspection or repair for a period not exceeding 72 hours with prior notification to the Executive Officer.

(D) ~~The owner or operator shall ensure that All-all openings in the roof~~ Roof Openings except pressure-vacuum valves, ~~shall provide a~~ projection below the liquid surface to prevent belching, escape, or entrainment of ~~e~~Organic ~~l~~Liquid, and shall be equipped with a cover, ~~s~~SSeal or lid. The cover, ~~s~~SSeal, or lid shall at all times be in a closed position, with no ~~v~~Visible ~~g~~Gaps, and maintained in a Vapor Tight condition except when the device or appurtenance is in use. Pressure vacuum valves shall be set to within 10 percent of the maximum allowable working pressure of the roof.

(E) ~~The owner or operator shall ensure that There there shall be~~ no holes, tears or openings in the ~~s~~SSecondary ~~s~~SSeal or in the ~~p~~PPrimary ~~s~~SSeal envelope surrounding the annular vapor space enclosed by the roof edge, ~~s~~SSeal fabric, and ~~s~~SSecondary ~~s~~SSeal.

(F) The owner or operator shall equip ~~Any~~ any emergency ~~Roof~~ ~~d~~Drain shall be provided with a slotted membrane fabric cover, or equivalent device, that covers at least nine-tenths (9/10) of the area of the opening.

(G) Tank Condition Requirements

The owner or operator shall maintain the Tank in a condition free of Visible Vapors resulting from a defect in equipment.

(i) In the event that Visible Vapors are detected and an owner or operator states the Tank is in compliance with the provisions in paragraphs (d)(1), (d)(2), (d)(3), or (d)(4), the owner or operator must demonstrate that the Visible Vapors are not the result of a defect in the equipment.

(H) Doming Requirements

Beginning three years after [Date of Adoption] the owner or operator shall install a Domed Roof on External Floating Roof Tanks used to store Organic Liquid with a True Vapor Pressure of 3 psia or greater as demonstrated pursuant to subparagraph (d)(1)(I) at the time of the next internal API 653 inspection or the next time the Tank is cleaned and degassed, whichever is sooner. The owner or operator shall install domes no later than twenty-three years after a test specified in subparagraph (d)(1)(I) verifies that the Organic Liquid stored has a True Vapor Pressure of 3 psia or greater.

(I) Verification of True Vapor Pressure

Effective January 1, 2025, an owner or operator of an External Floating Roof Tank shall demonstrate the True Vapor Pressure of the Organic Liquid stored using an initial test completed by July 1, 2025, with one representative sample. External Floating Roof Tanks storing Organic Liquids with True Vapor Pressure below 3 psia shall conduct subsequent tests at least once every six calendar months pursuant to the requirements of subdivision (i).

(i) In lieu of the semi-annual subsequent TVP tests specified in subparagraph (d)(1)(I), an owner or operator may elect to conduct monthly TVP tests beginning January 2025 and calculate an average every six months.

- (ed) (J) In lieu of complying with the requirements in subparagraph (d)(1)(H), the owner or operator of a waste water Tank where the conversion to a Domed External Floating Roof Tank may create a hazard due to the accumulation of pyrophoric material, as confirmed by the Executive Officer, shall accept permit conditions to limit the True Vapor Pressure of the Organic Liquid stored in a Tank to less than 3 psia.
- (2) Internal Floating-Type Cover
An owner or operator of A-a fFixed rRoof tTank equipped with an internal floating-type cover shall comply with the following requirements:
- (A) ~~A fixed roof tank with an existing internal floating type cover approved by the Executive Officer on or before June 1, 1984, shall comply with the requirements applicable at the time such approval was given.~~
- (d) (BA) A fFixed rRoof tTank which has an internal floating-type cover installed, modified, or replaced after June 1, 1984, shall have a closure device which consists of either a single HLiquid mMounted pPrimary sSeal or a primary and a sSecondary sSeal. All Roof oOpenings and fittings shall be fully gasketed and maintained in a Vapor Tight condition or controlled in a manner specified by the Executive Officer, except for when in operation or opened for access. The closure device shall control vapor loss with an effectiveness equivalent to a closure device which meets the requirements of subparagraph (ed)(1)(A), with the exception of a Mechanical Shoe Primary Seal which shall have one end extend a minimum vertical distance of 15 centimeters (6 inches) above the liquid surface and the other end extend into the liquid a minimum of 10 centimeters (4 inches). Seal designs not identified on the current list of sSeals approved by the Executive Officer shall not be installed or used unless the Executive Officer has given histheir prior written approval to its installation or use. For purposes of this paragraph, modification includes an identical replacement.
- (d) (CB) The concentration of organic vapor in the vapor space above the internal floating-type cover shall not exceed 50 percent of its lower explosive limit (LEL) for those installed prior to June 1, 1984 and

30 percent of its LEL for those installed after June 1, 1984. Compliance shall be verified by the use of an explosimeter.

(C) The owner or operator shall comply with the requirements of subparagraph (d)(1)(G).

(D) Beginning two years after [Date of Adoption], the owner or operator shall comply with the Primary and Secondary Seal requirements for Internal Floating Roof Tanks specified in subparagraph (d)(2)(A) at the time of the next internal API 653 inspection or the next time the Tank is cleaned and degassed, whichever is sooner. The owner or operator shall install Secondary Seals no later than twenty-two years after [Date of Adoption].

(3) ~~Vapor Recovery System~~ Fixed Roof Tanks

An owner or operator of A-a fFixed rRoof tTank not using an internal floating-type cover shall be equippedequip the Tank with a vapor recovery system shall complythat complies with the following requirements:

(A) Any tTank gauging or sampling device on a tTank vented to the vapor recovery system shall be equipped with a-vapor-tight cover maintained in Vapor Tight condition which shall be closed at all times except during gauging or sampling. The roof of such tTank shall be properly maintained in a vVapor tTight condition with no holes, tears or uncovered openings.

(B) All piping, valves and fittings shall be constructed and maintained in a vVapor- tTight condition, in accordance with requirements of other DistrictSouth Coast AQMD rules for such equipment.

(ed)

(C) For purposes of this paragraphFixed Roof Tanks, the efficiency of a vapor recovery system shall be determined by making a comparison of controlled emissions to those emissions which would occur from a fixed cone roof tTank holding the same oOrganic lLiquid without a vapor control or vapor recovery system. The vapor recovery system shall have an efficiency of at least 9598 percent by weight, or vent tTank emissions to a fFuel gGas sSystem.

(D) The owner or operator shall comply with the requirements of subparagraph (d)(1)(G).

(4) Domed External Floating Roof Tanks

The owner or operator of a Domed External Floating Roof Tank shall:

- (A) Equip and maintain all Roof Openings and Rim Seal Systems and in accordance with the specifications listed in paragraph (d)(1), except for Slotted Guidepoles. Each Slotted Guidepole shall be equipped with the following combination of Components:
 - (i) A gasketed cover, a Pole Wiper, a Pole Float with a wiper or Seal; or
 - (ii) A gasketed cover, a Pole Wiper, and a Pole Sleeve that shall be extended into the stored liquid; or
 - (iii) A gasketed cover, a Pole Wiper, and a flexible enclosure system.
- (B) Ensure that the concentration of organic vapor in the vapor space above the floating roof does not exceed 30 percent of its lower explosive limit (LEL).
- (C) Comply with the requirements of subparagraph (d)(1)(G).
- (D) Maintain the Domed Roof in a condition that is free of gaps, cracks, punctures, and other openings, except where vents and access points are located.

(~~d~~e) Other Performance Requirements

- (1) ~~A person~~ An owner or operator shall not place, store or hold ~~g~~Gasoline in any ~~t~~Tank, with a capacity of between 950 liters (251 gallons) and 75,000 liters (19,815 gallons) unless such ~~t~~Tank is equipped with a pressure-vacuum valve which is set to within 10 percent of the maximum allowable working pressure of the container, or is equipped with a vapor loss control device which complies with the requirements set forth in subdivision (~~e~~d).**
- (2) An owner or operator shall float ~~The the~~ roof of any ~~i~~Internal or ~~e~~External ~~f~~Floating ~~r~~Roof ~~t~~Tank ~~shall float~~ on the ~~o~~Organic ~~l~~Liquid at all times (i.e., free of the ~~r~~Roof ~~l~~Leg supports) except when the ~~t~~Tank is being completely emptied for ~~e~~Cleaning, ~~or~~ repair, or during a Product Change. The process of emptying or refilling, when the roof is resting on leg supports, shall be continuous.**
- (3) If a ~~t~~Tank has been gas-freed and is to be refilled with ~~g~~Gasoline, the ~~owner or operator~~ roof shall be refloated ~~refloat the roof~~ with water or by an equivalent procedure approved by the Executive Officer. Paragraphs**

- (e) ~~(d)~~(2) and ~~(d)~~(3) shall be inapplicable to ~~g~~Gasoline ~~s~~Storage ~~t~~Tanks at bulk ~~g~~Gasoline distribution terminals which do not have:
- (A) existing facilities for treatment of waste water used to refloat the ~~t~~Tank roof; or
 - (B) facilities for equivalent emission control when refloating the roof with ~~o~~Organic ~~l~~Liquid.
- (4) An owner or operator shall not use A-a fFixed rRoof tTank with an internal floating-type cover or a tTank with an external floating roof cover shall not be used for storing oOrganic lLiquids having a tTrue vVapor pPressure of 11 psia (569 mm Hg) or greater under aActual sStorage eConditions.
- (5) The owner or operator shall not replace Replacement of a sSeal on a floating roof tTank shall be allowed only ifunless the replacement sSeal is chosen from the current list of sSeals approved by the Executive Officer. Category "A" sSeals shall be replaced only by Category "A" sSeals. Category "B" sSeals shall be replaced only by Category "A" or Category "B" sSeals. Category "C" sSeals shall be replaced only by Category "A" or Category "B" sSeals. Seal designs not identified on the current list of Seals approved by the Executive Officer shall not be installed or used unless the Executive Officer has given their prior written approval to its installation or use.
- (6) ~~Organic liquids listed on the addendum to this rule shall be deemed to be in compliance with~~The addendum to this rule can be used as a guide for compliance with the appropriate vapor pressure limits for the ~~t~~Tank in which ~~it~~the corresponding Organic Liquid is stored provided the actual storage temperature does not exceed the corresponding maximum temperature listed.

(e) ~~f~~ Self Inspection of Floating Roof Tanks Monitoring Requirements

Any owner or operator of a floating roof ~~t~~Tank(s) shall conduct self-inspections of its ~~t~~Tank(s) according to the following procedures:

- (1) Inspection and Maintenance Plan
 - (A) Each owner or operator shall maintain a current or revised Inspection and Maintenance Plan approved by the Executive Officer. Each owner or operator constructing floating roof ~~t~~Tank(s) subject to this rule shall submit an Inspection and

(f) Maintenance Plan, or a revision of its current Inspection and Maintenance Plan, to the Executive Officer prior to the completion of construction. The Inspection and Maintenance Plan shall include an inventory of floating roof ~~t~~Tanks subject to this rule, the proposed self-inspection schedule, the number of ~~e~~Certified ~~p~~Persons to be dedicated to the program, any self-inspection procedures proposed in addition to those required by the ~~District~~South Coast AQMD, and a copy of the owner or operator's safety procedures used for floating roof ~~t~~Tanks. The ~~t~~Tank inventory shall include ~~t~~Tank identification number, maximum design capacity, product, shell type, dimensions, ~~s~~Seal type and manufacturer, floating roof type, date of construction and location.

(2) Identification Requirements

(A) All floating roof ~~t~~Tanks subject to this rule shall be clearly and visibly identified by a sign on the outside wall for inventory, inspection and recordkeeping purposes.

(B) Any change(s) in floating roof ~~t~~Tank identification shall require prior written approval by the Executive Officer.

(3) Owner or Operator Inspection Requirements

(A) All floating roof ~~t~~Tanks subject to this rule shall be inspected by a ~~e~~Certified ~~p~~Person twice per year at 4 to 8 months intervals according to the procedures and guidelines set forth in Attachment B - "Inspection Procedures and Compliance Report Form."

(B) The ~~p~~Primary and ~~s~~Secondary ~~s~~Seals shall be inspected by a ~~e~~Certified ~~p~~Person each time a floating roof ~~t~~Tank is emptied and degassed. Gap measurements shall be performed on an ~~e~~External ~~F~~floating ~~r~~Roof ~~T~~tank when the liquid surface is still but not more than ~~24~~48 hours after the ~~t~~Tank roof is refloated.

(C) The Executive Officer shall be notified electronically in writing to the Executive Officer via Rule463ComplianceReports@aqmd.gov at least ~~2 weeks~~2 days prior to the start of any tank-emptying or roof-refloating operation for planned maintenance of a ~~t~~Tank.

(D) Optical Gas Imaging Inspections

Effective July 1, 2025, the owner or operator shall demonstrate compliance with subparagraphs (d)(1)(G), (d)(2)(C), (d)(3)(D) and (d)(4)(C) for Tanks with a capacity greater than 75,000 liters

- (f) (19,815 gallons) storing Organic Liquid with a True Vapor Pressure of 1.5 psi or greater, Tanks with a capacity of 150,000 liters (39,630 gallons) and above storing Organic Liquid with a True Vapor Pressure of 0.5 psi or greater, Tanks with a capacity of 950 liters (251 gallons) to 75,000 liters (19,815 gallons) used to store Gasoline, and any Tank with a Potential For VOC Emissions of 6 tons per year or greater used in Crude Oil And Natural Gas Production Operations by conducting OGI inspections in accordance with the following requirements:
- (i) The person conducting an OGI inspection shall:
 - (A) Complete a manufacturer's certification or training program, or equivalent CARB training for the OGI Device used to conduct the inspection; and
 - (B) Operate and maintain the OGI Device in accordance with the manufacturer's specifications and recommendations.
 - (ii) Tank Farm Inspections

A person meeting the requirements of clause (f)(3)(D)(i) shall:

 - (A) Conduct a Tank Farm Inspection at least once every two calendar weeks; and
 - (B) When Visible Vapors are detected from a Tank, conduct an inspection from the Tank's platform or a vantage point capable of seeing the top of the tank roof if there is no platform available to identify Components and/or equipment emitting Visible Vapors.
 - (1) If determined that Visible Vapors are emitted from Components required to be maintained in a Vapor Tight condition or in a condition with no Visible Gaps, the owner or operator shall make necessary repairs or adjustments pursuant to paragraph (f)(4), or demonstrate compliance with a Vapor Tight condition or a condition with no Visible

(hf)

Gaps for the Component from which Visible Vapors are emitted within 3 days.

- (2) If determined that Visible Vapors are emitted from equipment not specified in item (f)(3)(D)(ii)(B)(1), a visual inspection for defects in equipment shall be conducted, which may include the use of the OGI Device. The owner or operator shall make necessary repairs or adjustments pursuant to paragraph (f)(4) for any defects identified.

(iii) Component Inspections

A person that meets the requirements of clause (f)(3)(D)(i) shall:

- (A) Conduct a Component Inspection for each floating roof Tank at least twice per year at 4 to 8 month intervals; and
- (B) When Visible Vapors are detected, and are not emitted from the Rim Seal System, the owner or operator shall make any necessary repairs or adjustments pursuant to paragraph (f)(4), or demonstrate compliance with the applicable rule requirements for the Components or equipment from which Visible Vapors are detected within 3 days; and
- (C) When the Visible Vapors are detected from the Rim Seal System, the owner or operator shall identify any defects in the equipment and make any necessary repairs or adjustments pursuant to paragraph (f)(4). If no defects are identified, an inspection from ground level shall be conducted. If Visible Vapors are detected at the top of the Tank shell or roof vents, the owner or operator shall demonstrate compliance with the Rim Seal requirements of this rule, or make any necessary repairs, within 3 days.

(f)

(E) In lieu of the required OGI inspections specified in subparagraph (f)(3)(D), an owner or operator may elect to use an alternative monitoring method approved in writing by the U.S. EPA that is equivalent or more stringent than the monitoring requirements specified in subparagraph (f)(3)(D).

(i) An owner or operator seeking to use the alternative monitoring method specified in subparagraph (f)(3)(E) shall submit written documentation of the U.S. EPA approved method to the South Coast AQMD for approval.

(4) Maintenance Requirements

Any ~~floating-roof~~ tank which does not comply with any provision of this rule shall be brought into compliance within 72 hours of the determination of non-compliance.

(5) Vapor Recovery Systems

No later than one year after [Date of Adoption], the owner or operator of a Facility who operates a vapor recovery system to comply with the requirements in subparagraph (d)(3)(C) shall conduct an initial performance test to determine the overall efficiency of the vapor recovery system. The performance testing of the vapor recovery system shall be repeated when the system is modified or an operating parameter is changed in a manner that affects the capture or control efficiency. In such case, the performance test shall be within 180 days after the modification. Subsequent to the initial performance test, the operator shall conduct a performance test at least once every ten years, and shall monitor and record applicable operating parameters on a weekly basis to ensure that the vapor recovery system is achieving 98% overall control efficiency.

(fg) Reporting and Recordkeeping Requirements

(1) The following shall apply to an owner or operator activities ~~subject to the provisions of subdivision (ef):~~

(A) All inspections shall be recorded on compliance inspection report forms approved by the Executive Officer as described in Attachment B - "Inspection Procedures and Compliance Report Form." An owner or operator may use an electronic compliance inspection report form provided that all required information

- (fg) specified in Attachment B is contained in the electronic report form.
- (B) All compliance inspection reports and documents shall be submitted to the Executive Officer either electronically or by hard copy within 5 ~~w~~Working dDays of completion of the self-inspection. Electronic reports shall be submitted to the Executive Officer via Rule463ComplianceReports@aqmd.gov.
- (C) If a ~~t~~Tank is determined to be in violation of the requirements of this rule, a written report shall be submitted electronically to the Executive Officer via Rule463ComplianceReports@aqmd.gov within 120 hours of the determination of non-compliance, indicating corrective actions taken to achieve compliance.
- (D) All records of owner or operator inspection and repair shall be maintained at the ~~f~~Facility for a period of 3 years and shall be made available to the Executive Officer upon request.
- (2) Emissions Reporting
- (A) An owner or operator shall provide emissions information, to the Executive Officer upon request, based on the parameters listed in Attachment C using AQMD's Annual Emissions Reporting Program, ~~or U.S. EPA's most recent version of TANKS 4.0 Program.~~ The requirement shall apply to all ~~o~~Organic ~~H~~Liquid ~~s~~Storage ~~t~~Tanks without regard to exemptions specified in subdivision (gh).
- (B) An owner or operator shall provide all upset emissions information associated with ~~p~~Product ~~e~~Change, repair, and turnover or any other excess emission incidents.
- (C) An owner or operator shall maintain records of emissions data for all ~~o~~Organic ~~H~~Liquid ~~s~~Storage ~~t~~Tanks for the most recent two (2) year period.
- (3) ~~A person~~An owner or operator whose t~~Tanks are subject to this rule~~ shall keep an accurate record of liquids stored in such containers, the vapor pressure ranges, the API gravity, the temperature, and the initial boiling points referenced.
- (4) For OGI inspections required by subparagraph (f)(3)(D), the owner or operator shall:

(hg)

- (A) Report Visible Vapors detected during a Tank Farm Inspection requiring a demonstration with rule requirements or a repair pursuant to subclause (f)(3)(D)(ii)(B) to the Executive Officer by phone (1-800-CUT-SMOG or 1- 800-288-7664) within 24 hours after the inspection is completed;
- (B) Keep written records and digital recordings of Visible Vapors detected during a Tank Farm Inspection resulting from a defect or emitted from a Component required to be maintained in a Vapor Tight condition or a condition with no Visible Gaps. Written records shall include Tank identification, date of inspection, and findings. Findings shall include identification of Tanks from which Visible Vapors were identified and any repairs or determinations made pursuant to clause (f)(3)(D)(ii). Digital recordings shall be accurately time-stamped and capture the Visible Vapors for a minimum of 5 seconds; and
- (C) Keep written records of Component Inspections that include Tank identification, date of inspection and findings. Findings shall include identification of Storage Tanks from which Visible Vapors were identified, any repairs or determinations made pursuant to clause (f)(3)(D)(iii).
- (5) An owner or operator shall keep records of all True Vapor Pressure results from tests specified in subparagraph (d)(1)(I) for the most recent 20 year period and records shall be made available to the Executive Officer upon request.
- (6) An owner or operator shall report any tests specified in subparagraph (d)(1)(I) that result in a True Vapor Pressure of 3.0 psia or greater to the Executive Officer via Rule463ComplianceReports@aqmd.gov within 14 days. The report shall include the year of the next internal API 653 inspection and the next planned tank cleaning and degassing.
- (7) The owner or operator of a vapor recovery system shall submit all performance test reports to the Executive Officer via Rule463ComplianceReports@aqmd.gov no later than 60 days after conducting the test.

(gh) Exemptions

- (1) The provisions of this rule shall not apply to the following ~~¶~~Tanks, unless the ~~¶~~Tank has a Potential For VOC Emissions of 6 tons per year or greater and is used in Crude Oil And Natural Gas Production Operations, provided the ~~person-owner or operator~~ seeking the exemption supplies proof of the applicable criteria sufficient to satisfy the Executive Officer:

(h)

- (A) Oil production ~~¶~~Tanks with a capacity of between 75,000 liters (19,815 gallons) and 159,000 liters (42,008 gallons) which have a ~~properly maintained vapor tight-roof~~ maintained in a Vapor Tight condition and are equipped with a pressure-vacuum valve which is set within 10 percent of the maximum allowable working pressure of the ~~¶~~Tank, are exempt from the control requirements of this rule when:

- (i) The ~~o~~Organic ~~H~~Liquid contents fail to comply with subdivision (ed) only when heated for shipment, and such heating occurs for not more than 48 hours and not more than once in any 20-day period; or
- (ii) The ~~¶~~Tank has a monthly average throughput of not more than 30 barrels of oil per day and was constructed prior to June 1, 1984.

- (B) Tanks being brought into compliance within the time period specified in paragraph (ef)(4).

- (2) The provisions of paragraph (de)(2) shall not apply to ~~d~~Drain-~~d~~Dry ~~b~~Breakout ~~¶~~Tanks that are subject to the provisions of Rule 1149 - Storage Tank And Pipeline Cleaning And Degassing.

- (3) The provisions of this rule shall not apply to Storage Tanks that are subject to Rule 1178, except for subdivision (e) and paragraphs (c)(36) and (c)(44).

- (4) Any tank that is out of service, where the tank has been emptied or has been opened to the atmosphere pursuant to the requirements of Rule 1149, shall be exempt from the requirements of subparagraphs (f)(3)(D) and (f)(3)(E) until the tank is refilled.

- (5) An owner or operator shall be exempt from the requirements of clause (f)(3)(D)(iii) if a determination is made that it is unsafe to conduct an inspection from a Tank platform or vantage point capable of seeing the Tank roof, provided that the reason(s) and date(s) the inspection was not

conducted is documented. The inspections shall resume on the first day determined to be safe.

(h) Test Methods

The following test methods and procedures shall be used to determine compliance with this rule. Other test methods determined to be equivalent after review by ~~the staffs of the District~~South Coast AQMD, the Air Resources Board~~CARB~~, and the U.S. EPA, and approved in writing by the ~~District~~Executive Officer may also be used.

- (i)**
- (1) Efficiency of a vapor recovery system specified in subparagraph ~~(e)~~(3)~~(C)~~ shall be determined according to ~~SC~~South Coast AQMD Method 501.1 for the determination of total organic compound emissions. EPA Reference Methods 25 or 25A may be used, as applicable, in place of ~~SC~~South Coast AQMD Method 25.1 specified in Method 501.1. An efficiency determined to be less than established by this rule through the use of any of the above-referenced test methods shall constitute a violation of the rule. Baseline emissions shall be calculated by using the criteria outlined in American Petroleum Institute Bulletin 2518.
 - (2) Exempt compounds shall be determined according to ~~SC~~South Coast AQMD Method 303. For the purpose of testing the efficiency of a vapor recovery system, ~~e~~Exempt e~~Compounds~~ shall be determined according to EPA Reference Method 18 or ~~ARB~~Air Resources Board Method 422. Any test method(s) for ~~e~~Exempt e~~Compounds~~ which cannot be identified through these referenced test methods shall be specified by the owner or operator seeking an exemption and shall be subject to approval in accordance with the procedures set forth above in this subdivision.
 - (3) The Reid vapor pressure specified in paragraph ~~(b)~~(6)~~(18)~~ and the Reid vapor pressure used in determining the ~~t~~True ~~v~~Vapor ~~p~~Pressure limit specified in paragraph ~~(d)~~(4) and subparagraph ~~(d)~~(1)~~(I)~~ shall be determined according to the following test methods and converted to True Vapor Pressure using applicable nomographs in U.S. EPA AP-42, or nomographs approved by the Executive Officer and U.S. EPA:
 - (A) ASTM D-323-82 —Vapor Pressure of Petroleum Products (Reid Method);
 - (B) ASTM D-6377 Standard Test Method for Determination of Vapor Pressure of Crude Oil: VPCRx (Expansion Method);

(C) ASTM D-6378 Standard Test Method for Determination of Vapor Pressure (VPX) of Petroleum Products, Hydrocarbons, and Hydrocarbon-Oxygenate Mixtures (Triple Expansion Method); or

(D) California Code of Regulations, Title 13, Section 2297.5, and converted to tTrue vVapor pPressure using applicable nomographs in U.S. EPA AP-42, Fifth Edition, Volume 1, Chapter 7, or nomographs approved by the Executive Officer and U.S. EPA.

(4) Notwithstanding the provisions of paragraph (h)(3), if a permit condition or ~~Distriet~~South Coast AQMD rule requires a demonstration of tTrue vVapor pPressure of less than 5 mm Hg (0.1 psi) absolute, either of the following test methods may be used:

(i)

(A) Organic liquids that are stored at aAmbient tTemperatures with a tTrue vVapor pPressure of greater than 5 mm Hg (0.1 psi) absolute under aActual sStorage eConditions shall be determined as those with a flash point of less than 100 °F as determined by ASTM Method D-93 – 10a - Flash Point by Pensky-Martens Closed Cup Tester.

(B) Organic liquids that are stored at above aAmbient tTemperatures with a tTrue vVapor pPressure greater than 5 mm Hg (0.1 psi) absolute under aActual sStorage eConditions shall be determined as those whose volume percent evaporated is greater than ten percent at an adjusted temperature T_{Adj} as determined by ASTM Method D-86 – 11a - Distillation of Petroleum Products at Atmospheric Pressure of:

$$T_{Adj} = 300\text{ }^{\circ}\text{F} + T_1 - T_a$$

Where:

T_1 = Liquid Storage Temperature (°F)

T_a = Ambient Temperature (°F) = 70 °F

(5) Notwithstanding the provisions of paragraph (h)(3), the tTrue vVapor pPressure of crude oils and distillates shall be determined, at aActual sStorage eConditions, by converting Reid vapor pressure using the appropriate API nomograph found in U.S. EPA AP-42, ~~Fifth Edition,~~

~~Volume 1, Chapter 7, or API nomograph found in API Publication 2517, Second Edition, February 1980. The $\frac{\text{True Vapor Pressure}}{\text{True Vapor Pressure}}$ of crude oils with an API gravity of 26.0 or less, may be measured using the Lawrence Berkeley National Laboratory "Test Method for Vapor Pressure of Reactive Organic Compounds in Heavy Crude Oil Using Gas Chromatography."~~, May 28, 2002.

- (6) Vapor ~~Tight~~ condition specified in subparagraphs (d)(1)(D), (d)(2)(A), ~~(ed)(3)(A) and (ed)(3)(B)~~, and (h)(1)(A) shall be determined according to U.S. EPA's Reference Method 21 using an appropriate analyzer calibrated with methane.
- (7) API gravity is determined using the following:
 - (A) ASTM D-1298-99e2 Standard Test Method for Density, Relative Density (Specific Gravity), or API Gravity of Crude Petroleum Products by Hydrometer Method; or
 - (B) ASTM D-6822-02 Standard Test Method for Density, Relative Density, and API Gravity of Crude Petroleum and Liquid Petroleum Products by Thermohydrometer Method; or
 - (C) ASTM D-287-92(2000)e1 Standard Test Method for API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method).

(i)

(j) Ozone Contingency Measure

- (1) The applicable contingency measure(s) specified in paragraph (j)(2) shall be implemented upon the issuance of a final determination by U.S. EPA that the South Coast Air Basin has failed to comply with any of the following requirements:
 - (A) meet a Reasonable Further Progress (RFP) requirement in an approved attainment plan for the 2008 or 2015 ozone National Ambient Air Quality Standard (NAAQS); or
 - (B) attain the 2008 or 2015 ozone NAAQS by the applicable date.
- (2) No later than 60 days after the final determination as specified in paragraph (j)(1), any owner or operator of a South Coast Air Basin Tank subject to the requirements of this rule, storing product with a TVP of 5.0 psi or greater pursuant to the requirements of subdivision (i), is required to increase the frequency of inspections specified in subclause (f)(3)(D)(ii)(A) to every calendar week.

- (3) The applicable contingency measure(s) specified in paragraph (j)(4) shall be implemented upon the issuance of a final determination by U.S. EPA that the Coachella Valley has failed to comply with any of the following requirements:
 - (A) meet a RFP requirement in an approved attainment plan for the 1997, 2008, or 2015 ozone NAAQS; or
 - (B) attain the 1997, 2008, or 2015 ozone NAAQS by the applicable date.
- (4) No later than 60 days after the final determination as specified in paragraph (j)(3), any owner or operator of a Coachella Valley Tank subject to the requirements of this rule, storing product with a TVP of 5.0 psi or greater pursuant to the requirements of subdivision (i), is required to increase the frequency of inspections specified in subclause (f)(3)(D)(ii)(A) to every calendar week.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

RULE 463 - ADDENDUM

**Storage Temperatures Versus Actual Vapor Pressure
(Gravity/Initial Boiling Points Referenced)**

	Reference Property A - °API B - IBP, °F		Temperature, °F Not to Exceed Vapor Pressure	
	<u>A</u>	<u>B</u>	<u>0.5 psia</u>	<u>1.5 psia</u>
<u>Organic Liquids</u>				
Crude Oils	12	--	--	--
	13	--	120	180
	14	--	85	145
	16	--	60	107
	18	--	55	93
	20	--	52	84
	22	--	49	77
	24	--	45	73
	26	--	42	70
	28	--	40	67
	30	--	38	64
Middle Distillates				
Kerosene	42.5	350	195	250
Diesel	36.4	372	230	290
Gas Oil	26.2	390	249	310
Stove Oil	23	421	275	340
Jet Fuels				
JP-1	43.1	330	165	230
JP-3	54.7	110	--	25
JP-4	51.5	150	20	68
JP-5	39.6	355	205	260
JP-7	44-50	360	205	260
Fuel Oil				
No. 1	42.5	350	195	250
No. 2	36.4	372	230	290
No. 3	26.2	390	249	310
No. 4	23	421	275	340
No. 5	19.9	560	380	465
No. 6	16.2	625	450	--

RULE 463 - ADDENDUM- (Cont.)

	Reference Property A - °API B - IBP, °F		Temperature, °F Not to Exceed Vapor Pressure	
	<u>A</u>	<u>B</u>	<u>0.5 psia</u>	<u>1.5 psia</u>
<u>Organic Liquids</u>				
Asphalts				
60 - 100 pen.	--	--	490	550
120 - 150 pen.	--	--	450	500
200 - 300 pen.	--	--	360	420
Acetone	47.0	133	--	35
Acrylonitrile	41.8	173	30	60
Benzene	27.7	176	35	70
Carbon Disulfide	10.6	116	--	10
		(lb/gal)		
Carbon Tetrachloride	13.4	170	30	60
Chloroform	12.5	142	--	40
		(lb/gal)		
Cyclohexane	49.7	177	35	70
1,2 Dichloroethane	10.5	180	35	77
		(lb/gal)		
Ethyl Acetate	23.6	171	35	70
Ethyl Alcohol	47.0	173	45	83
Isopropyl Alcohol	47.0	181	45	87
Methyl Alcohol	47.0	148	--	50
Methylene Chloride	11.1	104	--	70
		(lb/gal)		
Methylethyl Ketone	44.3	175	30	70
1,1,1-Trichloroethane	11.2	165	60	100
		(lb/gal)		
Trichloroethylene	12.3	188	50	91
		(lb/gal)		
Toluene	30.0	231	73	115
Vinyl Acetate	19.6	163	--	60

ATTACHMENT A

FLOATING ROOF TANK SEAL CATEGORIES

PRIMARY SEALS

<u>Category A</u>	<u>Category B</u>	<u>Category C</u>
1. Liquid mounted multiple wipers with drip curtain and weight	1. Liquid mounted single wiper with drip curtain and weight	1. Liquid mounted single wiper
2. Liquid mounted mechanical shoe	2. Liquid mounted double foam wipers with vapor curtain	2. Liquid mounted foam log
	3. Vapor mounted primary wiper	3. Liquid mounted foam log with vapor curtain
	4. Vapor mounted E wiper	4. Liquid mounted resilient toroid type liquid filled log
	5. Vapor mounted double wipers	5. Vapor mounted foam log/bag
	6. Vapor mounted double foam wipers	6. Vapor mounted foam wiper
	7. Vapor mounted multiple wipers	

SECONDARY SEALS

<u>Category A</u>	<u>Category B</u>	<u>Category C</u>
1. Multiple wipers	1. Single wiper	1. Liquid mounted wiper
		2. Foam log/bag
		3. Maloney

Criteria used for categorization of floating roof ~~t~~Tank sSeals:

1. Emission control effectiveness design
2. Ability to maintain contact with ~~t~~Tank wall
3. Longevity in service

ATTACHMENT B

INSPECTION PROCEDURES AND COMPLIANCE REPORT FORM

Equipment Needed:

Explosimeter (for ~~i~~Internal ~~f~~Floating ~~r~~Roof ~~t~~Tanks), liquid resistant measuring tape or device, ~~t~~Tank probe (to measure gaps in ~~t~~Tank ~~s~~Seals - 1/8 inch, 1/2 inch, 1-1/2 inch), flashlight.

Inspection Procedures:

1. The findings of all ~~t~~Tank self-inspections, whether completed or not, shall be recorded on the Rule 463 Compliance Report form prescribed by the Executive Officer and submitted to the ~~District's~~South Coast AQMD's Refinery Section in accordance with the rule's requirements. If an inspection is stopped before completion, indicate the reason for this action in the Comments section of the compliance report form.
2. During compliance inspection, the person(s) conducting the inspection must have a copy of the Permit to Operate or Permit to Construct pertinent to the ~~t~~Tank being inspected. Any discrepancies between the permit equipment description and the existing ~~t~~Tank or the permit conditions and the actual operating conditions of the ~~t~~Tank as verified during inspection must be recorded in the Comments section of the compliance report form.
3. Inspect the ground level periphery of each ~~t~~Tank for possible leaks in the ~~t~~Tank shell. Complete the ~~t~~Tank information section (D) on the report.
4. For floating roof ~~t~~Tanks containing ~~e~~Organic ~~l~~Liquid not subject to the provisions of subdivision (~~e~~d) of Rule 463, conduct only steps 1 through 3 of this attachment. For all other floating roof ~~t~~Tanks, conduct steps 5 through 7 as applicable.
5. For ~~e~~External ~~f~~Floating ~~r~~Roof ~~t~~Tanks:
 - o From the platform, conduct an overall visual inspection of the roof and check for obvious permit or rule violations. Record the information as shown under section F of the compliance report form.
 - o During visual inspection of the roof, check for unsealed ~~r~~Roof ~~l~~Legs, open hatches, open emergency ~~r~~Roof ~~d~~Drains or ~~v~~Vacuum ~~b~~Breakers and record the findings on the report accordingly. Indicate presence of any tears in the fabric of both ~~s~~Seals.
 - o After the visual inspection, conduct an inspection of the entire ~~s~~Secondary ~~s~~Seal using the 1/8" and 1/2" probes. Record the gap data in section F(4) of the report.
 - o Conduct an inspection of the entire ~~p~~Primary ~~s~~Seal using the 1/8", 1/2", and 1 1/2" probes. Inspect the ~~p~~Primary ~~s~~Seal by holding back the ~~s~~Secondary ~~s~~Seal. Record the gap data in section F(5) of the report.

- o Record all cumulative gaps between 1/8 inch and 1/2 inch; between 1/2 inch and 1-1/2 inch; and in excess of 1-1/2 inches, for both ~~p~~PPrimary and ~~s~~SSecondary ~~s~~SSeals in section G of the report. Secondary ~~s~~SSeal gaps greater than 1/2 inch should be measured for length and width, and recorded in Comments under section (J) of the report.
- 6. For ~~i~~Internal ~~f~~Floating ~~r~~Roof ~~t~~Tanks:
 - o Using an explosimeter, measure the concentration of the vapor space above the internal floating roof in terms of lower explosive limit (LEL), and record the reading in section (E) of the report.
 - o Conduct a visual inspection of the ~~r~~Roof ~~o~~Openings and the ~~s~~SSecondary ~~s~~SSeal, if applicable, and record findings on the report.
- 7. Complete all necessary calculations and record all required data accordingly on the report.

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
RULE 463 COMPLIANCE REPORT**

****PLEASE COMPLETE FORM LEGIBLY IN BLACK INK****

Tank No. _____ SC South Coast AQMD Permit No. _____ Inspection Date _____ Time _____
Is This a Follow-up Inspection? No ☐ Yes ☐ If yes, Date of Previous Inspection _____

A. COMPANY INFORMATION:

Company Name _____
Location Address _____ City _____ Zip _____
Mailing Address _____ City _____ Zip _____
Contact Person _____ Title _____
Phone _____

B. INSPECTION CONDUCTED BY:

Name _____ Title _____
Company Name _____ Phone _____
Mailing Address _____ City _____ Zip _____

C. TANK INFORMATION:

Capacity _____ (bbls) Installation Date _____ Tank Diameter _____ (ft) Tank Height _____ (ft)
Product Type _____ Product RVP _____
Type of Tank: Riveted ☐ Welded ☐ Other ☐ (describe) _____
Color of Shell _____ Color of Roof _____
Roof Type: Pontoon ☐ Double Deck ☐ Other(describe) _____
External floating roof ☐ Internal floating roof ☐

D. GROUND LEVEL INSPECTION:

- 1) Product Temperature _____ ° F 2) Product level _____ (ft)
- 3) List type and location of leaks found in tTank shell.

- 4) List any discrepancies between the existing equipment and the equipment description on the Permit.

- 5) Is tTank in compliance with Permit conditions? No ☐ Yes ☐ If no, explain _____

E. INTERNAL FLOATING ROOF TANK:

- 1) Check vapor space between floating roof and fixed roof with explosimeter. _____ % LEL
- 2) Conduct visual inspection of roofs and sSecondary sSeals, if applicable.
- 3) Are all eRoof eOpenings covered? No ☐ Yes ☐ If no, explain in Comments section (J) and proceed to part (H)(6).

F. EXTERNAL FLOATING ROOF TANK:

- 1) On the diagram (below) indicate the location of the ladder, #Roof dDrain(s), anti-rotation device(s), platform, gauge well, and vents or other appurtenances. *Note information in relation to North (to the top of the worksheet).*
- 2) Describe any uncovered openings found on the roof in the Comments section (J).
- 3) Identify any tears in the sSeal fabric. Describe and indicate on diagram (below):

4) Secondary Seal Inspection

- a) Type of Secondary Seal: _____
- b) Does 1/2" probe drop past sSeal? No ☐ Yes ☐ if yes, measure length(s) and show on diagram
- c) Does 1/8" probe drop past sSeal? No ☐ Yes ☐ if yes, measure length(s) and show on diagram.
- d) Record dimensions of gaps for gaps > 1/8" _____ > 1/2" _____

NOTE: Record the actual width and cumulative length of gaps in feet and inches.

(Do not include gaps > 1/2" in 1/8" measurements)

5) Primary Seal Inspection

- a) Type of Primary Seal: ☐ Shoe; ☐ Tube; ☐ Other _____
- b) (shoe sSeal) does 1-1/2" probe drop past sSeal? No ☐ Yes ☐; if yes, measure length(s) and show on diagram.
- c) (shoe sSeal) does 1/2" probe drop past sSeal? No ☐; Yes ☐; if yes, measure length(s) and show on diagram.
- d) (tube sSeal) does 1/2" probe drop past sSeal? No ☐ Yes ☐ if yes, measure (length(s) and show on diagram.
- e) (all sSeal types) does 1/8" probe drop past sSeal? No ☐ Yes ☐ if yes, measure (length(s) and show on diagram.
- f) Record dimensions of gaps for gaps > 1/8" _____ > 1/2" _____

> 1-1/2" _____ *NOTE: Record the actual width and cumulative length of gaps in feet and inches.*

(Do not include gaps > 1/2" in 1/8" measurements, or gaps > 1-1/2" in 1/2" measurements)

NOTE: Show defects using symbols. Show sSeal gaps and lengths.

N

LEGEND:Equipment:

<input type="checkbox"/>	Antirotational device
O	Gauge well
T	Leg stand
⊗	Roof dDrain
*	Emergency #Roof dDrain
∞	Vacuum breaker
σ	Vent
	Platform & ladder

Defects:

Θ	Leg top
‡	Leg pin
σ	Open hatch
∨	Torn sSeal
-P-	Primary sSeal gap
-S-	Secondary sSeal gap

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
RULE 463 COMPLIANCE REPORT**

****PLEASE COMPLETE FORM LEGIBLY IN BLACK INK****

Tank No. _____ SC South Coast AQMD
Permit No. _____

Page 3 of 4

IF INTERNAL FLOATING ROOF TANK, PROCEED TO PART H(6).

G. CALCULATIONS - complete all applicable portions of the following:

Record dimensions of indicated gaps [from F(4)(d), F(5)(b), and F(5)(f)]. Record in feet and inches.

Gaps in pPrimary sSeal between 1/8 and 1/2 inch: _____
Gaps in pPrimary sSeal between 1/2 and 1-1/2 inch: _____
Gaps in pPrimary sSeal greater than 1-1/2 inches: _____
Gaps in sSecondary sSeal between 1/8 and 1/2 inch: _____
Gaps in sSecondary sSeal greater than 1/2 inch: _____

Multiply diameter (ft) of tTank to determine appropriate gap limits:

5% circumference = diameter X 0.157 = _____ 60% circ. = diam. X 1.88 = _____
10% circumference = diameter X 0.314 = _____ 90% circ. = diam. X 2.83 = _____
30% circumference = diameter X 0.942 = _____ 95% circ. = diam. X 2.98 = _____

H. DETERMINE COMPLIANCE STATUS OF TANK:

- | | | | |
|----|--|-----------------------------|------------------------------|
| 1) | Were any openings found on the roof? | No <input type="checkbox"/> | Yes <input type="checkbox"/> |
| 2) | Were any tears in the sSeals found: | No <input type="checkbox"/> | Yes <input type="checkbox"/> |
| 3) | Is the product level lower than the level at which the roof would be floating? | No <input type="checkbox"/> | Yes <input type="checkbox"/> |
| 4) | Secondary Seal: | | |
| | Did 1/2" probe drop between shell and sSeal? | No <input type="checkbox"/> | Yes <input type="checkbox"/> |
| | Did cumulative 1/8" - 1/2" gap exceed 95% circumference length? | No <input type="checkbox"/> | Yes <input type="checkbox"/> |
| 5) | Primary Seal | | |
| | Shoe Did 1-1/2" probe drop between shell and sSeal? | No <input type="checkbox"/> | Yes <input type="checkbox"/> |
| | Did cumulative 1/2" - 1-1/2" gap exceed 30% circumference length, and | | |
| | Did cumulative 1/8 - 1/2" gap exceed 60% circumference length? | No <input type="checkbox"/> | Yes <input type="checkbox"/> |
| | Did any single continuous 1/8" - 1-1/2" gap exceed 10% circ. length? | No <input type="checkbox"/> | Yes <input type="checkbox"/> |
| | Tube Did 1/2" probe drop between shell and sSeal | No <input type="checkbox"/> | Yes <input type="checkbox"/> |
| | Did cumulative 1/8" - 1/2" gap exceed 95% circumference length? | No <input type="checkbox"/> | Yes <input type="checkbox"/> |
| 6) | Internal floating roof (installed before 6/1/84) did LEL exceed 50% | No <input type="checkbox"/> | Yes <input type="checkbox"/> |
| | (installed after 6/1/84) did LEL exceed 30%? | No <input type="checkbox"/> | Yes <input type="checkbox"/> |
| 7) | Does tTank have permit conditions? | No <input type="checkbox"/> | Yes <input type="checkbox"/> |
| | Does tTank comply with these conditions? | No <input type="checkbox"/> | Yes <input type="checkbox"/> |

I. IF INSPECTION WAS TERMINATED PRIOR TO COMPLETION FOR ANY REASON, PLEASE EXPLAIN:

Page 4 of 4

[illegible]

Inspection completed by: _____ Date: _____
 (signature) (Certification ID #)

Compliance status by: _____ Date: _____
 (signature) (Certification ID #)

Company Representative: _____ Date: _____
 (signature) (Certification ID #)

Diamond Bar, CA 91765
Attn: Rule 463 Program Supervisor

Comments: _____

DATA REPORTING REQUIREMENT FOR ROOF TANKS

The data items shall include, but not be limited to, the following:

A. External Floating Roof Tank	B. Internal Floating Roof Tank	C. Fixed Roof Tank
1. Tank I.D.	1. Tank I.D.	1. Tank I.D.
2. Product Code	2. Product Code	2. Product Code
3. Type of Floating Roof Seal	3. Type of Floating Roof Seal	3. Vent Type to Vapor Recovery System
4. Shell Construction	4. Shell Construction	*4. Average Stock Storage Temperature
5. Reid Vapor Pressure	5. Reid Vapor Pressure	5. True Vapor Pressure
*6. Average Stock Storage Temperature	*6. Average Stock Storage Temperature	6. Tank Diameter
7. True Vapor pressure	7. True Vapor Pressure	*7. Vapor Molecular Weight
8. Tank Diameter	8. Tank Diameter	8. Average Outage
*9. Wind Speed Exponent	*9. Wind Speed Exponent	*9. Average Daily Temperature Change
*10. Average Wind Velocity	*10. Average Wind Velocity	10. Throughput
*11. Seal Factor	*11. Seal Factor	11. Turnover Factor
*12. Product Factor	*12. Product Factor	*12. Turnovers Per Year
*13. Vapor Molecular Weight	*13. Vapor Molecular Weight	*13. Adjustment Factor for Small Tank
*14. Clingage Factor	*14. Clingage Factor	*14. Paint Factor
15. Throughput	15. Throughput	*15. Crude-Oil Factor (Breathing)
*16. Density of Liquid Stock	*16. Density of Liquid Stock	*16. Crude-Oil Factor (Working)
17. Total Number of Different Type of Fitting	*17. Number of Columns	17. Breathing Loss
18. Total Roof Fitting Loss Factor	*18. Effective Column Diameter	18. Working Loss
19. Vapor Pressure Function	19. Total Number of Different Types of Fittings	19. Total Loss (Without Vapor Recovery)
20. Roof Fitting Loss	*20. Total Deck Fitting Loss Factor	*20. Vapor Recovery System Efficiency
21. Standing Loss	21. Vapor Pressure Function	21. Total Loss (With Vapor Recovery)
22. Withdrawal Loss	*22. Deck Seam Length Factor	22. Number of Excess Upset Emissions Incidents
23. Total Loss	*23. Deck Seam Loss per Unit	23. Total Excess Upset Emissions
24. Number of Excess Upset Emissions Incidents	24. Deck Seam Loss	
25. Total excess Upset Emissions	25. Deck Fitting Loss	
	26. Standing Loss	
	27. Withdrawal Loss	
	28. Total Loss	
	29. Number of Excess Upset Emissions Incidents	
	30. Total Excess Upset Emissions	

* Default values are available from the DistrietSouth Coast AQMD

The Data format and order shall be specified and approved by the Executive Officer.

ATTACHMENT G

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Staff Report

Proposed Amended Rule 463 – Organic Liquid Storage

June 2024

Deputy Executive Officer

Planning, Rule Development, and Implementation
Sarah L. Rees, Ph.D.

Assistant Deputy Executive Officer

Planning, Rule Development, and Implementation
Michael Krause

Planning and Rules Manager

Planning, Rule Development, and Implementation
Michael Morris

Author:	Joshua Ewell	–	Assistant Air Quality Specialist
Contributors:	Jivar Afshar	–	Air Quality Specialist
	Bhaskar Chandan	–	Sr. AQ Engineering Manager
	Huy Dang	–	Air Quality Inspector II
	Eduardo Esparza	–	Supervising AQ Inspector
	Christian Fielding	–	Air Quality Specialist
	Jayne Francisco	–	Sr. AQ Engineer
	Belinda Huy	–	Air Quality Specialist
	Kayla Jordan	–	Air Quality Specialist
	George Lamont	–	Staff Specialist
	Rhonda Laugeson	–	Sr. Air Quality Analysis and Compliance Supervisor
	Patrick Lee	–	Sr. AQ Engineer
	Jong Hoon Lee	–	Air Quality Specialist
	Sang-Mi Lee	–	Planning and Rules Manager
	Thomas Lee	–	Supervising AQ Engineer
	Kevin Ni	–	Program Supervisor
	Khang Nguyen	–	Supervising AQ Engineer
	Kevin Orellana	–	Sr. Enforcement Manager
	Bullington Pham	–	Air Quality Inspector III
	Pedro Piqueras	–	Program Supervisor
	Eric Praske	–	Program Supervisor
Reviewed By:	Barbara Radlein	–	Planning and Rules Manager
	Pavan Rami	–	Program Supervisor
	Valerie Rivera	–	Assistant Air Quality Specialist
	Paul Rodriguez	–	Assistant Air Quality Specialist
	Diana Thai	–	Program Supervisor
	Xian-Liang Tian	–	Program Supervisor
	Han Tran	–	Air Quality Analysis and Compliance Supervisor
	Uyên-Uyên Võ	–	Planning and Rules Manager
	John L. Jones II	–	Senior Deputy District Counsel
	Isabelle Shine	–	Program Supervisor

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

GOVERNING BOARD

Chair: VANESSA DELGADO
Senator (Ret.)
Senate Rules Committee Appointee

Vice Chair: MICHAEL A. CACCIOTTI
Councilmember, South Pasadena
Cities of Los Angeles County/Eastern Region

MEMBERS:

ANDREW DO
Supervisor, First District
County of Orange

CURT HAGMAN
Supervisor, Fourth District
County of San Bernardino

GIDEON KRACOV
Governor's Appointee

PATRICIA LOCK DAWSON
Mayor, Riverside
Cities of Riverside County Representative

LARRY MCCALLON
Mayor, Highland
Cities of San Bernardino County

HOLLY J. MITCHELL
Supervisor, Second District
County of Los Angeles

VERONICA PADILLA-CAMPOS
Speaker of the Assembly Appointee

V. MANUEL PEREZ
Supervisor, Fourth District
County of Riverside

NITHYA RAMAN
Councilmember, Fourth District
City of Los Angeles Representative

CARLOS RODRIGUEZ
Councilmember, Yorba Linda
Cities of Orange County

JOSÉ LUIS SOLACHE
Councilmember, Lynwood
Cities of Los Angeles County/Western Region

EXECUTIVE OFFICER:

WAYNE NASTRI

TABLE OF CONTENTS

EXECUTIVE SUMMARY	EX-1
CHAPTER 1: BACKGROUND	
INTRODUCTION	1-1
BACKGROUND.....	1-1
REGULATORY HISTORY	1-4
AFFECTED FACILITIES AND EQUIPMENT	1-4
PUBLIC PROCESS	1-4
CHAPTER 2: BARCT ASSESSMENT	
INTRODUCTION	2-1
EMISSIONS FROM STORAGE TANKS.....	2-2
CURRENT REGULATORY REQUIREMENTS.....	2-2
CONTROL TECHNOLOGIES.....	2-4
LEAK DETECTION TECHNOLOGIES.....	2-8
SUMMARY.....	2-11
CHAPTER 3: PROPOSED AMENDED RULE 463	
INTRODUCTION	3-1
PROPOSED AMENDED RULE STRUCTURE.....	3-1
PROPOSED AMENDED RULE 463	3-1
CHAPTER 4: IMPACT ASSESSMENTS	
INTRODUCTION	4-1
EMISSION REDUCTIONS	4-1
COSTS AND COST-EFFECTIVENESS	4-3
INCREMENTAL COST-EFFECTIVENESS.....	4-10
SOCIOECONOMIC IMPACT ASSESSMENT.....	4-12
CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) ANALYSIS.....	4-12
DRAFT FINDINGS UNDER HEALTH AND SAFETY CODE SECTION 40727	4-12
Requirements to Make Findings	4-12
Necessity	4-12
Authority	4-13
Clarity	4-13
Consistency	4-13
Non-Duplication	4-13
Reference	4-13
COMPARATIVE ANALYSIS	4-13
APPENDIX A: RESPONSE TO PUBLIC COMMENTS	
PUBLIC WORKSHOP COMMENTS.....	A-1
COMMENT LETTERS	A-6
COMMENT EMAILS	A-16

EXECUTIVE SUMMARY

Rule 463– Organic Liquid Storage (Rule 463) limits volatile organic compound (VOC) emissions from storage tanks that store organic liquids. Rule 463 applies to above-ground stationary tanks with capacity of 75,000 liters (19,815 gallons) or more, above-ground tanks with a capacity between 950 liters (251 gallons) and 75,000 liters (19,815 gallons) that are used to store gasoline, and any stationary tank with a potential for VOC emissions of six tons per year or greater used in crude oil and natural gas production operations. Rule 463 requires tanks that meet the capacity and vapor pressure requirements to install controls based on tank type. Rule 463 tank types include fixed roof, internal floating roof (IFR), and external floating roof (EFR).

California Assembly Bill 617 (AB 617) was signed into state law in 2017 and required the development of Community Emission Reduction Plans (CERPSs) to reduce toxic air contaminants and criteria pollutants in environmental justice communities. The Wilmington, Carson, West Long Beach (WCWLB) CERP¹, specified initiating rule development to amend Rule 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities (Rule 1178) to incorporate advanced leak detection technologies and require additional emission controls. Similarly, the South Los Angeles (SLA) CERP² specified initiating rule development to the Rule 1148 series (Rule 1148 – Thermally Enhanced Oil Recovery Wells; Rule 1148.1 – Oil and Gas Production Wells; and Rule 1148.2 – Notification and Reporting Requirements for Oil and Gas Wells and Chemical Suppliers) to explore improved leak detection and repair (LDAR) and requirements for lower-emission or zero-emission equipment. Rule 463 was not identified as an objective for rule development within the WCWLB CERP or SLA CERP; however, Rule 463 regulates the same emission sources within the affected WCWLB and SLA communities. Amendments to Rule 463 will help reduce VOC emissions from storage tanks in WCWLB, SLA, and in other communities within the South Coast AQMD jurisdiction.

Control Measure FUG-03 – Further Reductions of Fugitive VOC Emissions in the 2012 Final Air Quality Management Plan (AQMP) identified the implementation of advanced leak detection technologies, including optical gas imaging (OGI), as a method to reduce the emissions impact from leaks. The 2016 Final AQMP included Control Measure FUG-01 – Improved Leak Detection and Repair to utilize advanced remote sensing technologies to allow for faster identification and repair of leaks from equipment at facilities that must maintain a LDAR program. The 2022 Final AQMP also included Control Measure FUG-01 – Improved Leak Detection and Repair to reduce VOC emissions from fugitive leaks from process and storage equipment. PAR 463 partially implements Control Measure FUG-01 that commits to improved leak detection requirements in South Coast AQMD rules, including Rule 463.

The Coachella Valley Planning Area (Coachella Valley) is defined as the desert portion of Riverside County in the Salton Sea Air Basin (SSAB) under the jurisdiction of the South Coast AQMD. The Coachella Valley is designated Extreme nonattainment for the 2008 8-hour ozone National Ambient Air Quality Standard (NAAQS). South Coast AQMD has prepared the

¹WCWLB CERP, <https://www.aqmd.gov/docs/default-source/ab-617-ab-134/steering-committees/wilmington/cerp/final-cerp-wcwlb.pdf?sfvrsn=8>

²SLA CERP, [aqmd.gov/docs/default-source/ab-617-ab-134/steering-committees/south-la/final-cerp.pdf?sfvrsn=18](https://www.aqmd.gov/docs/default-source/ab-617-ab-134/steering-committees/south-la/final-cerp.pdf?sfvrsn=18)

Coachella Valley Contingency Measure State Implementation Plan (SIP) Revision for the 2008 8-Hour Ozone Standard focused on satisfying the requirement for contingency measure elements.³ Contingency measures are defined by Clean Air Act (CAA) Section 172(c)(9) as “specific measures to be undertaken if the area fails to make reasonable further progress, or to attain the national primary ambient air quality standard by the attainment date.” CAA Section 182(c)(9) further requires that ozone nonattainment areas classified as “serious” or above provide for contingency measures to be implemented if the area fails to meet any applicable milestone. U.S. EPA finalized a finding of failure to submit contingency measure elements for the 2008 ozone NAAQS in Coachella Valley effective October 31, 2022. The finding established an 18-month deadline for the South Coast AQMD to submit contingency measures or face stationary source permitting sanctions as defined in CAA Section 179(b)(2). There is also a 24- month deadline for highway sanctions as defined in CAA Section 179(b)(1). For stationary sources, South Coast AQMD is amending Rule 463 to introduce a contingency measure to partially satisfy the CAA contingency requirement.

Proposed Amended Rule 463 (PAR 463) establishes more stringent leak detection and control requirements. PAR 463 establishes periodic OGI inspections with contingency measures to fulfill ozone attainment plan requirements. Furthermore, PAR 463 establishes requirements for doming EFR tanks and installing secondary seals on IFR tanks as well as more stringent requirements for emission control systems and seal gaps. PAR 463 applies to approximately 1,600 tanks located at 429 facilities including refineries, bulk storage, loading, and oil production facilities. The proposed requirements will reduce VOC emissions by 1.65 tons per day. The overall cost-effectiveness of PAR 463 is \$27,300 per ton of VOC reduced.

PAR 463 was developed through a public process. Two Working Group meetings for PAR 463 were held on January 3, 2024, and March 7, 2024. Working Group meeting participants included attendees from affected businesses, environmental and community representatives, public agencies, consultants, and other interested parties. The purpose of the Working Group meetings was to discuss details of proposed amendments and listen to stakeholder concerns with the objective to build a consensus regarding the proposal and resolve issues. Staff met with multiple stakeholders during the rule development process and conducted several site visits. A Public Workshop for PAR 463 was held on March 27, 2024. The purpose of the Public Workshop was to present the proposed amended rule language to the general public and to stakeholders and to solicit comments.

³[https://www.aqmd.gov/home/air-quality/air-quality-management-plans/other-state-implementation-plan-\(sip\)-revisions/coachella-valley-contingency-measure-sip-revision](https://www.aqmd.gov/home/air-quality/air-quality-management-plans/other-state-implementation-plan-(sip)-revisions/coachella-valley-contingency-measure-sip-revision)

CHAPTER 1: BACKGROUND

INTRODUCTION

BACKGROUND

REGULATORY HISTORY

AFFECTED FACILITIES AND EQUIPMENT

PUBLIC PROCESS

INTRODUCTION

Rule 463 limits VOC emissions from storage tanks containing volatile organic liquids as depicted in Figure 1-1. This rule applies to any above-ground stationary tank with a capacity of 75,000 liters (19,815 gallons) or greater used for storage of organic liquids and any above-ground tank with a capacity between 950 liters (251 gallons) and 75,000 liters (19,815 gallons) used for storage of gasoline. Rule 463 also applies to stationary tanks with a potential to emit (PTE) of six tons per year (tpy) or more used in crude oil and natural gas production. Rule 463 implements different control requirements based on storage tank type.



Figure 1-1- Example of Storage Tanks Subject to Rule 463

Control requirements include specifications for tank roofs, seals, emission control systems, and covers for roof openings. Inspection and monitoring requirements are specific to the type of tank.

BACKGROUND

California Assembly Bill 617 (AB 617) Community Emissions Reductions Plans (CERPs)

In 2017, Governor Brown signed AB 617 (C. Garcia, Chapter 136, Statutes of 2017) to develop a new community-focused program to reduce emissions and exposure to sources air pollution and preserve public health. AB 617 directed the California Air Resources Board (CARB) and all local air districts, including the South Coast AQMD, to enact measures to protect communities disproportionately impacted by air pollution. On September 27, 2018, CARB designated 10 communities across the state to implement community plans for the first year of the AB 617 program. Local air districts were tasked with developing and implementing CERPs and community air monitoring plans in partnership with residents and community stakeholders. The Community Air Monitoring Plan (CAMP) includes actions to enhance the understanding of air pollution in the designated communities and to support effective implementation of the CERP. Each CERP includes objectives for achieving air pollution emission and exposure reductions to address the community's highest air quality priorities.

During the development of the WCWLB CERP⁴, community members expressed concern about refinery emissions. Chapter 5b, Objective 4 in the WCWLB CERP specifies initiating rule development for Rule 1178 to require the use of enhanced leak detection tools and other leak prevention and emission reduction technologies (e.g., domed roofs). Rule development for Rule 463 was not identified as a course of action within the WCWLB CERP; however, Rule 463 regulates the same emission sources as Rule 1178 within the affected WCWLB communities.

During the development of the SLA CERP⁵, community members expressed concerns about emissions from oil and gas operations. Table 5f-1 in the SLA CERP specified initiating rule

⁴ WCWLB CERP, <https://www.aqmd.gov/docs/default-source/ab-617-ab-134/steering-committees/wilmington/cerp/final-cerp-wcwlb.pdf?sfvrsn=8>

⁵ SLA CERP, [aqmd.gov/docs/default-source/ab-617-ab-134/steering-committees/south-la/final-cerp.pdf?sfvrsn=18](https://www.aqmd.gov/docs/default-source/ab-617-ab-134/steering-committees/south-la/final-cerp.pdf?sfvrsn=18)

development to amend the Rule 1148 series to explore requirements for improved LDAR and lower-emission or zero-emission equipment. Similar to the WCWLB CERP, Rule 463 was not identified as a course of action for rule development within the SLA CERP; however, Rule 463 regulates emission sources at oil and gas facilities within the SLA community. Amendments to Rule 463 will help reduce VOC emissions from storage tanks in WCWLB, SLA, and in other communities within the South Coast AQMD jurisdiction. Recommendations for proposed amendments to Rule 463 focused on improving leak detection requirements with the use of advanced leak detection technologies and requiring additional emission controls.

Control Measures in the 2012, 2016, and 2022 Final AQMPs

Control Measure FUG-03 – Further Reductions of Fugitive VOC Emissions in the 2012 Final AQMP identifies the implementation of advanced leak detection technologies, including OGI, as a method to reduce the emissions impact from leaks. The 2016 Final AQMP included Control Measure FUG-01 – Improved Leak Detection and Repair to utilize advanced remote sensing technologies to allow for faster identification and repair of leaks from equipment at oil and gas sites and other facilities that are currently required to maintain an LDAR program. The 2022 Final AQMP also included Control Measure FUG-01 – Improved Leak Detection and Repair to reduce VOC emissions from fugitive leaks from process and storage equipment. PAR 463 partially implements Control Measure FUG-01 that commits to improved leak detection requirements in South Coast AQMD rules, including Rule 463.

Coachella Valley Contingency Measure SIP Revision

Coachella Valley is defined as the desert portion of Riverside County in the SSAB under the jurisdiction of the South Coast AQMD. The Coachella Valley is designated nonattainment for the 2008 8-hour ozone NAAQS. Originally classified as “severe-15” nonattainment with an attainment date of July 20, 2027, the Coachella Valley was reclassified to “extreme” nonattainment with an attainment date of July 20, 2032. South Coast AQMD voluntarily requested the reclassification to resolve a transportation conformity lockdown impacting billions of dollars’ worth of transportation projects.

South Coast AQMD prepared the Coachella Valley Contingency Measure SIP Revision for the 2008 8-Hour Ozone Standard focused on satisfying the requirement for contingency measure elements for the SIP. Contingency measures are defined by CAA Section 172(c)(9) as “specific measures to be undertaken if the area fails to make reasonable further progress (RFP), or to attain the national primary ambient air quality standard by the attainment date.” CAA Section 182(c)(9) further requires that ozone nonattainment areas classified as “serious” or above provide for contingency measures to be implemented if the area fails to meet any applicable milestone.

The most recent, comprehensive SIP for the 2008 ozone NAAQS in the Coachella Valley was submitted as part of the 2016 AQMP. That SIP included required RFP contingency measure elements. The RFP contingency measure relied upon surplus emission reductions from already implemented control measures, consistent with U.S. EPA’s past guidance. The 2016 AQMP was supplemented with CARB’s attainment contingency measure for the Coachella Valley, which was submitted to U.S. EPA on May 5, 2017. However, subsequent court decisions held that contingency measures must be additional measures for emission reductions, not just surplus emission reductions from ongoing programs, and that these measures must contain triggering

mechanisms such that they are automatically implemented once an area has failed to attain or missed a major milestone for RFP. Neither the RFP contingency measure nor the attainment contingency measure met these new requirements. In 2020, U.S. EPA approved the Coachella Valley portion of the 2016 AQMP as meeting all applicable statutory and regulatory requirements, with the exception of the attainment contingency measure element. With respect to the RFP contingency measure element, U.S. EPA conditionally approved the element based on commitments by CARB and the South Coast AQMD to supplement the element within one year of conditional approval, by October 16, 2021. The due date was later revised to September 30, 2022, based on consent decree.

On August 8, 2022, South Coast AQMD via CARB, withdrew the contingency measure elements for the 2008 ozone NAAQS in Coachella Valley. At the time, U.S. EPA had failed to provide revised contingency measure guidance, and lacking such guidance it was unclear what would suffice as an approvable contingency measure. As a result of this withdrawal, U.S. EPA finalized a finding of failure to submit contingency measure elements for the 2008 ozone NAAQS in Coachella Valley effective October 31, 2022. The finding established an 18-month deadline for the South Coast AQMD to submit contingency measures or face stationary source permitting sanctions as defined in CAA Section 179(b)(2). ~~There is also~~ The finding also imposed a 24-month deadline for highway sanctions as defined in CAA Section 179(b)(1). Submission of the SIP revision followed by a completeness determination by U.S. EPA will stay the sanctions. In addition, if within 24 months U.S. EPA has not approved a contingency measure SIP revision, U.S. EPA must promulgate a federal contingency measure plan in the Coachella Valley. A more complete discussion is available in the South Coast AQMD Draft Final Staff Report for Coachella Valley Contingency Measure SIP Revision for the 2008 8-Hour Ozone Standard, February 2024⁶.

For stationary sources, South Coast AQMD is amending Rule 463 to introduce a contingency measure found in chapter 3 of the Coachella Valley Contingency Measure SIP Revision for the 2008 8-Hour Ozone Standard that would require more frequent OGI tank farm inspections for certain storage tanks to facilitate leak detection and repair. Emission reductions would be achieved by identifying leaks and repairing them. Triggers are included if a nonattainment area fails to attain the NAAQS by the applicable attainment date or fails to meet an RFP milestone (collectively referred to as “Triggering Events”). If a Triggering Event occurs, the Measure would: change the proposed OGI tank farm inspection frequency in the applicable nonattainment area(s); and be implemented within 60 days of the effective date of a U.S. EPA finding that a Triggering Event occurred.

Staff assessed current Rule 463 requirements and identified potential areas of improvement including leak detection and repair requirements and more stringent controls. Leak detection using enhanced detection technologies has become more widespread since the adoption of Rule 463. Staff assessed multiple leak detection technologies as part of the PAR 463 rule development. Staff also analyzed control technologies and methods with potential to further reduce emissions from storage tanks. Proposed amendments to PAR 463 are based on determination of feasible and cost-

⁶<https://www.aqmd.gov/docs/default-source/clean-air-plans/cv-contingency-measure-sip--draft-final-staff-report.pdf?sfvrsn=6>

effective technologies and methods that were assessed through a best available retrofit control technology (BARCT) analysis.

REGULATORY HISTORY

Rule 463 was adopted in August 1977 and subsequently amended six times. The 1984 amendment added a criterion for hydrogen sulfide content in crude oil contained in floating roof tanks; a subsequent amendment in March 2005 removed this limitation based on a comparative review of similar regulations within the state and at the federal level. The December 1990 amendment addressed SIP deficiencies inconsistent with U.S. EPA policies or requirements. The March 1994 amendment restructured the rule, clarified rule language, streamlined compliance activities by including a self-compliance program, and corrected rule deficiencies identified by the U.S. EPA and CARB. The November 2011 amendment harmonized test methods and leak standards with Rule 1178. The most recent amendment to Rule 463 in May 2023, addressed U.S. EPA's limited disapproval of CARB's Oil and Gas Methane Rule by aligning the applicability threshold with U.S. EPA's 2016 Control Techniques Guidelines for the Oil and Natural Gas Industry.

AFFECTED FACILITIES AND EQUIPMENT

PAR 463 affects approximately 1600 tanks located at approximately 429 facilities involved in petroleum refining, oil and gas production, and other various industries.

PUBLIC PROCESS

Development of PAR 463 was conducted through a public process. Two Working Group meetings were held on January 3, 2024, and March 7, 2024. The Working Group is composed of representatives from businesses, environmental groups, public agencies, and consultants. The purpose of the Working Group meetings is to discuss proposed concepts and work through the details of South Coast AQMD's proposal. Additionally, a Public Workshop was held on March 27, 2024. The purpose of the Public Workshop was to present the proposed amended rule language to the general public and stakeholders and to solicit comments. Staff also conducted multiple site visits as part of this rulemaking process.

CHAPTER 2: BARCT ASSESSMENT

INTRODUCTION

EMISSIONS FROM STORAGE TANKS

CURRENT REGULATORY REQUIREMENTS

CONTROL TECHNOLOGIES

LEAK DETECTION TECHNOLOGIES

SUMMARY

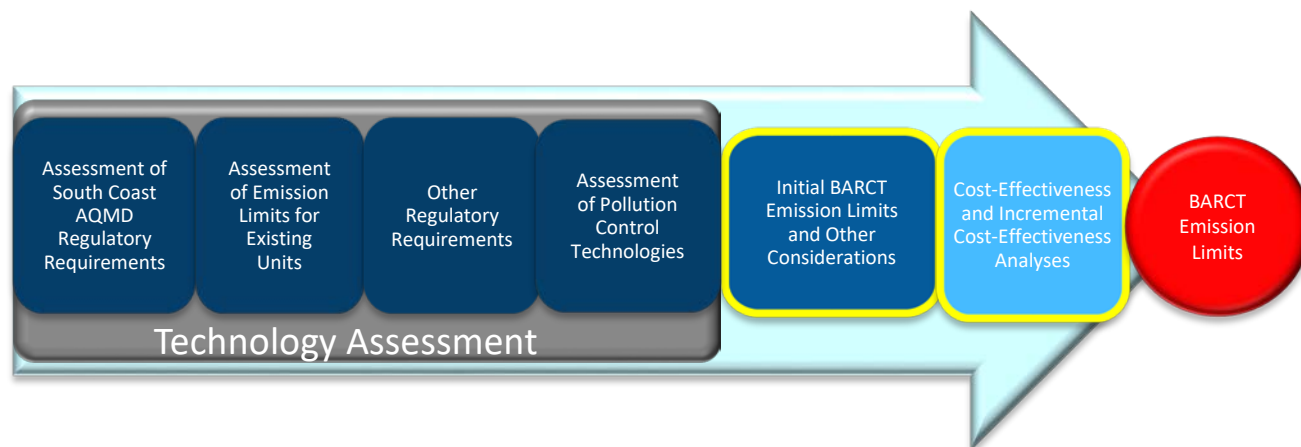
INTRODUCTION

PAR 463 rule development was initiated in response to objectives in the WCWLB and SLA CERPs for enhanced leak detection and to partially implement Control Measure FUG-01 in the 2022 Final AQMP. Additionally, South Coast AQMD periodically assesses rules to ensure that BARCT is reflected in rule requirements. To address community member objectives, partially implement Control Measure FUG-01, and ensure that Rule 463 reflects BARCT, a BARCT assessment was conducted to identify the potential to further reduce emissions from storage tanks.

BARCT is defined in the Health & Safety Code Section 40406 as “an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source.” Consistent with state law, BARCT emission limits take into consideration environmental impacts, energy impacts, and economic impacts. The BARCT analysis approach follows a series of steps conducted for each equipment category.

The steps for BARCT analysis consist of:

- Assessment of South Coast AQMD Regulatory Requirements
- Assessment of Emissions Limits for Existing Units
- Other Regulatory Requirements
- Assessment of Pollution Control Technologies
- Initial BARCT Emission Limits and Other Considerations
- Cost-Effectiveness and Incremental Cost-Effectiveness Analyses
- BARCT Emission Limits



The BARCT assessment included a review of leak detection and emission reducing technologies. Newer leak detection technologies were reviewed and included OGI devices, gas sensors, and open path detection. Leak detection methods were also analyzed and included continuous monitoring and increased inspection frequency. Control technologies were reviewed and included domes, proximity switches, cable suspended floating roof systems, and vapor recovery. Staff analyzed the potential to reduce emissions from leaks with enhanced leak detection technologies and reduce emissions from tank operations by establishing more stringent requirements for existing controls including domes, seals, and emission control systems.

As part of the technology assessment, a cost-effectiveness analysis was conducted for technologies with potential to reduce emissions. A cost-effectiveness analysis determines the cost per ton of pollutant reduced. In the 2022 AQMP, a cost-effectiveness threshold of \$36,000 per ton of VOC reduced was established. After adjusting for inflation, the cost-effectiveness threshold is \$40,168.49 per ton of VOC reduced (2023 U.S. Dollars). An incremental cost-effectiveness analysis was also conducted for proposed controls and monitoring methods to establish BARCT, if applicable, and is discussed in Chapter 4.

EMISSIONS FROM STORAGE TANKS

Rule 463 applies to any above-ground stationary tanks with a capacity of 75,000 liters (19,815 gallons) or greater used for storage of organic liquids and any above-ground tank with a capacity between 950 liters (251 gallons) and 75,000 liters (19,815 gallons) used for storage of gasoline. Rule 463 also applies to stationary tanks with a PTE of six tpy or more used in crude oil and natural gas production. There are four major categories of storage tanks subject to Rule 463: fixed roof tanks, external floating roof tanks, domed external floating roof tanks, and internal floating roof tanks.

Storage tanks emit VOC through openings inherent in the tank design. Rule 463 requires the use of seals and covers to reduce the amount of VOC that can migrate out of the tank through the tank openings. Tank openings on fixed roof tanks include, but are not limited to, vapor recovery connection points, pressure vacuum vents and sample hatches. Floating roof tanks also contain openings that include the annular space around the floating roof, guidepoles, rim vents, pressure vents, hatches, and roof legs. Rule 463 already requires controls on all roof openings and as part of the PAR 463 rule development, staff reviewed additional technologies and methods to further reduce emissions from tank operation and leaks.

CURRENT REGULATORY REQUIREMENTS

South Coast AQMD Requirements

Rule 463 contains requirements for above-ground stationary tanks with a capacity of 75,000 liters (19,815 gallons) or greater used for storage of organic liquids, above-ground tanks with a capacity between 950 liters (251 gallons) and 75,000 liters (19,815 gallons) used for storage of gasoline, and stationary tanks with a PTE of six tpy or more used in crude oil and natural gas production. Control requirements include specifications for tank roofs, emission control systems, and covers and seals for roof openings. Inspection and monitoring requirements are specific to the type of tank.

Floating roofs or fixed roofs with 95% by weight emission control, are required for every tank. Rim seal systems for floating roofs have gap requirements. Primary seals must not have gaps larger than 1.5 inch. Gaps greater than 0.5 inch cannot exceed a cumulative length of 30% of the circumference of the tank and gaps greater than 0.125 inch cannot exceed 60% of the circumference. There cannot be a continuous gap of greater than 0.125 inch for more than 10% of the circumference. Secondary seals must not have gaps greater than 0.5 inch and gaps greater than 0.125 inch cannot exceed 95% of the circumference of the tank.

Controls for floating roofs include gaskets, gasketed covers, and sleeves or flexible enclosure systems for all roof penetrations. Certain roof openings cannot have a visible gap which is a gap greater than 1/8 inch that emits more than 500 parts per million (ppm) of VOC. Fixed roof tanks must maintain a vapor tight condition for all roof openings and have at least 95% by weight emission control.

Rule 463 contains differing inspection requirements dependent on tank type. Below is a summary of the inspection requirements.

Fixed roofs:

- Voluntary self-inspections

Internal and external floating roof tanks:

- Tank inspections semi-annually
- Gap measurements on all roof openings semi-annually and each time tank is degassed or emptied, or U.S. EPA Method 21
- Complete gap measurements of the rim seal system on a semi-annual basis and each time the tank is emptied or degassed

Other Regulatory Requirements

Staff reviewed rules and regulations of other air regulating agencies including U.S. EPA, San Joaquin Valley Air Pollution Control District (SJVAPCD), and Bay Area Air Quality Management District (BAAQMD). Staff identified requirements more stringent than those contained in South Coast AQMD's Rule 463 for controls and monitoring. It is important to note there are several requirements where South Coast AQMD's Rule 463 is more stringent than requirements contained in other air districts' rules, such as inspection frequency and other requirements. However, the following discussion describes the requirements found in other regulations that are more stringent than Rule 463 requirements.

U.S. EPA 40 Code of Federal Regulations (CFR) Part 60 Subpart Kb applies to tanks that were constructed, reconstructed or modified after July 23, 1984. Staff identified requirements for seal gaps that are more stringent. Subpart Kb requires primary seal gaps do not exceed 212 square centimeters (cm²) per meter of tank diameter and secondary seal gaps do not exceed 21.2 cm² per meter of tank diameter.

SJVAPCD's Rule 4623 contains more stringent gap requirements. A visible gap is any gap that is 0.06 inch. Primary seal gaps greater than 0.5 inch cannot occur for more than 10% of the tank circumference and primary seal gaps greater than 0.125 inch cannot occur for more than 30% of the tank circumference.

BAAQMD's Regulation 8, Rule 5 has more stringent gap requirements and a more stringent leak definition. BAAQMD defines a visual gap as a gap that is 0.06 inch. Primary seals gaps greater than 0.5 inch cannot occur for more than 10% of the tank circumference, gaps greater than 0.125 inch cannot occur for more than 40% of the tank circumference. BAAQMD also requires that the maximum gap for secondary seals on newer welded tanks cannot exceed 0.06 inch. BAAQMD has a leak definition of 100 ppm for all components except for pressure vacuum vents.

CONTROL TECHNOLOGIES

Domes

Domes are roofs that can be installed onto external floating roof tanks. They are typically a geodesic dome shape and made of lightweight material such as aluminum. Domes that are affixed onto external floating roof tanks are not vapor tight and have vents along the bottom of the dome where it meets the tank shell. This is a required design for floating roof tanks to allow the floating roof to move up and down without adverse effects. Domes are effective at reducing emissions from tanks by eliminating



Figure 2-1- Domed Storage Tanks

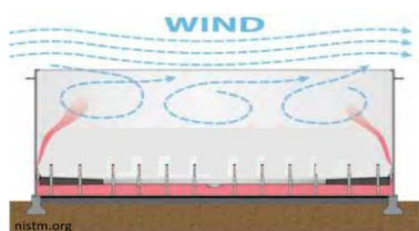


Figure 2-2- Wind Effect on Storage Tanks

wind moving over the external floating roof.

Figures 2-1 and 2-2 show a domed storage tank and the wind effect respectively. Wind can carry vapors out from inside the tank through the floating roof seals. It is estimated that installing domes on external floating roof tanks storing crude oil can reduce standing losses by 50%-70%.⁷

Costs and Cost-Effectiveness

Costs to install domes vary with diameter size. External floating roof tanks in South Coast AQMD's jurisdiction range from 30 feet in diameter to 299 feet in diameter. Costs associated with doming include materials, labor, vehicles for supply delivery and crane support, crane rentals, site preparation, cleaning, degassing, storage leasing, fire suppression systems, and permitting. Costs were obtained from vendors for equipment and installation for domes of different sizes. Facilities supplied costs from vendor quotes and past doming projects. Costs were calculated using equations developed during the 2023 PAR 1178 rule development process and facility-provided cost data. The PAR 1178 cost equations used to estimate both capital and operation/maintenance costs associated with doming were created by plotting quotes from both vendors and facilities and

⁷ Based on results from BREEZE TankESP PRO for doming external floating roofs of different diameters storing crude with RVP 6-9 at 80F in Los Angeles, with deck fittings currently required by Rule 463.

extracting the best fit equations. Based on cost information provided by facilities, staff developed a cost curve that estimates costs for tanks of all diameters. Refer to the 2023 PAR 1178 Staff Report Chapter 4-4 for more details related to the cost curve equation. Doming project costs ranged from approximately \$164,400 to \$3,826,400 and included costs for fire suppression systems and union labor required by Senate Bill 54. Refer to Chapter 4 for additional cost details. Staff identified seven external floating roof tanks used to store volatile organic liquids from a random sample of EFRs that provide a 95% confidence interval. After receiving comments from stakeholders that the cost-effectiveness analysis did not adequately consider larger diameter tanks, staff included tanks with diameters of 253 feet and 299 feet. Cost-effectiveness analysis is based on the sample group and applied to the remaining rule universe. Tank diameters ranged from 30 feet to 299 feet. Tank contents and throughput were identified using 2019 Annual Emission Reports and facility provided data for the 253 feet and 299 feet diameter tanks. The cost-effectiveness to require domes on nine tanks is \$24,800 per ton of VOC reduced. Refer to Chapter 4 for additional cost-effectiveness details.

Proximity Switches

Proximity switches are sensors designed to detect when sample hatch covers are open and are commonly used at remote oil well sites that are not inspected regularly. Proximity switches can also be used on pressure vacuum relief vents (PVRVs). The switch can alert facility personnel when a sample hatch cover or PVRV is open and results in quicker repair timelines and smaller emissions impacts. Limitations to using proximity switches include small openings that may go undetected and proximity switches only being able to monitor leaks from hatches or PVRVs.



Figure 2-3- Proximity Switch

Staff considered proximity switches for sample hatches on tanks at oil well sites. Oil and gas production facilities are typically more compact allowing for one transmitter to support multiple switches if needed. The spread-out design of tank farms at other types of facilities would require the use of multiple transmitters to support each switch, which would lead to higher equipment costs. Costs were obtained from the 2023 Proposed Amended Rule 1178 Final Staff Report and totaled \$12,300 for an oil well site with one tank. Costs included the switch, transmitter, base radio, solar power supply, and cellular connection. Installation costs were assumed at fifty percent of the equipment cost and include travel, site evaluation, planning, and installation. There are 247 oil well facilities subject to Rule 463 and staff assumed that one tank at each site meets the Rule 463 applicability criteria. The cost to require proximity switches at 247 facilities, assuming one tank at each facility, is \$3,038,100. The emissions reductions assumed are based on the estimated leaks from fixed roof tanks. Staff assumed one leak per 100 tanks per year at an estimated leak rate of 0.26 tons per day over seven days. Staff assumed the leak would occur for seven days since it is the halfway point in between the proposed PAR 463 OGI tank farm inspection schedule of every two weeks. The cost effectiveness to require proximity switches on sample hatches at oil well sites, assuming a 10-year equipment life is \$67,582 per ton of VOC reduced.

Cable Suspension Systems

Cable suspended floating roofs are designed with cable suspension systems to support the floating roof and remove the need for roof legs as depicted in Figure 2-4 below. Emissions from internal floating roof tanks are reduced with cable suspension systems by the elimination of floating roof leg penetrations that provide a potential opening where VOCs can migrate from below the floating roof to atmosphere. There are 93 internal floating roof tanks subject to Rule 463. Costs were obtained from the 2023 Proposed Amended Rule 1178 Final Staff Report. A cost-effectiveness analysis was conducted for an average internal floating roof tank 87 feet in diameter, with an average throughput, storing gasoline with an RVP of 10 psi. The cost to require a cable suspended floating roof on the model tank described is \$255,400. The emission reductions were modeled in BREEZE TankESP for an internal floating roof tank with zero legs and resulted in emission reductions of 196 pounds per year. The cost effectiveness to require cable suspension systems of 93 tanks is \$130,300 per ton of VOC reduced, assuming a 20-year equipment life.



Figure 2-4: Cable Suspended Roof

Emission Control Systems (Vapor Recovery)

Emission control systems are connected to fixed roof tanks and control VOC emissions with carbon adsorption or combustion. Compliance reports containing performance tests results for vapor recovery systems used at facilities subject to Rule 463 were reviewed. All compliance reports reviewed stated the vapor recovery systems were compliant but not all specified the vapor recovery efficiency. Only the initial performance tests stated the control efficiency for the three combustion vapor recovery systems which were specified at over 99% combustion efficiency. During a site visit, staff was informed that the facility's carbon adsorption system performs at over 99% emission control, which was further confirmed with performance test reports. During the last rulemaking for Rule 1178 it was determined that 98% efficiency is achievable based on performance test results for combustion and carbon adsorption systems. Staff estimates there are 479 fixed roof storage tanks connected to vapor recovery systems. Costs for vapor recovery systems include early Title V permit revisions pursuant to Rule 3005 – Permit Revisions as well as performance tests to verify compliance with the new control efficiency. The total cost associated with increasing the control efficiency to 98% is \$18,492,800 over ten years.

Staff recommends increasing the emission control system efficiency requirements to 98% emission control, by weight, based on available performance test results and information obtained at site visits and requiring performance tests on vapor recovery systems to be conducted every ten years. Since units are currently achieving a 98% control efficiency, no reductions are assumed in the cost-effectiveness analysis to be conservative.

Seals

Primary and secondary seals are used on floating roof tanks to seal the annular space between the floating roof and the tank shell to prevent VOC vapors from migrating out of the tank. Seal systems can have only a primary seal or a primary seal and secondary seal. Internal floating roof tanks are not currently required in Rule 463 to have both a primary seal and secondary seal. Examples of seals are depicted in Figures 2-5 below.

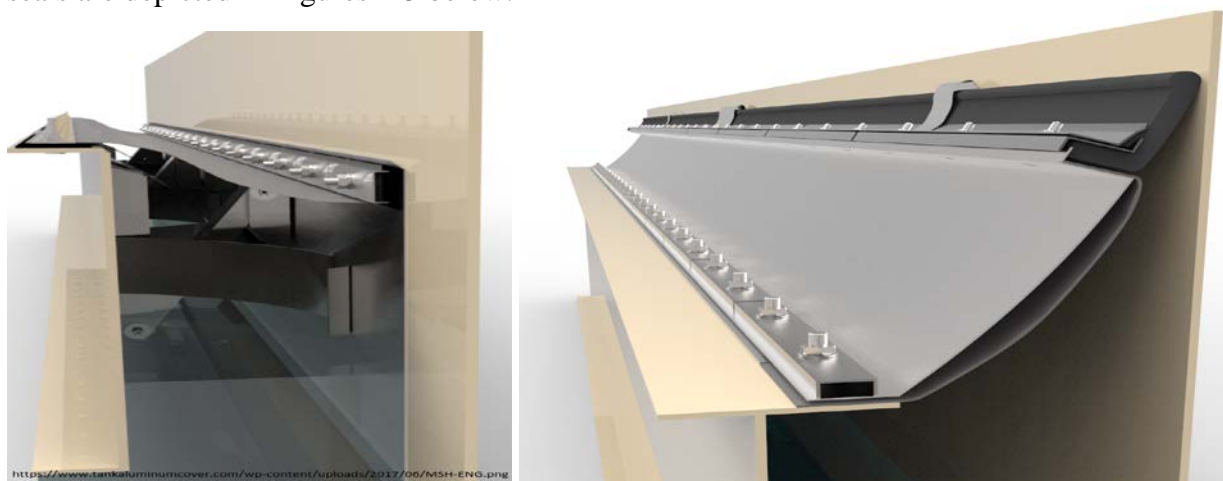


Figure 2-5: Seals on Floating Roof Storage Tanks

Staff identified five internal floating roof tanks that are not equipped with secondary seals subject to Rule 463. A cost-effectiveness analysis was conducted for requiring secondary seals for the internal floating roof tanks. Costs were obtained from the 2023 Proposed Amended Rule 1178 Final Staff Report. A 20-year equipment life was assumed. The cost to install a secondary seal is \$220 per foot and the cost to replace the rubber components of the seal 10 years after installation is \$42 per foot. Permit fees were included and totaled \$9,000 per modification. The total cost to require secondary seals on five tanks is \$412,000 and the associated emission reductions calculated in BREEZE TankESP are 61.77 tons over the life of the equipment. The cost-effectiveness to require secondary seals on internal floating roof tanks is \$6,700 per ton of VOC reduced. Staff recommends requiring secondary seals on internal floating roof tanks.

Staff analyzed the feasibility of meeting the more stringent gap requirements in Rule 1178 for all floating roof tanks subject to Rule 463. A review of a random sample of leak reports for floating roof tanks (20%) was conducted and showed that some tanks were not meeting more stringent gap requirements. It is expected that more stringent gap requirements could be met with better seals. A cost-effectiveness analysis was conducted to replace seals. Meeting more stringent gap requirements found in Rule 1178 would result in very small emission reductions and is not cost-effective for facilities subject to Rule 463. For an average tank that is 117 feet in diameter, storing crude oil with RVP 6, with an average throughput, the cost-effectiveness using similar cost

estimates to the costs obtained for the 2023 Proposed Amended Rule 1178 Final Staff Report (\$200 per foot to replace the primary seal) is over one million dollars per ton of VOC reduced. Therefore, staff is not proposing to include the more stringent gap requirements in Rule 1178 in PAR 463.

Staff identified more stringent gap requirements contained in U.S. EPA's Subpart Kb that applies to certain tanks. Rule 463 will be updated to incorporate U.S. EPA's seal gap requirements by reference.

LEAK DETECTION TECHNOLOGIES

Multiple leak detection technologies and methods were considered to reduce the emissions impact from leaks from storage tanks. A review of continuous monitoring technologies including fixed gas sensor networks and open path device systems was conducted. Periodic monitoring with handheld optical gas imaging devices was also reviewed.

Continuous Monitoring Systems

Continuous monitoring solutions using open path detection and fixed gas sensor networks were assessed in 2023 for the Rule 1178 rulemaking. It was determined that the best solution for monitoring tanks is to require periodic monitoring with handheld OGI devices due to their ability to identify small and large leaks. Continuous monitoring systems are limited in their ability to detect smaller leaks because they are installed at a distance from the tank. Depending on the detection technology of the continuous monitoring system, a leak may need to be significantly large at the source to be detected and has the potential to go undetected. One significant drawback to requiring stationary continuous monitoring system of gas sensors or open path devices, is the chance that a large leak goes undetected because it does not make contact with the fixed sensor or emitted open path beam. Continuous monitoring systems with sensors that must come in contact with the VOC vapor may not be the most effective technologies to reduce the emissions impact from tank leaks. Another drawback to requiring continuous monitoring systems is the delayed implementation timeline due to the plan approval and installation timeframes. Although continuous monitoring may not be as effective as manual inspections, staff analyzed the cost-effectiveness. Continuous monitoring was analyzed for facilities subject to Rule 1178 in the 2023 Rule 1178 rulemaking. For this rule development, staff determined the cost-effectiveness to implement continuous monitoring at facilities that are subject to Rule 463 and are not subject to Rule 1178.

Staff used costs from the 2023 Proposed Amended Rule 1178 Final Staff Report to calculate cost-effectiveness for continuous monitoring using fixed gas sensors and open path. For continuous monitoring with fixed gas sensors, staff assumed that one sensor per tank would provide sufficient coverage at a tank farm and considered cost to implement the fixed gas sensor network as a service where the technology supplier installs, operates and maintains the monitoring system. Six hundred and seventy-nine sensors, as depicted in Figure 2-6, would be required to monitor the tank subject to Rule 463 controls. The cost per sensor is approximately \$10,000. The estimated emission reductions from 679 tanks are 159 tons per year and is



Figure 2-6- Gas Sensor

based on the leak assumptions detailed in Chapter 4. The total costs are \$6,790,000 per year to monitor all tanks and the cost-effectiveness is \$42,700 per ton of VOC reduced.

Staff used cost estimates from the 2023 Proposed Amended Rule 1178 Final Staff Report to calculate cost-effectiveness for continuous monitoring with open path detection devices as shown in Figure 2-7 below. Staff assumed that five open path devices are needed for every 22 tanks for sufficient coverage in the Rule 1178 rulemaking. The same assumptions were made for the cost-



Figure 2-7- Open Path Device

effectiveness analysis for Rule 463 except for oil well sites where each site is assumed to have one tank subject to Rule 463. For these sites, staff assumed one open path device was used. For all other facilities, staff assumed for every 22 tanks five open path devices are needed. There are 679 tanks that meet the requirements to conduct monitoring at facilities subject to Rule 463, that are not subject to Rule 1178, and therefore do not already have enhanced LDAR requirements. Based on the aforementioned assumptions, staff calculated 249 open path devices at the 279 oil well sites and 98 open path devices for the remaining tanks for a cost-effectiveness analysis. Staff obtained costs from the 2023 Proposed Amended Rule 1178 Final Staff Report. The cost of one open path device is \$190,000, the estimated installation cost

is equal to the equipment cost, and the annual O&M cost is estimated at \$5,000. The total cost for equipment, installation, and O&M over a 20-year equipment life is \$189,431,000. The emission reductions over 20 years are 3,182 tons and is estimated based on the leak assumptions detailed in Chapter 4. The cost-effectiveness is \$48,600 per ton of VOC reduced to implement continuous monitoring with open path detection.

Staff does not propose requiring the use of continuous monitoring systems in PAR 463. The continuous monitoring systems analyzed were all above the VOC cost-effectiveness threshold. Exceeding the cost-effectiveness threshold in combination with the limitations of the technologies when compared to manual OGI inspections resulted in staff's proposal to not require continuous monitoring systems as BARCT. However, due to stakeholder interest in the opportunity to utilize continuous monitoring systems, staff will include a provision in PAR 463 that allows for the use of U.S. EPA approved alternative monitoring methods provided they can achieve equivalent or more stringent monitoring as the proposed requirements for manual OGI inspections.

Periodic Monitoring with Optical Gas Imaging

An optical gas imaging camera uses infrared technology capable of visualizing vapors. Optical gas imaging cameras have different detectors capable of visualizing a variety of gas wavelengths. VOC wavelengths are in the 3.2-3.4 micrometer waveband. The difference in views is shown in Figure 2-8 below.

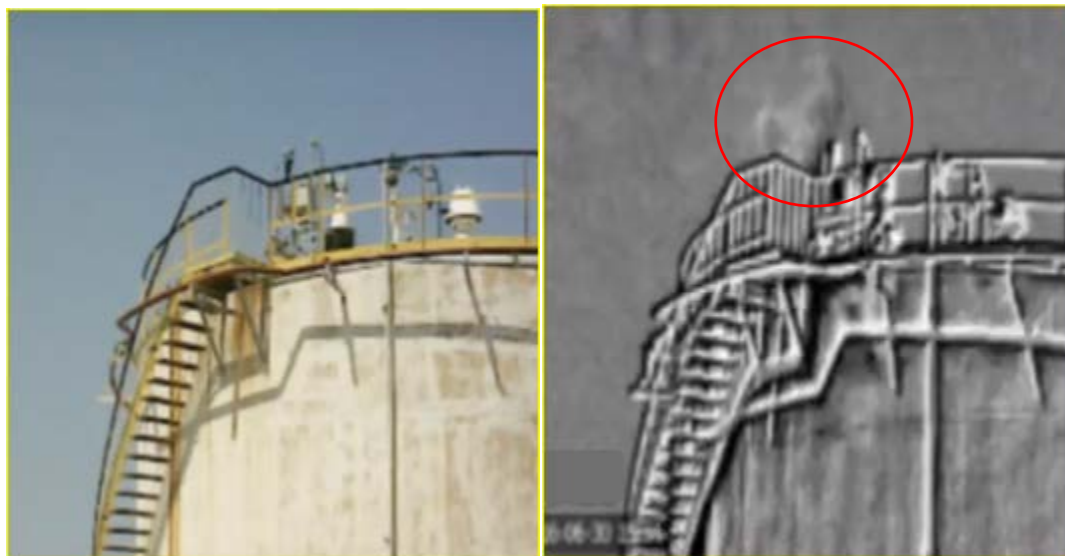


Figure 2-8: View with naked eye compared to view with an OGI camera

OGI cameras with the ability to detect or visualize in this waveband range contain a cryocooler that is integrated into the sensor and increases the sensitivity of the camera to detect smaller leaks. OGI cameras are widely used as a screening tool for leak detection purposes and have continuous monitoring capability. Fixed OGI systems have been implemented at well sites and compression stations for continuous emissions monitoring. Handheld OGI cameras, as seen in Figure 2-9, are used widely by leak detection service providers as well as facilities for periodic monitoring.



Figure 2-9- OGI camera

Fixed OGI cameras may not catch all leaks that can be identified during an inspection where a portable OGI device is manually operated. Fixed OGI cameras are limited in the number of angles from which a tank can be viewed and would likely be stationed further away from an emissions source compared to a person conducting an inspection with a portable OGI device. Stationary and portable devices both have the capability to detect large leaks, however, there is greater chance that smaller leaks would be identified with a manual field inspection than with a stationary camera because tanks can be monitored in close proximity using portable devices such as handheld OGI cameras and toxic vapor analyzers (TVA).

Manual inspections with a portable OGI device can be more or less time intensive depending on how the inspection is conducted. If inspections are conducted for all components on each tank, approximately four tanks per day can be monitored individually from the tank platform. It is not cost-effective to require individual monitoring of each tank every two calendar weeks. Monitoring the entire tank farm from a distance would allow multiple tanks to be viewed in one frame, is less time intensive, and cost-effective to carry out more frequently when compared to individual component monitoring. Large leaks can be identified quicker when conducting tank farm inspections, since the inspections would be carried out on a more frequent basis.

Costs and Cost-Effectiveness

Costs were obtained from the Proposed Amended Rule 1148.1 – Oil and Gas Production Wells rule development for handheld OGI cameras. A portable cooled OGI camera costs approximately

\$120,000 and requires replacement of the cryocooler every 3-4 years or every 10,000-13,000 hours of operation. Maintenance is estimated to cost \$1,500 per year. Staff analyzed cost-effectiveness for OGI tank farm inspections at increasing frequencies using handheld devices assuming owner or operator ownership of the cameras. The results are provided in Table 2-1 below.

Table 2-1: Cost-Effectiveness of OGI Inspection Frequencies

	Every two months	Monthly	Every two weeks	Weekly	Every other day	Daily
Total cost over 10 years (\$)	\$16,104,000	\$18,288,000	\$22,656,000	\$32,848,000	\$80,168,000	\$146,780,000
Total emission reductions (tons over 10 years)	1,061	1,326	1,467	1,529	1,574	1,591
Cost effectiveness (\$/ton VOC)	\$15,200	\$13,800	\$15,400	\$21,500	\$50,900	\$92,200
Incremental cost (\$/ton VOC)	N/A	\$8,200	\$31,000	\$164,400	\$1,051,600	\$3,918,400

Staff proposes OGI tank farm inspections every other calendar week, as the frequency is both cost-effective and incrementally cost-effective. PAR 463 will require OGI monitoring for all tanks meeting the capacity and vapor pressure thresholds in subdivision (d) and paragraph (e)(1). OGI tank farm inspections will not require an inspector to climb or access a tank unless vapors are observed that indicate malfunctioning equipment. Semi-annual OGI component inspections for floating roof tanks are also being proposed in PAR 463 to supplement other existing semi-annual inspections, such as gap measurements and Lower Explosive Limit (LEL) readings. Semi-annual OGI component inspections will require the inspector to conduct the inspection from the tank platform. Semi-annual component OGI inspections are proposed to identify smaller leaks that may go undetected during existing inspections and proposed OGI tank farm inspections. The cost-effectiveness to require every other calendar week OGI tank farm inspections is \$15,400. No additional costs were assumed for conducting OGI component inspections, as they can occur at the same time as other semi-annual inspections. Refer to Chapter 4 for details on costs and cost-effectiveness.

SUMMARY

Several technologies were assessed for their potential to reduce emissions from storage tanks. Cost-effectiveness was determined for each technology with the potential to reduce emissions. Based on the BARCT assessment, staff proposes to require doming for all external floating roof

tanks storing organic liquid with true vapor pressure of 3.0 psia and greater, more stringent gap requirements to reflect requirements in the U.S. EPA's 40 CFR Part 60 Subpart Kb, 98% emission control for fixed roof tanks, secondary seals on all floating roof tanks, and OGI inspections every other week for tank farm inspections and semi-annually for component inspections. Table 2-2 shows the cost-effectiveness for proposed requirements.

Table 2-2 — Cost-Effectiveness of Proposed Requirements

Proposed Requirement	Cost-Effectiveness (\$/ton)
Doming of EFR tanks storing organic liquids with a TVP of 3.0 psia or above	\$24,800
More stringent primary and secondary seal gap requirements	\$0
Secondary seals on all floating roof tanks	\$6,700
OGI tank farm inspections every other week	\$15,400

CHAPTER 3: PROPOSED AMENDED RULE 463

INTRODUCTION

PROPOSED AMENDED RULE STRUCTURE

PROPOSED AMENDED RULE 463

INTRODUCTION

PAR 463 establishes requirements for the storage of organic liquids in tanks. PAR 463 includes requirements for tank seals, emission control systems, doming, inspections and monitoring, reporting and recordkeeping.

The following information describes the structure of PAR 463 and explains the provisions incorporated from other source-specific rules. New provisions and any modifications to provisions that have been incorporated are also explained. PAR 463 also includes grammatical and editorial changes for clarity. Several requirements were moved to consolidate.

PROPOSED AMENDED RULE STRUCTURE

PAR 463 will contain the following subdivisions:

- a) Purpose*
- b) Applicability*
- c) Definitions*
- d) Tank Roof Requirements*
- e) Other Performance Requirements*
- f) Monitoring Requirements*
- g) Reporting and Recordkeeping Requirements*
- h) Exemptions*
- i) Test Methods*
- j) Ozone Contingency Measures*

PROPOSED AMENDED RULE 463

Subdivision (a) — Purpose

The purpose of this rule is to reduce VOC emissions from above-ground storage tanks storing organic liquids. Furthermore, PAR 463 contains a new purpose to establish contingency measures for ozone standards.

Subdivision (b) — Applicability

The applicability was separated from the purpose to reflect the current South Coast AQMD preferred rule format. There have been no other changes to the applicability.

Subdivision (c) — Definitions

Definitions were added or modified for clarity of new requirements. Key definition changes are referenced and discussed below.

- *COMPONENT is any valve, fitting, pump, compressor, pressure relief device, diaphragm, hatch, sight-glass, Roof Opening, Rim Seal System, pressure vacuum vents, guidepoles, roof legs, or meter in VOC service.*

This is a definition from Rule 1173 — Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants (Rule 1173) that was modified to include additional tank specific parts. The definition adds clarity on the meaning of component for the proposed semi-annual OGI component inspection requirement.

- *COMPONENT INSPECTION is monitoring for Visible Vapors with a handheld Optical Gas Imaging Device of a Storage Tank roof and individual components, including but not limited to Roof Openings and Rim Seal Systems, viewable from the Tank platform or a vantage point capable of seeing the Tank roof, and ground for components not viewable from the Tank platform or vantage point but viewable at ground level.*

This is a definition from Rule 1178 that was modified to include component inspection procedures for tanks that do not have access to a tank platform. In the event there is no platform from which a component inspection can be conducted, an owner or operator can use a vantage point capable of viewing the roof of the tank and/or other vantage points needed to complete the OGI inspection.

- *PRODUCT CHANGE is the process of changing the Tank contents from one Organic Liquid to another Organic Liquid that has different characteristics i.e. vapor pressure, viscosity, etc.*

This is a new definition to clarify the new rule language added in PAR 463 paragraph (e)(2) in response to stakeholder request.

- *VISIBLE GAP is a gap of more than 1/8 inch between any gasket or Seal and the opening that it is intended to control. Visible Gap for Primary and Secondary Seals is a gap that does not meet the requirements specified in subdivision (d).*

This is a definition from Rule 1178 that was modified to clarify that visible gaps can occur in both seals and gaskets.

- *VISIBLE VAPORS are any VOC vapors detected with an Optical Gas Imaging Device, when operated and maintained in accordance with manufacturer training or certification, or equivalent California Air Resources Board (CARB) training, user manuals, specifications, and recommendations.*

This is a definition from Rule 1178 that was modified to include the CARB OGI camera training as an approved training method for OGI camera operators. The definition was also modified to remove the reference to tank farm inspections and component inspections so that visible vapors can be identified outside of those two operations.

The following definitions were added or modified to be consistent with the definitions Rule 1149 – Storage Tank and Pipeline Cleaning and Degassing (Rule 1149), Rule 1173, and Rule 1178:

- *ACCESS HATCH*
- *CERTIFIED PERSON*
- *CLEANING*
- *DOMED ROOF*
- *EMISSION INVENTORY YEAR*
- *EXTERNAL FLOATING ROOF TANK*
- *FACILITY*
- *FIXED ROOF SUPPORT COLUMN AND WELL*
- *FIXED ROOF TANK*
- *FLEXIBLE ENCLOSURE SYSTEM*
- *FUEL GAS SYSTEM*
- *GAUGE FLOAT*
- *GAUGE HATCH/SAMPLE PORT*
- *GUIDEPOLE*
- *INTERNAL FLOATING ROOF TANK*
- *LADDER AND WELL*
- *LIQUID MOUNTED PRIMARY SEAL*
- *MECHANICAL SHOE PRIMARY SEAL*
- *OPTICAL GAS IMAGING DEVICE*
- *POLE FLOAT*
- *POLE SLEEVE*
- *POLE WIPER*
- *PRIMARY SEAL*
- *RESILIENT FILLED PRIMARY SEAL*
- *RIM MOUNTED SECONDARY SEAL*
- *RIM SEAL SYSTEM*
- *RIM VENT*
- *ROOF DRAIN*
- *ROOF LEG*
- *ROOF OPENING*
- *SECONDARY SEAL*
- *SLOTTED GUIDEPOLE*
- *STORAGE TANK or TANK*

- *TANK FARM INSPECTION*
- *TRUE VAPOR PRESSURE*
- *VACUUM BREAKER*
- *WASTE STREAM TANK*

Subdivision (d) — Tank Roof Requirements

PAR 463 includes revisions to existing requirements and new requirements. PAR 463 establishes requirements for rim seal gaps, secondary seals, emission control systems, doming, testing, implementation and monitoring.

Primary and Secondary Seal Gap Requirements – Clause (d)(1)(A)(v)

New seal gap requirements for primary and secondary seals were added by reference to reflect seal gap requirements contained in U.S. EPA's 40 CFR 60 Subpart Kb. The new seal gap requirements are in addition to the existing seal gap requirements specified in clauses (d)(1)(A)(i) to (d)(1)(A)(iv). Seal gap requirements are contained under requirements for external floating roofs but apply to all floating roof tanks; requirements for other floating roof tanks refer to subparagraph (d)(1)(A).

Vapor Tight Requirements for Openings – Subparagraphs (d)(1)(D), (d)(2)(A), (d)(3)(A), (d)(3)(B), and (d)(4)(A)

New language was added to clarify that covers and openings must be controlled in a manner that is vapor tight. Vapor tight is a defined term in Rule 463. Domed external floating roof tanks also have requirements to be in a vapor tight condition, as subparagraph (d)(4)(A) refers to paragraph (d)(1).

Maintain Tanks Free of Visible Vapors for External Floating Roof Tanks – Subparagraphs (d)(1)(G), (d)(2)(C), (d)(3)(D), and (d)(4)(C)

PAR 463 requires tanks to be free of visible vapors that could result from a defect determined by an optical gas imaging inspection. Defects can be anything that leads to uncontrolled emissions such as a physical malfunction, a hatch improperly closed, or components not operating as intended. For example, visible vapors resulting from a pressure vacuum relief valve (PVRV) opening to relieve pressure build up is allowable. However, if that same PVRV does not re-seal properly after being opened then that is considered a defect. Requirements to maintain tanks free of visible vapors are contained under requirements for external floating roof tanks but applies to all tanks; requirements for other tanks refer to subparagraph (d)(1)(G).

Visible Vapor Cause Determination – Clause (d)(1)(G)(i)

If an OGI camera detects visible vapors and an owner or operator claims the vapors are not the result of a defect, then the owner or operator must demonstrate that the vapors in question are not the result of a defect. This provision is intended to put the onus on the owner or operator to prove their claim that visible vapors detected by an OGI camera is allowable by Rule 463 (e.g. PVRV opening to temporarily relieve pressure build up). Requirements for the owner or operator to demonstrate that visible vapors are not the result of a defect are contained under requirements for

external floating roof tanks but applies to all tanks; requirements for other tanks refer to subparagraph (d)(1)(G), which includes clause (d)(1)(G)(i).

Doming Requirements – Subparagraph (d)(1)(H)

PAR 463 requires that facilities install a dome on any external floating roof tank storing organic liquid with a true vapor pressure of 3 psia or greater. The new provision reflects existing doming requirements in Rule 1178. External floating roof tanks that meet the requirements of subparagraph (d)(1)(H) must install domes at the next internal API 653 inspection or the next time a tank is cleaned and degassed, whichever is sooner, but not to exceed 23 years after a test verifies that an organic liquid stored has a TVP of 3 psia or greater. Internal API 653 inspections require the tank to be taken out of service to inspect the inside of the tank and are carried out every 20 years. Tanks need to be cleaned and degassed prior to the installation of a dome for safety concerns. Furthermore, doming is not cost-effective when cleaning and degassing costs are considered. The implementation timeframe for doming begins three years after *[Date of Adoption]* to account for planning and budgetary needs and the permitting process. It is the responsibility of the owner or operator to submit permit applications in a timely manner to ensure that permits can be issued prior to the implementation schedule specified in subparagraph (d)(1)(H). The backstop of 23 years for installing domes was calculated by adding the three year on-ramp period to the standard 20-year interval for internal API 653 inspections. The effective date of this provision is June 7, 2027.

True Vapor Pressure Measurements – Subparagraph (d)(1)(I)

Facilities are required to measure and record the true vapor pressure of the organic liquid inside any external floating roof tank not equipped with a dome with an initial vapor pressure test. Any tanks storing organic liquids with a TVP less than 3.0 psia are required to conduct subsequent tests on a semi-annual basis (once every six months) to verify the true vapor pressure remains less than 3 psia. This requirement is effective on January 1, 2025, and the first test must be conducted by July 1, 2025. If an EFR tank shows a single test indicating the stored organic liquid has a TVP of ≥ 3.0 psia a dome must be installed pursuant to the implementation schedule in subparagraph (d)(1)(H) unless the tank is placed out of service and the permit is surrendered or if the owner or operator elected to conduct TVP tests according to the alternative schedule specified in clauses (d)(1)(I)(i). An EFR tank with permit conditions that limit the true vapor pressure of the organic liquid stored to < 3.0 psia is not exempt from the doming requirements, if the result from a test specified in subparagraph (d)(1)(I) or the average result from tests specified in clause (d)(1)(I)(i) is ≥ 3.0 psia, with the exception of EFR tanks storing waste water where the installation domes can lead to unsafe conditions pursuant to subparagraph (d)(1)(J). However, owners or operators of EFR tanks that are pursuing the alternative compliance pathway in subparagraph (d)(1)(J) may be subject to penalties and/or additional actions if TVP tests indicate that the product stored is ≥ 3.0 psia.

Alternative True Vapor Pressure Measurements – Clauses (d)(1)(I)(i)

An owner or operator can choose to conduct monthly TVP tests and submit an average TVP of the organic liquid stored in a tank every six months. If an owner or operator opts to use this alternative pathway, the owner or operator must commence testing in January 2025. Any owner or operator that fails to test monthly as of January 2025 must comply with the semi-annual TVP test requirements specified in subparagraph (d)(1)(I). If an EFR tank subject to the alternative TVP testing schedule has an average TVP over six months that is ≥ 3.0 psia, a dome must be installed

pursuant to the implementation schedule in subparagraph (d)(1)(H) unless the tank is placed out of service and the permit is surrendered. The average test results are not to be calculated on a rolling average. Each calculated six month average will include the TVP test results from tests conducted from January-to-June and July-to-December each year.

Doming Alternative for Tanks with Pyrophoric Material – Subparagraph (d)(1)(J)

For waste water EFR tanks where the installation of a dome could lead to the buildup of pyrophoric materials, PAR 463 includes an option to accept permit conditions to limit the TVP of the organic liquid stored to less than 3 psia as an alternative to doming.

Removal of Alternative Compliance Pathway for Fixed Roof Tanks with an Internal Floating Type Cover from Paragraph (d)(2)

An alternative compliance pathway which allowed fixed roof tanks with an existing internal floating type cover approved on or before June 1, 1984, to comply with requirements applicable at the time of approval was removed from paragraph (d)(2). All fixed roof tanks with internal floating type covers will be required to comply with the provisions in PAR 463.

Seal Requirements for Internal Floating Roof Tanks – Subparagraph (d)(2)(A)

Internal floating roof tanks must be equipped with both a primary and secondary seal. Primary seal and secondary seal are defined terms in PAR 463. In response to a comment from a stakeholder, the mechanical shoe primary seal requirements for IFR tanks were updated to require that one end of the shoe extend 6 inches above the liquid surface and the other end extend into the liquid a minimum of 4 inches. The proposed PAR 463 requirements align with Rule 1178 and are consistent with the API 650.H.4.4.5.c requirements. Rule 463 subparagraph (d)(1)(A) requires that mechanical shoe primary seals extend a minimum vertical distance of 24 inches above the surface of the organic liquid. Since the internal floating roofs are much lighter structures and are not subject to the effects of wind, larger mechanical shoe primary seals are not required for seal control effectiveness. Furthermore, maintaining the current requirement of larger mechanical shoe primary seals for all internal floating roof tanks could cause some roof systems to fail and could result in an adverse emission impact. During the 2006 Rule 1178 amendment process staff determined, based on information provided by seal manufacturers, there is no difference in emissions as long as the mechanical shoe length meets the API Guidelines and the structural integrity of the roof is maintained.

Compliance Schedule to Install Secondary Seals on Internal Floating Roof Tanks – Subparagraph (d)(2)(D)

Any internal floating roof tanks not equipped with a secondary seal are required to have a secondary seal installed at the time of the next internal API 653 inspection or the next time the tank is cleaned and degassed, whichever is sooner, but no later than 22 years past the date of adoption for PAR 463. Internal API 653 inspections require the tank to be taken out of service to inspect the inside of the tank and are carried out every 20 years. Tanks need to be cleaned and degassed prior to the installation of secondary seals due to safety concerns. The implementation timeframe for installing secondary seals begins two years after *[Date of Adoption]* to account for planning and budgetary needs as well as the permitting process. It is the responsibility of the owner or operator to submit permit applications in a timely manner to ensure that permits can be issued prior to the implementation schedule specified in subparagraph (d)(2)(D).

Vapor Recovery Systems for Fixed Roof Tanks – Subparagraph (d)(3)(C)

Vapor Recovery systems required on fixed roof tanks must achieve 98% control efficiency by weight. The owner or operator is required to submit early Title V permit revisions pursuant to South Coast AQMD Rule 3005.

Domed External Floating Roofs – Paragraph (d)(4)

Staff added a new paragraph to specify requirements for domed external floating roofs.

Roof Openings and Rim Seal Systems for Domed External Floating Roofs – Subparagraph (d)(4)(A)

Domed external floating roofs are subject to the same requirements as external floating roofs to equip and maintain roof openings and rim seal systems, with the exception of slotted guidepoles. Specific requirements for the components needed for slotted guidepoles are specified in subparagraph (d)(4)(A).

Concentration of Organic Vapor for Domed External Floating Roofs – Subparagraph (d)(4)(B)

Subparagraph (d)(4)(B) is based on the requirements in subparagraph (d)(2)(B) to ensure that the concentration of organic vapor in the vapor space above the floating roof does not exceed 30% of its lower explosive limit.

Condition Requirements for Domed Roof – Subparagraph (d)(4)(D)

Subparagraph (d)(4)(D) mirrors Rule 1178 and specifies that domes must be maintained in a condition that is free from openings that are not part of the dome design such as gaps, cracks, separations and other openings. This requirement excludes openings that are part of the dome design such as vents and access points or doors.

*Subdivision (e) – Other Performance Requirements*Exceptions for Floating Roof During Product Change – Paragraph (e)(2)

The proposed amended rule includes product change as an activity in which an internal floating roof or external floating roof does not need to float on the organic liquid. Product change is a defined term in PAR 463. Staff updated the rule language in response to a stakeholder request. The proposed amended rule language clarifies the intent of existing rule language as tanks must be emptied during a product change, which requires floating roofs to rest on support legs (unless the roof is cable suspended).

Executive Officer Approval of Alternative Seals – Paragraph (e)(5)

Seals that are not on the current list of approved seals cannot be used unless a facility is given written approval by the Executive Officer.

Use of PAR 463 Addendum for Vapor Pressure Limits – Paragraph (e)(6)

Organic liquids listed on the Rule 463 addendum can no longer be deemed to be in compliance. The addendum can be used as a guide for compliance with the appropriate vapor pressure limits.

*Subdivision (f) — Monitoring Requirements*Tank Roof Refloating Seal Inspections — Subparagraph (f)(3)(B)

PAR 463 extends the time to conduct required seal inspections on floating roofs to 48 hours after a tank roof is refloated. A stakeholder stated that tank refilling at their facility can take up to 48 hours to complete. Under the current rule requirements, facilities are required to conduct seal inspections within 24 hours. Therefore, facilities with tank refilling operations longer than 24 hours are required to conduct seal inspections before the tank refilling is complete; once the seal inspection is completed the facility resumes tank refilling operations. The pause in operations can lead to unintended excess auxiliary emissions. For example, if a vessel is used to refill a large tank that takes more than 24 hours to complete, the process must pause for the inspection to occur and then continue. During this pause the vessel is on standby, generating emissions. The extended seal inspection deadline accounts for longer refill operations while maintaining a deadline for seal inspections.

Electronic Notifications – Subparagraph (f)(3)(C)

PAR 463 specifies electronic notifications to the email address designated by the Executive Officer. The timeframe to submit notifications was also shortened to 2 days prior to the start of any tank-emptying or roof-refloating operation for planned maintenance. Electronic notifications are almost instantaneous which reduces the need for a longer notification timeframe.

Optical Gas Imaging Inspections – Subparagraph (f)(3)(D)

Effective July 1, 2025, optical gas imaging inspections are required for tanks that meet the capacity and vapor pressure requirements specified in subdivision (d) and paragraph (e)(1) to determine compliance with the requirement for tanks to be maintained in a condition that is free of visible vapors resulting from a defect or malfunction of equipment. This subparagraph contains the requirements for OGI inspections.

Certification/Training of Person Conducting OGI Inspection – Clause (f)(3)(D)(i)

Contains requirements for qualification for the persons conducting an OGI inspection. Persons conducting the OGI inspection must be certified, have undergone training provided by the manufacturer of the OGI camera, or have completed an equivalent CARB training program. The persons conducting the inspections must also complete all subsequent training or certification recommended by the OGI manufacturer, or have completed an equivalent CARB training program. This paragraph also contains requirements for proper operation and maintenance of the OGI device. The OGI camera must be operated and maintained in accordance with all manufacturer guidance including but not limited to that stated in any training or certification course, user manuals, specifications, recommendations.

Tank Farm Inspection Requirements – Clause (f)(3)(D)(ii)

Contains requirements for tank farm inspections.

Frequency (Tank Farm Inspection) – Subclause (f)(3)(D)(ii)(A)

Inspections must be conducted at least once every two calendar weeks.

Procedure (Tank Farm Inspection) – Subclause (f)(3)(D)(ii)(B)

A person using an OGI device is required to monitor for visible vapors with a tank farm inspection, as defined in PAR 463. If visible vapors are detected during a tank farm inspection, the person must conduct an additional inspection from the tank's platform, or a vantage point for tanks without a platform, to make an effort to determine the source of emissions. From the platform or vantage point, the person will use an OGI device to inspect components required to be maintained in a vapor tight condition or with no visible gaps. If visible vapors are detected from any components that are required to be maintained in a vapor tight condition or in a condition with no visible gaps, the facility must demonstrate compliance with applicable rule requirements for any component from which visible vapors are emitted or make a repair, within three days of identifying the visible vapors. If visible vapors are detected, the person must conduct a visual inspection to identify any defects in equipment from which visible vapors are emitted. Defects may include, but are not limited to, equipment that is not operating as intended, equipment not found in good operating condition, equipment not meeting all the requirements of Rule 463, or other indicators that equipment has failed (e.g., organic liquid pooled on a floating roof). The visual inspection for defects may include the use of an OGI device. If no defects are identified, no further action is required for the inspection. If a defect is identified, a repair must be made within three days.

Component Inspections – Clause (f)(3)(D)(iii)

Contains requirements for component inspections. Component is a defined term in PAR 463.

Frequency (Component Inspection) – Subclause (f)(3)(D)(iii)(A)

Inspections must be conducted at least twice per year at 4 to 8 month intervals for floating roof tanks. The component inspection frequency mirrors the timeframe specified in Rule 463 for other required semi-annual inspections, so that component inspections may be conducted at the same time.

Procedure (Component Inspection) – Subclauses (f)(3)(D)(iii)(B)-(C)

Repairs or demonstration with applicable rule requirements must be conducted when visible vapors are detected from any component or equipment, except for rim seal systems. Repairs or demonstrations with rim seal requirements must be conducted when a defect is visible from the tank platform, or a vantage point for tanks without a platform, and when visible vapors are emitted from the rim seal and are also detectable at the top of the tank shell or from roof vent.

Alternative Monitoring Method – Subparagraph (f)(3)(E)

An owner or operator may elect to use an alternative monitoring method approved in writing by the U.S. EPA that is equivalent or more stringent than the OGI inspection requirements specified in PAR 463. Alternative monitoring methods submitted to U.S. EPA for approval, but that have not received written approval from U.S. EPA, do not qualify as an approved alternative method in lieu of required OGI inspections. An owner or operator is required to submit written documentation of the U.S. EPA approved method to the South Coast AQMD, so staff can verify that the method is approved by U.S. EPA prior to the alternative monitoring method being implemented. Until the approved monitoring method is approved by South Coast AQMD, an owner or operator is subject to the OGI inspection requirements in PAR 463.

Performance Tests for Vapor Recovery Systems – Paragraph (f)(5)

An owner or operator of an existing vapor recovery system must conduct an initial performance test to verify compliance with the new control efficiency within one year of the date of adoption of PAR 463. Additional performance tests must be conducted for all vapor recovery systems at a frequency of least once every ten years. If a vapor recovery system is changed in any way that affects the capture or control efficiency, a performance test must be conducted within 180 days of the equipment modification. For example, changing the temperature in which a combustion based vapor recovery unit achieves ignition may lead to a change in the achieved control efficiency. Under the described scenario, a performance test would need to be conducted within 180 days of the vapor recovery system modification to verify compliance with the control efficiency requirements. Fuel gas systems operating to comply with the requirements in subparagraph (d)(3)(C) are not required to conduct performance tests.

*Subdivision (g) – Reporting and Recordkeeping Requirements*Electronic Compliance Inspection Report Option – Subparagraph (g)(1)(A)

Paragraph (g)(A) was updated to allow for an electronic compliance inspection report, provided that all information required in Attachment B is included.

Electronic Option for Non-Compliance Report – Subparagraph (g)(1)(C)

Paragraph (g)(C) was updated to specify that a non-compliance report is required to be submitted electronically to the email address designated by the Executive Officer.

Emissions Reporting – Subparagraph (g)(2)(A)

U.S. EPA Tanks 4.0 was removed as an option to base emission information parameters on for South Coast AQMD's Annual Emission Reporting Program. U.S. EPA Tanks 4.0 was developed using a software that is now outdated and is not reliably functional. U.S. EPA currently recommends the use of formulas found in AP-42: Compilation of Air Pollutant Emissions Factors from Stationary Sources (AP-42), Chapter 7 to estimate VOC emissions from storage tanks. Currently the U.S. EPA is developing Tanks 5.0 as a replacement for the outdated Tanks 4.0. Pending U.S. EPA approval, Tanks 5.0 would be an acceptable tool to calculate emissions, for as long as U.S. EPA deems Tanks 5.0 to be an appropriate tool to estimate VOC emissions.

Reporting and Recordkeeping Requirements for OGI Inspections – Paragraph (g)(4)

Contains notification and recordkeeping requirements for OGI inspections.

Reporting for OGI Inspections – Subparagraph (g)(4)(A)

Contains reporting requirements for tank farm inspections. Facilities must report to 1-800-CUTSMOG when visible vapors are detected during a tank farm inspection that require a demonstration with rule requirements or a repair pursuant to the requirements of subclause (f)(3)(D)(ii)(B) within 24 hours of identifying the visible vapors.

Records for Tank Farm Inspections – Subparagraph (g)(4)(B)

Contains recordkeeping requirements for tank farm inspections. Written and digital records must be kept for findings of visible vapors resulting from a defect in equipment or from components required to be vapor tight or with no visible gap.

Records for Component Inspections – Subparagraph (g)(4)(C)

Contains recordkeeping requirements for component inspections.

Recordkeeping and Reporting TVP Test Results – Paragraphs (g)(5) and (g)(6)

Contains recordkeeping and reporting requirements for the TVP tests required for EFR tanks. Test results must be kept for 20 years to confirm tanks are under the doming TVP thresholds. Any test that indicates a TVP of 3.0 psia or greater must be reported to the South Coast AQMD and contain the year of the next internal API 653 inspection and the next planned time a tank is to be cleaned and degassed to aid in determining compliance with the dome installation schedule.

Reporting for VRU Performance Tests – Paragraphs (g)(7)

Contains reporting requirements for VRU performance tests. Facilities must submit reports of any performance tests within 60 days of conducting the test.

*Subdivision (h) – Exemptions*Exemption for Tanks Regulated by Rule 1178 – Paragraph (h)(3)

An exemption from the provisions of Rule 463 for tanks regulated by Rule 1178, with the exception of other performance requirements, seal categories, and the definition for Product Change, was added to PAR 463. The new exemption increases clarity of compliance requirements for affected facilities subject to Rules 463 and 1178.

Exemption from OGI Inspections – Paragraph (h)(4)

Any tank that is out of service and complying with the requirements of Rule 1149 is exempt from OGI inspections. OGI inspections must resume once the tank is refilled and the initial inspection must be carried out within 14 days of the date the tank is refilled.

Exemption from OGI Inspections Due to Safety – Paragraph (h)(5)

If a facility or person responsible for conducting an OGI inspection at a facility determines that it is unsafe to climb a tank due to safety concerns, such as wind or slippery surfaces from rain, the facility is not required to conduct an inspection from the tank platform, or other vantage point for tanks without a platform. A component inspection for tanks that were identified as having visible vapors during a tank farm inspection must be conducted the first day the facility or person responsible for conducting the OGI inspection determines it safe to do so. An owner or operator is required to document the date that a required inspection was not completed and the reason.

*Subdivision (i) – Test Methods*Additional Vapor Pressure Test Methods – Paragraph (i)(3)

Contains the approved test methods to verify compliance with Rule 463 requirements. New test methods were added to expand the test options used to determine the Reid Vapor Pressure of organic liquids. The new test methods include ASTM – 6377 and ASTM – 6378 which provide updated testing procedures for crude oils and heavier petroleum products, respectively. Additional changes include the removal of references to specific editions of U.S. EPA AP-42 and updates to include the verification of the new vapor tight requirements.

Removal of Reference to AP-42 Fifth Edition – Paragraph (i)(5)

A reference to the fifth edition of U.S. EPA AP-42 was removed, as future versions of AP-42 may be published. Removing the reference to the specific edition will reduce the need for future Rule 463 amendments.

Verification of Vapor Tight – Paragraph (i)(6)

Contains the methods used to determine the vapor tight condition for storage tanks.

Subdivision (j) – Ozone Contingency Measure

The proposed amendments add the required ozone contingency measures to the rule. These contingency measures would only be implemented in the event that the U.S. EPA determines that the South Coast AQMD had failed to meet an RFP milestone or attain an ozone NAAQS. These contingency control measures are necessary as part of comprehensive efforts to timely attain ozone standards.

When implemented, the proposed contingency measures would automatically establish increased OGI tank farm inspection frequencies for storage tanks that contain organic liquids with a TVP of 5.0 psi or greater. The contingency measures would be triggered upon the issuance of a final determination by the U.S. EPA that the South Coast AQMD has failed to comply with either of the following requirements:

1. Meet any ozone RFP requirement in an attainment plan approved in accordance with section 51.1012; or
2. Attain the applicable ozone NAAQS by the applicable attainment date.

PAR 463 includes contingency measures for both the South Coast Air Basin and the Coachella Valley which require weekly OGI tank farm inspections for tanks storing product with a TVP greater than or equal to 5.0 psi. Triggering the contingency measure for the South Coast Air Basin will result in an estimated additional 2,038 pounds per year of VOC reduction. Triggering the contingency measure for the Coachella Valley Air Basin will result in an estimated additional 36.4 pounds per year of VOC reduction.

Contingency measures should provide for emission reductions approximately equivalent to either one year's worth of air quality improvement or one year's worth of reductions needed for RFP in the years following RFP milestone and attainment years. While the proposed amendments in Rule 463 satisfy a 'triggering mechanism' requirement set by the U.S. EPA, the reductions from the rule alone are not adequate to satisfy the one-year's worth (OYW) of progress, which is calculated as the percentage of the base year emission inventory (EI) the annual rate of reductions represents of either NO_x or VOC (or combined) per year. See the equation 3-1 below for an example.

Equation 3-1: Equation to Calculate OYW

$$\frac{(\text{base year EI} - \text{attainment year EI})}{(\text{attainment year} - \text{base year})} \div \text{base year EI} \times \text{attainment year EI} = \text{OYW of Progress}$$

Contingency measures are required to result in emission reductions within 60 days of a final action by the U.S. EPA. It would be challenging to implement more stringent requirements, achieving additional NO_x or VOC reductions, in rules involving other traditional sources within the mandated 60-day period. Retrofitting and/or replacement of existing equipment with newer technologies and/or equipment which involve permitting requirements would likely take more than 60 days to effectively implement. Conversely, the proposed amendment to Rule 463 for OGI tank farm inspections does not require permit applications, does not require units be retrofitted or replaced, and does not require reformulation or development of new products. Consequently, Rule 463 is well suited for contingency provisions since implementing higher frequency OGI tank farm inspection monitoring could be easily implemented in less than 60 days following the triggering of a contingency measure.

Based on the above analysis, the South Coast AQMD will satisfy the contingency requirements in CAA section 172(c)(9) and the U.S. EPA's Ozone Implementation Rule with these proposed amendments to Rule 463. PAR 463 provides contingency measures to be triggered if the South Coast Air Basin or Coachella Valley fails to meet RFP or attain the applicable ozone standards by the applicable date. The emission reductions anticipated from PAR 463, in conjunction with reductions from existing rules and regulations, are expected to achieve the reductions equivalent to or more than OYW of progress. PAR 463 addresses the contingency measures for RFP and attainment for the applicable ozone standards (2008 & 2015 8-hour ozone NAAQS).

CHAPTER 4: IMPACT ASSESSMENTS

INTRODUCTION

EMISSION REDUCTIONS

COSTS AND COST-EFFECTIVENESS

INCREMENTAL COST-EFFECTIVENESS

SOCIOECONOMIC IMPACT ASSESSMENT

CALIFORNIA ENVIRONMENTAL QUALITY ACT ANALYSIS

DRAFT FINDINGS UNDER HEALTH AND SAFETY

CODE SECTION 40727

COMPARATIVE ANALYSIS

INTRODUCTION

Impact assessments were conducted as part of PAR 463 rule development to assess the environmental and socioeconomic implications. These impact assessments include emission reduction calculations, cost-effectiveness and incremental cost-effectiveness analyses, a socioeconomic impact assessment, and a California Environmental Quality Act (CEQA) analysis. Staff prepared draft findings and a comparative analysis pursuant to Health and Safety Code Sections 40727 and 40727.2, respectively.

EMISSION REDUCTIONS

PAR 463 will establish more stringent control and monitoring requirements that result in emission reductions. The proposed amendments will introduce requirements for doming and increase the stringency of existing requirements for seals, emission control systems, and monitoring. Emission reductions were calculated based on estimated baseline emissions and the expected efficacy for the proposed control or monitoring requirement. BREEZE TankESP PRO software was used to determine baseline emissions and emission reductions for proposed control requirements. This software calculates tank emissions based on emissions estimate procedures from Chapter 7 of U.S. EPA's Compilation of Air Pollutant Emission Factors for VOC emissions from storage tanks. Calculated emissions are based on many parameters such as tank diameter, tank height, controls, location of tank, product stored, characteristics of product stored and product throughput. U.S. EPA's estimates for uncontrolled tanks contained in the 2016 CTG were used to determine baseline emissions in the cost-effectiveness analysis for implementing OGI inspections. Staff did not evaluate the emission reductions associated with PAR 463 requirements from tanks subject to both Rules 463 and 1178 because they were already accounted for as part of the Rule 1178 rule development. The total estimated emission reductions from the implementation of PAR 463 is 1.65 ton per day.

Doming

BREEZE TankESP PRO software was used to calculate baseline emissions and emission reductions from doming. Using 2022 AER reports, staff randomly selected a sample of EFR tanks with known throughput data (40% of the 89 known EFR tanks regulated by Rule 463) that provide a 95% confidence interval. In the 35-tank sample, there were 20 tanks storing organic liquids under 3.0 psia and eight tanks were already domed. Staff identified seven external floating roof tanks without domes storing organic liquids with a TVP of 3.0 psia or greater. The size range of the tanks captured by the random sample are 30 feet to 144 feet. Staff included two additional tanks at 253 feet and 299 feet into the sample to account for the larger tank diameters regulated by PAR 463. Staff used 2019 Annual Emission Reports to identify the throughput for each tank and facility provided data for the 253 feet and 299 feet diameter tanks. It was determined that reported throughputs in 2019 were more representative of normal operations compared to 2022, as one of the tanks was lacking throughput data in 2022. The total VOC emission reductions from doming the sample group over the life of the equipment (50 years) is 402.72 tons, or 0.022 tons per day. The sample makes up 45% of the tanks that will be subject to the doming requirements. Applying the sample reductions to the whole universe gives a total estimated VOC emission reduction of 894.94 tons over 50 years or 0.049 tons per day.

Secondary Seals

BREEZE TankESP PRO software was used to calculate baseline emissions and emission reductions from adding secondary seals to internal floating roof tanks not equipped with secondary seals. Five internal floating roof tanks were identified that meet this criterion according to 2022 Annual Emission Report information. Baseline emissions for the five tanks are 0.03 ton per day. The total VOC emission reductions from installing secondary seals on five internal floating roof tanks is 0.01 ton per day.

Seal Gap Requirements

Staff is including a reference to the U.S. EPA's CFR 40 Part 60 Subpart kb seal gap requirements. Since the requirement would only apply to facilities that are already subject to CFR 40 Part 60 Subpart kb, no emission reductions or costs will result from the updated seal gap requirements in PAR 463.

Vapor Recovery

BREEZE TankESP PRO was used to calculate emission reductions from increasing emission control efficiency from 95% to 98%, by weight, for fixed roof tanks connected to emission control systems. Tanks connected to fuel gas systems (typically found at refineries and oil and gas wells) were not included in the analysis. The 2022 Annual Emission Reports were used to identify the fixed roof tanks that meet the vapor pressure and capacity thresholds to trigger controls under PAR 463 and determine throughput. Staff identified nine fixed roof storage tanks connected to VRUs. Of the nine tanks identified, seven were regulated by Rule 1178 leaving only two tanks that would be subject to the increased VRU efficiency levels. Baseline VOC emissions for the two fixed roof tanks are 0.008 ton per day. Staff estimates there are 479 fixed roof storage tanks connected to vapor recovery systems. The VOC emission reductions associated with increasing emission control system efficiency to 98% by weight from 95% by weight are for all 479 tanks is 1.19 tons per day. Costs for vapor recovery systems include early Title V permit revisions pursuant to South Coast AQMD Rule 3005 – Permit Revisions as well as regular performance tests to verify compliance with the new control efficiency. Staff identified 40 Title V facilities regulated by Rule 463, and not regulated by Rule 1178. Staff assumes 60% of those facilities will need to submit early Title V revisions to update the permits conditions of the vapor recovery systems to reflect the new control efficiency standard of 98%, as well as other PAR 463 requirements. Total permit costs for the estimated 24 Title V facilities needing permit revisions are \$80,000. Staff is proposing performance tests every ten years to verify the systems are in compliance with the new standard. The total cost of performance tests over the course of ten years for the 479 tanks is \$18,780,200. The estimated emission reductions for the increase in control efficiency is 4,327 tons of VOC over ten years.

OGI Monitoring

Baseline emissions were estimated using emission factors established in U.S. EPA's 2016 Control Technology Guidelines for Oil and Gas Industry. Table 4-2 of the 2016 CTG contains emission estimates for an uncontrolled tank expressed in tons of VOC per year for different brackets of

throughput in barrels per day. The average throughput of fixed roof tanks storing crude oil was used to determine the bracket to consider for estimating emissions from an uncontrolled tank. The average throughput was 618 barrels per day which corresponded to estimated emissions of 97.7 tons per year or 0.26 tons per day.

To estimate baseline emissions from leaks, staff assumed that one percent of tanks subject to Rule 463 would experience a large leak once each year. The shortest frequency between inspections currently required is 180 days (semi-annual inspections). Staff assumed that a leak would occur 90 days after an inspection (90 days before the next semi-annual inspection). Total emissions using the emission factors in Table 4-2 of the 2016 CTG and the assumption that a leak would occur 90 days before the next semi-annual inspection and once per year results in baseline emissions of 159 tons per year.

The amount of VOC emission reductions achievable depends on the monitoring frequency. Emission reductions resulting from conducting monitoring at different frequencies were analyzed and are described in Chapter 2. PAR 463 will require OGI tank farm inspections every two weeks and semi-annual component inspections. The estimated VOC emission reductions from the proposed OGI tank farm inspections are 0.40 tons per day and based on the assumption that a leak would occur 7 days (1/2 the inspection frequency) after the previous inspection.

Emission reductions by requirement and total emission reductions are summarized in Table 4-1 below.

Table 4-1: Summary of Emission Reductions

Proposed Requirement	Emission Reductions (tons per day)
Doming	0.049
Secondary Seals	0.01
Seal Gap	0
Vapor Recovery	1.19
OGI Monitoring	0.40
Total	1.65

COSTS AND COST-EFFECTIVENESS

Health and Safety Code Section 40920.6 requires a cost-effectiveness analysis when establishing BARCT requirements. The cost-effectiveness of a control is measured in terms of the control cost in dollars per ton of air pollutant reduced. The costs for the control technology include purchasing, installation, operation, maintenance, and permitting. Emission reductions were calculated for each requirement and based on estimated baseline emissions. The 2022 AQMP established a cost-effectiveness threshold of \$36,000 per ton of VOC reduced. A cost-effectiveness that is greater than the threshold of \$36,000 per ton of VOC reduced requires additional analysis and a hearing before the Governing Board on costs. After adjusting for inflation, the cost-effectiveness threshold is \$40,168.49 per ton of VOC reduced (2023 U.S. Dollars).

The cost-effectiveness is estimated based on the present value of the retrofit cost, which was calculated according to the capital cost (initial one-time equipment and installation costs) plus the annual operating cost (recurring expenses over the useful life of the control equipment multiplied by a present worth factor). Capital costs are one-time costs that cover the components required to assemble a project. Annual costs are any recurring costs required to operate equipment. Costs for this proposal were obtained from available literature, vendors, and facilities.

Staff did not evaluate the costs, except as noted, or the emission reductions associated with PAR 463 requirements from tanks subject to both Rules 463 and 1178 because they were already accounted for as part of the Rule 1178 rule development. Additional details for costs and cost-effectiveness determinations are included in Chapter 2.

Secondary Seals

Costs to install secondary seals were obtained from the 2023 Proposed Amended Rule 1178 Final Staff Report. The cost to install a secondary seal is \$220 per linear foot. The cost to replace the rubber components of the seal 10 years after installation is \$42 per linear foot. Permitting costs are \$9,000 per permit. Storage tank diameters ranged from 70 feet to 110 feet. Total costs to install secondary seals over 20 years are \$412,000 with capital costs totaling \$325,000, annualized O&M costs totaling \$42,000 and permitting totaling \$45,000. The total emission reductions are 61.77 tons over 20 years or 0.01 ton per day. The cost-effectiveness to require secondary seals on internal floating roof tanks is \$6,700 per ton of VOC reduced.

Doming

PAR 463 Doming Costs

Costs for doming were obtained from the 2023 Proposed Amended Rule 1178 Staff Report. Using 2022 AER reports, staff randomly selected a sample of EFR tanks with known throughout data (40% of the 89 known EFR tanks regulated by Rule 463) that provide a 95% confidence interval. In the 35-tank sample, there were 20 tanks storing organic liquids under 3.0 psia and eight tanks were already domed. Staff identified seven external floating roof tanks without domes storing organic liquids with a TVP of 3.0 psia or greater. After receiving comments from stakeholders that the cost-effectiveness analysis did not adequately consider larger diameter tanks, staff included tanks with diameters of 253 feet and 299 feet. Cost-effectiveness analysis is based on the sample group and was applied to the remaining rule universe. Staff estimates that 20 tanks will need to be domed as a result of the proposed doming requirements in PAR 463. The diameters of the nine tanks in the sample ranged from 30 feet – 299 feet. Costs to dome tanks with this range in diameters are \$164,400-\$3,826,400. Additional capital costs were added for fire suppression systems and permitting. Fire suppression systems are not required for tanks located at non-refineries; however, costs for fire suppression systems were applied to all tanks. A total of \$945,000 (\$105,000 each system) was added for fire suppression systems. A total of \$79,731 was added for permitting 9

tanks (\$8,859 for each tank based on the current fee schedule in South Coast AQMD Rule 301 – Permitting and Associated Fees). The total installation cost to dome nine external floating roof tanks is \$8,405,300. The total O&M cost is \$546,900. The cost-effectiveness to require domes on nine tanks is \$24,800 per ton of VOC reduced.

Table 4-2: EFR Tank Sample Group for Doming Analysis

Tank ID	Diameter (ft)	Cost to Dome (\$)	O&M Cost (\$)	Permitting Cost (\$)	Fire Suppression Cost (\$)	Total Costs (\$)
1	144	624,000	68,000	8,859	105,000	806,000
2	144	624,000	68,000	8,859	105,000	806,000
3	48	203,000	34,000	8,859	105,000	350,000
4	30	164,000	27,000	8,859	105,000	305,000
5	70	263,000	42,000	8,859	105,000	418,000
6	60	234,000	38,000	8,859	105,000	385,000
7	60	234,000	38,000	8,859	105,000	385,000
8	253	2,234,000	108,000	8,859	105,000	2,455,000
9	299	3,826,000	124,000	8,859	105,000	4,065,000

Table 4-2 above represents the sample used for the BARCT analysis on doming. Staff estimates that 20 tanks will be domed as a result of the proposed requirement. The costs and reductions from the sample group have been scaled up to reflect the entire affected universe.

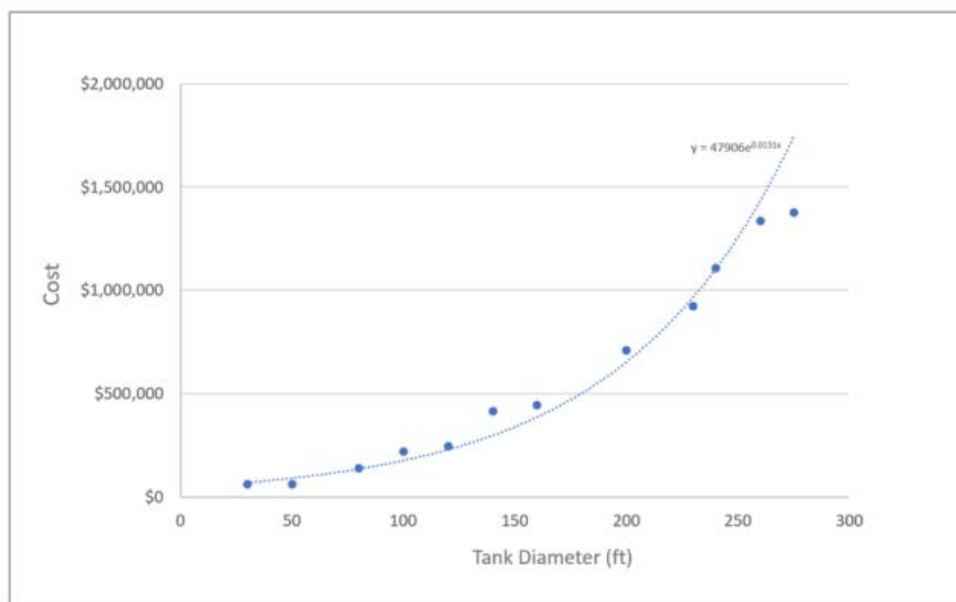
Cost Equations from the 2023 Rule 1178 Rule Development Process

During the 2023 Rule 1178 amendment process staff developed equations to estimate the costs associated with installing domes on EFR tanks. Costs were obtained from facilities, dome suppliers, and dome maintenance service providers. Four cost-effectiveness analyses were conducted based on the information provided to staff throughout the 2023 Rule 1178 development. The first analysis was based on cost information from dome suppliers for equipment and installation. After that analysis, facilities provided cost information from past projects and another cost-effectiveness analysis was conducted. After the second analysis, facilities provided additional cost information for past and projected projects and staff conducted a third analysis based solely on cost information provided by facilities. After the third analysis, stakeholders commented that operating and maintenance costs must be considered in the analysis. A fourth cost-effectiveness analysis was conducted that included operating and maintenance (O&M) costs.

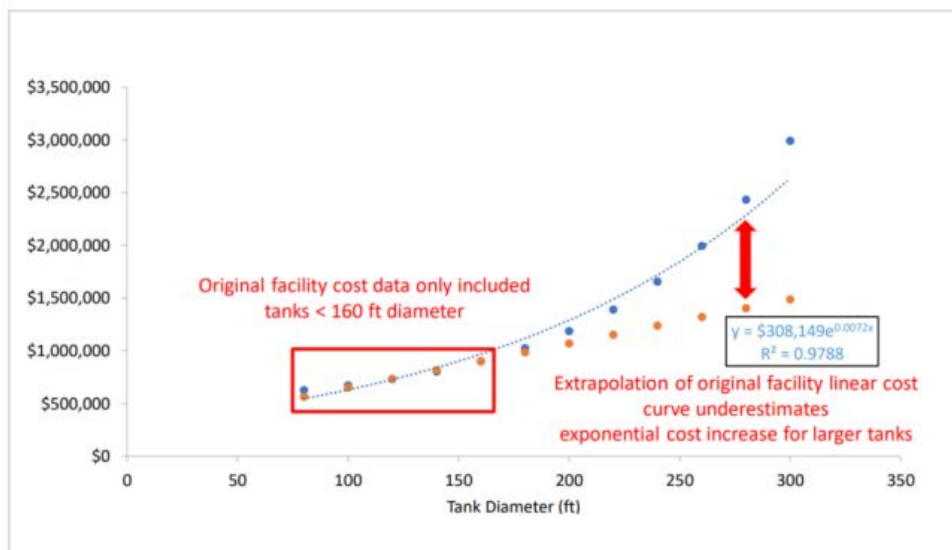
The first cost-effectiveness calculation relied on costs provided by three dome suppliers for equipment and installation. Additional costs for creating space for dome assembly, crane rental and union labor were assumed. A 25-year equipment life was assumed based on the assumption used for the cost-effectiveness for doming in Rule 1178 adoption in 2001. Costs ranged from approximately \$100,000 to \$1.75 million dollars for tanks ranging in size from 30 to 275 feet in

diameter. Figure 4.3 shows the cost curve based on estimates from dome suppliers for equipment and installation.

Figure 4.3 - Vendor Cost Curve



After the second cost-effectiveness analysis, facilities informed staff of additional expenses associated with doming and provided costs for doming tanks 160 feet in diameter and smaller. Costs provided were based on vendor quotes and past projects adjusted to reflect current day dollars. A 50-year equipment life was assumed based on updated information provided by dome suppliers. Two dome suppliers estimated a 50-year useful life, while one dome supplier estimated 30 years of useful life for a tank exposed to precipitation and additional load from snowfall. Staff determined that a 50-year useful life is reasonable and consistent with the condition of domes observed that were installed almost 20 years ago. A hybrid cost curve was created using vendor and facility cost data. To create the hybrid cost curve, staff added a calculated premium based on costs provided by facilities to the costs provided by vendors to reflect actual project costs. Costs ranged from approximately \$383,000 to \$2.25 million dollars for tanks ranging in size from 30 to 275 feet in diameter. Figure 4.4 shows the hybrid cost curve based on facility information for tanks less than or equal to 160 feet in diameter and vendor quotes for tanks ranging in size from 75 to 300 feet in diameter.

Figure 4.4 - Hybrid Cost Curve

After the second cost-effectiveness analysis, facilities provided additional cost information for doming 33 tanks, including tanks larger than 200 feet in diameter. Another cost-effectiveness analysis was performed and relied solely on facility data for total equipment and installation costs. Costs ranged from approximately \$165,000 to \$2.89 million dollars for tanks ranging in size from 30 to 275 feet in diameter. Figure 4.5 shows the cost curve for equipment and installation based on information provided by seven facilities. Figure 4.6 shows the resulting cost curves for each iteration.

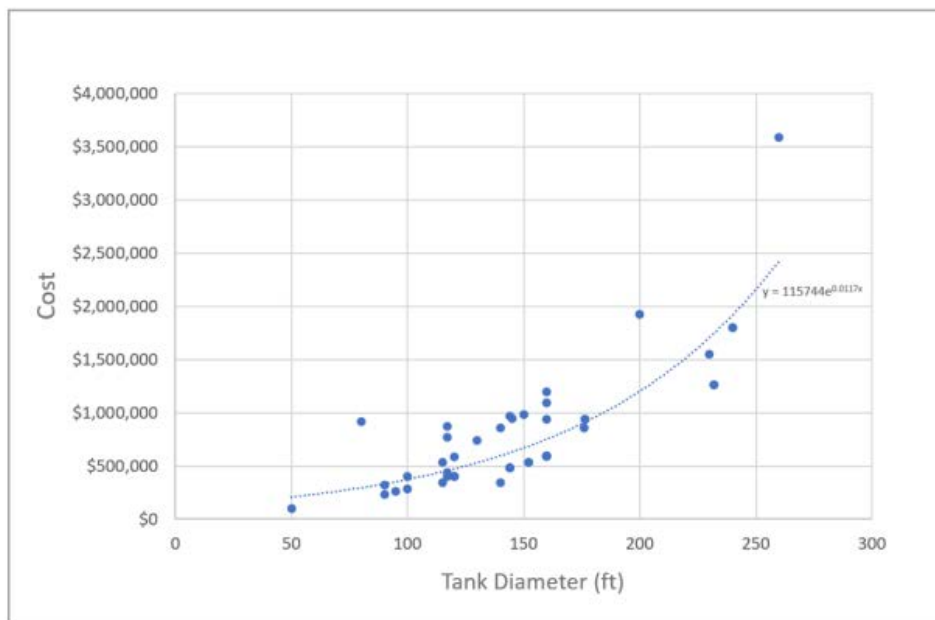
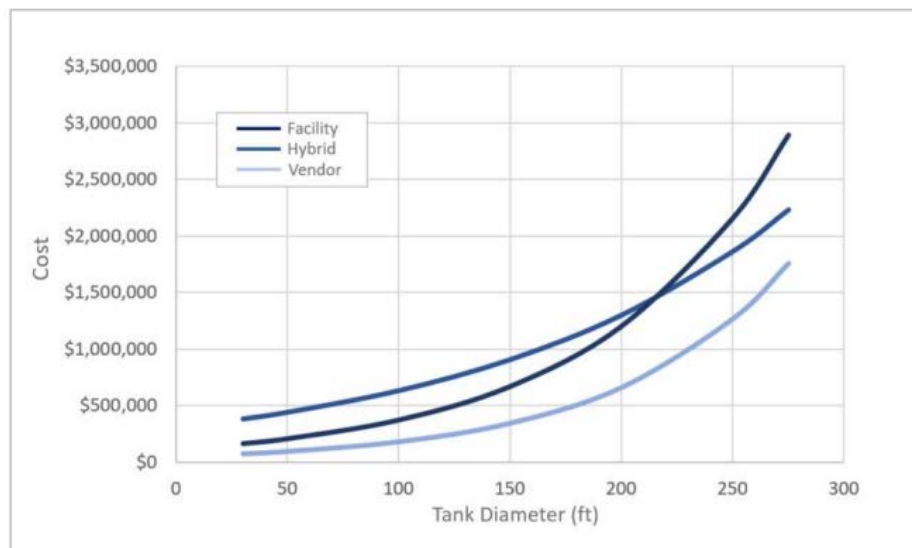
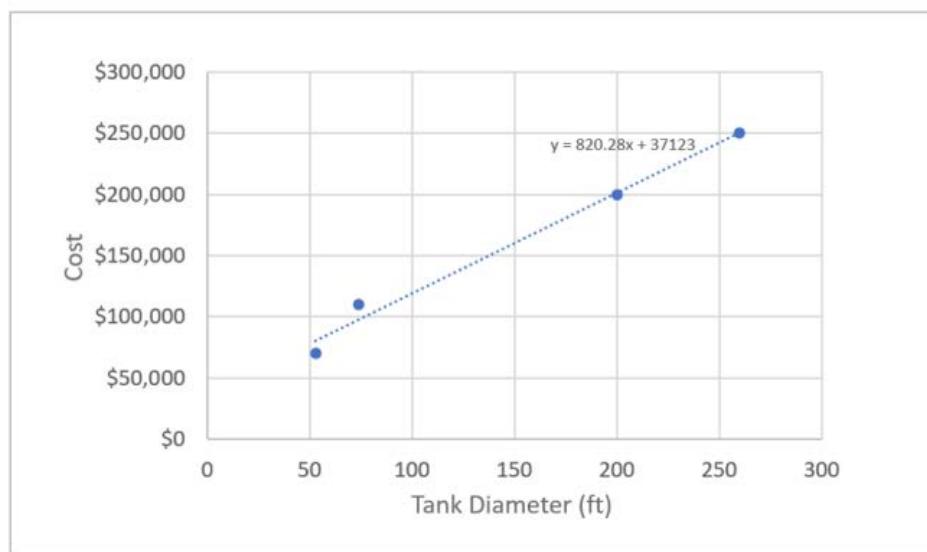
Figure 4.5 - Facility Cost Curve

Figure 4.6 - Cost Curve Comparison

Operating and Maintenance (O&M) Costs

Dome suppliers, dome maintenance providers, and facilities provided information about maintenance required to keep a dome in good operating condition. The typical maintenance for domes involves re-sealing of seams. Common signs of degrading seals and gaskets include panels pulling away from seams or bolts beginning to uplift from seams. One dome supplier stated that, over 46 years of operation, they have only witnessed the need for minimal maintenance to gaskets and seals. This supplier estimated that a complete re-seal or re-gasket may be needed after 20 years of dome service. Two dome maintenance service providers stated that typical maintenance they perform involves preparing the aluminum surface and applying a sealant or tape to the hubcaps and seams. The dome maintenance service providers estimated that re-sealing would be required every 10 to 25 or more years. One facility stated that they apply caulking to seal gaps on the dome and estimated that they would need to seal the dome about every 20 years. Costs were obtained from the dome maintenance service providers for tanks of different diameters. The cost-analysis assumes that maintenance would be required every 20 years (1.5 times throughout the 50-year life of the dome). The maintenance cost was estimated at \$70,000 for a 53-foot diameter tank, \$100,000 for a 74-foot diameter tank, \$200,000 for a 200-foot diameter tank, and \$250,000 for a 260-foot diameter tank. The cost curve used to estimate O&M costs for tanks of different diameters is shown in Figure 4.6. The discounted cash flow method at 4% was applied to determine total O&M cost.

Figure 4.6 – O&M Cost Curve*OGI Monitoring*

PAR 463 will require facilities to monitor storage tanks for leaks by conducting tank farm inspections with an OGI device every other calendar week for all tanks as well as semi-annual component inspections. Approximately 1,010 tanks will be subject to PAR 463, however, only above-ground stationary tanks with a capacity > 75,000 liters (19,815 gallons) storing organic liquid with TVP \geq 1.5 psi, above-ground stationary tanks with a capacity \geq 150,000 liters (39,630 gallons) storing organic liquid with TVP \geq 0.5 psi, above-ground tanks used to store gasoline with a capacity between 950 liters (251 gallons) and 75,000 liters (19,815 gallons), and tanks with the PTE to emit 6 tons per year or greater year used in Crude Oil And Natural Gas Production Operations will be subject to OGI inspections. Staff estimates that there are 679 tanks located at 429 facilities that are subject to Rule 463 and not subject to Rule 1178 that will be subject to the OGI monitoring requirements. Staff did not include tanks subject to both Rules 463 and 1178 in the cost-effectiveness analysis because the costs and emission reductions were already accounted for as part of the Rule 1178 rule development. However, the capital costs for OGI devices are conservative as a company subject to Rule 1178 may have multiple facilities, and some of those facilities may be subject to Rule 463, but not Rule 1178. In which case, the capital costs for OGI devices were accounted for in both the Rule 1178 rule development and PAR 463. Costs for OGI inspections were obtained from the 2023 Rule 1178 amendment process and the 2024 PAR 1148.1 rule development.

Staff assumed OGI camera ownership for each company identified under the Rule 463 affected universe. Staff estimates that 91 companies make up the 679 tanks subject to the OGI requirements. Camera costs are estimated at \$120,000 per device with a ten-year equipment lifespan. Operating and maintenance costs are estimated to be \$1,500 per year with an additional \$400 labor cost per inspection. The total capital cost for OGI inspections for 679 tanks is \$10,920,000 over the span of ten years. The total O&M cost is \$11,500,000. The cost-effectiveness to require OGI monitoring inspections every other calendar week is \$15,400.

The cost-effectiveness for each proposed requirement and the overall cost-effectiveness is summarized in Table 4-3 below.

Table 4-3 Summary of Cost-Effectiveness

Proposed Requirement	Annualized Cost	Annual Emission Reductions (Tons per Year)	Cost-Effectiveness (\$/ton)
Doming of EFR tanks storing organic liquids with a TVP of 3.0 psia or above	\$443,400	17.90	\$24,800
More stringent primary and secondary seal gap requirements	\$0	0	\$0
Secondary seals on all floating roof tanks	\$20,600	3.09	\$6,700
OGI inspections every other week	\$2,265,600	146.74	\$15,400
Increasing the control efficiency for VRUs	\$1,849,300	0*	N/A
Overall	\$4,578,900	167.73	\$27,300*

*The overall rule cost-effectiveness includes the costs associated with increasing the control efficiency of the vapor recovery units to 98%. Staff did not include the emission reductions from increasing the control efficiency for VRUs as part of the cost-effectiveness analysis as it is assumed facilities are already meeting the proposed standard. As such, the emission reductions are not included in Table 4-1 above, however, the emission reductions are being submitted for SIP credit.

INCREMENTAL COST-EFFECTIVENESS

Health and Safety Code Section 40920.6 requires an incremental cost-effectiveness analysis for BARCT rules or emission reduction strategies when there is more than one control option which would achieve the emission reduction objective of the proposed amendments, relative to ozone, CO, SO_x, NO_x, and their precursors. Since volatile organic compounds are precursors to ozone, an incremental cost-effectiveness analysis is required for controls proposed to limit VOC emissions. Incremental cost-effectiveness is the difference in the dollar costs divided by the difference in the emission reduction potentials between each progressively more stringent potential control option as compared to the next less expensive control option.

Incremental cost-effectiveness is calculated as following:

$$\text{Incremental Cost-Effectiveness} = \frac{\text{Cost of Option 2} - \text{Cost of Option 1}}{\text{Benefit of Option 2} - \text{Benefit of Option 1}}$$

PAR 463 would require facilities to conduct more stringent control or monitoring requirements. The next progressively more stringent potential control option (if applicable) is different for each proposed requirement.

Incremental Cost-Effectiveness for OGI Inspections

PAR 463 will require periodic OGI inspections. Staff analyzed costs and emission reductions from progressively more frequent intervals (annually to daily). The incremental cost-effectiveness is provided in Table 4-4. The most stringent frequency that is cost-effective and incrementally cost-effective is every other calendar week. The next progressively more stringent requirement is to require OGI inspections on a weekly basis. The total annual cost for weekly OGI inspections for all facilities is \$3,284,800 and the estimated reductions are 153 tons per year.

$$\text{Incremental cost-effectiveness} = (\$3,284,800 - \$2,265,600) / (152.9 - 146.7) = \$164,400 \text{ per ton of VOC reduced}$$

The incremental cost-effectiveness analysis presented above demonstrates that the alternative control option is not incrementally cost-effective when compared to the control strategy of the proposed amendments.

Incremental Cost-Effectiveness for Doming

PAR 463 will require facilities to dome any external floating roof tank storing organic liquid with a true vapor pressure of 3 psia or greater the next time the tank is cleaned and degassed, or the time of the next internal API 653 inspection but not to exceed twenty-three years after a test verifies that the organic liquid stored has a TVP of 3 psia or greater.

The next progressively more stringent requirement would be to require all external floating roof tanks to be domed, regardless of the TVP of the organic liquid stored. A cost-effectiveness analysis for doming all external floating roof tanks regardless of the TVP of the material stored was conducted. The same assumptions were made for doming all EFR tanks regardless of TVP as the cost-effectiveness analysis for doming tanks with TVP of 3 psia and greater. BREEZE TankESP PRO software was used to calculate emission reductions. Approximately 83.5% of EFR tanks storing material with TVP less than 3 psia are used to store heavy petroleum products such as diesel, jet fuel and kerosene. These products have a TVP of less than 0.1 psia. Because of the low TVP, far less emission reductions result in doming tanks storing such material. Staff analyzed EFR tanks for which emissions were reported in the 2022 Annual Emission Reports. The incremental cost-effectiveness to dome all tanks is:

$$\text{Incremental cost-effectiveness} = (\$93,575,711 - \$20,070,900) / (2080 - 894.94) = \$62,000 \text{ per ton of VOC reduced}$$

The incremental cost-effectiveness analysis presented above demonstrates that the alternative control option is not incrementally cost-effective when compared to the control strategy of the proposed amendments.

Table 4-4 Summary of Incremental Cost-Effectiveness

Proposed Requirement	More Stringent Potential Requirement	Incremental Cost-Effectiveness
OGI inspections every two weeks	Weekly OGI inspections	\$164,400
Doming for EFR tanks storing materials with a TVP \geq 3.0 psia	Doming for all EFR tanks	\$62,000

SOCIOECONOMIC IMPACT ASSESSMENT

~~A socioeconomic impact assessment will be prepared and released for public review and comment as a separate document at least 30 days prior to the South Coast AQMD Governing Board Hearing, which is scheduled for June 7, 2024 (subject to change). A Draft Socioeconomic Impact Assessment for PAR 463 was released for public review and comment on May 7, 2024. For a copy of the Final Socioeconomic Impact Assessment, please refer to Attachment I of the June 7, 2024, Governing Board package.~~

CALIFORNIA ENVIRONMENTAL QUALITY ACT ANALYSIS

PAR 463 is considered a “project” as defined by the California Environmental Quality Act (CEQA) and the South Coast AQMD is the designated lead agency. Pursuant to South Coast AQMD’s Certified Regulatory Program (Public Resources Code Section 21080.5 and CEQA Guidelines Section 15251(l); codified in South Coast AQMD Rule 110) and CEQA Guidelines Section 15070, the South Coast AQMD prepared an Environmental Assessment (EA) with less than significant impacts for PAR 463, which is a substitute CEQA document; prepared in lieu of a Negative Declaration pursuant to CEQA Guidelines Section 15252. A Draft EA was released for a 30-day public comment and review period from March 27, 2024 to April 26, 2024 to provide public agencies and the public an opportunity to obtain, review, and comment on the environmental analysis. ~~No comments were made relative to the analysis in the Draft EA, and responses to the comments will be included in~~ For a copy of the Final EA, please refer to Attachment H of the June 7, 2024 Governing Board package.

DRAFT FINDINGS UNDER HEALTH AND SAFETY CODE SECTION 40727

Requirements to Make Findings

Health and Safety Code Section 40727 requires that the Governing Board make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing and in the staff report. In order to determine compliance with Health and Safety Code Section 40727, Health and Safety Code Section 40727.2

requires a written analysis comparing the proposed amended rule with existing regulations, if the rule meets certain requirements.

Necessity

A need exists to amend PAR 463 to implement best available retrofit control technology, emission reduction strategies recommended in the WCWLB and SLA CERPs as part of the AB 617 commitment, Control Measure FUG-01 in the 2022 Final AQMP, and a contingency measure for the Coachella Valley Contingency Measure SIP Revision for the 2008 8-Hour Ozone Standard.

Authority

The South Coast AQMD obtains its authority to adopt, amend, or repeal rules and regulations pursuant to Health and Safety Code Sections 39002, 40000, 40001, 40440, 40702, 40725 through 40728, 40920.6, and 41508.

Clarity

PAR 463 is written or displayed so that its meaning can be easily understood by the persons directly affected by them.

Consistency

PAR 463 is in harmony with and not in conflict with or contradictory to existing statutes, court decisions, or state or federal regulations.

Non-Duplication

PAR 463 will not impose the same requirements as any existing state or federal regulations. The proposed amended rule is necessary and proper to execute the powers and duties granted to, and imposed upon, the South Coast AQMD.

Reference

In amending this rule, the following statutes which the South Coast AQMD hereby implements, interprets or makes specific are referenced: Health and Safety Code Sections 39002, 40001, 40406, 40702, 40440(a), and 40725 through 40728.5.

COMPARATIVE ANALYSIS

Under Health and Safety Code Section 40727.2, the South Coast AQMD is required to perform a comparative written analysis when adopting, amending, or repealing a rule or regulation. The comparative analysis is relative to existing federal requirements, existing or proposed South Coast AQMD rules and air pollution control requirements and guidelines which are applicable to storage tanks.

	PAR 463	Rule 1178	40 CFR 60
Applicability	<ul style="list-style-type: none"> •Stationary above-Ground storage tanks with capacity greater than 75K liters (19,815 gal) with volatile organic liquids with TVP of 1.5 psi or greater •Stationary above-ground storage tanks with capacity of 150K liters (39,630 gal) or greater than with volatile organic liquids with TVP of 0.5 psi or greater •Above-ground storage tanks used for gasoline with cap between 950 liters (251 gal) and 75k liters (19,815 gal) •Any tank with potential VOC emissions of 6 tons per year or greater used in Crude Oil or Natural Gas Production Operations 	<ul style="list-style-type: none"> •Storage tanks located at any Petroleum Facility that emits more than 40K lbs (20 tons) per year VOC in any inventory year starting in 2000 that: <ul style="list-style-type: none"> • Have the potential for VOC emissions of 6 tons per year or greater •Storage tanks with a capacity equal to or greater than 75K liters (19,815 gal) storing organic liquid with a TVP greater than 5mm Hg (0.1 psia) absolute under actual storage conditions 	<ul style="list-style-type: none"> •Storage constructed, reconstructed or modified after July 23, 1984 with capacity of 75 m3 or greater •Tanks with capacity of 19,185-39,889 gallons with a vapor pressure between 4 psia and 11.1 psia and tanks with capacity greater than 39,889 gal with vapor pressure between 0.75 psia and 11.1 psia
Requirements	<ul style="list-style-type: none"> •Seals/covers on all roof openings • Rim seals consisting of primary and secondary seals on all floating roof tanks •Vapor recovery systems on fixed roof tanks with at least 98% reduction by weight •Gap requirements for primary and secondary floating roof seals •Doming for EFR tanks storing organic liquids with a TVP of 3.0 psia or greater •Contingencies for the applicable ozone NAAQS 	<ul style="list-style-type: none"> •Fixed and floating roofs with 98% control •Seals/covers on all roof openings •Rim seals consisting of primary and secondary seals on all floating roof tanks •Vapor recovery with 98% efficiency on all fixed roof tanks •Gap requirements for primary and secondary floating roof seals •Doming for crude oil tanks 	<ul style="list-style-type: none"> •Seals and covers on all roof openings •Rim seals consisting of primary and secondary seals •Vapor recovery of 95% by volume on all fixed roof tanks •Gap requirements for primary and secondary seals •Fixed roofs with internal floating roofs only require one seal •External floating roofs require two seal system greater than or equal to 76.6 kPa (11psia) must have a control device or equivalent (fixed roof and internal floating roof)
Reporting	<ul style="list-style-type: none"> •Submit reports for all semi-annual inspections •Submit report for all leaks identified during any inspection •Executive Officer shall be notified electronically at least two days prior to the start of any tank-emptying or roof-refloating operation •Submit reports of TVP tests with results of 3.0 psia or above 	<ul style="list-style-type: none"> •Submit reports for all semi-annual and quarterly inspections (non-OGI) •Submit report for all leaks identified during any inspection 	<ul style="list-style-type: none"> •Inspection reports of floating roof tanks submitted within 30 days •For fixed roofs vented to a flare or incinerator a report shall be submitted indicating any period of pilot flame out within six months of initial start-up and on a semi-annual basis thereafter •Records to be kept for a minimum of two years

Monitoring	<ul style="list-style-type: none"> •Periodic gap measurements for floating roof tanks •OGI tank farm monitoring every two weeks for all tanks and additional semi-annual OGI inspections for floating roof tanks 	<ul style="list-style-type: none"> •Periodic gap measurements for floating roof tanks •Periodic Method 21 measurements for fixed roof tanks •Weekly OGI monitoring for all tanks and additional semi-annual OGI inspections for floating roof tanks 	<ul style="list-style-type: none"> •Measurements of gaps between the tank wall and the primary seal (seal gaps) shall be performed during the hydrostatic testing of the vessel or within 60 days of the initial fill with volatile organic liquid and at least once every five years thereafter •Measurements of gaps between the tank wall and the secondary seal shall be performed within 60 days of the initial fill with volatile organic liquid and at least once per year thereafter
Record Keeping	<ul style="list-style-type: none"> •Self-inspection and repair records must be held and available for a period of 3 years •All compliance inspection reports and documents shall be submitted to the Executive Officer either electronically or by hard copy within 5 working days of completion of the self-inspection •If a tank is determined to be in violation of the requirements of this rule, a written report shall be submitted to the Executive Officer within 120 hours of the determination of non-compliance •Emissions reports must be held and available for the most recent two year period •TVP test results must be kept for the most recent 20 year period •Digital and written records of all leaks identified during OGI tank farm inspections •Written records of all leaks identified during OGI component inspections 	<ul style="list-style-type: none"> •Written records of inspections and findings •Digital recordings of all leaks identified during OGI inspections •All data required by this rule shall be maintained for at least five years and made available for inspection by the Executive Officer 	<ul style="list-style-type: none"> •Most records kept for two years except records that contain the dimensions and capacity of a storage vessel which must be available for the life of the unit

APPENDIX A: RESPONSE TO PUBLIC COMMENTS

Public Workshop Comments

Comment Letters

Public Workshop Comments

Public Workshop Commenter #1: Connie Cunningham – Zenith Energy West Coast Terminals

The commenter highlighted the fast pace of the rule development. The commenter also requested:

1a) Clarity on the applicability of the OGI inspections.

1b) That the frequency of the OGI component inspections mirror those of the semi-annual floating roof inspections at four to eight months.

1c) That staff consider another doming analysis that considers the cost for larger tanks as the current analysis looked at tanks that ranged in size from 30ft to 144ft in diameter. The commenter stated that their facility has nine tanks that are 200 ft to 299 ft in diameter. With the high cost of doming in combination with the relatively low emission reductions at 0.01 tons/day the commenter expressed a preference to retire Emission Reduction Credits (ERCs) in lieu of doming.

Staff Response to Public Workshop Commenter #1:

Staff acknowledges the fast pace of the rule development. The pace of the PAR 463 rulemaking schedule is attributed to the need for ozone NAAQS contingency measures to be adopted by South Coast AQMD and submitted into the SIP.

1a) Subparagraph (f)(3)(D) was updated to specify that the following tanks are subject to the OGI monitoring requirements: tanks with a capacity of 75,000 liters (19,815 gallons) and above storing organic liquid with a true vapor pressure of 1.5 psi or greater, tanks with a capacity of 150,000 liters (39,630 gallons) and above storing organic liquid with a true vapor pressure of 0.5 psi or greater, tanks with a capacity of 950 liters (251 gallons) to 75,000 liters (19,815 gallons) used to store gasoline, and tanks with a PTE of six tons per year or greater. Tanks subject to OGI requirements mirror the applicability for tank roof requirements specified in subdivision (d) and paragraph (e)(1).

1b) The frequency of inspections in subclause (f)(3)(D)(iii)(A) was updated to mirror the frequency of the existing semi-annual floating roof tank inspections at four-to-eight-month intervals.

1c) Staff used the cost curve developed in the Rule 1178 rule development to estimate doming costs. The cost curve incorporated vendor data which reflects an exponential increase in doming costs for larger diameter tanks. Staff included two new tanks at 253 feet and 299 feet in diameter to the sample group to determine if the addition of larger tanks had an impact on the cost-effectiveness analysis. While the addition of the new tanks added more costs, the emissions reductions achieved also increased. The updated cost-effectiveness is \$24,800 per ton of VOC reduced which is still below the inflation adjusted cost-effectiveness threshold of \$40,168.49. The new analysis indicates that the cost curve equation used accounted for the increasing costs of doming on larger tanks. Furthermore, the evaluation considered the emission reductions achieved over the life of the equipment (50 years) and indicates that while the cost increases exponentially

for the large tanks, doming overall is cost-effective. Therefore, staff is continuing to propose requiring domes on any EFR tank storing organic liquids with a TVP of 3.0 psia or greater. ERCs are required to offset emission increases of one pound per day or greater under New Source Review. ERCs cannot be used in lieu of installing emission control devices required in South Coast AQMD rules.

Public Workshop Commenter #2: Alok Das – World Oil Recycling

The commenter requested the following:

- 2a) Clarify which tanks are subject to the OGI monitoring requirements in PAR 463.
- 2b) Clarify the meaning of “component” in PAR 463.
- 2c) Clarify the OGI tank farm procedure when the storage tanks do not have any type of platform.
- 2d) Consider adding an exemption from the proposed OGI monitoring requirements for tanks using an active VRU system.

Staff Response to Public Workshop Commenter #2:

- 2a) See response to Public Workshop Commenter 1a.
- 2b) PAR 463 was updated to incorporate the Rule 1173 definition of “component” with modifications to include tank specific parts.
- 2c) The intent of the OGI tank farm inspections is to identify visible vapors. The OGI tank farm inspection procedure was updated to allow for a follow up inspection to be conducted from a tank’s platform or a vantage point capable of seeing the tank roof in the event a tank has no platform. Additionally, the definition for Component Inspection and the exemption from OGI inspections in unsafe conditions in PAR 463 was updated to allow inspections from a vantage point in the event there is no tank platform.
- 2d) Staff is not considering an exemption from OGI inspections for tanks using active VRU systems. Leaks can still occur in tanks using active VRU systems and OGI inspections are an additional monitoring tool to more quickly identify leaks. However, facilities have the option to apply for a permit condition to restrict the products stored in the tank to below the TVP thresholds for OGI inspection applicability.

Public Workshop Commenter #3: George L. Morovich – Tank and Environmental Technologies Inc.

The commenter highlighted the upcoming U.S. EPA Tanks 5.0 software that is currently in the final stages of development and indicated that it would be a valuable tool to include in the rule language for owners and operators to calculate their emissions.

Staff Response to Public Workshop Commenter #3:

Staff is aware of the development of the U.S. EPA Tanks 5.0 program and added a clarification in Chapter 3 that, pending U.S. EPA approval, Tanks 5.0 will be an acceptable tool to calculate emissions. However, if U.S. EPA states at some point in the future that U.S. EPA Tanks 5.0 is outdated or is no longer appropriate for use for some other reason, then U.S. EPA Tanks 5.0 will not be considered an acceptable tool to calculate emissions for compliance with South Coast AQMD rules.

Public Workshop Commenter #4: Mark Abramowitz – Community Environmental Services

The commenter expressed the following:

4a) Asked for clarification if there was any technical or feasibility reason why OGI inspections could not be conducted at more frequent intervals. Staff's proposal of weekly OGI inspections as contingency measures indicates that weekly OGI inspections are feasible.

4b) Cost-effectiveness thresholds are guidelines, but should not be considered a strict number.

4c) By not implementing the more frequent OGI inspections proposed as contingency measures as regular rule requirements, South Coast AQMD is not being consistent with state law that requires that emission reductions be achieved in AB 617 communities as soon as possible.

Staff Response to Public Workshop Commenter #4:

4a) PAR 463 rule development included a BARCT assessment, which includes a technological feasibility component as well as a cost-effectiveness and incremental cost-effectiveness analysis. As such, staff would not incorporate BARCT requirements or contingency measures into PAR 463 that are not technologically feasible. Staff does not see any technical or feasibility issues with conducting OGI inspections on a more frequent basis. Owners or operators can conduct OGI inspections more regularly than PAR 463 requires. Although weekly OGI tank farm inspections are technically feasible, they were not determined to be incrementally cost-effective, and therefore weekly OGI tank farm inspections are being proposed as contingency measures.

4b) Cost-effectiveness thresholds are guidelines and as such staff proposed OGI tank farm inspections to be conducted at a frequency of every two weeks as BARCT because it was the most stringent frequency that was both cost-effective and incrementally cost-effective. Staff proposed the contingency measures at a frequency that was cost-effective, but not incrementally cost-effective. Staff is proposing contingency measures to address U.S. EPA requirements, as described in Chapter 1. Since staff must include contingency measures in PAR 463, cost-effectiveness and incremental cost-effectiveness analysis were used to determine the OGI tank farm inspection frequency that represents BARCT (every two weeks) and a more stringent OGI tank farm inspection frequency for contingency measures (every week).

4c) AB 617 requires air districts that are in nonattainment for one or more air pollutants to adopt an expedited schedule for the implementation of BARCT. PAR 463 included a BARCT assessment

consistent with state law and implements AB 617 CERP objectives by requiring enhanced LDAR through OGI inspections. OGI tank farm inspections are being proposed at a frequency of every two weeks and OGI component inspections are being proposed semi-annually, in addition to the existing semi-annual inspections required in Rule 463. OGI inspection requirements will take effect on July 1, 2025. The implementation date reflects the lead time necessary to procure OGI cameras and for operators to complete the required OGI manufacturer training or CARB training, while achieving emission reductions as soon as possible.

Public Workshop Commenter #5: Justin Avril – Olympus Terminals

The commenter requested clarity on the implementation timeline for the proposed OGI inspections pending the adoption of PAR 463.

Staff Response to Public Workshop Commenter #5:

The proposed OGI requirements in PAR 463 would come into effect on July 1, 2025.

Public Workshop Commenter #6: Cinnamon Smith – Kinder Morgan

The commenter asked the following:

6a) If the approved list of seal referenced in paragraph (e)(5) supersedes the categories of seals in Attachment A and how to gain access to the list.

6b) If an EFR tank has a permit condition that limits the TVP of the product stored to less than 3.0 psia would that tank still be required to conduct the TVP tests?

6c) When the “most recent” 20 year period for TVP test result recordkeeping begins.

Staff Response to Public Workshop Commenter #6:

6a) The list of approved seals referenced in paragraph (e)(5) does not supersede the list of seals in Attachment A. The list of seals in attachment A are used by facilities to determine what kind of seals they need to install as well as for seal manufacturers to get approvals for seal designs. A facility seeking to install a seal would look to the list of approved seals referenced in paragraph (e)(5) for approved vendors or manufacturers. Seal approvals are based on the categories found in Attachment A of PAR 463. The list of approved seals referenced in paragraph (e)(5) will be posted on the permitting page of the South Coast AQMD website.

6b) Staff responded during the Public Workshop that an exemption from TVP testing requirements would be possible for EFR tanks with permit conditions limiting the TVP of the organic liquid stored to < 3.0 psia. However, upon further consideration staff is not including the requested exemption into PAR 463. TVP testing requirements are essential to determine compliance with the doming requirements.

6c) The recordkeeping requirements for TVP tests begins on January 1, 2025 and is not retroactive. Once facilities have more than 20 years of TVP tests they would only be required to retain TVP test results from the most recent 20 year period.

Comment Letters

Comment Letter #1



ZENITH ENERGY WEST COAST TERMINALS LLC
18000 Studebaker Rd., Suite 960
Cerritos, CA 90703

April 3, 2024

Sent via email to Josh Ewell

SCAQMD
21865 Copley Drive
Diamond Bar, CA 91765

Subject: PAR 463 Comments

Zenith Energy West Coast Terminals (ZEWCT) is pleased to submit the following comments to be considered for PAR 463 rule language.

First, this rule making process has been extremely fast and rushed. The proposed rule language was only recently released and according to the calendar, it does not appear that there will be another iteration before the public hearing in June. ZEWCT would like to propose splitting PAR 463 into two rule-making events. The optical gas imaging inspection (OGI) language is similar to Rule 1178 and has fewer potential issues while the doming of external floating roof (EFR) tanks requires more discussion as the draft rule language seems to be changing more frequently.

1-1

OGI related:

PAR 463 (f)(3)(D)(iii)(A):

Conduct a Component Inspection for each floating roof Tank at least ~~once every six months~~ twice per year at 4 to 8 months intervals; and

REASON: It was stated that these inspections would ideally occur at the same time as the semi-annual seal inspections which have a frequency of twice per year at 4 to 8 months intervals in (e)(3)(A).

1-2

Also, it would be much clearer if there was an exemption in section (h) for OGI tank farm and component inspections for tanks that store a product of less than 0.5 psia for tanks with a capacity of 39,630 gallons are greater or less than 1.5 psia for tanks with a capacity of 19,815 gallons are greater.

Doming related:

PAR 463 (d)(1)(H):

Beginning three years after [Date of Adoption] the owner or operator shall install a Domed Roof on External Floating Roof Tanks used to store Organic Liquid with a True Vapor Pressure of 3 psia or greater as demonstrated pursuant to subparagraph (d)(1)(I) at the time of the next out of service API 653 inspection or the next time the Tank is emptied, ~~and~~ degassed, and cleaned.

1-3

<https://zenithem.sharepoint.com/sites/HSE/Management/West Coast Terminals/Non-Facility Specific/RECLAIM/PAR463 comments2.docx>



ZENITH ENERGY WEST COAST TERMINALS LLC

18000 Studebaker Rd., Suite 960
Cerritos, CA 90703

REASON: In the previous presentations, it was emphasized that doming was only cost effective if it occurred during an *out of service* API 653 inspection. Out of service is added for clarification as to the type of API 653 inspection that is to occur. It is during this type of inspection when the tank is not only emptied and degassed but also cleaned (removal of all vapors, liquids, sludge, etc) it is safe for workers to perform major modifications to a tank, such as adding a dome. With a cleaned tank, dome construction can occur on the tank roof which is necessary for large diameter tanks with limited surrounding flat land. If the dome is to be constructed adjacent to the tank, there must be enough flat space next to the tank to construct the dome (of the same tank diameter) and a suitable location for a crane to have the horizontal reach to laterally move and lift the dome to the top of the tank. ZEWCT does not have this kind of room next to our tanks, especially for our 250 and 300 foot diameter tanks.

1-3
cont.

In the presentation, it was stated that 0.01 tpy of emissions would be reduced due to doming EFR tanks. This amounts to 20 lbs/day. If we were to retire 20 ERCs at \$5,000 each for a total of \$100,000, therefore doming one tank at a cost of \$3 million appears to be unreasonable.

1-4

Staff identified only two of our tanks out of the 20 EFR tanks slated to be domed under this program. According to the same parameters used by staff, ZEWCT would have a minimum of 6 EFR tanks and up to a potential of 17 EFR tanks to be domed. According to the staff report, the cost effectiveness for doming EFRs was based on tanks with diameters of 30-144 feet. ZEWCT has three tanks at the upper end of this analysis and 11 tanks above that, including five tanks *more than twice the diameter* size used in the cost effectiveness analysis. According to the exponential Facility Cost Curve equation, the cost to dome our larger EFR tanks would potentially be 2 to 6 times more than what is specified in the staff report as being cost effective. Therefore, it is *not* cost effective for ZEWCT to dome the larger diameter tanks.

1-5

Thank you for considering these comments. If you have any questions, please email, or call me at (562) 233-5370.

Sincerely,

CM Cunningham, PE
HSER Manager
Zenith Energy West Coast Terminals LLC

Staff Response to Comment Letter #1*Response to Comment 1-1:*

Staff acknowledges the fast pace of the rule development. The updated Draft Rule Language and Draft Staff Report will be released no later than May 7, 2024, giving the public at least 31 days prior to the scheduled Public Hearing on June 7, 2024 to review the changes. Staff is not considering bifurcation of PAR 463 at this time.

Response to Comment 1-2:

See response to Public Workshop Commenter 1a and 1b.

Response to Comment 1-3:

PAR 463 subparagraph (d)(1)(H) was updated to state that domes must be installed at the next internal API 653 inspection or the next time the tank is degassed and cleaned. Staff removed the term “emptied” as tanks will need to be emptied to be cleaned and degassed. Staff did not include the qualifier of “out of service” API 653 inspections, as tanks are cleaned and degassed during an internal API 653 inspection, which satisfies the conditions to dome.

Response to Comment 1-4:

See response to Public Workshop Commenter 1c.

Response to Comment 1-5:

See response to Public Workshop Commenter 1c.

Comment Letter #2



Ramine Ross

Senior Manager, Regulatory Affairs
Southern California Region

April 10, 2024

Michael Morris
Planning and Rules Manager
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Via e-mail at: mmorris@aqmd.gov

Re: SCAQMD Proposed Amended Rule 463, Organic Liquid Storage – WSPA Comments on Preliminary Draft Rule Language

Dear Mr. Morris,

Western States Petroleum Association (WSPA) appreciates the opportunity to participate in the Working Group Meetings (WGMs) for South Coast Air Quality Management District (SCAQMD or District) Proposed Amended Rule 463, Organic Liquid Storage (PAR 463). WSPA is a non-profit trade association representing companies that explore for, produce, refine, transport, and market petroleum, petroleum products, natural gas, renewable fuels, and other energy supplies in five western states including California. WSPA has been an active participant in air quality planning issues for over 30 years. WSPA-member companies operate petroleum refineries and other facilities in the South Coast Air Basin that will be impacted by PAR 463.

SCAQMD released initial preliminary draft rule language for PAR 463 on March 22, 2024.¹ WSPA offers the following comments on the draft rule language.

- 1. PAR 463(d)(3)(C) would require a control efficiency of 98% for Fixed Roof Tanks, despite these tanks holding permits based on a 95% control efficiency. The proposed language in this section should revert back to the current language and maintain the requirement at 95%.**

The District has proposed that Fixed Roof Tank emissions be vented to a Fuel Gas System or an Emissions Control System with an overall control efficiency of 98%. The control efficiency in the current rule is 95%. In the PAR 463 Preliminary Draft Staff Report (PDSR), SCAQMD references the recent rulemaking for Rule 1178, noting that 98% efficiency is achievable based on performance test results for combustion and carbon adsorption systems.² The report also suggests that SCAQMD is assuming no costs would be needed to meet a 98% control efficiency.³ The PAR 1178 staff report notes that the most common type of vapor recovery system used on fixed roof tanks are combustion systems, with one supplier guaranteeing 98% control efficiency on such systems.⁴ Adsorption systems have higher

¹ Proposed Amended Rule 463, Organic Liquid Storage: Initial Preliminary Draft Rule Language. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/rule-463/par-463-preliminary-draft-rule-language.pdf?sfvrsn=6>

² SCAQMD PAR 463 Preliminary Draft Staff Report. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/rule-463/par-463-pdsr.pdf?sfvrsn=6>

³ Ibid.

⁴ SCAQMD PAR 1178 Staff Report. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1178/par-1178-draft-staff-report-final.pdf?sfvrsn=10>

April 10, 2024

Page 2

capital costs and are less desirable for tanks, and the same supplier guaranteed 95% control efficiency for such systems.⁵

During the PAR 1178 rulemaking, the District reported having reviewed four initial performance tests, which all showed greater than 99% control efficiency.⁶ The District has not defined the number of vapor recovery systems in the regulated community, nor have they presented any evidence to demonstrate that these four tests are representative for all affected equipment. Furthermore, the District has not yet provided information to demonstrate that all existing operating emission control systems affected by the rule would meet the proposed control efficiency.⁷ It is important that this information be provided to stakeholders prior to rule adoption.

Current permits are issued based on a 95% control efficiency. If the District intends to require a higher control efficiency standard, it must provide evidence to support the assertion that all existing fixed roof tanks with vapor recovery systems can meet this standard without modifications. If the District is not able to provide such technical evidence, the proposal would require a complete BARCT analysis, including evaluation of technical feasibility and potential compliance costs.

Additionally, WSPA would like to understand the basis for claiming 0.005 tons per day of VOC emission reductions from this proposed change.⁸ If, as asserted in the PDSR, all existing emission control systems already meet the proposed control efficiency, then there would be no creditable reductions available.

WSPA recommends that the language revert back to the current rule language:

The vapor recovery system shall have an efficiency of at least 95 percent by weight, or vent Tank emissions to a Fuel Gas System.

- 2. In estimating the cost-effectiveness for doming of external floating roof tanks, the District has provided an incomplete analysis of potential cost and potential emission reductions. WSPA recommends that SCAQMD revisit the cost-effectiveness analysis to account for all potential costs, and updates emission reduction estimates.**

The California Health & Safety Code requires the District, in adopting any Best Available Retrofit Control Technology (BARCT) standard, to ensure the standard is technologically feasible, to take into account "environmental, energy, and economic impacts" and to assess the cost-effectiveness of the proposed control options.⁹ Cost-effectiveness is defined as the cost, in dollars, of the control alternative, divided by the emission reduction benefits, in tons, of the control alternative.¹⁰ If the cost per ton of emissions reduced is less than the established cost-effectiveness threshold, then the control method is considered to be cost-effective. Cost-effectiveness evaluations need to consider both capital costs (e.g., equipment procurement, shipping, engineering, construction, and installation) and operating (including expenditures

⁵ Ibid.

⁶ Ibid.

⁷ SCAQMD PAR 463 Working Group Meeting #2 Presentation. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/rule-463/par-463-wgm2.pdf?sfvrsn=12>.

⁸ PAR 463 Public Workshop. Available at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/rule-463/par-463-public-workshop.pdf?sfvrsn=10>.

⁹ California Health & Safety Code §40406, 40440, 40920.6.

¹⁰ California Health & Safety Code §40920.6.

April 10, 2024
Page 3

associated with utilities, labor, and replacement) costs. Currently, the District is applying a cost-effectiveness threshold of \$36,000 per ton of VOC emissions reduced, consistent with the 2022 Air Quality Management Plan (2022 AQMP).¹¹

In estimating costs for doming of external floating roof tanks, the District has not provided a complete picture of the potential costs or potential emission reductions. The District cost estimates include capital, installation, and operating costs for the dome. However, in doming tanks, there are multiple other costs that may be required depending on the current configuration of the tank. For example, rolling ladders would need to be replaced with vertical ladders. Replacement of rolling ladders is necessary due to the risk of catastrophic damage that would result from a ladder crashing into the dome. Additionally, gauge hatches would need to be replaced with slotted gauge poles for product quality testing. Finally, the cost estimates have not been adjusted to reflect cost at the time of doming, which could be as much as 23 years after the date of rule adoption.

SCAQMD has also overestimated the potential emission reductions resulting from the proposed installation of the domes. For example, slotted gauge poles would result in higher emissions from the tanks, partially negating some of the claimed emission reductions. In addition, The Advanced Clean Cars II Regulation is designed to reach 100% new vehicle zero emission vehicles and clean plug-in hybrid electric vehicles in California by the 2035 model year. This planned phase-out of gasoline powered vehicles is expected to cause a significant reduction in California gasoline consumption. The proposed 50-year useful life of the dome is therefore overestimated given California's other regulatory mandates.

WSPA recommends that the District revisit the cost-effectiveness analysis to include all costs associated with doming, update the estimate of emission reductions, and reconsider the useful life of the equipment.

- 3. PAR 463(d)(1)(I) would require facilities to demonstrate the true vapor pressure (TVP) of organic liquid in an External Floating Roof Tank (EFRT) using an initial test effective January 1, 2025. EFRTs storing organic liquids with TVP below 3 psia would be required to conduct subsequent tests at least once every six calendar months. PAR 463(g)(6) would require results of TVP monitoring greater than 3.0 psia to be reported to the District within one week of measurement. This is a very short time frame that would cause undue burden to facilities. Additionally, the rule should include a provision that allows for a monthly average of TVP measurements to be reported instead of individual measurements when this threshold is exceeded.**

PAR 463(d)(1)(I) states:

Effective January 1, 2025, an owner or operator of an External Floating Roof Tank shall demonstrate the True Vapor Pressure of the Organic Liquid using an initial test, with one representative sample. External Floating Roof Tanks storing Organic Liquids with True Vapor Pressure below 3 psia shall conduct subsequent tests at least once every six calendar months pursuant to the requirements of subdivision (i).

¹¹ SCAQMD Draft Final 2022 Air Quality Management Plan. Available at: <http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan>.

2-2
Cont.

2-3

April 10, 2024
Page 4

PAR 463(g)(6) states:

An owner or operator shall report any tests specified in subparagraph (d)(1)(I) that result in a True Vapor Pressure of 3.0 psia or greater to the Executive Officer within one week.

WSPA requests that the language be updated to allow facilities two weeks (14 days) to provide notification to the District when TVP is measured above 3.0 psia.

WSPA requests that the District include a provision that allows for monthly averaging of TVP measurements, similar to allowances provided in Rule 1178. This would give facilities the opportunity to resample the tank or adjust the stock blend as needed to bring the TVP under 3.0 psia. WSPA recommends the language be updated as follows:

PAR 463(d)(1)(I):

Effective January 1, 2025, an owner or operator of an External Floating Roof Tank shall demonstrate the True Vapor Pressure of the Organic Liquid ~~using an initial test, with one representative sample based on a monthly average of sample results.~~ External Floating Roof Tanks storing Organic Liquids with True Vapor Pressure below 3 psia shall conduct subsequent tests ~~to determine the monthly average true vapor pressure~~ at least once every six calendar months pursuant to the requirements of subdivision (i).

PAR 463(g)(6):

An owner or operator shall report any tests specified in subparagraph (d)(1)(I) that result in a True Vapor Pressure of 3.0 psia or greater ~~based on a monthly average~~ to the Executive Officer within ~~one week~~ fourteen days.

4. **PAR 463(d)(2)(d) would require a facility to comply with seal requirements for Internal Floating Roof Tanks when the tanks are scheduled for emptying and degassing, but no later than 10 years after becoming subject to the requirements of the rule. SCAQMD should include the cost of forcing an early turnaround on tanks in the cost-effectiveness analysis. If that analysis is not complete, WSPA recommends that the 10-year installation requirement be removed from the rule.**

PAR 463(d)(2)(D) would require a facility to comply with the Primary and Secondary Seal requirements for Internal Floating Roof Tanks (IFRTs) when the tanks are scheduled for emptying and degassing and install Secondary Seals no later than 10 years after becoming subject to the requirements of the rule. This could force an early turnaround of a tank before it's next required API inspection, adding to the cost of compliance. To our knowledge, SCAQMD has not evaluated the impact of such compliance schedule requirements, nor the associated costs to determine whether such a requirement would be cost-effective. WSPA recommends the proposed language be updated as follows:

Beginning two years after [Date of Adoption], the owner or operator shall comply with the Primary and Secondary Seal requirements for Internal Floating Roof Tanks specified in subparagraph (d)(2)(A) when the Tanks are scheduled for emptying and degassing. ~~The owner or operator shall install Secondary Seals no later than ten years after [Date of Adoption].~~

April 10, 2024
Page 5

- 5. PAR 463(h)(3) exempts storage tanks that are subject to Rule 1178, with exceptions for subdivision (e) and paragraph (c)(42). WSPA recommends that 463(c)(34) should be included among these exceptions.**

PAR 463(h)(3) includes the following exemption:

The provisions of this rule shall not apply to Storage Tanks that are subject to Rule 1178, except for subdivision (e) and paragraph (c)(42).

WSPA suggests that a reference to paragraph (c)(34) be added to the exception list as well. WSPA recommends that the language be updated as follows:

*The provisions of this rule shall not apply to Storage Tanks that are subject to Rule 1178, except for subdivision (e), **paragraph (c)(34)**, and paragraph (c)(42).*

WSPA appreciates the opportunity to provide these comments related to PAR 463. We look forward to continued discussion of this important rulemaking. If you have any questions, please contact me at (310) 808-2146 or via e-mail at ross@wspa.org.

Sincerely,



Cc: Wayne Natri, SCAQMD
Sarah Rees, SCAQMD
Michael Krause, SCAQMD
Isabelle Shine, SCAQMD
Joshua Ewell, SCAQMD
Patty Senecal, WSPA

2-5

Staff Response to Comment Letter #2

Response to Comment 2-1:

Staff looked at four VRU performance reports with results all over 98% during the PAR 463 rule development process. Three combustion VRUs had initial performance tests with results over 99% efficiency. A facility's carbon adsorption VRU system was stated to be performing at over 99% emission control, which was later confirmed with source test results. Rule 1178 also proposed a 98% control efficiency for VRUs which was supported by another four initial performance tests that indicated the systems were capable of performing at or above 99%. During the 2023 PAR 1178 amendment process staff informed WSPA that any performance tests that suggest the inability or difficulty to meet the proposed requirement should be provided to staff for reconsideration of the BARCT analysis conclusion for emission control systems. Staff similarly asked stakeholders for any performance tests that suggested the inability to meet 98% control efficiency during the PAR 463 rule development process. No performance tests have been submitted that indicate staff's proposal to increase the control efficiency is not feasible.

Staff did not include the emission reductions associated with increased control efficiency of vapor recovery systems into the cost-effectiveness analysis, as it is assumed that all units are already meeting the proposed control efficiency, and staff aims to be conservative in cost-effectiveness analysis. However, the emission reductions associated with increased control efficiency of vapor recovery systems can still be claimed for SIP credit.

Response to Comment 2-2:

Staff used the cost equation used in the 2023 Rule 1178 rule development to estimate doming costs. The cost equation incorporated both vendor quotes to dome tanks from as well as cost data provided by facilities. Facility quotes included all the costs associated with the installation of a dome including the replacement of existing components such as gauge hatches and ladders. The costs provided were adjusted to reflect current day dollars during the cost-effectiveness analysis. Staff conducted an analysis in TankESP to determine if the switch to slotted guidepoles resulted in excess emissions. The analysis showed the use of slotted guidepoles resulted in approximately 7% fewer emissions than the same set of tanks using solid guidepoles. Furthermore, PAR 463 requires all guidepoles to be installed with emission controls, minimizing the potential fugitive emissions associated with the component. Staff accounted for the increasing cost of controls by applying a present value factor to the operation and maintenance costs which included an interest rate of 4%. Furthermore, the cost-effectiveness threshold is adjusted annually to account for inflation as specified in the 2022 Final AQMP. The 50-year useful life for domes was provided by two suppliers during the 2023 Rule 1178 amendment. If facilities expect tanks to be taken out of service due to the Advanced Clean Cars II Regulation and the potential decline of gasoline consumption in California, staff is open to considering permit conditions to remove tanks from service upon a future date in lieu of doming.

Response to Comment 2-3:

PAR 463 was updated to allow facilities 14 days to submit TVP test results that indicate the organic liquid stored in a tank has a TVP ≥ 3.0 psia. Staff included a provision in PAR 463 to give owners or operators the option to submit monthly averages of TVP tests instead of the semi-annual tests. Facilities must begin monthly testing as of January 2025 to utilize monthly averaging. Tanks not commencing monthly testing as of January 2025 shall comply with the semi-annual TVP test requirements.

Response to Comment 2-4:

During the 2023 rule development process for Rule 1178, suppliers stated that tanks would not be required to be emptied and degassed for installation of a secondary seal, however, one facility stated that it is their practice for a tank to be emptied and degassed prior to installing a secondary seal for safety reasons. Staff confirmed that the installation of secondary seals on IFR tanks may result in confined space entry. Therefore, the implementation schedule for secondary seals in PAR 463 was updated to have a back stop date of twenty-two years after the *[Date of Adoption]*. The updated installation backstop includes the two year phase-in period to allow for the permitting process and the 20 year internal API 653 inspection frequency.

Response to Comment 2-5:

PAR 463 was updated to include the definition for Product Change in the list of Rule 463 provisions which apply to Rule 1178 regulated tanks.

Comment Emails

Email #1

Hi Joshua: Following up on our conversation from last week, please find attached some emission information from the dome application (App. 450147) that we had discussed. I have also provided a table that shows we calculated small emissions increase when it was necessary to replace the rolling ladder with a vertical ladder, and the gauge hatch with a slotted gauge pole due to the dome installation. In this situation, the domes were installed on two identical small diameter ERF's storing CARB gasoline. Given this information, I think AQMD should take another look at the cost efficiency calculations. While the annual average TVP for CARB gasoline is over 3 psia, it did not make sense to dome these small diameter tanks based on the circumstances involved.

1-1

As for PAR 463(d)(2)(d), I have confirmed with our Safety Professional and one of our contractors that entering onto the roof of an IFR is a permit required confined space that requires the enterents to be in supplied air and on a tether. A rescue team also needs to be on stand-by. Hot-work would not be allowed, so no-spark tools would be needed which just adds to the time to complete the installation. Therefore, installing secondary seals in-service is a high-risk activity that should be avoided. Based on this, this requirement should be modified so the secondary seal installation coincides with a tanks next outage.

1-2

Let me know if you have any questions regarding this email.

Respectfully,
Jim Adams
Senior Environmental Consultant

O: 562-290-1516 | M: 714-329-8290 | F: 562-290-1580
3900 Kilroy Airport Way | Suite 210 | Long Beach, CA. 90806
phillips66.com



Staff Response to Email #1

Response to Comment 1-1:

The analysis in Email Comment 1-1 was conducted using Tanks 4.0, which is no longer supported by the U.S. EPA. The BREEZE TankESP software used by staff to calculate the emission reductions from doming uses the currently approved formulas in AP-42 Chapter 7 to calculate storage tank emissions. Staff used a sample group that consisted of smaller diameter (30 feet) to larger diameter (299 feet) tanks in the analysis to determine the cost-effectiveness of installing domes on EFR tanks storing organic liquids with a TVP of 3.0 psia or greater. The cost-effectiveness for doming is \$24,800 per ton of VOC reduced. Therefore, staff is continuing to propose requiring domes on any EFR tank storing organic liquids with a TVP of 3.0 psia or greater.

Response to Comment 1-2

See response to Comment Letter 2-4.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Environmental Assessment for Proposed Amended Rule 463 – Organic Liquid Storage

June 2024

South Coast AQMD Number: 03272024JA

State Clearinghouse Number: 2024031009

Executive Officer

Wayne Nastri

Deputy Executive Officer

Planning, Rule Development and Implementation

Sarah Rees, Ph.D.

Assistant Deputy Executive Officer

Planning, Rule Development and Implementation

Michael Krause

Assistant Deputy Executive Officer

Planning, Rule Development and Implementation

Ian MacMillan

Authors:	Jivar Afshar	Air Quality Specialist
	Sina Taghvaei, Ph.D.	Air Quality Specialist

Technical Assistance:	Joshua Ewell	Assistant Air Quality Specialist
------------------------------	--------------	----------------------------------

Reviewed By:	Kevin Ni	Program Supervisor, CEQA
	Barbara Radlein	Planning and Rules Manager, CEQA
	Isabelle Shine	Program Supervisor
	Michael Morris	Planning and Rules Manager
	Brian Tomasovic	Principal Deputy District Counsel
	John L. Jones II	Senior Deputy District Counsel

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
GOVERNING BOARD**

CHAIRMAN: VANESSA DELGADO
Senator (Ret.)
Senate Rules Committee Appointee

VICE CHAIR: MICHAEL A. CACCIOTTI
Council Member, South Pasadena
Cities of Los Angeles County/Eastern Region

MEMBERS:

ANDREW DO
Supervisor, First District
County of Orange

CURT HAGMAN
Supervisor, Fourth District
County of San Bernardino

GIDEON KRACOV
Governor's Appointee

PATRICIA LOCK DAWSON
Mayor, Riverside
Cities of Riverside County Representative

LARRY MCCALLON
Mayor, Highland
Cities of San Bernardino County

HOLLY J. MITCHELL
Supervisor, Second District
County of Los Angeles

VERONICA PADILLA-CAMPOS
Speaker of the Assembly Appointee

V. MANUEL PEREZ
Supervisor, Fourth District
County of Riverside

NITHYA RAMAN
Council Member, Fourth District
City of Los Angeles Representative

CARLOS RODRIGUEZ
Council Member, Yorba Linda
Cities of Orange County

JOSÉ LUIS SOLACHE
Council Member, Lynwood
Cities of Los Angeles County/Western Region

EXECUTIVE OFFICER:

WAYNE NASTRI

PREFACE

This document constitutes the Final Environmental Assessment (EA) for Proposed Amended Rule (PAR) 463 – Organic Liquid Storage. The Draft EA was circulated for a 30-day public review and comment period from March 27, 2024 to April 26, 2024. No comment letters were received relative to the analysis in the Draft EA during the comment period.

Subsequent to the release of the Draft EA for public review and comment, the following modifications were made to the proposed project: 1) several definitions and other parts of the rule language were updated for clarity and consistency; 2) the secondary seal compliance schedule was updated; 3) the True Vapor Pressure (TVP) test procedure that allows for monthly averaging was added; 4) the mechanical shoe primary seal requirements for Internal Floating Roof (IFR) tanks were updated; 5) the procedure for conducting Optical gas imaging (OGI) inspections was updated; 6) requirements for vapor recovery systems were added; 7) the recordkeeping and reporting requirements for the TVP tests required for External Floating Roof (EFR) tanks, Vapor Recovery Unit (VRU) Performance Tests, and vapor recovery system performance tests were updated; 8) the exemption from Rule 463 specific to tanks regulated by Rule 1178 was updated to include the definition for Product Change; and 9) references to the revoked 1997 ozone National Ambient Air Quality Standard in the contingency for the South Coast Air Basin were removed.

Therefore, some modifications have been made to the Draft EA to make it a Final EA which include the aforementioned updates and additions made to PAR 463 after the Draft EA was released for the public review and comment period. Specifically, the CEQA analysis in the Final EA was updated to include: 1) an increase in the amount of estimated VOC emissions reductions from 0.43 ton per day to 1.65 ton per day; 2) revised inspection requirements for OGI tank farms to be conducted more frequently, from semi-annually to twice per year at four-to-eight month intervals; and 3) increased the compliance timeframe for the installation of secondary seals from 10 years to 22 years.

To facilitate identification of the changes between the Draft EA and the Final EA, modifications to the document are included as underlined text and text removed from the document is indicated by ~~striktthrough-text~~. To avoid confusion, minor formatting changes are not shown in underline or strikethrough mode.

South Coast AQMD staff has evaluated the modifications made to PAR 463 after the release of the Draft EA for public review and comment and concluded that none of the revisions constitute significant new information, because: 1) no new significant environmental impacts would result from the proposed project; 2) there is no substantial increase in the severity of an environmental impact; 3) no other feasible project alternative or mitigation measure was identified that would clearly lessen the environmental impacts of the project and was considerably different from others previously analyzed, and 4) the Draft EA did not deprive the public from meaningful review and comment. In addition, revisions to PAR 463 and the analysis in response to verbal or written comments during the rule development process would not create new, avoidable significant effects. As a result, these revisions do not require recirculation of the Draft EA pursuant to CEQA Guidelines Sections 15073.5 and 15088.5. Therefore, the Draft EA has been revised to include the aforementioned modifications such that it is now the Final EA.

TABLE OF CONTENTS

Page No.

CHAPTER 1 – PROJECT DESCRIPTION

Introduction	1-1
California Environmental Quality Act	1-2
Project Location	1-4
Project Background	1-5
Technology Overview	1-7
Project Description	1-10

CHAPTER 2 – ENVIRONMENTAL CHECKLIST

Introduction	2-1
General Information	2-1
Environmental Factors Potentially Affected.....	2-2
Determination	2-3
Environmental Checklist and Discussion	2-4

APPENDICES

Appendix A:	Proposed Amended Rule 463– Organic Liquid Storage
Appendix B:	Modeling Files, Assumptions, and Calculations

Page No.

LIST OF FIGURES

Figure 1-1: Southern California Air Basins and South Coast AQMD's Jurisdiction	1-5
Figure 1-2: View with Naked Eye Compared to View with an OGI Camera	1-9
Figure 1-3: OGI Camera.....	1-9

LIST OF TABLES

Table 2-1: South Coast AQMD Air Quality Significance Thresholds	2-13
Table 2-2: Peak Daily Construction Emissions by Pollutant (lb/day)	2-16
Table 2-3: Summary of GHG Emissions	2-20
Table 2-4: Annual Total Projected Fuel Usage for Construction Activities	2-29
Table 2-5: Number of Round Trips in a Peak Day	2-55

CHAPTER 1

PROJECT DESCRIPTION

Introduction

California Environmental Quality Act

Project Location

Project Background

Technology Overview

Project Description

INTRODUCTION

The California Legislature created the South Coast Air Quality Management District (South Coast AQMD) in 1977¹ as the agency responsible for developing and enforcing emission control rules and regulations in the South Coast Air Basin (Basin) and portions of the Salton Sea Air Basin and Mojave Desert Air Basin. By statute, the South Coast AQMD is required to adopt an air quality management plan (AQMP) demonstrating compliance with all federal and state ambient air quality standards for the areas under the jurisdiction of the South Coast AQMD². Furthermore, the South Coast AQMD must adopt rules and regulations that carry out the AQMP³. The AQMP is a regional blueprint for how the South Coast AQMD will achieve air quality standards and healthful air; it contains multiple goals promoting reductions of criteria air pollutants including volatile organic compounds (VOC). The 2022 AQMP included Control Measure FUG-01 – Improved Leak Detection and Repair (LDAR), which explores the potential for newer leak detection technologies to improve current LDAR requirements thereby reducing VOC emissions from fugitive leaks from process and storage equipment at a variety of sources including, but not limited to, oil and gas production sites, petroleum refining, storage and transfer, etc.⁴ Previously, the 2016 AQMP included Control Measure FUG-01 to utilize advanced remote sensing technologies to allow for faster identification and repair of leaks, and the 2012 AQMP included Control Measure FUG-03 – Further Reductions of Fugitive VOC Emissions, which identified the implementation of advanced leak detection technologies, including optical gas imaging (OGI), as a method to reduce the emissions impact from leaks.

In accordance with Assembly Bill (AB) 617, which was signed into state law in 2017, and the California Air Resources Board's (CARB) Community Air Protection Program which implements AB 617, the South Coast AQMD is required to take specific actions to reduce air pollution and toxic air contaminants from commercial and industrial sources to address the disproportionate impacts of air pollution in environmental justice communities. The Wilmington, Carson, and West Long Beach (WCWLB) community, which is qualified as a high priority area, identified in its Community Emission Reduction Plan (CERP) adopted on September 6, 2019, emissions from refineries as an air quality concern, and specified initiating rule development to amend Rule 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities (Rule 1178) to incorporate advanced leak detection technologies and requiring additional emission controls. In particular, Chapter 5b, Action 1 in the WCWLB CERP recommended incorporating new, advanced tools to modernize and improve LDAR programs for storage tanks at refineries to enhanced leak detection. Similarly, the South Los Angeles (SLA) community identified in its CERP adopted on June 3, 2022, emissions from operation of oil and gas facilities as an air quality concern. In particular, Chapter 5f, Action 1, recommended installation of emission reduction technologies at oil and gas facilities and specified initiating rule development to the Rule 1148 series to explore improved LDAR and requirements for lower-emission or zero-emission equipment. Rule 463 was not identified as an action for rule development within the 2019 WCWLB CERP or 2022 SLA CERP; however, Rule 463 regulates the same emission sources within the affected WCWLB and SLA communities.

¹ The Lewis-Prezley Air Quality Management Act, 1976 Cal. Stats., ch. 324 (codified at Health and Safety Code Section 40400-40540).

² Health and Safety Code Section 40460(a).

³ Health and Safety Code Section 40440(a).

⁴ South Coast AQMD, Final 2022 Air Quality Management Plan, December 2022. <http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan>

Rule 463 applies to tanks that meet the following criteria: 1) above-ground stationary tanks with a capacity of 75,000 liters (19,815 gallons) or greater used for storage of organic liquids, 2) any above-ground tank with a capacity between 950 liters (251 gallons) and 75,000 liters (19,815 gallons) used for storage of gasoline, and 3) any stationary tank with a Potential For VOC Emissions of six tons per year or greater used in Crude Oil And Natural Gas Production Operations.

Proposed Amended Rule 463 (PAR 463) establishes more stringent leak detection and repair and control requirements, such as optical gas imaging tank farm inspections every other calendar week, and additional control requirements for installing domes (referred to as doming) and secondary roof seals. PAR 463 will establish Best Available Retrofit Control Technology (BARCT) requirements, including leak inspections using OGI devices. Additionally, PAR 463 will include contingency measures for both the Coachella Valley and the South Coast Air Basin, which will require more frequent OGI inspections, if triggered.

The federal Clean Air Act (CAA) requires State implementation Plans (SIPs) to include contingency measures which are triggered if an area fails to make reasonable further progress or fails to attain an air quality standard by the applicable date. Therefore, South Coast AQMD has prepared the Coachella Valley Contingency Measure State Implementation Plan (SIP) Revision for the 2008 8-Hour Ozone Standard focused on satisfying the requirement for contingency measures elements for the plan. Specifically, South Coast AQMD is amending Rule 463 to introduce a contingency measure to partially satisfy the federal CAA contingency requirement by establishing more frequent OGI inspections every calendar week for tanks storing product with a TVP of 5.0 psia or greater.

PAR 463 applies to approximately 1,600 tanks located at 429 facilities including refineries, bulk storage, loading, and oil production facilities. There are four major categories of storage tanks subject to Rule 463, as follows: fixed roof tanks, external floating roof tanks, domed external floating roof tanks, and internal floating roof (IFR) tanks. Storage tanks emit VOC through openings inherent in the tank design. Rule 463 requires the use of seals and covers to reduce the amount of VOC that can migrate out of the tank through the tank openings. Tank openings on fixed roof tanks include, but are not limited to, vapor recovery connection points, pressure vacuum vents and sample hatches. Floating roof tanks also contain openings that include the annular space around the floating roof, guidepoles, rim vents, pressure vents, hatches, and roof legs. Proposed amendments to Rule 463 are based on determination of feasible and cost-effective technologies and methods that were assessed through a BARCT analysis. Rule 463 already requires controls on all roof openings and as part of the PAR 463 rule development, staff reviewed additional technologies and methods to further reduce emissions from tank operation and leaks. The proposed amendments will reduce VOC emissions from these sources by approximately ~~0.43~~1.65 ton per day.

Implementation of PAR 463 is expected to result in less than significant increases of criteria air pollutants in the short-term due to construction impacts, and an overall long-term decrease in VOC emissions through minimizing fugitive losses from storage tanks at petroleum facilities.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

The California Environmental Quality Act (CEQA) is comprised of Public Resources Code Section 21000 *et seq.* and CEQA Guidelines which are codified at Title 14 California Code of Regulations, Section 15000 *et seq.* CEQA requires all potential adverse environmental impacts of proposed projects be evaluated and methods to reduce or avoid identified significant adverse

environmental impacts of these projects be implemented, if feasible. [Public Resources Code Section 21061.1 and CEQA Guidelines Section 15364]. The purpose of the CEQA process is to inform decision makers, public agencies, and interested parties of potential adverse environmental impacts that could result from implementing a proposed project and to identify feasible mitigation measures or alternatives, when an impact is significant.

Public Resources Code Section 21080.5 allows public agencies with regulatory programs certified by the Secretary of the Resources agency to prepare a plan or other written documents in lieu of a Negative Declaration or Environmental Impact Report (EIR). The South Coast AQMD's regulatory program was certified on March 1, 1989. [CEQA Guidelines Section 15251(l)]. In addition, the South Coast AQMD adopted Rule 110 – Rule Adoption Procedures to Assure Protection and Enhancement of the Environment, which implements the South Coast AQMD's certified regulatory program. Under the certified regulatory program, the South Coast AQMD typically prepares an Environmental Assessment (EA) to evaluate the environmental impacts for rule projects proposed for adoption or amendment.

The proposed amendments to Rule 463 are a discretionary action subject to South Coast AQMD Governing Board consideration that has the potential for resulting in changes to the environment, and therefore, is considered a “project” as defined by CEQA. [CEQA Guidelines Section 15378]. The lead agency is the “public agency that has the principal responsibility for carrying out or approving a project that may have a significant effect upon the environment.” [Public Resources Code Section 21067]. Since the South Coast AQMD Governing Board has the primary responsibility for approving and carrying out the entire project as a whole, the South Coast AQMD is the most appropriate public agency to act as CEQA lead agency for the proposed project. [CEQA Guidelines Section 15051(b)].

The proposed project would further reduce VOC emissions from above-ground storage tanks containing volatile organic liquids through establishing optical gas imaging tank farm inspections every other calendar week and additional control requirements for doming, emission control systems, and secondary seals. However, South Coast AQMD's review of the proposed project also shows that the activities that facility operators may undertake to comply with PAR 463 may also create secondary adverse environmental impacts that would not result in significant impacts for any environmental topic area. Thus, the analysis of PAR 463 indicates that the type of CEQA document appropriate for the proposed project is an EA with no significant impacts. The EA is a substitute CEQA document, which the South Coast AQMD, as lead agency for the proposed project, prepared in lieu of a Negative Declaration with no significant impacts [CEQA Guidelines Section 15252], pursuant to the South Coast AQMD's Certified Regulatory Program [Public Resources Code Section 21080.5, CEQA Guidelines Section 15251(l); South Coast AQMD Rule 110].

The EA includes a project description in Chapter 1 and an Environmental Checklist in Chapter 2. The Environmental Checklist provides a standard tool to identify and evaluate a proposed project's adverse environmental impacts and the analysis concluded that no significant adverse impacts would be expected to occur if the proposed project is implemented. Because the proposed project would have no statewide, regional, or areawide significance, no CEQA scoping meeting is required to be held pursuant to Public Resources Code Section 21083.9(a)(2). Further, pursuant to CEQA Guidelines Section 15252, since no significant adverse impacts were identified, no alternatives or mitigation measures are required.

The Draft EA ~~is being~~ was released for a 30-day public review and comment period from March 27, 2024 to April 26, 2024. ~~No comment letters were received during the comment period. Any comments on the analysis presented in this Draft EA received during the public comment period will be responded to and included in an appendix of the Final EA.~~

Subsequent to the release of the Draft EA for public review and comment, the following modifications were made to the proposed project: 1) several definitions and other parts of the rule language were updated for clarity and consistency; 2) the secondary seal compliance schedule was updated; 3) the True Vapor Pressure (TVP) test procedure that allows for monthly averaging was added; 4) the mechanical shoe primary seal requirements for Internal Floating Roof (IFR) tanks were updated; 5) the procedure for conducting Optical gas imaging (OGI) inspections was updated; 6) requirements for vapor recovery systems were added; 7) the recordkeeping and reporting requirements for the TVP tests required for External Floating Roof (EFR) tanks, Vapor Recovery Unit (VRU) Performance Tests, and vapor recovery system performance tests were updated; 8) the exemption from Rule 463 specific to tanks regulated by Rule 1178 was updated to include the definition for Product Change; and 9) references to the revoked 1997 ozone National Ambient Air Quality Standard in the contingency for the South Coast Air Basin were removed.

Therefore, some modifications have been made to the Draft EA to make it a Final EA which include the aforementioned updates and additions made to PAR 463 after the Draft EA was released for the public review and comment period. Specifically, the CEQA analysis in the Final EA was updated to include: 1) an increase in the amount of estimated VOC emissions reductions from 0.43 ton per day to 1.65 ton per day; 2) revised inspection requirements for OGI tank farms to be conducted more frequently, from semi-annually to twice per year at four-to-eight month intervals; and 3) increased the compliance timeframe for the installation of secondary seals from 10 years to 22 years.

South Coast AQMD staff has evaluated the modifications made to PAR 463 after the release of the Draft EA for public review and comment and concluded that none of the revisions constitute significant new information, because: 1) no new significant environmental impacts would result from the proposed project; 2) there is no substantial increase in the severity of an environmental impact; 3) no other feasible project alternative or mitigation measure was identified that would clearly lessen the environmental impacts of the project and was considerably different from others previously analyzed, and 4) the Draft EA did not deprive the public from meaningful review and comment. In addition, revisions to PAR 463 and the analysis in response to verbal or written comments during the rule development process would not create new, avoidable significant effects. As a result, these revisions do not require recirculation of the Draft EA pursuant to CEQA Guidelines Sections 15073.5 and 15088.5. Therefore, the Draft EA has been revised to include the aforementioned modifications such that it is now the Final EA.

Prior to making a decision on the adoption of the proposed project, the South Coast AQMD Governing Board must review and certify the Final EA, including responses to comments, as providing adequate information on the potential adverse environmental impacts that may occur as a result of amending Rule 463.

PROJECT LOCATION

The proposed project applies to owners or operators of tanks that meet the following criteria: 1) stationary above-ground tanks with a capacity of 75,000 liters (19,815 gallons) or greater used for storage of organic liquids, 2) any above-ground tank with a capacity between 950 liters (251

gallons) and 75,000 liters (19,815 gallons) used for storage of gasoline, and 3) any stationary tank with a Potential For VOC Emissions of six tons per year or greater used in Crude Oil and Natural Gas production operations. PAR 463 applies to approximately 1,600 tanks located at 429 facilities including refineries, bulk storage, loading, and oil production facilities which are located throughout South Coast AQMD's jurisdiction. However, initial estimates indicated that approximately 20 tanks will need to be domed and 22 tanks will need secondary roof seals installed.

South Coast AQMD's jurisdiction covers an area of approximately 10,743 square miles and includes the four-county Basin (all of Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino counties), and the Riverside County portion of the Salton Sea Air Basin and the non-Palo Verde, Riverside County portion of the Mojave Desert Air Basin. The Basin is a subarea of South Coast AQMD's jurisdiction; it is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east. The Riverside County portion of the Salton Sea Air Basin, which is a federal nonattainment area known as the Coachella Valley Planning Area, is bounded by the San Jacinto Mountains to the west and spans the eastern boundary of the Coachella Valley up to the Palo Verde Valley (see Figure 1-1).

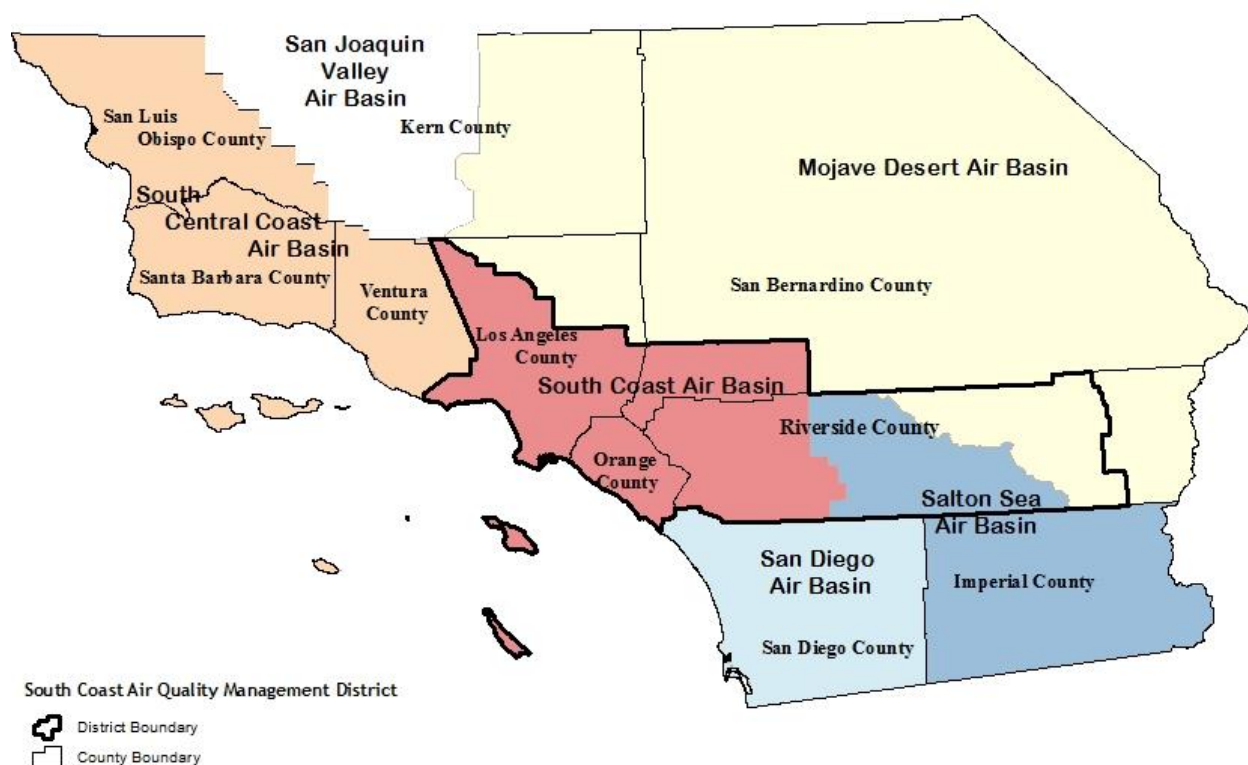


Figure 1-1
Southern California Air Basins and South Coast AQMD's Jurisdiction

PROJECT BACKGROUND

Rule 463 was adopted in August 1977 and subsequently amended six times. The 1984 amendment added a criterion for hydrogen sulfide content in crude oil contained in floating roof tanks; a subsequent amendment in March 2005 removed this limitation based on a comparative review of

similar regulations within the state and at the federal level. The December 1990 amendment addressed SIP deficiencies inconsistent with U.S. EPA policies or requirements. The March 1994 amendment restructured the rule, clarified rule language, streamlined compliance activities by including a self-compliance program, and corrected rule deficiencies identified by the U.S. EPA and California Air Resources Board (CARB). The November 2011 amendment harmonized test methods and leak standards with Rule 1178. The most recent amendment to Rule 463 in May 2023, addressed U.S. EPA's limited disapproval of CARB's Oil and Gas Methane Rule by aligning the applicability threshold with U.S. EPA's 2016 Control Techniques Guidelines for the Oil and Natural Gas Industry.

Since its adoption on August 8, 1977, Rule 463 has been applicable to any tank regardless of type of business that meets the following criteria: 1) stationary above-ground tanks with a capacity of 75,000 liters (19,815 gallons) or greater or, 2) any above-ground tank with a capacity between 950 liters (251 gallons) and 75,000 liters (19,815 gallons) used for storage of gasoline. In response U.S. EPA's limited disapproval of CARB's Oil and Gas Methane Rule, Rule 463 was amended on May 2023 to include any stationary tank with a potential for VOC emissions of six tons per year or greater used in crude oil and natural gas production operations.

In accordance with AB 617, which was signed into state law in 2017, and the CARB Community Air Protection Program which implements AB 617, the South Coast AQMD is required to take specific actions to reduce air pollution and toxic air contaminants from commercial and industrial sources to address the disproportionate impacts of air pollution in environmental justice communities, such as Wilmington, Carson, and West Long Beach. The WCWLB CERP, adopted on September 6, 2019 by this community, identified emissions from refineries as an air quality concern, and Chapter 5b, Action 1 in the WCWLB CERP recommended incorporating new, advanced tools to modernize and improve LDAR programs for storage tanks at refineries to enhanced leak detection. Similarly, the South Los Angeles (SLA) community identified in its CERP adopted on June 3, 2022, emissions from operation of oil and gas facilities as an air quality concern. In particular, Chapter 5f, Action I, recommended installation of emission reduction technologies at oil and gas facilities and specified initiating rule development to the Rule 1148 series to explore improved LDAR and requirements for lower-emission or zero-emission equipment. Rule 463 was not identified as an action for rule development within the 2019 WCWLB CERP or 2022 SLA CERP; however, Rule 463 regulates the same emission sources within the affected WCWLB and SLA communities. Recommendations for potential amendments included improving current leak detection and repair requirements by incorporating advanced leak detection technologies and requiring additional controls. Also, both the 2016 AQMP and 2022 AQMP included Control Measure FUG-01 – Improved Leak Detection and Repair (LDAR) which was specifically designed to utilize advanced remote sensing technologies to allow for the faster identification and repair of leaks from equipment at oil and gas and other facilities that are currently required to maintain a LDAR program.

In 2016, U.S. EPA released the 2016 CTG for the Oil and Gas Industry. Nonattainment areas classified as "Moderate" or worse, such as South Coast AQMD, are required to implement Reasonably Available Control Technology (RACT) for VOC sources covered by the CTG. Storage tanks covered by the 2016 CTG include those with the potential for VOC emissions of six tons per year or more, and are located at oil and natural gas facilities (excluding distribution); the RACT recommendation for such storage tanks is 95% emission control. While Rule 463 contained requirements for 95% emission control or greater, the rule did not apply to storage tanks based on the quantity of their potential VOC emissions. Rather, Rule 463 was applicable to storage tanks

based on the capacity and the TVP of the material stored. Because the U.S. EPA stated that it was unclear whether all tanks subject to the 2016 CTG were covered by the applicability requirements, Rule 463 was amended on May 5, 2023 to ensure the applicability would use direct terms to include storage tanks subject to the U.S. EPA's 2016 CTG for the Oil and Gas Industry.

PAR 463 is now being amended to partially implement the 2022 AQMP Control Measure FUG-01 and include a contingency measure in the event that the U.S. EPA determines that the South Coast AQMD had failed to meet an RFP milestone or to attain an applicable ozone NAAQS, and assist to achieve the goals of the WCWLB and SLA CERPs.

TECHNOLOGY OVERVIEW

The following discussion provides a general overview of the control technologies and enhanced leak detection technologies associated with aboveground storage tank emissions.

Control Technologies

Domes

Domes are roofs that can be installed onto EFR tanks. They are typically a geodesic dome shape and made of lightweight material such as aluminum. Domes that are affixed onto EFR tanks are not vapor tight and have vents along the bottom of the dome where it meets the tank shell. This is a required design for floating roof tanks to allow the floating roof to move up and down without adverse effects. Domes are effective at reducing emissions from tanks by eliminating wind moving over the external floating roof. Wind can carry vapors out from inside the tank through the secondary roof seals which float. It is estimated that installing domes on EFR tanks storing crude oil can reduce standing losses by 50%-70%.

Proximity Switches

Proximity switches are sensors designed to detect when sample hatch covers are open and are commonly used at remote oil well sites that are not inspected regularly. Proximity switches can also be used on pressure vacuum relief vents (PVRVs). The switch can alert facility personnel when a sample hatch cover or PVRV is open and result in quicker repair timelines and smaller emissions impacts. Limitations to using proximity switches include small may go undetected and other leaks that may occur from the monitored equipment would not be detected such as leaks from the gaskets or connection points.

Cable Suspension Systems

Cable suspended floating roofs are designed with cable suspension systems to support the floating roof and remove the need for roof legs. Emissions from IFR tanks are reduced with cable suspension systems by the elimination of floating roof leg penetrations that provide a potential opening where VOC can migrate from below the floating roof to atmosphere.

Emission Control Systems (Vapor Recovery)

Emission control systems are connected to fixed roof tanks and control VOC emissions with carbon adsorption or combustion. Compliance reports containing performance tests results for vapor recovery systems used at facilities applicable to Rule 463 were reviewed. All compliance reports reviewed stated the vapor recovery systems were compliant but not all specified the vapor recovery efficiency. Only the initial performance tests stated the control efficiency for the three

combustion vapor recovery systems which were specified at over 99% combustion efficiency. During a site visit, staff was informed that the facility's carbon adsorption system performs at over 99% emission control, which was further confirmed with performance test reports. All compliance reports reviewed stated the vapor recovery systems were compliant but did not specify the vapor recovery efficiency. The initial performance efficiency for three combustion vapor recovery systems were specified at over 99% combustion efficiency. During a site visit, staff was informed that the facility's carbon adsorption system performs at over 99% emission control, which was further confirmed with performance test reports. During the last rulemaking for Rule 1178 it was determined that 98% efficiency is achievable based on performance test results for combustion and carbon adsorption systems.

Staff recommends increasing the emission control system efficiency requirements to 98% emission control, by weight, based on available performance test results and information obtained at site visits.

Seals

Primary and secondary seals are used on floating roof tanks to seal the annular space between the floating roof and the tank shell to prevent VOC vapors from migrating out of the tank. Seal systems can have only a primary seal or a primary seal and secondary seal. Internal floating roof tanks are not required to have both a primary seal and secondary seal.

Staff identified five IFR tanks that are not equipped with secondary seals applicable to the rule.

Leak Detection Technologies

Multiple leak detection technologies and methods were considered to reduce the emissions impact from leaks from storage tanks. A review of continuous monitoring technologies including fixed gas sensor networks and open path device systems was conducted. Periodic monitoring with handheld optical gas imaging devices was also reviewed.

Continuous Monitoring Systems

Continuous monitoring solutions using open path detection and fixed gas sensor networks were assessed in 2023 for the Rule 1178 rulemaking. It was determined that the best solution for monitoring tanks is to require periodic monitoring with handheld optical gas imaging devices due to the nature of storage tank operations and the ability to identify small and large leaks. Continuous monitoring systems are limited in their ability to detect smaller leaks because they are installed at a distance from the tank. Depending on the detection technology of the continuous monitoring system, a leak may need to be significantly large at the source to be detected and has the potential to go undetected. One significant drawback to requiring stationary continuous monitoring system of gas sensors or open path devices, is the chance that a large leak goes undetected because it does not make contact with the fixed sensor or emitted open path beam. Due to the potential for the large emissions impact from large leaks, continuous monitoring systems with sensors that must come in contact with the VOC vapor may not be the most effective technologies to reduce the emissions impact from leaks from tanks. Another drawback to requiring continuous monitoring systems is the delayed implementation timeline due to the plan approval and installation timeframes.

Staff does not propose requiring the use of continuous monitoring systems in PAR 463. The continuous monitoring systems analyzed were all above the VOC cost-effectiveness threshold. Exceeding the cost-effectiveness threshold in combination with the limitations of the technologies

when compared to manual OGI inspections resulted in staff's proposal to not require continuous monitoring systems as BARCT. However, due to stakeholder interest in the opportunity to utilize continuous monitoring systems, staff will include a provision that allows for the use of U.S. EPA approved continuous monitoring methods provided they can achieve equivalent or more stringent monitoring as manual OGI inspections.

Optical Gas Imaging (OGI)

An optical gas imaging camera uses infrared technology to visualize vapors and has different detectors capable of visualizing a variety of gas wavelengths. VOC wavelengths range between 3.2 to 3.4 micrometers. The difference in views is shown in Figure 1-2 below. OGI cameras with the ability to detect or visualize in this range of wavelength contain a cryocooler that is integrated into the sensor which increases the sensitivity of the camera and the ability to detect smaller leaks. OGI cameras are widely used a screening tool for leak detection purposes.



Figure 1-2
View with Naked Eye Compared to View with an OGI Camera

Fixed OGI systems have been implemented at well sites and compression stations for continuous emissions monitoring. Handheld OGI cameras, as seen in Figure 1-3, are used widely by leak detection service providers as well as facilities for periodic monitoring.



Figure 1-3
OGI camera

Fixed OGI cameras may not catch all leaks that can be identified during an inspection where a portable OGI device is manually operated. Fixed OGI cameras are limited in the number of angles from which a tank can be viewed and would likely be stationed further away from an emissions source compared to a person conducting an inspection with a portable OGI device. Stationary and portable devices both have the capability to detect large leaks, however, there is greater chance that smaller leaks would be identified with a manual field inspection than with a stationary camera because tanks can be monitored in close proximity using portable devices such as handheld OGI cameras and toxic vapor analyzers (TVA).

Staff proposes OGI tank farm inspections every other calendar week for tanks that meet the capacity and vapor pressure thresholds that trigger control requirements in Rule 463 and additional semi-annual component inspections for tanks.

PROJECT DESCRIPTION

Rule 463 limits VOC emissions from any stationary storage tank with a potential for VOC emissions of six tons per year or greater used in crude oil and natural gas production operations, above-ground stationary tanks with a capacity of 19,815 gallons or greater used to store organic liquids, and above-ground tanks with a capacity between 251 and 19,815 gallons used to store gasoline. PAR 463 establishes requirements for: 1) conducting inspections, including but not limited to optical gas imaging tank farm inspections every other calendar week; 2) installing domes on EFR tanks storing organic liquids with a true vapor pressure of 3.0 psia or greater; 3) installing secondary seals on all floating roof tanks; 4) increasing the efficiency of emission control systems; 5) more stringent seal gap allowances; and 6) conducting monitoring, maintenance, recordkeeping, and reporting activities. PAR 463 will affect 429 facilities including refineries, bulk storage, loading, and oil production facilities, and is estimated to reduce VOC emissions by ~~0.43~~1.65 ton per day. Implementation of PAR 463 is expected to require physical modifications that could create secondary adverse environmental impacts relating to the installation of domes on EFR tanks and additional secondary seals on IFR tanks. The Final ~~Draft~~ EA did not identify any environmental topic areas that would be significantly adversely affected by PAR 463. Facilities with storage tanks subject to PAR 463 may be identified on lists compiled by the California Department of Toxic Substances Control per Government Code Section 65962.5 but the implementation of PAR 463 will not alter the status of the facilities on the lists.

The following is a detailed summary of the key elements contained in PAR 463. Appendix A of this EA contains draft rule language; actual text from PAR 463 is italicized while the explanation and clarification of each provision is in a non-italicized font.

Proposed Amended Rule 463

PAR 463 will contain the following subdivisions:

- a) Purpose*
- b) Applicability*
- c) Definitions*
- d) Tank Roof Requirements*
- e) Other Performance Requirements*
- f) Monitoring Requirements*
- g) Reporting and Recordkeeping Requirements*
- h) Exemptions*
- i) Test Methods*

*j) Ozone Contingency Measures**Subdivision (a) – Purpose*

The purpose of this rule is to reduce VOC emissions from above ground storage tanks storing organic liquids. Furthermore, PAR 463 contains a new purpose to establish contingency measures for ozone standards.

Subdivision (b) – Applicability

The applicability was separated from the purpose to reflect the current South Coast AQMD preferred rule format. There have been no other changes to the applicability.

Subdivision (c) – Definitions

Definitions were added or modified for clarity of new requirements. Key definition changes are referenced and discussed below.

- ~~*CLEANING is the process of washing or rinsing a stationary Tank, reservoir, pipelines, or other container or removing vapor, sludge, or rinsing liquid from a stationary Tank, reservoir, or other container.*~~

~~This is a new definition that uses existing rule language from South Coast AQMD Rule 1149 to clarify the meaning of cleaning within the rule language as well as consistency across South Coast AQMD rules.~~

COMPONENT is any valve, fitting, pump, compressor, pressure relief device, diaphragm, hatch, sight-glass, Roof Opening, Rim Seal System, pressure vacuum vents, guidepoles, roof legs, or meter in VOC service.

This is a definition from Rule 1173 – Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants (Rule 1173) that was modified to include additional tank specific parts. The definition adds clarity on the meaning of component for the proposed semi-annual OGI component inspection requirement.

- *COMPONENT INSPECTION is monitoring for Visible Vapors with a handheld Optical Gas Imaging Device of a Storage Tank roof and individual components, including but not limited to Roof Openings and Rim Seal Systems, viewable from the Tank platform or a vantage point capable of seeing the Tank roof, and ground for components not viewable from the Tank platform or vantage point but viewable at ground level.*

This is a definition from Rule 1178 that was modified to include component inspection procedures for tanks that do not have access to a tank platform. In the event there is no platform from which a component inspection can be conducted, an owner or operator can use a vantage point capable of viewing the roof of the tank and/or other vantage points needed to complete the OGI inspection.

- *PRODUCT CHANGE is the process of changing the Tank contents from one ~~product~~ Organic Liquid to another ~~product~~ Organic Liquid that has different characteristics i.e. vapor pressure, viscosity, etc.*

This is a new definition to clarify the new rule language added in PAR 463 paragraph (e)(2) in response to stakeholder request.

- *VISIBLE VAPORS are any VOC vapors detected with an Optical Gas Imaging Device, when operated and maintained in accordance with manufacturer training or certification, or equivalent California Air Resources Board (CARB) training, user manuals, specifications, and recommendations.*

This is a definition from Rule 1178 that was modified to include the CARB OGI camera training as an approved training method for OGI camera operators. The definition was also modified to remove the reference to tank farm inspections and component inspections so that visible vapors can be identified outside of those two operations.

The following definitions were added or modified to be consistent with the definitions in South Coast AQMD Rule 1178:

- *ACCESS HATCH*
- *CERTIFIED PERSON*
- *CLEANING*
- ~~*COMPONENT INSPECTION*~~
- *DOMED ROOF*
- *EMISSION INVENTORY YEAR*
- *EXTERNAL FLOATING ROOF TANK*
- *FACILITY*
- *FIXED ROOF SUPPORT COLUMN AND WELL*
- *FIXED ROOF TANK*
- *FLEXIBLE ENCLOSURE SYSTEM*
- *FUEL GAS SYSTEM*
- *GAUGE FLOAT*
- *GAUGE HATCH/SAMPLE PORT*
- *GUIDEPOLE*
- *INTERNAL FLOATING ROOF TANK*
- *LADDER AND WELL*
- *LIQUID MOUNTED PRIMARY SEAL*
- *MECHANICAL SHOE PRIMARY SEAL*
- *OPTICAL GAS IMAGING DEVICE*
- *POLE FLOAT*
- *POLE SLEEVE*
- *POLE WIPER*
- *PRIMARY SEAL*
- *RESILIENT FILLED PRIMARY SEAL*
- *RIM MOUNTED SECONDARY SEAL*
- *RIM SEAL SYSTEM*

- RIM VENT
- ROOF DRAIN
- ROOF LEG
- ROOF OPENING
- SECONDARY SEAL
- SLOTTED GUIDEPOLE
- STORAGE TANK or TANK
- TANK FARM INSPECTION
- TRUE VAPOR PRESSURE
- VACUUM BREAKER
- VISIBLE GAP
- ~~VISIBLE VAPORS~~
- WASTE STREAM TANK

Subdivision (d) – Tank Roof Requirements

PAR 463 includes revisions to existing requirements and new requirements. PAR 463 establishes requirements for rim seal gaps, secondary seals, emission control systems, doming, testing, implementation and monitoring.

Primary and Secondary Seal Gap Requirements – Clause (d)(1)(A)(v)

New seal gap requirements for primary and secondary seals were added by reference to reflect seal gap requirements contained in U.S. EPA's 40 CFR 60 Subpart Kb. The new seal gap requirements are in addition to the existing seal gap requirements specified in clauses (d)(1)(A)(i) to (d)(1)(A)(iv). Seal gap requirements are contained under requirements for external floating roofs but apply to all floating roof tanks; requirements for other floating roof tanks refer to subparagraph (d)(1)(A).

Vapor Tight Requirements for Openings – Subparagraph (d)(1)(D)

New language was added to clarify that covers and openings must be controlled in a manner that is vapor tight. Vapor tight is a defined term in Rule 463. Domed external floating roof tanks also have requirements to be in a vapor tight condition, as subparagraph (d)(4)(A) refers to paragraph (d)(1).

Maintain Tanks Free of Visible Vapors for External Floating Roof Tanks – Subparagraph (d)(1)(G) (d)(2)(C), (d)(3)(D), and (d)(4)(C)

The proposed amended rule requires tanks to be free of visible vapors that could result from a defect determined by an optical gas imaging inspection conducted pursuant to the requirements of subparagraph (f)(3)(D). Defects can be anything that leads to uncontrolled emissions such as a physical malfunction, ~~or~~ a hatch improperly closed, or components not operating as intended. For example, visible vapors resulting from a pressure vacuum relief valve (PVRV) opening to relieve pressure build up is allowable. However, if that same PVRV does not re-seal properly after being opened then that is considered a defect. Requirements to maintain tanks free of visible vapors are contained under requirements for external floating roofs but applies to all tanks; requirements for other tanks refer to subparagraph (d)(1)(G).

Visible Vapor Cause Determination – Clause (d)(1)(G)(i)

If an OGI camera detects visible vapors and an owner or operator claims the vapors are not the result of a defect, then the owner or operator must demonstrate that the vapors in question are not the result of a defect. This provision is intended to put the onus on the owner or operator to prove their claim that visible vapors detected by an OGI camera is allowable by Rule 463 (e.g., PVRV opening to temporarily relieve pressure build up). Requirements for the owner or operator to demonstrate that visible vapors are not the result of a defect are contained under requirements for external floating roof tanks but applies to all tanks; requirements for other tanks refer to subparagraph (d)(1)(G), which includes clause (d)(1)(G)(i).

Doming Requirements – Subparagraph (d)(1)(H)

PAR 463 requires that facilities install a dome on any external floating roof tank storing organic liquid with a true vapor pressure of 3 psia or greater. The new provision reflects existing doming requirements in Rule 1178. External floating roof tanks that meet the requirements of subparagraph (d)(1)(H) must install domes at the next internal API 653 inspection or the next time a tank is cleaned and degassed, whichever is sooner, but not to exceed 23 years after a test verifies that an organic liquid stored has a TVP of 3 psia or greater. Internal API 653 inspections require the tank to be taken out of service to inspect the inside of the tank and are carried out every 20 years. Tanks need to be cleaned and degassed prior to the installation of a dome for safety concerns. Furthermore, doming is not cost-effective when cleaning and degassing costs are considered. The implementation timeframe for doming begins three years after [Date of Adoption] to account for planning and budgetary needs and the permitting process. It is the responsibility of the owner or operator to submit permit applications in a timely manner to ensure that permits can be issued prior to the implementation schedule specified in subparagraph (d)(1)(H). The backstop of 23 years for installing domes was calculated by adding the three year on-ramp period to the standard 20-year interval for internal API 653 inspections. The effective date of this provision is June 7, 2027; to allow for planning and budgetary considerations.

True Vapor Pressure Measurements – Subparagraph (d)(1)(I)

Facilities are required to measure and record the true vapor pressure of the organic liquid inside any external floating roof tank not equipped with a dome with an initial vapor pressure test. Any tanks storing organic liquids with a TVP less than 3.0 psia are required to conduct subsequent test on a semi-annual basis (once every six months) to verify the true vapor pressure remains less than 3 psia. This requirement is effective on January 1, 2025, and the first test must be conducted by July 1, 2025. If an EFR tank shows a single test indicating the stored organic liquid has a TVP of ≥ 3.0 psia a dome must be installed pursuant to the implementation schedule in subparagraph (d)(1)(H) unless the tank is placed out of service and the permit is surrendered or if the owner or operator elected to conduct TVP tests according to the alternative schedule specified in clauses (d)(1)(I)(i). An EFR tank with permit conditions that limit the true vapor pressure of the organic liquid stored to < 3.0 psia is not exempt from the doming requirements, if the result from a test specified in subparagraph (d)(1)(I) or the average result from tests specified in clause (d)(1)(I)(i) is ≥ 3.0 psia, with the exception of EFR tanks storing waste water where the installation domes can lead to unsafe conditions pursuant to subparagraph (d)(1)(J). However, owners or operators of EFR tanks that are pursuing the alternative compliance pathway in subparagraph (d)(1)(J) may be subject to penalties and/or additional actions if TVP tests indicate that the product stored is ≥ 3.0 psia.

Alternative True Vapor Pressure Measurements – Clauses (d)(1)(I)(i)

An owner or operator can choose to conduct monthly TVP tests and submit an average TVP of the organic liquid stored in a tank every six months. If an owner or operator opts to use this alternative pathway, the owner or operator must commence testing in January 2025. Any owner or operator that fails to test monthly as of January 2025 must comply with the semi-annual TVP test requirements specified in subparagraph (d)(1)(I). If an EFR tank subject to the alternative TVP testing schedule has an average TVP over six months that is ≥ 3.0 psia, a dome must be installed pursuant to the implementation schedule in subparagraph (d)(1)(H) unless the tank is placed out of service and the permit is surrendered. The average test results are not to be calculated on a rolling average. Each calculated six month average will include the TVP test results from tests conducted from January-to-June and July-to-December each year.

Doming Alternative for Tanks with Pyrophoric Material – Subparagraph (d)(1)(J)

Facilities are required to accept permit conditions that limit the TVP of the product stored to less than 3.0 psia for tanks that meet the doming requirements in subparagraph (d)(1)(H), but the installation of a dome could lead to the buildup of pyrophoric materials. For wastewater EFR tanks where the installation of a dome could lead to the buildup of pyrophoric materials, PAR 463 includes an option to accept permit conditions to limit the TVP of the organic liquid stored to less than 3 psia as an alternative to doming.

Removal of Alternative Compliance Pathway for Fixed Roof Tanks with an Internal Floating Type Cover from Paragraph (d)(2)

An alternative compliance pathway which allowed fixed roof tanks with an existing internal floating type of cover approved on or before June 1, 1984, to comply with requirements applicable at the time of approval was removed from subparagraph (d)(2)(A). All fixed roof tanks with internal floating type covers will be required to comply with the provisions in PAR 463.

Secondary Seal Seal Requirements for Internal Floating Roof Tanks – Subparagraph (d)(2)(A)

Internal floating roof tanks must be equipped with both a primary and secondary seal. Primary seal and secondary seal are defined terms in PAR 463. In response to a comment from a stakeholder, the mechanical shoe primary seal requirements for IFR tanks were updated to require that the shoe extend 6 inches above the liquid surface and the other end extend into the liquid a minimum of 4 inches. The proposed PAR 463 requirements align with Rule 1178 and are consistent with the API 650.H.4.4.5.c requirements. Rule 463 subparagraph (d)(1)(A) requires that mechanical shoe primary seals extend a minimum vertical distance of 24 inches above the surface of the organic liquid. Since the internal floating roofs are much lighter structures and are not subject to the effects of wind, larger mechanical shoe primary seals are not required for seal control effectiveness. Furthermore, maintaining the current requirement of larger mechanical shoe primary seals for all internal floating roof tanks could cause some roof systems to fail and could result in an adverse emission impact. During the 2006 Rule 1178 amendment process staff determined, based on information provided by seal manufacturers, that there is no difference in emissions as long as the mechanical shoe length meets the API Guidelines and the structural integrity of the roof is maintained.

Internal Floating Roof Tank Vapor Tight Requirements for Openings — Subparagraph (d)(2)(A)

~~The proposed amended rule clarifies that covers and openings must be controlled in a manner that is vapor tight. Vapor tight is a defined term in Rule 463.~~

Maintain Tanks Free of Visible Vapors for Internal Floating Roof Tanks — Subparagraph (d)(2)(C)

~~A provision is included that requires that tanks be free of visible vapors that could result from a defect determined by an optical gas imaging inspection conducted pursuant to the requirements of subparagraph (f)(3)(D). Defects can be anything that leads to uncontrolled emissions such as a physical malfunction or a hatch improperly closed.~~

Compliance Schedule to Install Secondary Seals on Internal Floating Roof Tanks — Subparagraph (d)(2)(D)

~~Any internal floating roof tanks not equipped with a secondary seal are required to have a secondary seal installed at the time of the next internal API 653 inspection or the next time the tank is cleaned and degassed, whichever is sooner, but no later than 22 years past the date of adoption for PAR 463. Internal API 653 inspections require the tank to be taken out of service to inspect the inside of the tank and are carried out every 20 years. Tanks need to be cleaned and degassed prior to the installation of secondary seals due to safety concerns. The implementation timeframe for installing secondary seals begins two years after [Date of Adoption] to account for planning and budgetary needs as well as the permitting process. It is the responsibility of the owner or operator to submit permit applications in a timely manner to ensure that permits can be issued prior to the implementation schedule specified in subparagraph (d)(2)(D). the next time the tank is emptied and degassed, but no later than ten years past the date of adoption for PAR 463.~~

Fixed Roof Tank Vapor Tight Requirements for Openings — Subparagraph (d)(3)(A)

~~New language was added to clarify that covers and openings must be controlled in a manner that is vapor tight. Vapor tight is a defined term in PAR 463.~~

Emission Control Systems for Fixed Roof Tanks — Subparagraph (d)(3)(C)

~~Emission control systems required on fixed roof tanks must achieve 98% control efficiency by weight. The owner or operator is required to submit early Title V permit revisions pursuant to South Coast AQMD Rule 3005.~~

Maintain Tanks Free of Visible Vapors for Fixed Roof Tanks — Subparagraph (d)(3)(D)

~~New language was added that requires that tanks be free of visible vapors that could result from a defect determined by an optical gas imaging inspection conducted pursuant to the requirements of subparagraph (f)(3)(D). Defects can be anything that leads to uncontrolled emissions such as a physical malfunction or a hatch improperly closed.~~

Domed External Floating Roofs — Paragraph (d)(4)

~~Staff added a new paragraph to specify requirements for domed external floating roofs.~~

Roof Openings and Rim Seal Systems for Domed External Floating Roofs — Subparagraph (d)(4)(A)

~~Domed external floating roofs are subject to the same requirements as external floating roofs to equip and maintain roof openings and rim seal systems, with the exception of~~

slotted guidepoles. Specific requirements for the components needed for slotted guidepoles are specified in subparagraph (d)(4)(A).

Concentration of Organic Vapor for Domed External Floating Roofs – Subparagraph (d)(4)(B)

Subparagraph (d)(4)(B) is based on the requirements in subparagraph (d)(2)(B) to ensure that the concentration of organic vapor in the vapor space above the floating roof does not exceed 30 percent of its lower explosive limit.

Maintain Tanks Free of Visible Vapors for Domed External Floating Roofs – Subparagraph (d)(4)(C)

~~Subparagraph (d)(4)(C) requires that tanks be free of visible vapors that could result from a defect determined by an optical gas imaging inspection conducted pursuant to the requirements of paragraph (f)(3)(D). Defects can be anything that leads to uncontrolled emissions such as a physical malfunction or a hatch improperly closed.~~

Condition Requirements for Domed Roof – Subparagraph (d)(4)(D)

Subparagraph (d)(4)(D) mirrors Rule 1178 and specifies that domes must be maintained in a condition that is free from openings that are not part of the dome design such as gaps, cracks, separations and other openings. This requirement excludes openings that are part of the dome design such as vents and access points or doors.

Subdivision (e) – Other Performance Requirements

Exceptions for Floating Roof During Product Change – Paragraph (e)(2)

The proposed amended rule includes product change as an activity in which an internal floating roof or external floating roof does not need to float on the organic liquid. Product change is a defined term in PAR 463. Staff updated the rule language in response to a stakeholder request. The proposed amended rule language clarifies the intent of existing rule language as tanks must be emptied during a product change, which requires floating roofs to rest on support legs (unless the roof is cable suspended).

Executive Officer Approval of Alternative Seals – Paragraph (e)(5)

Seals that are not on the current list of approved seals cannot be used unless a facility is given written approval by the Executive Officer.

Use of PAR 463 Addendum for Vapor Pressure Limits – Paragraph (e)(6)

Organic liquids listed on the Rule 463 addendum can no longer be deemed to be in compliance. The addendum can be used as a guide for compliance with the appropriate vapor pressure limits.

Subdivision (f) – Monitoring Requirements

Tank Roof Refloating Seal Inspections – Subparagraph (f)(3)(B)

~~The proposed amended rule~~ PAR 463 extends the time to conduct required seal inspections on floating roofs to 48 hours after a tank roof is refloated. A stakeholder stated that tank refilling at their facility can take up to 48 hours to complete. Under the current rule requirements, facilities are required to conduct seal inspections within 24 hours. Therefore, facilities with tank refilling operations longer than 24 hours are required to conduct seal

inspections before the tank refilling is complete; once the seal inspection is completed the facility resumes tank refilling operations. The pause in operations can lead to unintended excess auxiliary emissions. For example, if a vessel is used to refill a large tank that takes more than 24 hours to complete, the process must pause for the inspection to occur and then continue. During this pause the vessel is on standby, generating emissions. The extended seal inspection deadline accounts for longer refill operations while maintaining a deadline for seal inspections.

Electronic Notifications – Subparagraph (f)(3)(C)

The proposed amended rule specifies electronic notifications to the email address designated by the Executive Officer. The timeframe to submit notifications was also shortened to 2 days prior to the start of any tank-emptying or roof-refloating operation for planned maintenance. Electronic notifications are almost instantaneous which reduces the need for a longer notification timeframe.

Optical Gas Imaging Inspections – Subparagraph (f)(3)(D)

Effective July 1, 2025, optical gas imaging inspections are required for tanks that meet the capacity and vapor pressure requirements specified in subdivision (d) and paragraph (e)(1) to determine compliance with the requirement for tanks to be maintained in a condition that is free of visible vapors resulting from a defect or malfunction of equipment. This subparagraph contains the requirements for OGI inspections.

Certification/Training of Person Conducting OGI Inspection – Clause (f)(3)(D)(i)

Contains requirements for qualification for the persons conducting an OGI inspection. Persons conducting the OGI inspection must be certified or have undergone training for the camera used provided by the manufacturer of the OGI camera or the equivalent CARB training. The persons conducting the inspections must also complete all subsequent training or certification recommended by the OGI manufacturer. This paragraph also contains requirements for proper operation and maintenance of the OGI device. The OGI camera must be operated and maintained in accordance with all manufacturer guidance including but not limited to that stated in any training or certification course, user manuals, specifications, recommendations.

Tank Farm Inspection Requirements – Clause (f)(3)(D)(ii)

Contains requirements for tank farm inspections.

Frequency (Tank Farm Inspection) – Subclause (f)(3)(D)(ii)(A)

Inspections must be conducted at least once every two calendar weeks.

Procedure (Tank Farm Inspection) – Subclause (f)(3)(D)(ii)(B)

A person using an OGI device ~~inspector~~ is required to monitor for visible vapors with a tank farm inspection, as defined in PAR 463. If visible vapors are detected during a tank farm inspection, ~~an inspector~~ person must conduct an additional inspection from the tank's platform, or a vantage point for tanks without a platform, to make an effort to determine the source of emissions. From the platform or vantage point, ~~an inspector~~ person will use an OGI device to inspect components required to be maintained in a vapor tight condition or with no visible gaps, ~~viewable from the tank platform~~. If visible vapors are detected from any components that are required to be maintained in a vapor tight condition or in a condition with no visible gaps, the facility must demonstrate compliance with applicable

rule requirements for any component from which visible vapors are emitted or make a repair, within three days of identifying the visible vapors. If visible vapors are detected from the roof or other components not required to be vapor tight or with no visible gaps, the ~~inspector~~ person must conduct a visual inspection to identify any defects in equipment from which visible vapors are emitted. Defects may include, but are not limited to, equipment that is not operating as intended, equipment not found in good operating condition, equipment not meeting all the requirements of Rule 463~~the rule~~, or other indicators that equipment has failed (e.g., organic liquid pooled on a floating roof). The visual inspection for defects may include the use of an OGI device. If no defects are identified, no further action is required for the inspection. If a defect is identified, a repair must be made within three days.

Component Inspections – Clause (f)(3)(D)(iii)

Contains requirements for component inspections. Component inspections is a defined term in PAR 463~~include monitoring of individual components including, but not limited to rim seals, pressure vacuum vents, hatches, guidepoles, roof legs, emission control system connections and vents.~~

Frequency (Component Inspection) – Subclause (f)(3)(D)(iii)(A)

Inspections must be conducted at least twice per year at 4 to 8 month intervals~~once every six months~~ for floating roof tanks. The component inspection frequency mirrors the timeframe specified in Rule 463 for other required semi-annual inspections, so that component inspections may be conducted at the same time. ~~Component inspections may be conducted during other required semi-annual inspections.~~

Procedure (Component Inspection) – Subclauses (f)(3)(D)(iii)(B)-(C)

Repairs or demonstration with applicable rule requirements must be conducted when visible vapors are detected from any component or equipment, except for rim seal systems. Repairs or demonstrations with rim seal requirements must be conducted when a defect is visible from the tank platform, or a vantage point for tanks without a platform, and when visible vapors are emitted from the rim seal and are also detectable at the top of the tank shell or from roof vent.

Alternative Monitoring Method – Subparagraph (f)(3)(E)

An owner or operator may elect to use an alternative monitoring method approved in writing by the U.S. EPA that is equivalent or more stringent than the OGI inspection requirements specified in PAR 463. Alternative monitoring methods submitted to U.S. EPA for approval, but that have not received written approval from U.S. EPA, do not qualify as an approved alternative method in lieu of required OGI inspections. An owner or operator is required to submit written documentation of the U.S. EPA approved method to the South Coast AQMD, so staff can verify that the method is approved by U.S. EPA prior to the alternative monitoring method being implemented. Until the approved monitoring method is approved by South Coast AQMD, an owner or operator is subject to the OGI inspection requirements in PAR 463.

Performance Tests for Vapor Recovery Systems – Paragraph (f)(5)

An owner or operator of an existing vapor recovery system must conduct an initial performance test to verify compliance with the new control efficiency within one year of the date of adoption of PAR 463. Additional performance tests must be conducted for all

vapor recovery systems at a frequency of least once every ten years. If a vapor recovery system is changed in any way that affects the capture or control efficiency, a performance test must be conducted within 180 days of the equipment modification. For example, changing the temperature in which a combustion based vapor recovery unit achieves ignition may lead to a change in the achieved control efficiency. Under the described scenario, a performance test would need to be conducted within 180 days of the vapor recovery system modification to verify compliance with the control efficiency requirements. Fuel gas systems operating to comply with the requirements in subparagraph (d)(3)(C) are not required to conduct performance tests.

Subdivision (g) – Reporting and Recordkeeping Requirements

Electronic Compliance Inspection Report Option – Subparagraph (g)(1)(A)

Paragraph (g)(A) was updated to allow for an electronic compliance inspection report, provided that all information required in Attachment B is included.

Electronic Option for Non-Compliance Report – Subparagraph (g)(1)(C)

Paragraph (g)(C) was updated to specify that a non-compliance report is required to be submitted electronically to the email address designated by the Executive Officer.

Emissions Reporting – Subparagraph (g)(2)(A)

U.S. EPA TANKS 4.0 was removed as an option to base emission information parameters on for South Coast AQMD's Annual Emission Reporting Program. U.S. EPA TANKS 4.0 was developed using a software that is now outdated and is not reliably functional. U.S. EPA currently recommends the use of formulas found in AP-42: Compilation of Air Pollutant Emissions Factors from Stationary Sources (AP-42), Chapter 7 to estimate VOC emissions from storage tanks. Currently the U.S. EPA is developing Tanks 5.0 as a replacement for the outdated Tanks 4.0. Pending U.S. EPA approval, Tanks 5.0 would be an acceptable tool to calculate emissions, for as long as U.S. EPA deems Tanks 5.0 to be an appropriate tool to estimate VOC emissions.

Reporting and Recordkeeping Requirements for OGI Inspections – Paragraph (g)(4)

Contains notification and recordkeeping requirements for OGI inspections.

Reporting for OGI Inspections – Subparagraph (g)(4)(A)

Contains reporting requirements for tank farm inspections. Facilities must report to 1-800-CUTSMOG when visible vapors are detected during a tank farm inspection that require a demonstration with rule requirements or a repair pursuant to the requirements of subclause (f)(3)(D)(ii)(B) within 24 hours of identifying the visible vapors.

Records for Tank Farm Inspections – Subparagraph (g)(4)(B)

Contains recordkeeping requirements for tank farm inspections. Written and digital records must be kept for findings of visible vapors resulting from a defect in equipment or from components required to be vapor tight or with no visible gap.

Records for Component Inspections – Subparagraph (g)(4)(C)

Contains recordkeeping requirements for component inspections.

Recordkeeping and Reporting TVP Test Results – Paragraphs (g)(5) and (g)(6)

Contains recordkeeping and reporting requirements for the TVP tests required for EFR tanks. Test results must be kept for 20 years to confirm tanks are under the doming TVP thresholds. Any test that indicates a TVP of 3.0 psia or greater must be reported to the South Coast AQMD and contain the year of the next internal API 653 inspection and the next planned time a tank is to be cleaned and degassed to aid in determining compliance with the dome installation schedule. ~~to aid in determining compliance with the dome installation schedule.~~

Reporting for VRU Performance Tests – Paragraphs (g)(7)

Contains reporting requirements for VRU performance tests. Facilities must submit reports of any performance tests within 60 days of conducting the test.

*Subdivision (h) – Exemptions*Exemption for Tanks Regulated by Rule 1178 – Paragraph (h)(3)

An exemption from the provisions of Rule 463 for tanks regulated by Rule 1178, with the exception of other performance requirements, ~~and seal categories, and the definition for Product Change,~~ was added to PAR 463. The new exemption increases clarity of compliance requirements for affected facilities subject to Rules 463 and 1178.

Exemption from OGI Inspections – Paragraph (h)(4)

Any tank that is out of service and complying with the requirements of Rule 1149 is exempt from OGI inspections. OGI inspections must resume once the tank is refilled and the initial inspection must be carried out within 14 days of the date the tank is filled.

Exemption from OGI Inspections Due to Safety– Paragraph (h)(5)

If a facility or person responsible for conducting an OGI inspection at a facility determines that it is unsafe to climb a tank due to safety concerns such as wind or slippery surfaces from rain, the facility is not required to conduct an inspection from the tank platform, or other vantage point for tanks without a platform. A ~~platform~~ component inspection for tanks that were identified as having visible vapors during a tank farm inspection must be conducted the first day the facility or person responsible for conducting the OGI inspection determines it safe to do so. An owner or operator is required to document the date that a required inspection was not completed and the reason.

*Subdivision (i) – Test Methods*Additional Vapor Pressure Test Methods – Paragraph (i)(3)

Contains the approved test methods to verify compliance with the Rule 463 requirements. New test methods were added to expand the test options used to determine the Reid Vapor Pressure of organic liquids. The new test methods include ASTM – 6377 and ASTM –6378 which provide updated testing procedures for crude oils and heavier petroleum products, respectively. Additional changes include the removal of references to specific editions of U.S. EPA AP-42 and updates to include the verification of the new vapor tight requirements.

Removal of Reference to AP-42 Fifth Edition – Paragraph (i)(5)

A reference to the fifth edition of U.S. EPA AP-42 was removed, as future versions of AP-42 may be published. Removing the reference to the specific edition will reduce the need for future Rule 463 amendments.

Verification of Vapor Tight – Paragraph (i)(6)

Contains the methods used to determine the vapor tight condition for storage tanks.

Subdivision (j) – Ozone Contingency Measure

The proposed amendments add the required ozone contingency measures to the rule. These contingency measures would only be implemented in the event that the U.S. EPA determines that the South Coast AQMD had failed to meet an RFP milestone or to attain an ozone NAAQS. These contingency control measures are necessary as part of comprehensive efforts to timely attain ozone standards.

CHAPTER 2

ENVIRONMENTAL CHECKLIST

Introduction

General Information

Environmental Factors Potentially Affected

Determination

Environmental Checklist and Discussion

INTRODUCTION

The environmental checklist provides a standard evaluation tool to identify a project's potential adverse environmental impacts. This checklist identifies and evaluates potential adverse environmental impacts that may be created by the proposed project.

GENERAL INFORMATION

Project Title:	PAR 463 – Organic Liquid Storage
Lead Agency Name:	South Coast Air Quality Management District
Lead Agency Address:	21865 Copley Drive Diamond Bar, CA 91765
CEQA Contact Person:	Jivar Afshar, (909) 396-2040, jafshar@aqmd.gov
PAR 463 Contact Person:	Joshua Ewell, (909) 396-2212, jewell@aqmd.gov
Project Sponsor's Name:	South Coast Air Quality Management District
Project Sponsor's Address:	21865 Copley Drive Diamond Bar, CA 91765
General Plan Designation:	Not applicable
Zoning:	Not applicable
Description of Project:	Rule 463 limits VOC emissions from any stationary storage tank with a potential for VOC emissions of six tons per year or greater used in crude oil and natural gas production operations, above-ground stationary tanks with a capacity of 19,815 gallons or greater used to store organic liquids, and above-ground tanks with a capacity between 251 and 19,815 gallons used to store gasoline. PAR 463 establishes requirements for: 1) conducting inspections, including but not limited to optical gas imaging tank farm inspections every other calendar week; 2) installing domes on external floating roof tanks storing organic liquids with a true vapor pressure of 3.0 psia or greater; 3) installing secondary seals on all floating roof tanks; 4) increasing the efficiency of emission control systems; 5) more stringent seal gap allowances; and 6) conducting monitoring, maintenance, recordkeeping, and reporting activities. PAR 463 will affect 429 facilities including refineries, bulk storage, loading, and oil production facilities, and is estimated to reduce VOC emissions by 0.431 <u>1.65</u> ton per day.
Surrounding Land Uses and Setting:	Various
Other Public Agencies Whose Approval is Required:	Not applicable

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The following environmental impact areas have been assessed to determine their potential to be affected by the proposed project. As indicated by the checklist on the following pages, environmental topics marked with an "✓" involve at least one impact that is a "Potentially Significant Impact". An explanation relative to the determination of impacts can be found following the checklist for each area.

- | | | |
|---|--|--|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Geology and Soils | <input type="checkbox"/> Population and Housing |
| <input type="checkbox"/> Agriculture and Forestry Resources | <input type="checkbox"/> Hazards and Hazardous Materials | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Air Quality and Greenhouse Gas Emissions | <input type="checkbox"/> Hydrology and Water Quality | <input type="checkbox"/> Recreation |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Land Use and Planning | <input type="checkbox"/> Solid and Hazardous Waste |
| <input type="checkbox"/> Cultural and Tribal Cultural Resources | <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Transportation |
| <input type="checkbox"/> Energy | <input type="checkbox"/> Noise | <input type="checkbox"/> Wildfire |
| <input type="checkbox"/> Mandatory Findings of Significance | | |

DETERMINATION

On the basis of this initial evaluation:

- ☒ I find the proposed project, in accordance with those findings made pursuant to CEQA Guidelines Section 15252, COULD NOT have a significant effect on the environment, and that an ENVIRONMENTAL ASSESSMENT with no significant impacts has been prepared.
- ☐ I find that although the proposed project could have a significant effect on the environment, there will NOT be significant effects in this case because revisions in the project have been made by or agreed to by the project proponent. An ENVIRONMENTAL ASSESSMENT with no significant impacts will be prepared.
- ☐ I find that the proposed project MAY have a significant effect(s) on the environment, and an ENVIRONMENTAL ASSESSMENT will be prepared.
- ☐ I find that the proposed project MAY have a "potentially significant impact" on the environment, but at least one effect: 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards; and, 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL ASSESSMENT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects: 1) have been analyzed adequately in an earlier ENVIRONMENTAL ASSESSMENT pursuant to applicable standards; and, 2) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL ASSESSMENT, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Date: March 26, 2024

Signature: 

Kevin Ni
Program Supervisor, CEQA
Planning, Rule Development and
Implementation

ENVIRONMENTAL CHECKLIST AND DISCUSSION

As explained in Chapter 1, PAR 463 limits VOC emissions from above-ground stationary tanks with a capacity of 19,815 gallons or greater used to store organic liquids, above-ground tanks with a capacity between 251 and 19,815 gallons used to store gasoline, and any stationary storage tank with a potential for VOC emissions of six tons per year or greater used in crude oil and natural gas production operations. PAR 463 establishes requirements for: 1) conducting inspections, including but not limited to optical gas imaging tank farm inspections every other calendar week; 2) installing domes on EFR tanks storing organic liquids with a true vapor pressure of 3.0 psia or greater; 3) installing secondary seals on all floating roof tanks; 4) increasing the efficiency of emission control systems; 5) more stringent seal gap allowances; and 6) conducting monitoring, maintenance, recordkeeping, and reporting activities.

Of the proposed changes in PAR 463, only the installation of domes on some EFR tanks and the installation of secondary roof seals on some IFR tanks are expected to require physical modifications involving construction and these activities could create secondary adverse environmental impacts. Construction from doming EFR tanks involves assembling the dome, lifting it, and installing the dome; while installing secondary roof seals on IFR tanks is a one-step process. These activities create the potential for secondary adverse environmental impacts due to construction.

PAR 463 provides long time frames for when domes are required to be installed on applicable storage tanks in accordance with subparagraph (d)(1)(H), as follows: all applicable storage tanks at the time of the next internal API 653 inspection or the next time the tank is emptied cleaned and degassed, but no later than 23 years after a true vapor pressure test indicates the organic liquid stored is ≥ 3.0 psia. The effective date of this provision is June 7, 2027, to allow time for planning and budgetary considerations. In addition, construction activities associated with installing domes are expected to occur concurrently in situations when requirements other than PAR 463 necessitate emptying cleaning and degassing the tank. For example, PAR 463 subparagraph (d)(2)(D) specifies that the timing of construction should be coordinated and coincide with when the storage tank is next emptied cleaned and degassed when installing secondary roof seals on IFR tanks. For these reasons, storage tank emptying cleaning and degassing activities are not considered unique to PAR 463 and as such, the environmental impacts from these activities are excluded from the analysis. In addition, no grading or site preparation activities are required for installing domes. Thus, this construction analysis focuses on impacts from the combined efforts associated with: 1) doming EFR tanks which involves assembling the dome, lifting it, and installing the dome; and 2) installing secondary roof seals on IFR tanks as a one-step process.

Once the domes and secondary roof seals are installed, no changes in process operations involving these storage tanks are expected to occur. Therefore, other than VOC emission reductions, which are an environmental benefit to air quality, no adverse operational impacts are expected.

Other components of PAR 463, such as requirements for conducting biweekly optical gas imaging tank farm inspections every other calendar week, ~~semi-annual~~ component inspections twice per year at four- to eight-month intervals and implementing recordkeeping and reporting provisions would not be expected to cause any physical changes that would create any secondary adverse environmental impacts either during construction or operation.

For these reasons, the analysis in this EA focuses on the key elements in the proposed project with the potential to create secondary adverse environmental impacts associated with doming approximately 20 EFR tanks and installing secondary seals on 22 IFR tanks.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
I. <u>AESTHETICS.</u> Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point(s).) If the project is in an urbanized area, would the project conflict with applicable zoning or other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Significance Criteria

The proposed project impacts on aesthetics will be considered significant if:

- The project will block public views from a scenic highway or corridor.
- The project will adversely affect the visual continuity of public views of the surrounding area.
- The impacts on light and glare will be considered significant if the project adds lighting which would add glare to residential areas or sensitive receptors.

Discussion

PAR 463 applies to storage tanks located at 429 facilities including refineries, bulk storage, loading, and oil production facilities. Staff estimates 20 tanks will need to be domed and 22 tanks will need secondary roof seals installed. PAR 463 is estimated to reduce VOC emissions by ~~0.43~~ 1.65 ton per day. The components of PAR 463 that would be expected to have physical effects are installing domes on EFR tanks and secondary roof seals on IFR tanks. Other components of PAR 463, such as requirements for conducting optical gas imaging tank farm inspections every other calendar week, ~~semi-annual~~ component inspections twice per year at four- to eight-month intervals and implementing recordkeeping and reporting provisions are not expected to create any secondary adverse environmental impacts.

I. a), b), & c) Less Than Significant Impact. For the purpose of determining significance under CEQA, a scenic vista is generally considered a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. Some scenic vistas are officially designated

by public agencies, or informally designated by tourist guides. Vistas provide visual access or panoramic views to a large geographic area and are generally located at a point where surrounding views are greater than one mile away. Panoramic views are usually associated with vantage points over a section of urban or natural areas that provide a geographic orientation not commonly available. Examples of panoramic views might include an urban skyline, valley, mountain range, a large open space area, the ocean, or other water bodies. A substantial adverse effect to a scenic vista is one that degrades the view from such a designated view spot.

A scenic highway is generally considered a stretch of public roadway that is designated as a scenic corridor by a federal, state, or local agency. Caltrans defines a scenic highway as any freeway, highway, road, or other public right of way, that traverses an area of exceptional scenic quality.

Physical modifications associated with the proposed project are limited to doming EFR tanks and installing secondary roof seals on IFR tanks at existing facilities. The construction equipment is expected to be at the height of or just above the existing storage tanks and not substantially visible to the surrounding area due to construction occurring within each existing facility's property line, existing fencing along property lines, and existing structures currently within each facility's boundaries that may buffer the views of the construction activities.

Since the affected facilities are located in existing industrial areas, the construction equipment is not expected to be substantially discernable from other off-road equipment that exists on-site for routine operations and maintenance activities. Further, the construction activities are not expected to adversely impact views and aesthetics resources since most of the construction equipment and activities are expected to occur within the confines of each existing facility and are expected to introduce only minor visual changes to areas outside each facility, if at all, depending on the location of the construction activities within each affected facility. In addition, the construction activities are expected to be temporary in nature. Once construction is completed, all construction equipment would be removed from each facility.

Since all of the affected facilities are located in urbanized areas, any changes to the buildings or structures would require approvals from the local city or county planning departments. It is important to note that the affected facilities are located throughout the South Coast AQMD jurisdiction. Counties are mandated by the state of California to prepare a general plan containing an aesthetics element. None of the anticipated physical activities associated with implementing PAR 463 are intended to interfere or be inconsistent with the local planning department aesthetics requirements in their general plans. Physical activities resulting from the proposed project are not expected to take place in nor have a substantial adverse effect on a scenic vista or scenic highway indicated in the Los Angeles County General Plan 2035⁵, Orange County General Plan⁶, Riverside County General Plan⁷, or San Bernardino Countywide Plan⁸. None of the affected facilities are expected to be located within the views of a scenic vista or state scenic highway as designated by

⁵ Los Angeles County, General Plan 2035, Chapter 9 Section VII, Updated July 14, 2022. https://planning.lacounty.gov/wp-content/uploads/2022/11/9.0_gp_final-general-plan-ch9.pdf.

⁶ Orange County, General Plan, Chapter IV Scenic Highway Plan Map, Accessed on March 21, 2024. <https://ocds.ocpublicworks.com/sites/ocpworks/files/import/data/files/8588.pdf>

⁷ Riverside County, General Plan – December 2015, Chapter 4 Circulation Element, Figure C-8 Scenic Highways, December 2015. <https://planning.rctlma.org/sites/g/files/aldnop416/files/migrated/Portals-14-genplan-general-plan-2016-elements-Ch04-Circulation-120815.pdf>

⁸ San Bernardino County, Countywide Plan, Policy Plan - NR-3 Scenic Routes & Highways, Created October 27, 2020. <https://countywideplan.com/wp-content/uploads/sites/68/2021/02/NR-3-Scenic-Routes-Highways-201027.pdf>

the California Department of Transportation (CalTrans).⁹ Therefore, PAR 463 would not be expected to conflict with applicable zoning or other regulations governing scenic quality.

The existing storage tanks that will be domed range in height from 15 feet to 65 feet and diameter from 15 feet to 299 feet. For context, the size of these storage tanks can be compared to a building that is from two to seven floors or stories in height.

Domes for these existing storage tanks are typically designed with a maximum radius equal to 1.2 times the tank diameter with a minimum of 0.7 times the tank diameter; the ratio of dome height to tank diameter is about 1:6.¹⁰ For example, the largest of the affected storage tanks that would need a dome is 63-feet in height with a diameter of 299 feet and the new dome would be one-sixth of the diameter, or 49.8 feet which is equivalent to adding about five floors or stories in a building. After doming, the total height would be approximately 113 feet.

In conclusion, the visual character of the landscape at affected facilities is already predominantly defined by the existing storage tanks themselves, and at a height that already obstructs the surrounding views, depending on the observer's location, regardless of whether the storage tanks are located at or near the coast or coastal sightlines or more inland. Further, the installation of domes is expected to blend in with the current industrial aesthetic profile of existing domed storage tanks at affected facilities.

The requirements in PAR 463 specific to conducting monitoring and inspections would involve low-profile activities, if at all, that would be expected to blend in with routine day-to-day operations occurring within the fence line of each affected facility. Therefore, monitoring and inspections would not be expected to cause any discernable aesthetic impacts visible to outside the property lines of each facility.

Based on the preceding analysis, implementation of the proposed project would have less than significant impacts on scenic vistas and would not be expected to substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. In addition, PAR 463 would not be expected to substantially degrade the existing visual character or quality of public views of the affects sites and their surroundings. Finally, PAR 463 would not be expected to conflict with applicable zoning or other regulations governing scenic quality.

I. d) Less Than Significant Impact. PAR 463 does not include any components that would require construction activities to occur at night. Further, cities often have their own limitations and prohibitions that restrict construction from occurring during evening hours and weekends. Therefore, no additional temporary construction lighting at the facility would be expected. However, if facility operators determine that the construction schedule requires nighttime activities, temporary lighting may be required. Nonetheless, since construction activities would be completely located within the boundaries of each affected facility, additional temporary lighting is not expected to be discernable from the existing permanent night lighting.

⁹ Caltrans, Officially Designated County Scenic Highways. Accessed on March 22, 2024. <https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways>

¹⁰ Maxwell Continental Tank Serv Engineering. <https://maxwelltanks.com/domed-floating-roof-tank/alu-geodesic-dome-roofs/>, accessed on March 22, 2024.

The existing buildings at the affected facilities are currently illuminated at night for safety and security purposes, and the lighting typically faces toward the interior of each facility's property so that they point downward or parallel to the ground, which has the effect of limiting the amount of lighting to what is needed to adequately illuminate the specific locations. While minimal, additional permanent light sources could potentially be installed at or near the installation of new domes, PAR 463 does not specifically require new lighting to be installed. Thus, any new lighting, if installed, would likely be consistent in intensity and type with the existing lighting on equipment and other structures at the existing facilities and directed to minimize potential lighting impacts on areas outside the property lines. These practices are followed to avoid or minimize potential lighting impacts on areas outside each facility's property. Since the anticipated modifications would occur within the boundaries of each facility's property, no new areas are expected to be illuminated off-site by permanent additional lighting, in the event any new lighting is installed.

While any new aluminum dome could create an initial glare initially, the dome's aluminum panels will gradually oxidize such that the initial glare will dull naturally over the course of three to 12 months, or sooner at facilities located within industrial areas or by the ocean. In addition, to more quickly alleviate or eliminate the glare, dome panels can also be painted or sandblasted to dull the finish.

As described earlier in the discussion for questions 1a), b), and c), the existing storage tanks are at a very tall height (e.g., ranging from 15 feet to 65 feet) and the installation of a dome would increase the total overall height by about 2.5 feet to 50 feet, depending on the tank diameter. As such, the installation of aluminum domes will mainly reflect up towards the sky except for certain angles and at certain times of the day as the sun moves across the sky. The degree of reflection will fade over time as the aluminum oxidizes. In any case, construction to install domes, whether painted, unpainted or sanded, on the affected storage tanks will be subject to local planning department aesthetics requirements to avoid any conflict with a city or county general plan's aesthetics element. PAR 463 does not contain requirements or restrictions relative to the surface features of the dome. Further, all facility owners have other existing storage tanks that are domed and prior experience and understanding of what the local planning departments and any other agencies that may have oversight have required previously and if any glare reduction actions may be needed on any new domes that are installed at the individual site. As such, facility owners will need to work with contractors and coordinate with the local planning agency when designing each dome to determine the appropriate course of action for how to employ glare minimization features on the domes, if needed.

For these reasons, the proposed project would not create a new source of substantial light or glare at any of the affected facilities in a manner that would significantly adversely affect day or nighttime views in the surrounding areas.

Conclusion

Based upon these considerations, less than significant adverse aesthetics impacts are expected from implementing the proposed project. Since no significant aesthetics impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
II. <u>AGRICULTURE AND FORESTRY RESOURCES.</u> Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland mapping and Monitoring Program of the California Resources Agency, to non- agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in the conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance Criteria

Project-related impacts on agriculture and forest resources will be considered significant if any of the following conditions are met:

- The proposed project conflicts with existing zoning or agricultural use or Williamson Act contracts.
- The proposed project will convert prime farmland, unique farmland or farmland of statewide importance as shown on the maps prepared pursuant to the farmland mapping and monitoring program of the California Resources Agency, to non-agricultural use.
- The proposed project conflicts with existing zoning for, or causes rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined in Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)).

- The proposed project would involve changes in the existing environment, which due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.

Discussion

PAR 463 applies to storage tanks located at 429 facilities including refineries, bulk storage, loading, and oil production facilities. Staff estimates 20 tanks will need to be domed and 22 tanks will need secondary roof seals installed. PAR 463 is estimated to reduce VOC emissions by ~~0.43~~ 1.65 ton per day. The components of PAR 463 that would be expected to have physical effects are installing domes on EFR tanks and secondary roof seals on IFR tanks. Other components of PAR 463, such as requirements for conducting optical gas imaging tank farm inspections every other calendar week, ~~semi-annual~~ component inspections twice per year at four- to eight-month intervals and implementing recordkeeping and reporting provisions are not expected to create any secondary adverse environmental impacts.

II. a), b), c), d), & e) No Impact. Pursuant to the California Land Conservation Act of 1965, a Williamson Act Contract enables private landowners to voluntarily enter into contracts with local governments for the purpose of restricting specific parcels of land to agricultural or related open space use. In return, landowners receive lower property tax assessments based upon farming and open space uses as opposed to full market value.

The affected facilities and their immediately surrounding areas are not located on or near areas zoned for agricultural use, Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Department of Conservation.¹¹ Therefore, the proposed project would not result in any construction of new buildings or other structures that would require converting farmland to non-agricultural use or conflict with zoning for agriculture use or a Williamson Act contract. The construction and operation activities would be expected to occur within the confines of existing industrial facilities; thus, the proposed project is not expected to result in converting farmland to non-agricultural use; conflict with existing zoning for agricultural use, or a Williamson Act Control.

All of the facilities are located in industrial use areas in the urban portion of South Coast AQMD's jurisdiction and, as such, are not near forest land. Therefore, the proposed project is not expected to conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)) or result in the loss of forest land or conversion of forest land to non-forest use. Consequently, the proposed project would not create any significant adverse agriculture or forestry impacts.

Conclusion

Based upon these considerations, significant adverse agriculture and forestry resources impacts are not expected from implementing the proposed project. Since no significant agriculture and forestry resources impacts were identified, no mitigation measures are necessary or required.

¹¹ California Department of Conservation, California Important Farmland Finder, Accessed March 2024.
<https://maps.conservation.ca.gov/DLRP/CIFF/>

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
III. <u>AIR QUALITY AND GREENHOUSE GAS EMISSIONS.</u>				
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Diminish an existing air quality rule or future compliance requirement resulting in a significant increase in air pollutant(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Significance Criteria

To determine whether or not air quality and greenhouse gas impacts from implementing the proposed project are significant, impacts will be evaluated and compared to the criteria in Table 2-1. The proposed project will be considered to have significant adverse impacts if any one of the thresholds in Table 2-1 are equaled or exceeded.

Table 2-1
South Coast AQMD Air Quality Significance Thresholds

Mass Daily Thresholds ^a		
Pollutant	Construction	Operation
NO _x	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM ₁₀	150 lbs/day	150 lbs/day
PM _{2.5}	55 lbs/day	55 lbs/day
SO _x	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
Toxic Air Contaminants (TACs), Odor, and GHG Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to South Coast AQMD Rule 402	
GHG	10,000 MT/yr CO ₂ eq for industrial facilities	
Ambient Air Quality Standards for Criteria Pollutants ^b		
NO ₂ 1-hour average annual arithmetic mean	South Coast AQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.03 ppm (state) and 0.0534 ppm (federal)	
PM ₁₀ 24-hour average annual average	10.4 µg/m ³ (construction) ^c & 2.5 µg/m ³ (operation) 1.0 µg/m ³	
PM _{2.5} 24-hour average	10.4 µg/m ³ (construction) ^c & 2.5 µg/m ³ (operation)	
SO ₂ 1-hour average 24-hour average	0.25 ppm (state) & 0.075 ppm (federal – 99 th percentile) 0.04 ppm (state)	
Sulfate 24-hour average	25 µg/m ³ (state)	
CO 1-hour average 8-hour average	South Coast AQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)	
Lead 30-day Average Rolling 3-month average	1.5 µg/m ³ (state) 0.15 µg/m ³ (federal)	

^a Source: South Coast AQMD CEQA Handbook (South Coast AQMD, 1993)

^b Ambient air quality thresholds for criteria pollutants based on South Coast AQMD Rule 1303, Table A-2 unless otherwise stated.

^c Ambient air quality threshold based on South Coast AQMD Rule 403.

KEY: lbs/day = pounds per day ppm = parts per million $\mu\text{g}/\text{m}^3$ = microgram per cubic meter \geq = greater than or equal to
 MT/yr CO₂eq = metric tons per year of CO₂ equivalents > = greater than

Revision: March 2023

Discussion

PAR 463 applies to storage tanks located at 429 facilities including refineries, bulk storage, loading, and oil production facilities. Staff estimates 20 tanks will need to be domed and 22 tanks will need secondary roof seals installed. PAR 463 is estimated to reduce VOC emissions by ~~0.43~~ 1.65 ton per day. The components of PAR 463 that would be expected to have physical effects are installing domes on EFR tanks and secondary roof seals on IFR tanks. Other components of PAR 463, such as requirements for conducting optical gas imaging tank farm inspections every other calendar week, ~~semi-annual~~ component inspections twice per year at four- to eight-month intervals and implementing recordkeeping and reporting provisions are not expected to create any secondary adverse environmental impacts.

III. a) No Impact. The South Coast AQMD is required by law to prepare a comprehensive district-wide AQMP which includes strategies (e.g., control measures) to reduce emission levels to achieve and maintain state and federal ambient air quality standards, and to ensure that new sources of emissions are planned and operated to be consistent with the South Coast AQMD's air quality goals. The AQMP's air pollution reduction strategies include control measures which target stationary, area, mobile, and indirect sources. These control measures are based on feasible methods of attaining ambient air quality standards. Pursuant to the provisions of both the state and federal Clean Air Acts, the South Coast AQMD is also required to attain the state and federal ambient air quality standards for all criteria pollutants.

The most recent regional blueprints for how the South Coast AQMD will achieve air quality standards and healthful air are outlined in the 2022 AQMP¹² which contains multiple goals of promoting reductions of criteria air pollutants, greenhouse gases, and toxics. In particular, the 2022 AQMP contains Control Measure FUG-01– Improved Leak Detection and Repair (LDAR), which explores the potential for newer leak detection technologies to improve current LDAR requirements thereby reducing emissions of VOC from fugitive leaks from process and storage equipment from a variety of sources including, but not limited to, oil and gas production, petroleum refining, storage and transfer, etc.

The proposed project is not expected to obstruct or conflict with the implementation of the 2022 AQMP because minimizing VOC emissions from implementing the proposed project is in accordance with the emission reduction goals in the 2022 AQMP, and in particular, Control Measure FUG-01. Thus, implementing the proposed project would not conflict with or obstruct implementation of the applicable air quality plan.

III. b) and e) Less Than Significant Impact. While the proposed project is designed to reduce fugitive VOC emissions from aboveground storage tanks, secondary air quality impacts are expected due to PAR 463 physical activities that would occur from its implementation, in particular from the assembly and installation of domes on EFR tanks, and the installation of secondary roof seals on IFR tanks. Other components of PAR 463, such as requirements for conducting optical gas imaging tank farm inspections every other calendar week, ~~semi-annual~~ component inspections twice per year at four- to eight-month intervals and implementing recordkeeping and reporting provisions are not expected to create any secondary adverse air quality impacts. Because the proposed project will not affect operation, no secondary adverse

¹² South Coast AQMD, Final 2022 Air Quality Management Plan, December 2022. <http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan>

impacts to air quality or greenhouse gases are expected from operation. Thus, the analysis in this EA only examines the potential adverse air quality impacts from construction activities.

Construction Impacts

PAR 463 provides long time frames for when domes are required to be installed on applicable storage tanks in accordance with subparagraph (d)(1)(H), as follows: all applicable storage tanks after being ~~emptied~~ cleaned or degassed but no later than 20 years after a true vapor pressure test indicates the organic liquid stored is ≥ 3.0 psia. The effective date of this provision is June 7, 2027, to allow for planning and budgetary considerations. In addition, construction activities associated with installing domes are expected to occur concurrently in situations when requirements other than PAR 463 necessitate emptying ~~cleaning~~ and degassing the tank. For example, PAR 463 subparagraph (d)(2)(D) specifies that the timing of construction should be coordinated and coincide with when the storage tank is next ~~emptied~~ cleaned or degassed when installing secondary roof seals on IFR tanks. For these reasons, storage tank cleaning ~~emptying~~ and degassing activities are not considered unique to PAR 463 and as such, the environmental impacts from these activities are excluded from the analysis of construction activities. In addition, no grading or site preparation activities are required for constructing domes. Thus, this construction analysis focuses on impacts from the combined efforts associated with: 1) doming EFR tanks which involves assembling the dome, lifting it, and installing the dome; and 2) installing secondary roof seals on IFR tanks as a one-step process.

Because of the long timeframe (e.g., up to 20 years) allowing facility operators to comply with PAR 463 and because of varying tank ages combined with the fact that only 20 tanks will need to be domed and 22 tanks will need secondary roof seals, as a practical matter, it is unlikely that construction will occur on more than one tank at a time at an affected facility, or that a large number of facilities will concurrently be under construction on the same day. However, since multiple facilities have both EFR and IFR tanks that would be subject to the requirements in PAR 463 and which may need to be domed and/or have secondary roof seals installed, this analysis considers a worst-case scenario and assumes that five EFR tanks would be domed and 11 IFR tanks would have secondary roof seals installed on a peak day.

Because the nature of the physical modifications that may occur if PAR 463 is implemented is similar to physical modifications analyzed for the September 2023 amendment to Rule 1178, the following construction analysis incorporates information from the September 2023 Final Environmental Assessment (EA) for Rule 1178.¹³ While the largest tank analyzed in the September 2023 Final EA for Rule 1178 had a diameter of 260 feet, the largest tank in the PAR 463 universe of equipment is somewhat larger at 299 feet in diameter. Nonetheless, the construction process for PAR 463, including the construction equipment used and timeframes, is expected to be the same or similar to what was analyzed in the September 2023 Final EA for Rule 1178.

The following bullets summarize the assumptions relied upon for the construction analysis:

Doming an External Floating Roof Tank

- On-road Motor Vehicles:
 - 1 Material Delivery Truck driving 50 miles per day

¹³ South Coast AQMD, Final Environmental Assessment for Proposed Amended Rule 1178 - Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities, September 2023. <http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2023/final-environmental-assessment-for-proposed-amended-rule-1178.pdf>

- 10 Worker Vehicles driving 40 miles per day
- Off-road Construction Equipment:
 - 1 Crane, 3 Welders, and 1 Compressor each operating for 10 hours per day, 6 days per week, for 16 weeks

Installing Secondary Roof Seals on an Internal Floating Roof Tank

- On-road Motor Vehicles:
 - 1 Material Delivery Truck driving 50 miles per day
 - 10 Worker Vehicles driving 40 miles per day
- Off-road Construction Equipment:
 - 1 Crane for 4 hours per day, 5 days per week, and 8 weeks
 - 1 Compressor for 8 hours per day, 5 days per week, and 8 weeks

Criteria pollutant emissions were calculated for off-road construction equipment used for retrofitting the storage tanks and on-road motor vehicles transporting workers and material deliveries during construction using the California Emissions Estimator Model® (CalEEMod), version 2022.1.1.21. The detailed output reports for the CalEEMod¹⁴ runs, and a summary excel sheet with the peak daily construction impacts by construction activity type and season are included in Appendix B.

Table 2-2 summarizes the peak daily emissions associated with doming one EFR tank, installing a secondary roof seal on one tank, and the worst-case scenario based on the assumption that five EFR tanks would be domed and 11 IFR tanks would have secondary roof seals installed on a peak day.

Table 2-2
Peak Daily Construction Emissions by Pollutant (lb/day)

Construction Activity	VOC	NOx	CO	SOx	PM10	PM2.5
Doming 1 EFR Tank	1.37	10.90	13.40	0.03	0.67	0.40
Installing a Secondary Roof Seal on 1 IFR Tank	0.52	3.93	5.55	0.01	0.45	0.19
Doming 5 EFR Tanks and Installing Secondary Roof Seals on 11 IFR Tanks	12.57	97.95	128.05	0.26	8.3	4.09
Significance Threshold for Construction	75	100	550	150	150	55
Significant?	NO	NO	NO	NO	NO	NO

The air quality analysis indicates that the peak daily construction emissions do not exceed the South Coast AQMD's air quality significance thresholds for any pollutant during construction. Thus, the air quality impacts during construction are concluded to be less than significant.

¹⁴ CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas emissions associated with both construction and operations from a variety of land use projects.

Cumulatively Considerable Impacts

Based on the foregoing analysis, since criteria pollutant project-specific air quality impacts from implementing the proposed project would not be expected to exceed any of the air quality significance thresholds in Table 2-1, cumulative air quality impacts are also expected to be less than significant. South Coast AQMD cumulative air quality significance thresholds are the same as project-specific air quality significance thresholds. Therefore, potential adverse impacts from implementing the proposed project would not be “cumulatively considerable” as defined by CEQA Guidelines Section 15064(h)(1) for air quality impacts. Per CEQA Guidelines Section 15064(h)(4), the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project’s incremental effects are cumulatively considerable.

The South Coast AQMD’s guidance on addressing cumulative impacts for air quality is as follows: “As Lead Agency, the South Coast AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR.” “Projects that exceed the project-specific significance thresholds are considered by the South Coast AQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant.”¹⁵

This approach was upheld by the Court in *Citizens for Responsible Equitable Environmental Development v. City of Chula Vista* (2011) 197 Cal. App. 4th 327, 334. The Court determined that where it can be found that a project did not exceed the South Coast AQMD’s established air quality significance thresholds, the City of Chula Vista properly concluded that the project would not cause a significant environmental effect, nor result in a cumulatively considerable increase in these pollutants. The court found this determination to be consistent with CEQA Guidelines Section 15064.7, stating, “The lead agency may rely on a threshold of significance standard to determine whether a project will cause a significant environmental effect.” The court found that, “Although the project will contribute additional air pollutants to an existing non-attainment area, these increases are below the significance criteria...” “Thus, we conclude that no fair argument exists that the Project will cause a significant unavoidable cumulative contribution to an air quality impact.” As in *Chula Vista*, here the South Coast AQMD has demonstrated, when using accurate and appropriate data and assumptions, that the project will not exceed the established South Coast AQMD significance thresholds. See also, *Rialto Citizens for Responsible Growth v. City of Rialto* (2012) 208 Cal. App. 4th 899. Here again the court upheld the South Coast AQMD’s approach to utilizing the established air quality significance thresholds to determine whether the impacts of a project would be cumulatively considerable. Thus, it may be concluded that the proposed project would not contribute to a significant unavoidable cumulative air quality impact. Since no cumulatively significant air quality impacts were identified, no mitigation measures are necessary or required.

¹⁵ South Coast AQMD Cumulative Impacts Working Group White Paper on Potential Control Strategies to Address Cumulative Impacts From Air Pollution, August 2003, Appendix D, Cumulative Impact Analysis Requirements Pursuant to CEQA, at D-3. <http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf>

III. c) Less Than Significant Impact.***Toxic Air Contaminants (TACs) During Construction***

Diesel powered vehicles and equipment would be utilized during construction activities. Diesel PM is considered a carcinogenic and chronic TAC. A construction activity would be completed within four months; thus, a Health Risk Assessment (HRA) was not conducted, which is consistent with the Office of Environmental Health Hazard Assessment (OEHHA) Guidance Manual (2015). The analysis in Section III b) and e) concluded that the quantity of pollutants that may be generated from implementing the proposed project would be less than significant during construction. Because the emissions from all activities that may occur as part of implementing the proposed project are at less than significant levels, neither would the emissions be substantial, regardless of whether sensitive receptors are located near the affected facilities. Therefore, PAR 463 is not expected to generate significant adverse TAC impacts from construction or expose sensitive receptors to substantial pollutant concentrations. Since no significant air quality impacts were identified for TACs, no mitigation measures are necessary or required.

III. d) Less Than Significant Impact.***Odor Impacts***

Odor problems depend on individual circumstances. For example, individuals can differ quite markedly from the populated average in their sensitivity to odor due to any variety of innate, chronic or acute physiological conditions. This includes olfactory adaptation or smell fatigue (i.e., continuing exposure to an odor usually results in a gradual diminution or even disappearance of the small sensation).

During construction, diesel-fueled equipment and vehicles would be operated. Diesel fuel is required to have a low sulfur content (e.g., 15 ppm by weight or less) in accordance with South Coast AQMD Rule 431.2 – Sulfur Content of Liquid Fuels¹⁶; thus, the fuel is expected to have minimal odor. The operation of construction equipment would occur within the boundaries of existing affected facilities. It would be expected that sufficient dispersion of diesel emissions over distance generally occurs such that odors associated with diesel emissions may not be discernable to off-site receptors, depending on the location of the equipment and its distance relative to the nearest off-site receptor. The diesel trucks and equipment that would be operated on-site as a part of construction activities would not be allowed to idle longer than five minutes per any one location in accordance with the CARB idling regulation¹⁷, so lingering odors from idling vehicles would not be expected. In addition, construction activities would be temporary. Thus, PAR 463 is not expected to create significant adverse objectionable odors during construction. Since no significant air quality impacts were identified for odors, no mitigation measures for odors are necessary or required.

¹⁶ South Coast AQMD, Rule 431.2 – Sulfur Content of Liquid Fuels, September 15, 2000. <http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-431-2.pdf>

¹⁷ CARB, Guide to Off-Road Vehicle & Equipment Regulations, https://ww2.arb.ca.gov/sites/default/files/offroadzone/pdfs/offroad_booklet.pdf.

III. f) and g) Less Than Significant Impacts.

Greenhouse Gas (GHG) Impacts

Significant changes in global climate patterns have recently been associated with global warming, an average increase in the temperature of the atmosphere near the Earth's surface, attributed to accumulation of GHG emissions in the atmosphere. GHGs trap heat in the atmosphere, which in turn heats the surface of the Earth. Some GHGs occur naturally and are emitted to the atmosphere through natural processes, while others are created and emitted solely through human activities. The emission of GHGs through the combustion of fossil fuels (i.e., fuels containing carbon) in conjunction with other human activities, appears to be closely associated with global warming. State law defines GHG to include the following: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆) (Health and Safety Code Section 38505(g)). The most common GHG that results from human activity is CO₂, followed by CH₄ and N₂O.

Traditionally, GHGs and other global warming pollutants are perceived as solely global in their impacts and that increasing emissions anywhere in the world contributes to climate change anywhere in the world. A study conducted on the health impacts of CO₂ “domes” that form over urban areas cause increases in local temperatures and local criteria pollutants, which have adverse health effects¹⁸.

The analysis of GHGs is a different analysis than the analysis of criteria pollutants for the following reasons. For criteria pollutants, the significance thresholds are based on daily emissions because attainment or non-attainment is primarily based on daily exceedances of applicable ambient air quality standards. Further, several ambient air quality standards are based on relatively short-term exposure effects on human health (e.g., one-hour and eight-hour standards). Since the half-life of CO₂ is approximately 100 years, for example, the effects of GHGs occur over a longer term which means they affect the global climate over a relatively long timeframe. As a result, the South Coast AQMD's current position is to evaluate the effects of GHGs over a longer timeframe than a single day (i.e., annual emissions). GHG emissions are typically considered to be cumulative impacts because they contribute to global climate effects.

Since GHG impacts are defined on an annual, instead of a peak daily basis, the GHG emissions for construction were quantified by summing all of the GHGs occurring during construction activities for installing 20 domes on EFR tanks, and 22 secondary roof seals on IFR tanks, and then amortizing the total construction GHGs over 30 years.

The South Coast AQMD convened a “Greenhouse Gas CEQA Significance Threshold Working Group” to consider a variety of benchmarks and potential significant thresholds to evaluate GHG impacts. On December 5, 2008, the South Coast AQMD adopted an interim CEQA GHG Significance Threshold for projects where the South Coast AQMD is the lead agency (South Coast AQMD 2008). This GHG interim threshold is set at 10,000 metric tons (MT) of CO₂ equivalent emissions (CO₂eq) per year. Projects with incremental increases below this threshold will not be

¹⁸ Jacobsen, Mark Z. Environmental Protection Agency Hearing on California Waiver: “Effects of Local CO₂ Domes and of Global CO₂ Changes on California's Air Pollution and Health,” March 5, 2009.
<https://web.stanford.edu/group/efmh/jacobson/PDFfiles/0903EPACalif.pdf>

cumulatively considerable. GHG impacts from the implementation of the proposed project were calculated at the project-specific level during construction activities.

PAR 463 involves construction activities associated with installing domes on 20 EFR tanks and installing secondary seals on 22 IFR tanks which rely on construction equipment that emit GHGs when in use. Once construction is completed, PAR 463 does not have any requirements that would generate GHGs during operation of the storage tanks. Table 2-3 summarizes the GHG analysis which shows that the proposed project may result in the generation of 97 MT per year of CO₂eq from construction activities, which is less than the South Coast AQMD's air quality significance threshold for GHGs. Detailed calculations of project GHG emissions can be found in Appendix B.

Table 2-3
Summary of GHG Emissions

Construction Activity	CO₂eq Emissions (MT/yr)
Doming 1 EFR Tank	118
Installing Secondary Roof Seals on 1 IFR Tank	26
Doming 20 EFR Tanks and Installing Secondary Roof Seals on 22 IFR Tanks	97
Significance Threshold	10,000
Significant?	No

Note: 1 metric ton = 2,205 pounds. GHGs from short-term construction activities are amortized over 30 years.

As shown in Table 2-3, the South Coast AQMD air quality significance threshold for GHGs would not be exceeded. For this reason, implementing the proposed project would not be expected to generate significant adverse cumulative GHG air quality impacts. Further, as noted in Section III. a), implementation of the proposed project would not be expected to conflict with an applicable plan, policy or regulation adopted for the purpose of reducing criteria pollutants and the same is true for GHG emissions since the quantity of increased GHG emissions is at less than significant levels. Since significant air quality impacts were not identified for GHGs, no mitigation measures are necessary or required.

Conclusion

Based upon these considerations, significant air quality and GHG emissions impacts are not expected from implementing the proposed project. Since no significant air quality and GHG emissions impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
IV. <u>BIOLOGICAL RESOURCES.</u>				
Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance Criteria

Impacts on biological resources will be considered significant if any of the following criteria apply:

- The project results in a loss of plant communities or animal habitat considered to be rare, threatened or endangered by federal, state or local agencies.
- The project interferes substantially with the movement of any resident or migratory wildlife species.
- The project adversely affects aquatic communities through construction or operation of the project.

Discussion

PAR 463 applies to storage tanks located at 429 facilities including refineries, bulk storage, loading, and oil production facilities. Staff estimates 20 tanks will need to be domed and 22 tanks will need secondary roof seals installed. PAR 463 is estimated to reduce VOC emissions by ~~0.43~~ 1.65 ton per day. The components of PAR 463 that would be expected to have physical effects are installing domes on EFR tanks and secondary roof seals on IFR tanks. Other components of PAR 463, such as requirements for conducting optical gas imaging tank farm inspections every other calendar week, ~~semi-annual~~ component inspections twice per year at four- to eight-month intervals and implementing recordkeeping and reporting provisions are not expected to create any secondary adverse environmental impacts.

IV. a), b), c), & d) No Impact. Implementation of PAR 463 would occur at existing affected facilities, which are located in industrial areas. Additionally, the physical improvements are expected to occur within the existing facility property boundaries which have been previously disturbed. Thus, PAR 463 is not expected to adversely affect in any way habitats that support riparian habitat, federally protected wetlands, or migratory corridors. Similarly, special status plants, animals, or natural communities identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service are not expected to be found on or in close proximity to affected facilities. Therefore, PAR 463 would have no direct or indirect impacts that could adversely affect plant or animal species or the habitats on which they rely. PAR 463 does not require the acquisition of additional land or further conversions of riparian habitats or sensitive natural communities where endangered or sensitive species may be found. In addition, any construction from the implementation of PAR 463 would take place at the existing facilities and would not occur on or near a wetland or in the path of migratory species.

IV. e) & f) No Impact. The proposed project is not expected to conflict with local policies or ordinances protecting biological resources or local, regional, or state conservation plans, because land use and other planning considerations are determined by local governments and no land use or planning requirements would be altered by implementation of PAR 463. Projects resulting in an air quality benefit: decreasing air pollutant emissions while not changing the type of pollutants emitted, will not conflict with any U.S. Department of Fish and Wildlife Habitat Conservation Plans (HCP). In addition, the doming and secondary roof seal requirements imposed on the existing storage tanks due to the implementation of PAR 463 will not necessitate any grading activities that could adversely impact any natural habitat. Thus, PAR 463 would not conflict with any adopted HCP, Natural Community Conservation Plan, or any other relevant habitat conservation plan, and would not create divisions in any existing communities because compliance with PAR 463 would occur at existing facilities in previously disturbed areas which are not typically subject to Habitat or Natural Community Conservation Plans.

Conclusion

Based upon these considerations, significant biological resource impacts are not expected from implementing the proposed project. Since no significant biological resource impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
V. <u>CULTURAL AND TRIBAL CULTURAL RESOURCES.</u>				
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Section 21074, as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is either:				
• Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in Public Resources Code Section 5024.1(c)? (In applying the criteria set forth in Public Resources Code Section 5024.1(c), the lead agency shall consider the significance of the resource to a California Native American tribe.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance Criteria

Impacts to cultural resources will be considered significant if:

- The project results in the disturbance of a significant prehistoric or historic archaeological site or a property of historic or cultural significance, or tribal cultural significance to a community or ethnic or social group or a California Native American tribe.
- Unique resources or objects with cultural value to a California Native American tribe are present that could be disturbed by construction of the proposed project.
- The project would disturb human remains.

Discussion

PAR 463 applies to storage tanks located at 429 facilities including refineries, bulk storage, loading, and oil production facilities. Staff estimates 20 tanks will need to be domed and 22 tanks will need secondary roof seals installed. PAR 463 is estimated to reduce VOC emissions by ~~0.43~~ 1.65 ton per day. The components of PAR 463 that would be expected to have physical effects are installing domes on EFR tanks and secondary roof seals on IFR tanks. Other components of PAR 463, such as requirements for conducting optical gas imaging tank farm inspections every other calendar week, ~~semi-annual~~ component inspections twice per year at four- to eight-month intervals and implementing recordkeeping and reporting provisions are not expected to create any secondary adverse environmental impacts.

V. a) No Impact. There are existing laws in place that are designed to protect and mitigate potential impacts to cultural resources. For example, CEQA Guidelines state that generally, a resource shall be considered “historically significant” if the resource meets the criteria for listing in the California Register of Historical Resources, which include the following:

- Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
- Is associated with the lives of persons important in our past;
- Embodies the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possesses high artistic values;
- Has yielded or may likely to yield information important in prehistory or history (CEQA Guidelines Section 15064.5).

Buildings, structures, and other potential culturally significant resources that are less than 50 years old are generally excluded from listing in the National Register of Historic Places, unless they are shown to be exceptionally important. Buildings or structures that may be affected by PAR 463 are used for industrial purposes and would generally not be considered to be historically significant, since they would not have any of the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values. Therefore, PAR 463 is not expected to cause any impacts to historically significant cultural resources.

V. b), c), & d) No Impact. Construction-related activities associated with installing domes and secondary roof seals on existing IFR tanks are expected to be confined within the affected existing industrial facility boundaries and will occur aboveground. In addition, as mentioned in Section V. a) the existing storage tanks subject to PAR 463 are considered heavy industrial equipment and as such, are not unique resources or identified as having any cultural or tribal importance. Thus, PAR

463 is not expected to require physical changes to the environment which may disturb paleontological or archaeological resources. Furthermore, it is envisioned that these areas are already either devoid of significant cultural resources or whose cultural resources have been previously disturbed. Therefore, PAR 463 has no potential to cause a substantial adverse change to a historical or archaeological resource, directly or indirectly to destroy a unique paleontological resource or site or unique geologic feature, or to disturb any human remains, including those interred outside formal cemeteries. Implementing PAR 463 is, therefore, not anticipated to result in any activities or promote any programs that could have a significant adverse impact on cultural resources.

PAR 463 is not expected to require physical changes to a site, feature, place, cultural landscape, sacred place or object with cultural value to a California Native American Tribe. Furthermore, PAR 463 is not expected to result in a physical change to a resource determined to be eligible for inclusion or listed in the California Register of Historical Resources or included in a local register of historical resources. Similarly, PAR 463 is not expected to result in a physical change to a resource determined by the South Coast AQMD to be significant to any tribe. For these reasons, PAR 463 is not expected to cause any substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Section 21074.

As part of releasing this CEQA document for public review and comment, the South Coast AQMD also provided a formal notice of the proposed project to all California Native American Tribes (Tribes) that requested to be on the Native American Heritage Commission's (NAHC) notification list per Public Resources Code Section 21080.3.1(b)(1). The NAHC notification list provides a 30-day period during which a Tribe may respond to the formal notice, in writing, requesting consultation on the proposed project.

In the event that a Tribe submits a written request for consultation during this 30-day period, the South Coast AQMD will initiate a consultation with the Tribe within 30 days of receiving the request in accordance with Public Resources Code Section 21080.3.1(b). Consultation ends when either: 1) both parties agree to measures to avoid or mitigate a significant effect on a Tribal Cultural Resource and agreed upon mitigation measures shall be recommended for inclusion in the environmental document [see Public Resources Code Section 21082.3(a)]; or 2) either party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached [see Public Resources Code Section 21080.3.2(b)(1)-(2) and Section 21080.3.1(b)(1)].

Conclusion

Based upon these considerations, significant adverse cultural and tribal cultural resources impacts are not expected from implementing the proposed project. Since no significant cultural and tribal cultural resources impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
VI. <u>ENERGY</u>. Would the project:				
a) Conflict with or obstruct adopted energy conservation plans, a state or local plan for renewable energy, or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the need for new or substantially altered power or natural gas utility systems?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Create any significant effects on local or regional energy supplies and on requirements for additional energy?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create any significant effects on peak and base period demands for electricity and other forms of energy?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Comply with existing energy standards?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Require or result in the relocation or construction of new or expanded electric power, natural gas or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance Criteria

Impacts to energy resources will be considered significant if any of the following criteria are met:

- The project conflicts with adopted energy conservation plans or standards.
- The project results in substantial depletion of existing energy resource supplies.
- An increase in demand for utilities impacts the current capacities of the electric and natural gas utilities.
- The project uses energy resources in a wasteful and/or inefficient manner.

Discussion

PAR 463 applies to storage tanks located at 429 facilities including refineries, bulk storage, loading, and oil production facilities. Staff estimates 20 tanks will need to be domed and 22 tanks will need secondary roof seals installed. PAR 463 is estimated to reduce VOC emissions by ~~0.43~~ 1.65 ton per day. The components of PAR 463 that would be expected to have physical effects are installing domes on EFR tanks and secondary roof seals on IFR tanks. Other components of PAR 463, such as requirements for conducting optical gas imaging tank farm inspections every other calendar week, ~~semi-annual~~ component inspections twice per year at four- to eight-month intervals and implementing recordkeeping and reporting provisions are not expected to create any secondary adverse environmental impacts.

VI. a), e), f), & g) No Impact. The proposed project is not expected to conflict with any adopted energy conservation plans or violate any energy conservation standards because existing facilities would be expected to continue implementing any existing energy conservation plans that are currently in place regardless of whether the proposed project is implemented. The effects of implementing PAR 463 would apply to existing facilities. Any energy resources that may be necessary to dome EFR tanks, install secondary roof seals on IFR tanks, and utilize additional OGI technology would be used to achieve reductions in VOC; and therefore, would not be using non-renewable resources in a wasteful manner. For these reasons, the proposed project is not expected to conflict with energy conservation plans or existing energy standards, or use non-renewable resources in a wasteful manner. In addition, the construction and operation of domes is not expected to rely on electric power, natural gas or telecommunication facilities, as such PAR 463 will not cause the relocation or construction of new or expanded electric power, natural gas or telecommunication facilities. Therefore, no impacts are expected.

VI. b), c), & d) Less Than Significant Impact.***Fuel Usage during Construction***

Implementation of the proposed project would result in the installation of domes and secondary roof seals, and the utilization of OGI technology. To accomplish these activities, use of energy in terms of gasoline and diesel fuel would be needed for on-road passenger vehicles and heavy duty trucks associated with delivering supplies and construction materials, and off-road construction equipment, respectively. While construction under the proposed project is expected to be spaced out across multiple years, to estimate worst-case energy impacts associated with construction activities, South Coast AQMD staff estimated the total gasoline and diesel fuel consumption for doming 20 EFR tanks and installing secondary roof seals for 22 tanks all occurring in one year. Each installation of a dome or secondary seal is estimated to require 10 worker trips and one material delivery trip per day, with doming requiring one crane, three welders, and one air compressor, each for 10 hours per day and 97 days for completion (~ six days per week for 16 weeks); and installation of secondary roof seals requiring one crane four hours per day and one air compressor eight hours per day and 42 days for completion (~ 5 days per week for 8 weeks).

On-road passenger vehicles were modelled as gasoline passenger cars (LDA) and light-duty trucks (LDT1 and LDT2) traveling 40 miles per day, and heavy duty trucks associated with delivering supplies and construction materials were modelled as diesel Tier 7 CA International Registration Plan Trucks (T7 CAIRP) travelling 50 miles per day. Fuel use was estimated using EMFAC2021 version 1.0.2 for calendar year 2026. Fuel use for offroad equipment was estimated using equipment specifications from CalEEMod version 2022.1.1.21 and OFFROAD2021 version 1.0.3. Table 2-4 summarizes the projected fuel use impacts associated with construction activities and

compares it to the gasoline and diesel consumption rates in the South Coast AQMD jurisdiction, for 2017. Detailed fuel use calculations can be found in Appendix B.

Table 2-4
Annual Total Projected Fuel Usage for Construction Activities

	Diesel	Gasoline
Projected Construction Energy Use (gal/yr)	73,474	4,238
Year 2017 South Coast AQMD Jurisdiction Estimated Fuel Demand (gal/yr)	775,000,000	7,086,000,000
Total Increase Above Baseline	0.00948%	0.000060%
Significance Threshold	1%	1%
Significant?	No	No

Based on the foregoing analyses, the construction-related activities associated with the implementation of the proposed project would not use energy in a wasteful manner, would not result in substantial depletion of existing energy resource supplies, or create a significant demand of energy when compared to existing supplies. Thus, there are no significant adverse energy impacts associated with the implementation of PAR 463.

Conclusion

Based upon these considerations, significant adverse energy impacts are not expected from implementing the proposed project. Since no significant energy impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
VII. GEOLOGY AND SOILS. Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
• Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance Criteria

Impacts on the geological environment will be considered significant if any of the following criteria apply:

- Topographic alterations would result in significant changes, disruptions, displacement, excavation, compaction or over covering of large amounts of soil.
- Unique geological resources (paleontological resources or unique outcrops) are present that could be disturbed by the construction of the proposed project.
- Exposure of people or structures to major geologic hazards such as earthquake surface rupture, ground shaking, liquefaction or landslides.
- Secondary seismic effects could occur which could damage facility structures, e.g., liquefaction.
- Other geological hazards exist which could adversely affect the facility, e.g., landslides, mudslides.
- Unique paleontological resources or sites or unique geologic features are present that could be directly or indirectly destroyed by the proposed project.

Discussion

PAR 463 applies to storage tanks located at 429 facilities including refineries, bulk storage, loading, and oil production facilities. Staff estimates 20 tanks will need to be domed and 22 tanks will need secondary roof seals installed. PAR 463 is estimated to reduce VOC emissions by ~~0.43~~ 1.65 ton per day. The components of PAR 463 that would be expected to have physical effects are installing domes on EFR tanks and secondary roof seals on IFR tanks. Other components of PAR 463, such as requirements for conducting optical gas imaging tank farm inspections every other calendar week, ~~semi-annual~~ component inspections twice per year at four- to eight-month intervals and implementing recordkeeping and reporting provisions are not expected to create any secondary adverse environmental impacts.

VII. a), b), c), d), e), f) No Impact. The proposed project involves constructing new domes and installing roof tank seals on existing storage tanks located in already developed industrial settings and these activities would occur aboveground and as such, would not require any grading or site preparation activities. Therefore, the proposed project is not expected to adversely affect geophysical conditions in the South Coast AQMD jurisdiction.

Southern California is an area of known seismic activity. As part of the issuance of building permits, local jurisdictions are responsible for assuring that the Uniform Building Code is adhered to and can conduct inspections to ensure compliance. The Uniform Building code is considered to be a standard safeguard against major structural failures and loss of life. The basic formulas used for the Uniform Building Code seismic design require determination of the seismic zone and site coefficient, which represents the foundation condition at the site. The Uniform Building Code requirements also consider liquefaction potential and establish stringent requirements for building foundations in areas potentially subject to liquefaction. The proposed project will not require the modification of existing structures at existing facilities in a manner that would not conform to the Uniform Building Code or any other state and local building codes. Structures must be designed to comply with the Uniform Building Code Zone 4 requirements if they are located in a seismically active area. The Uniform Building Code is considered to be a standard safeguard against major structural failures and loss of life. Thus, the proposed project would not alter the exposure of people or property to geological hazards such as earthquakes, landslides, mudslides, ground failure, or other natural hazards. As a result, substantial exposure of people or structures to the risk of loss,

injury, or death involving the rupture of an earthquake fault, seismic ground shaking, ground failure or landslides is not anticipated.

Physical modifications as a result of the proposed project are limited to retrofitting existing aboveground storage tanks and require no grading activities or soil disturbance that would create any issues with erosion. For this reason, no unstable earth conditions or changes in geologic substructures are expected to result from implementing the proposed project and therefore, no impacts to the loss of topsoil or soil erosion will occur. Further, since soil at existing facilities will not be disturbed, it will not be made further susceptible to expansion or liquefaction. Further, the proposed project will not create any new conditions that would cause subsidence landslides, or alter unique geologic features at any of the facilities. Thus, the proposed project would not be expected to increase or exacerbate any existing risks associated with soils at any facility. Implementation of the proposed project would not involve re-locating facilities on a geologic unit or soil that is unstable or that would become unstable as a result of the project; therefore, it would not be expected to potentially result in on-or off-site landslide, lateral spreading, subsidence, liquefaction or collapse. No impacts are anticipated.

The proposed project would not require the installation of septic tanks or other alternative wastewater disposal systems. Therefore, no persons or property would be exposed to new impacts related to expansive soils or soils incapable of supporting water disposal. Thus, the implementation of the proposed project would not adversely affect soils associated with the installation of a new septic system or alternative wastewater disposal system or modification of an existing sewer.

The proposed project does not cause or require the construction of any new facilities. No previously undisturbed land that may contain a unique paleontological resource or site or unique geological feature would be affected. Therefore, the proposed project is not expected to directly or indirectly destroy a unique paleontological resource or site or unique geological feature.

Conclusion

Based upon these considerations, significant adverse geology and soils impacts are not expected from the implementation of the proposed project. Since no significant geology and soils impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
VIII. <u>HAZARDS AND HAZARDOUS MATERIALS.</u> Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Emit hazardous emissions, or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Significantly increased fire hazard in areas with flammable materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance Criteria

Impacts associated with hazards will be considered significant if any of the following occur:

- Non-compliance with any applicable design code or regulation.
- Non-conformance to National Fire Protection Association standards.
- Non-conformance to regulations or generally accepted industry practices related to operating policy and procedures concerning the design, construction, security, leak detection, spill containment or fire protection.
- Exposure to hazardous chemicals in concentrations equal to or greater than the Emergency Response Planning Guideline (ERPG) 2 levels.

Discussion

PAR 463 applies to storage tanks located at 429 facilities including refineries, bulk storage, loading, and oil production facilities. Staff estimates 20 tanks will need to be domed and 22 tanks will need secondary roof seals installed. PAR 463 is estimated to reduce VOC emissions by ~~0.43~~ 1.65 ton per day. The components of PAR 463 that would be expected to have physical effects are installing domes on EFR tanks and secondary roof seals on IFR tanks. Other components of PAR 463, such as requirements for conducting optical gas imaging tank farm inspections every other calendar week, ~~semi-annual~~ component inspections twice per year at four- to eight-month intervals and implementing recordkeeping and reporting provisions are not expected to create any secondary adverse environmental impacts.

VIII. a), b) & c) No Impact. While the proposed project will result in construction at affected facilities, doming EFR tanks, installing secondary roof seals on IFR tanks, and utilizing additional OGI technology will not require use or disposal of hazardous materials. Implementation of the proposed project is not expected to affect operations pertaining to hazardous materials, such as the processing of petroleum; thus, there will be no increase in nor creation of: a) significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials; b) significant hazard to the public or the environment in the event of upset or accident conditions involving the release of hazardous materials from these storage tanks into the environment; or c) hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school if an existing facility happens to be located near an existing or proposed school.

VIII. d) No Impact. Government Code Section 65962.5 refers to hazardous waste handling practices at facilities subject to the Resources Conservation and Recovery Act (RCRA). Implementation of the proposed project is not expected to affect operations pertaining to hazardous materials, such as the processing of petroleum; thus, there will be no increase in or creation of a new significant hazard to the public or the environment if an existing facility happens to be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

VIII. e) Less than Significant Impact. Federal Aviation Administration regulation, 14 CFR Part 77 – Safe, Efficient Use and Preservation of the Navigable Airspace, provide information regarding the types of projects that may affect navigable airspace. Projects may adversely affect navigable airspace if they involve construction or alteration of structures greater than 200 feet above ground level within a specified distance from the nearest runway or objects within 20,000 feet of an airport or seaplane base with at least one runway more than 3,200 feet in length and the object would exceed a slope of 100:1 horizontally (100 feet horizontally for each one foot vertically from the nearest point of the runway). Some facilities may be located within a two-mile

radius of an airport that may require potential construction activities to install domes and roof tank seals on existing storage tanks. However, none of these facilities' storage tanks are expected to be taller than 200 feet above-ground. In addition, these facilities may have other heavy industrial equipment that will not be affected by PAR 463 but that are much taller than the existing storage tanks. Thus, for the facilities located near a runway or an airport, the facility operators will already have safety protocols and procedures in place for alerting the Federal Aviation Administration of any potential changes involving equipment greater than 200 feet above ground level. Thus, implementation of PAR 463 is not expected to interfere with navigable airspace or affect existing operations pertaining to hazardous materials, such as the processing of petroleum. Finally, PAR 463 does not contain any requirements that would interfere with any applicable design code or regulation the Federal Aviation Administration may have in effect for safety reasons. Thus, there will be no significant increase in existing safety hazards or the creation of new safety hazards to peoples working or residing in the vicinity of public/private airports.

VIII. f) No Impact. Health and Safety Code Section 25506 specifically requires all businesses handling hazardous materials to submit a business emergency response plan to assist local administering agencies in the emergency release or threatened release of a hazardous material. Business emergency response plans generally require the following:

- Identification of individuals who are responsible for various actions, including reporting, assisting emergency response personnel and establishing an emergency response team;
- Procedures to notify the administering agency, the appropriate local emergency rescue personnel, and the California Office of Emergency Services;
- Procedures to mitigate a release or threatened release to minimize any potential harm or damage to persons, property or the environment;
- Procedures to notify the necessary persons who can respond to an emergency within the facility;
- Details of evacuation plans and procedures;
- Descriptions of the emergency equipment available in the facility;
- Identification of local emergency medical assistance; and,
- Training (initial and refresher) programs for employees in:
 1. The safe handling of hazardous materials used by the business;
 2. Methods of working with the local public emergency response agencies;
 3. The use of emergency response resources under control of the handler;
 4. Other procedures and resources that will increase public safety and prevent or mitigate a release of hazardous materials.

In general, every county or city and all facilities using a minimum amount of hazardous materials are required to formulate detailed contingency plans to eliminate, or at least minimize, the possibility and effect of fires, explosion, or spills. In conjunction with the California Office of Emergency Services, local jurisdictions have enacted ordinances that set standards for area and business emergency response plans. These requirements include immediate notification,

mitigation of an actual or threatened release of a hazardous material, and evacuation of the emergency area.

Emergency response plans are typically prepared in coordination with the local city or county emergency plans to ensure the safety of not only the public (surrounding local communities), but the facility employees as well. The proposed project would not impair the implementation of, or physically interfere with any adopted emergency response plans or emergency evacuation plans that may be in place at existing facilities.

VIII. g) No Impact. The Uniform Fire Code and Uniform Building Code set standards intended to minimize risks from flammable or otherwise hazardous materials. Local jurisdictions are required to adopt the uniform codes or comparable regulations. Local fire agencies require permits for the use or storage of hazardous materials and permit modifications for proposed increases in their use. Permit conditions depend on the type and quantity of the hazardous materials at the facility. Permit conditions may include, but are not limited to, specifications for sprinkler systems, electrical systems, ventilation, and containment. The fire departments make annual business inspections to ensure compliance with permit conditions and other appropriate regulations. Further, businesses are required to report increases in the storage or use of flammable and otherwise hazardous materials to local fire departments. Local fire departments ensure that adequate permit conditions are in place to protect against the potential risk of upset. The proposed project would not change the existing requirements and permit conditions for the proper handling of flammable materials.

Conclusion

Based upon these considerations, significant adverse hazards and hazardous materials impacts are not expected from implementing the proposed project. Since no significant hazards and hazardous materials impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
IX. <u>HYDROLOGY AND WATER QUALITY.</u> Would the project:				
a) Violate any water quality standards, waste discharge requirements, or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
• Result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
f) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, facilities or new storm water drainage facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance Criteria

Potential impacts on water resources will be considered significant if any of the following criteria apply:

Water Demand:

- The existing water supply does not have the capacity to meet the increased demands of the project, or the project would use more than 262,820 gallons per day of potable water.
- The project increases demand for total water by more than five million gallons per day.

Water Quality:

- The project will cause degradation or depletion of ground water resources substantially affecting current or future uses.
- The project will cause the degradation of surface water substantially affecting current or future uses.
- The project will result in a violation of National Pollutant Discharge Elimination System (NPDES) permit requirements.
- The capacities of existing or proposed wastewater treatment facilities and the sanitary sewer system are not sufficient to meet the needs of the project.
- The project results in substantial increases in the area of impervious surfaces, such that interference with groundwater recharge efforts occurs.
- The project results in alterations to the course or flow of floodwaters.

Discussion

PAR 463 applies to storage tanks located at 429 facilities including refineries, bulk storage, loading, and oil production facilities. Staff estimates 20 tanks will need to be domed and 22 tanks will need secondary roof seals installed. PAR 463 is estimated to reduce VOC emissions by ~~0.43~~ 1.65 ton per day. The components of PAR 463 that would be expected to have physical effects are installing domes on EFR tanks and secondary roof seals on IFR tanks. Other components of PAR 463, such as requirements for conducting optical gas imaging tank farm inspections every other calendar week, ~~semi-annual~~ component inspections twice per year at four- to eight-month intervals and implementing recordkeeping and reporting provisions are not expected to create any secondary adverse environmental impacts.

IX. a), b), e), f), g) & h) No Impact. Implementation of PAR 463 would require construction activities associated with installing domes on existing EFR tanks and installing secondary roof seals on existing IFR tanks. These activities might first require storage tanks to be ~~emptied~~ cleaned and degassed if other repairs are needed, but those steps already occur as part of regular tank inspections, and not because of PAR 463.

PAR 463 subparagraph (d)(2)(D) specifies that the timing of construction should be coordinated and coincide with when the storage tank is next ~~emptied~~ cleaned or degassed when installing secondary roof seals on IFR tanks. For these reasons, storage tank ~~emptying~~ cleaning and degassing activities are not considered unique to PAR 463 and as such, the environmental impacts from these activities are excluded from the analysis of construction activities. It is important to note that dome suppliers and affected facilities say that a storage tank does not need to be ~~emptied~~ cleaned and degassed in order to install domes and secondary roof seals, unless the tank shell is in need of reinforcement and repairs that involve welding. Further, if a storage tank is ~~emptied~~ cleaned and degassed, water is not required for this process so no increase in water demand is expected. In addition, PAR 463 does not contain any requirements that would require the use of water during construction or operation. Further, since water is not needed to implement PAR 463, no wastewater would be expected to be generated and. Since no wastewater is generated and no increase in water demand is created from the proposed project, the proposed project would not be expected to: 1) violate any water quality standards, waste discharge requirements of the applicable Regional Water Quality Control Board, or otherwise substantially degrade surface or ground water quality; 2) require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, facilities or new storm water drainage facilities; 3) substantially decrease groundwater supplies or interfere substantially with groundwater recharge or impede sustainable groundwater management of the basin; 4) conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan; 5) impact the water supply available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years; and 6) give cause for the wastewater treatment provider to question or evaluate whether adequate wastewater capacity exists in addition to the provider's existing commitments.

Conclusion

Based upon these considerations, significant adverse hydrology and water quality impacts are not expected from implementing the proposed project. Since no significant hydrology and water quality impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
X. <u>LAND USE AND PLANNING.</u>				
Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance Criteria

Land use and planning impacts will be considered significant if the project conflicts with the land use and zoning designations established by local jurisdictions.

Discussion

PAR 463 applies to storage tanks located at 429 facilities including refineries, bulk storage, loading, and oil production facilities. Staff estimates 20 tanks will need to be domed and 22 tanks will need secondary roof seals installed. PAR 463 is estimated to reduce VOC emissions by ~~0.43~~ 1.65 ton per day. The components of PAR 463 that would be expected to have physical effects are installing domes on EFR tanks and secondary roof seals on IFR tanks. Other components of PAR 463, such as requirements for conducting optical gas imaging tank farm inspections every other calendar week, ~~semi-annual~~ component inspections twice per year at four- to eight-month intervals and implementing recordkeeping and reporting provisions are not expected to create any secondary adverse environmental impacts.

X. a) & b) No Impact. The proposed project does not require the construction of new facilities, and the physical effects that would result from the proposed project would occur at existing facilities located in industrial areas and would occur within existing facility boundaries. For this reason, implementation of PAR 463 is not expected to physically divide an established community. Therefore, no impacts are anticipated.

Further, land use and other planning considerations are determined by local governments and the proposed project does not alter any land use or planning requirements. Compliance with the proposed project would apply to existing storage tanks operating within the boundary of existing facilities. Thus, the proposed project would not be expected to affect or conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

Conclusion

Based upon these considerations, significant adverse land use and planning impacts are not expected from implementing the proposed project. Since no significant land use and planning impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XI. <u>MINERAL RESOURCES.</u> Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance Criteria

Project-related impacts on mineral resources will be considered significant if any of the following conditions are met:

- The project would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.
- The proposed project results in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

Discussion

PAR 463 applies to storage tanks located at 429 facilities including refineries, bulk storage, loading, and oil production facilities. Staff estimates 20 tanks will need to be domed and 22 tanks will need secondary roof seals installed. PAR 463 is estimated to reduce VOC emissions by ~~0.43~~ 1.65 ton per day. The components of PAR 463 that would be expected to have physical effects are installing domes on EFR tanks and secondary roof seals on IFR tanks. Other components of PAR 463, such as requirements for conducting optical gas imaging tank farm inspections every other calendar week, ~~semi-annual~~ component inspections twice per year at four- to eight-month intervals and implementing recordkeeping and reporting provisions are not expected to create any secondary adverse environmental impacts.

XI. a) & b) No Impact. There are no provisions in the proposed project that would result in the loss of availability of a known mineral resource of value to the region and the residents of the state, or of a locally-important mineral resource recovery site delineated on a local general plan, specific plant or other land use plant. Some examples of mineral resources are gravel, asphalt, bauxite, and gypsum, which are commonly used for construction activities or industrial processes. Implementation of the proposed project would result in the installation of domes and secondary roof seals; all of which have no effect on the use of minerals, such as those described above. Therefore, no new demand on mineral resources is expected to occur and no significant adverse mineral resources impacts from implementing the proposed project are anticipated.

Conclusion

Based upon these considerations, significant adverse mineral resource impacts are not expected from implementing the proposed project. Since no significant mineral resource impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XII. NOISE. Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance Criteria

Noise impact will be considered significant if:

- Construction noise levels exceed the local noise ordinances or, if the noise threshold is currently exceeded, project noise sources increase ambient noise levels by more than three decibels (dBA) at the site boundary. Construction noise levels will be considered significant if they exceed federal Occupational Safety and Health Administration (OSHA) noise standards for workers.
- The proposed project operational noise levels exceed any of the local noise ordinances at the site boundary or, if the noise threshold is currently exceeded, project noise sources increase ambient noise levels by more than three dBA at the site boundary.

Discussion

PAR 463 applies to storage tanks located at 429 facilities including refineries, bulk storage, loading, and oil production facilities. Staff estimates 20 tanks will need to be domed and 22 tanks will need secondary roof seals installed. PAR 463 is estimated to reduce VOC emissions by ~~0.43~~ 1.65 ton per day. The components of PAR 463 that would be expected to have physical effects are installing domes on EFR tanks and secondary roof seals on IFR tanks. Other components of PAR 463, such as requirements for conducting optical gas imaging tank farm inspections every other calendar week, ~~semi-annual~~ component inspections twice per year at four- to eight-month intervals and implementing recordkeeping and reporting provisions are not expected to create any secondary adverse environmental impacts.

XII. a) & b) Less than Significant Impact. The facilities subject to PAR 463 are located in urbanized industrial areas. The existing noise environment at each of the facilities is typically dominated by noise from existing equipment on-site, vehicular traffic around the facilities, and

trucks entering and existing facility premises. Large, potentially noise-intensive construction equipment may be needed temporarily to dome EFR tanks and install secondary roof seals on IFR tanks. Operation of the construction equipment would be expected to comply with all existing noise control laws and ordinances. Since all of the facilities are located in heavy industrial areas, which have a higher background noise level when compared to other areas, the noise generated during construction would likely be indistinguishable from the background noise levels at the property line. Further, Occupational Safety and Health Administration (OSHA) and California-OSHA have established noise standards to protect worker health both indoors and outdoors. Furthermore, compliance with local noise ordinances typically limit the hours of construction to reduce the temporary noise impacts from construction to sensitive and offsite receptors. These potential noise increases would only be temporary until construction is completed and would be expected to be within the allowable noise levels established by the local noise ordinances for industrial areas; thus, impacts are expected to be less than significant.

XII. c) No Impact. As stated in Section VIII e), some facilities may be located within a two-mile radius of an airport that may require potential construction activities to install domes and secondary roof tank seals on existing storage tanks. However, these facilities are located within an existing industrial zone which are dominated by noise from existing equipment on-site, vehicular traffic around the facilities, and trucks entering and exiting facility premises. Thus, any new noise impacts from temporary construction activities would be likely to generate noise that is indistinguishable from the background levels at the property line. Thus, PAR 463 is not expected to expose persons residing or working within two miles of a public airport or private airstrip to excessive noise levels.

Conclusion

Based upon these considerations, significant adverse noise impacts are not expected from the implementing the proposed project. Since no significant noise impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XIII. POPULATION AND HOUSING.				
Would the project:				
a) Induce substantial growth in an area either directly (for example, by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance Criteria

Impacts of the proposed project on population and housing will be considered significant if the following criteria are exceeded:

- The demand for temporary or permanent housing exceeds the existing supply.
- The proposed project produces additional population, housing or employment inconsistent with adopted plans either in terms of overall amount or location.

Discussion

PAR 463 applies to storage tanks located at 429 facilities including refineries, bulk storage, loading, and oil production facilities. Staff estimates 20 tanks will need to be domed and 22 tanks will need secondary roof seals installed. PAR 463 is estimated to reduce VOC emissions by ~~0.43~~ 1.65 ton per day. The components of PAR 463 that would be expected to have physical effects are installing domes on EFR tanks and secondary roof seals on IFR tanks. Other components of PAR 463, such as requirements for conducting optical gas imaging tank farm inspections every other calendar week, ~~semi-annual~~ component inspections twice per year at four- to eight-month intervals and implementing recordkeeping and reporting provisions are not expected to create any secondary adverse environmental impacts.

XIII. a) No Impact. The construction activities associated with the proposed project are not expected to involve the relocation of individuals, require new housing or commercial facilities, or change the distribution of the population. Approximately 10 construction workers per facility may be needed to perform construction activities to comply with PAR 463, and these workers can be supplied from the existing labor pool in the local Southern California area. The proposed project is not expected to affect day-to-day operations. As such, PAR 463 is not anticipated to cause change in population densities, population distribution, or induce significant growth in population.

XIII. b) No Impact. The proposed project would result in construction activities that are expected to occur within the confines of existing facilities, and would not be expected to substantially alter existing operations. Consequently, PAR 463 is not expected to result in the creation of any industry that would affect population growth, directly or indirectly induce the construction of single- or multiple-family units, or require the displacement of persons or housing elsewhere within the South Coast AQMD's jurisdiction.

Conclusion

Based upon these considerations, significant adverse population and housing impacts are not expected from implementing the proposed project. Since no significant population and housing impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XIV. PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:				
a) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance Criteria

Impacts on public services will be considered significant if the project results in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response time, or other performance objectives.

Discussion

PAR 463 applies to storage tanks located at 429 facilities including refineries, bulk storage, loading, and oil production facilities. Staff estimates 20 tanks will need to be domed and 22 tanks will need secondary roof seals installed. PAR 463 is estimated to reduce VOC emissions by 0.43 ~~1.65~~ ton per day. The components of PAR 463 that would be expected to have physical effects are installing domes on EFR tanks and secondary roof seals on IFR tanks. Other components of PAR 463, such as requirements for conducting optical gas imaging tank farm inspections every other calendar week, ~~semi-annual~~ component inspections twice per year at four- to eight-month intervals and implementing recordkeeping and reporting provisions are not expected to create any secondary adverse environmental impacts.

XIV. a) & b) No Impact. Implementation of PAR 463 would require construction activities associated with installing domes on existing EFR tanks and installing secondary roof seals on existing IFR tanks. If other repairs to the storage tanks need to be made, then these activities may require storage tanks to first be ~~emptied~~ cleaned and degassed, but those steps occur as part of regular tank inspection. As such, no special circumstances with handling sensitive materials during construction would be expected. For these reasons, new safety hazards are not expected to occur during construction, and implementation of PAR 463 is not expected to substantially alter or

increase the need or demand for additional public services (e.g., fire and police departments and related emergency services, etc.) above current levels. No significant impact to these existing services is anticipated.

XIV. c), d), & e) No Impact. As explained in Section XIII. a), PAR 463 is not anticipated to generate any significant effects, either direct or indirect, on the population or population distribution within South Coast AQMD's jurisdiction as no permanent additional workers are anticipated to be required for compliance. Because PAR 463 is not expected to induce substantial population growth in any way, and because the local labor pool (e.g., workforce) would remain the same since PAR 463 would not trigger changes to current usage practices, no additional schools would need to be constructed. The analysis assumes that 10 construction workers per facility may be needed but any construction activities would be temporary and be expected to be supplied from the existing labor pool in the local Southern California area. There would be no corresponding impacts to local schools or parks, and there would be no corresponding need for new or physically altered public facilities in order to maintain acceptable service ratios, response times, or other performance objectives. Therefore, no impacts would be expected to schools, parks or other public facilities.

Conclusion

Based upon these considerations, significant adverse public services impacts are not expected from implementing the proposed project. Since no significant public services impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XV. <u>RECREATION.</u>				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment or recreational services?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance Criteria

Impacts to recreation will be considered significant if:

- The project results in an increased demand for neighborhood or regional parks or other recreational facilities.
- The project adversely affects existing recreational opportunities.

Discussion

PAR 463 applies to storage tanks located at 429 facilities including refineries, bulk storage, loading, and oil production facilities. Staff estimates 20 tanks will need to be domed and 22 tanks will need secondary roof seals installed. PAR 463 is estimated to reduce VOC emissions by ~~0.43~~ 1.65 ton per day. The components of PAR 463 that would be expected to have physical effects are installing domes on EFR tanks and secondary roof seals on IFR tanks. Other components of PAR 463, such as requirements for conducting optical gas imaging tank farm inspections every other calendar week, ~~semi-annual~~ component inspections twice per year at four- to eight-month intervals and implementing recordkeeping and reporting provisions are not expected to create any secondary adverse environmental impacts.

XV. a) & b) No Impact. As previously explained in Section XIII – Population and Housing, the proposed project is not expected to affect population growth or distribution within the South Coast AQMD’s jurisdiction because only about 10 construction workers per facility will be needed to dome EFR tanks, install secondary roof seals on IFR tanks, and utilize additional OGI technology for compliance with the proposed project. These required construction workers can be supplied by the existing labor pool in the local Southern California area. As such, the proposed project is not anticipated to generate any significant adverse effects, either indirectly or directly on population growth within the South Coast AQMD’s jurisdiction or population distribution, and thus no additional demand for recreational facilities would be necessary or expected. No requirements in the proposed project would be expected to affect recreation in any way. Therefore, the proposed project would not increase the demand for or use of existing neighborhood and regional parks or other recreational facilities or require the construction of new or expansion of existing recreational

facilities that might have an adverse physical effect on the environment because it would not directly or indirectly increase or redistribute population.

Conclusion

Based upon these considerations, significant adverse recreation impacts are not expected from implementing the proposed project. Since no significant recreation impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XVI. <u>SOLID AND HAZARDOUS WASTE.</u> Would the project:				
a) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Comply with federal, state, and local statutes and regulations related to solid and hazardous waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance Criteria

The proposed project impacts on solid and hazardous waste will be considered significant if the following occurs:

- The generation and disposal of hazardous and non-hazardous waste exceeds the capacity of designated landfills.

Discussion

PAR 463 applies to storage tanks located at 429 facilities including refineries, bulk storage, loading, and oil production facilities. Staff estimates 20 tanks will need to be domed and 22 tanks will need secondary roof seals installed. PAR 463 is estimated to reduce VOC emissions by 0.43 ~~1.65~~ ton per day. The components of PAR 463 that would be expected to have physical effects are installing domes on EFR tanks and secondary roof seals on IFR tanks. Other components of PAR 463, such as requirements for conducting optical gas imaging tank farm inspections every other calendar week, ~~semi-annual~~ component inspections twice per year at four- to eight-month intervals and implementing recordkeeping and reporting provisions are not expected to create any secondary adverse environmental impacts.

XVI. a) & b) No Impact. While the proposed project will involve doming of EFR tanks, installation of secondary roof seals on IFR tanks, and utilization of additional OGI technology, construction will not require removal or replacement of existing equipment. Therefore, little to no solid construction waste would be generated that would need to be disposed of in a landfill, and the proposed project is not expected to impact existing permitted landfill capacity.

Current operations at facilities are assumed to comply with all applicable local, state, or federal waste disposal regulations, and PAR 463 does not contain any provisions that would weaken, alter, or interfere with current practices. Thus, implementation of the proposed project is not expected to interfere with any affected facility's ability to comply with applicable local, state, or federal waste disposal regulations in a manner that would cause a significant adverse solid and hazardous waste impact.

Conclusion

Based upon these considerations, significant adverse solid and hazardous waste impacts are not expected from implementing the proposed project. Since no significant solid and hazardous waste impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<u>XVII. TRANSPORTATION.</u>				
Would the project:				
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or be inconsistent with CEQA Guidelines Section 15064.3(b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance Criteria

Impacts on transportation will be considered significant if any of the following criteria apply:

- A major roadway is closed to all through traffic, and no alternate route is available.
- The project conflicts with applicable policies, plans or programs establishing measures of effectiveness, thereby decreasing the performance or safety of any mode of transportation or contributes to changes in overall vehicle miles traveled.
- There is an increase in vehicle miles traveled that is substantial in relation to the existing travel activity.
- Water borne, rail car or air traffic is substantially altered.
- Traffic hazards to motor vehicles, bicyclists or pedestrians are substantially increased.
- The need for more than 350 employees.
- An increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round trips per day.
- Increase customer traffic by more than 700 visits per day.

Discussion

PAR 463 applies to storage tanks located at 429 facilities including refineries, bulk storage, loading, and oil production facilities. Staff estimates 20 tanks will need to be domed and 22 tanks will need secondary roof seals installed. PAR 463 is estimated to reduce VOC emissions by ~~0.43~~ 1.65 ton per day. The components of PAR 463 that would be expected to have physical effects are installing domes on EFR tanks and secondary roof seals on IFR tanks. Other components of PAR 463, such as requirements for conducting optical gas imaging tank farm inspections every other calendar week, ~~semi-annual~~ component inspections twice per year at four- to eight-month intervals and implementing recordkeeping and reporting provisions are not expected to create any secondary adverse environmental impacts.

XVII. a) & b) Less than Significant Impact. As previously discussed in Section III – Air Quality and Greenhouse Gas Emissions, compliance with PAR 463 would require construction activities to dome EFR tanks, install secondary roof seals on IFR tanks, and utilize additional OGI technology. To accomplish these various activities, on-road passenger vehicles and heavy duty trucks would be dispatched to the affected facilities in order to deliver supplies and construction materials.

Table 2-5 presents the number of vehicles round trips that may occur on a peak day which involves doming five EFR tanks and installing secondary roof seals on 11 IFR tanks.

**Table 2-5
Number of Round Trips in a Peak Day**

Activity	Vehicle Trips
Doming 5 EFR Tanks	5 Delivery Trucks 50 Passenger Autos
Installing Secondary Roof Seals for 11 IFR Tanks	11 Delivery Trucks 110 Passenger Autos
Total in a Peak Day	176 Vehicle Trips

In accordance with the promulgation of SB 743 which requires analyses of transportation impacts in CEQA documents to consider a project's vehicle miles traveled (VMT) in lieu of applying a LOS metric when determining significance for transportation impacts, CEQA Guidelines Section 15064.3(b)(4) gives a lead agency to use discretion to choose the most appropriate methodology to evaluate a project's VMT, allowing the metric to be expressed as a change in absolute terms, per capita, per household, or in any other measure.

On a peak day, these construction activities are estimated to result in 16 heavy duty delivery truck round trips and 160 passenger auto round trips, the former which is less than the threshold of 350 truck round trips per day. The proposed project is not expected to result in the need of 350 new employees; assumptions, such as that installing secondary roof seals for one IFR tank requires 10 workers similar to doming an EFR tank is to overestimate impacts for a peak day. The proposed project is not expected to cause a significant adverse transportation impact. Therefore, the proposed project would not conflict with or be inconsistent with CEQA Guidelines Section 15064.3(b). Further, because implementation of the proposed project would not alter any transportation plans, the proposed project would not conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.

XVII. c) & d) No Impact. No existing roadways would need to be modified and no new roadways would need to be constructed as a result of the proposed project. Thus, there would be no change to current public roadway designs including a geometric design feature that could increase traffic hazards. Further, the proposed project is not expected to substantially increase traffic hazards or create incompatible uses at or adjacent to the facilities. Construction-related activities are expected to be temporary and occur over a short-term. Since construction activities and associated passenger vehicle trips and delivery truck trips would cease after construction is completed, the proposed project is not expected to alter the existing long-term circulation patterns within the areas of each affected facility during construction. Thus, no long-term impacts on the traffic circulation system are expected to occur. Further, existing emergency access at the affected facilities would also not

be affected because PAR 463 does not contain any requirements specific to emergency access points and each facility would be expected to continue to maintain their existing emergency access. As a result, PAR 463 is not expected to result in inadequate emergency access.

Conclusion

Based upon these considerations, significant adverse transportation impacts are not expected from implementing the proposed project. Since no significant transportation impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XVIII. <u>WILDFIRE.</u> If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildfires?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance Criteria

A project's ability to contribute to a wildfire will be considered significant if the project is located in or near state responsibility areas or lands classified as very high fire hazard severity zones, and any of the following conditions are met:

- The project would substantially impair an adopted emergency response plan or emergency evacuation plan.
- The project may exacerbate wildfire risks by exposing the project's occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, and other factors.
- The project may exacerbate wildfire risks or may result in temporary or ongoing impacts to the environment because the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) are required.
- The project would expose people or structures to significant risks such as downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

- The project would expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildfires.

Discussion

PAR 463 applies to storage tanks located at 429 facilities including refineries, bulk storage, loading, and oil production facilities. Staff estimates 20 tanks will need to be domed and 22 tanks will need secondary roof seals installed. PAR 463 is estimated to reduce VOC emissions by ~~0.43~~ 1.65 ton per day. The components of PAR 463 that would be expected to have physical effects are installing domes on EFR tanks and secondary roof seals on IFR tanks. Other components of PAR 463, such as requirements for conducting optical gas imaging tank farm inspections every other calendar week, ~~semi-annual~~ component inspections twice per year at four- to eight-month intervals and implementing recordkeeping and reporting provisions are not expected to create any secondary adverse environmental impacts.

XVIII. a), b), c), d) & e) No Impact. Implementation of the proposed project would neither require the construction of any new facilities nor result in the construction of any occupied buildings or structures beyond the current boundaries of each affected facility. Thus, PAR 463 is not expected to substantially impair an adopted emergency response plan or emergency evacuation plan. Further, the existing facilities which are subject to PAR 463 are located in industrial areas, and not near wildlands. In the event of a wildfire, no exacerbation of wildfire risks, and no consequential exposure of the project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, or other factors would be expected to occur. Similarly, the existing facilities which are subject to PAR 463 are located in industrial areas and no new facilities are required to be constructed. Thus, PAR 463 would neither expose people or structures to new significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes, nor would it expose people or structures, either directly or indirectly, to a new significant risk of loss, injury or death involving wildfires. Finally, because PAR 463 does not require any construction beyond existing facility boundaries, the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment are not required.

Conclusion

Based upon these considerations, significant adverse wildfire risks are not expected from implementing the proposed project. Since no significant wildfire risks were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<u>XIX. MANDATORY FINDINGS OF SIGNIFICANCE.</u>				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

PAR 463 applies to storage tanks located at 429 facilities including refineries, bulk storage, loading, and oil production facilities. Staff estimates 20 tanks will need to be domed and 22 tanks will need secondary roof seals installed. PAR 463 is estimated to reduce VOC emissions by ~~0.43~~ 1.65 ton per day. The components of PAR 463 that would be expected to have physical effects are installing domes on EFR tanks and secondary roof seals on IFR tanks. Other components of PAR 463, such as requirements for conducting optical gas imaging tank farm inspections every other calendar week, ~~semi-annual~~ component inspections twice per year at four- to eight-month intervals and implementing recordkeeping and reporting provisions are not expected to create any secondary adverse environmental impacts.

XIX. a) No Impact. As explained in Section IV - Biological Resources, PAR 463 is not expected to significantly adversely affect plant or animal species, or the habitat on which they rely because any construction and operational activities are expected to occur entirely within the boundaries of

existing developed facilities in areas that have been greatly disturbed and that currently do not support any species of concern or the habitat on which they rely. For these reasons, PAR 463 is not expected to reduce or eliminate any plant or animal species or destroy prehistoric records of the past.

XIX. b) Less Than Significant Impact. Based on the preceding analyses, PAR 463 would not result in significant adverse project-specific environmental impacts. Potential adverse impacts from implementing PAR 463 would not be “cumulatively considerable” as defined by CEQA Guidelines Section 15064(h)(1) for any environmental topic because there are no, or only minor incremental project-specific impacts that were concluded to be less than significant. Per CEQA Guidelines Section 15064(h)(4), the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project’s incremental effects are cumulative considerable. South Coast AQMD cumulative significant thresholds are the same as project-specific significance thresholds.

Therefore, there is no potential for significant adverse cumulative or cumulatively considerable impacts to be generated by PAR 463 for any environmental topic area.

XIX. c) Less Than Significant Impact. Based on the preceding analyses, PAR 463 is not expected to cause adverse effects on human beings for any environmental topic, either directly or indirectly because: 1) aesthetics impacts were determined to be less than significant as analyzed in Section I – Aesthetics; 2) the air quality and GHG impacts were determined to be less than the significance thresholds as analyzed in Section III – Air Quality and Greenhouse Gases; 3) energy impacts were determined to be less than significant as analyzed in Section VI – Energy; 4) the noise impacts were determined to be less than significant as analyzed in Section XII – Noise; and 5) transportation impacts were determined to be less than the significant as analyzed in Section XVII – Transportation. In addition, the analysis concluded that there would be no significant environmental impacts for the following remaining environmental impact topic areas: agriculture and forestry resources, biological resources, cultural and tribal cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, population and housing, public services, recreation, solid and hazardous waste, transportation, and wildfire.

Conclusion

As previously discussed in environmental topics I through XIX, the proposed project has no potential to cause significant adverse environmental effects. Since no significance adverse environmental impacts were identified, no mitigation measures are necessary or required.

APPENDICES

Appendix A: Proposed Amended Rule 463 – Organic Liquid Storage

Appendix B: Modeling Files, Assumptions, and Calculations

APPENDIX A

Proposed Amended Rule 463 – Organic Liquid Storage

In order to save space and avoid repetition, please refer to the latest version of PAR 463 located elsewhere in the Governing Board Agenda for the public hearing scheduled on June 7, 2024. The version of PAR 463 that was circulated with the Draft EA for a 30-day public review and comment period from March 27, 2024 to April 26, 2024 was identified as the “Preliminary Draft Rule PAR 463, revision date March 22, 2024,” which is available from the South Coast AQMD’s website at: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/rule-463/par-463-preliminary-draft-rule-language.pdf>. An original hard copy of the Draft EA, which included the draft version of PAR 463 listed above, can be obtained through the South Coast AQMD Public Information Center by phone at (909) 396-2001 or by email at PICrequests@aqmd.gov.

APPENDIX B

Modeling Files, Assumptions, and Calculations

Peak Daily Construction Impacts by Construction Activity and Season (lb/day for Criteria Pollutants, MT/yr for GHG)

Doming 1 External Floating Roof Tank

	VOC	NOx	CO	SO ₂	PM10T	PM2.5T	CO ₂ e
Winter	1.37	10.90	13.40	0.03	0.67	0.40	
Summer	1.37	10.90	13.20	0.03	0.67	0.40	
Max	1.37	10.90	13.40	0.03	0.67	0.40	118

Installing Additional Roof Seals for 1 Internal Floating Roof Tank

	VOC	NOx	CO	SO ₂	PM10T	PM2.5T	CO ₂ e
Winter	0.51	3.95	5.32	0.01	0.45	0.19	24
Summer	0.52	3.93	5.55	0.01	0.45	0.19	26
Max	0.52	3.95	5.55	0.01	0.45	0.19	26

Doming 5 External Floating Roof Tanks and Installing Additional Roof Seals for 11 Internal Floating Roof Tanks

	VOC	NOx	CO	SO ₂	PM10T	PM2.5T
Max	12.57	97.95	128.05	0.26	8.30	4.09

Doming 20 External Floating Roof Tanks and Installing Additional Roof Seals for 22 Internal Floating Roof Tanks

CO₂e
97

PAR 463-Dome Detailed Report

Table of Contents

- 1. Basic Project Information
 - 1.1. Basic Project Information
 - 1.2. Land Use Types
 - 1.3. User-Selected Emission Reduction Measures by Emissions Sector
- 2. Emissions Summary
 - 2.1. Construction Emissions Compared Against Thresholds
 - 2.2. Construction Emissions by Year, Unmitigated
- 3. Construction Emissions Details
 - 3.1. Building Construction (2026) - Unmitigated
- 4. Operations Emissions Details
 - 4.10. Soil Carbon Accumulation By Vegetation Type
 - 4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated
 - 4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated
 - 4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	PAR 463-Dome
Construction Start Date	2/6/2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.50
Precipitation (days)	16.0
Location	33.78242008132466, -118.2666105636882
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4641
EDFZ	16
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Heavy Industry <i>PAR 463</i>	36.0	1000sqft	0.83	36,000 <i>B-5</i>	0.00	0.00	—	— <i>June 2024</i>

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.65	1.37	10.9	13.4	0.03	0.35	0.32	0.67	0.32	0.08	0.40	—	2,683	2,683	0.11	0.05	1.40	2,702
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.65	1.37	10.9	13.2	0.03	0.35	0.32	0.67	0.32	0.08	0.40	—	2,668	2,668	0.11	0.05	0.04	2,685
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.44	0.36	2.90	3.51	0.01	0.09	0.09	0.18	0.09	0.02	0.11	—	710	710	0.03	0.01	0.16	715
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.08	0.07	0.53	0.64	< 0.005	0.02	0.02	0.03	0.02	< 0.005	0.02	—	118	118	< 0.005	< 0.005	0.03	118

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2026	1.65	1.37	10.9	13.4	0.03	0.35	0.32	0.67	0.32	0.08	0.40	—	2,683	2,683	0.11	0.05	1.40	2,702
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.65	1.37	10.9	13.2	0.03	0.35	0.32	0.67	0.32	0.08	0.40	—	2,668	2,668	0.11	0.05	0.04	2,685
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.44	0.36	2.90	3.51	0.01	0.09	0.09	0.18	0.09	0.02	0.11	—	710	710	0.03	0.01	0.16	715
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.08	0.07	0.53	0.64	< 0.005	0.02	0.02	0.03	0.02	< 0.005	0.02	—	118	118	< 0.005	< 0.005	0.03	118

3. Construction Emissions Details

3.1. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.59	1.32	10.7	12.0	0.02	0.35	—	0.35	0.32	—	0.32	—	2,243	2,243	0.09	0.02	—	2,251
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.59	1.32	10.7	12.0	0.02	0.35	—	0.35	0.32	—	0.32	—	2,243	2,243	0.09	0.02	—	2,251
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B - Final Environmental Assessment

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42	0.35	2.84	3.19	0.01	0.09	—	0.09	0.09	—	0.09	—	596	596	0.02	< 0.005	—	598
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.52	0.58	< 0.005	0.02	—	0.02	0.02	—	0.02	—	98.7	98.7	< 0.005	< 0.005	—	99.0
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.08	1.31	0.00	0.00	0.28	0.28	0.00	0.07	0.07	—	291	291	0.01	0.01	0.99	295
Vendor	0.01	< 0.005	0.13	0.05	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	149	149	< 0.005	0.02	0.41	156
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.09	1.09	0.00	0.00	0.28	0.28	0.00	0.07	0.07	—	276	276	0.01	0.01	0.03	279
Vendor	0.01	< 0.005	0.14	0.05	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	149	149	< 0.005	0.02	0.01	155
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.03	0.31	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	74.4	74.4	< 0.005	< 0.005	0.11	75.3
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	39.5	39.5	< 0.005	0.01	0.05	41.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.3	12.3	< 0.005	< 0.005	0.02	12.5

PAR 463

B-8

June 2024

Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.55	6.55	< 0.005	< 0.005	0.01	6.84
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequest ered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Building Construction	Building Construction	1/1/2026	4/23/2026	6.00	97.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Building Construction	Cranes	Diesel	Average	1.00	10.0	367	0.29
Building Construction	Air Compressors	Diesel	Average	1.00	10.0	84.0	0.37
Building Construction	Welders	Diesel	Average	3.00	10.0	82.0	0.20

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Building Construction	—	—	—	—
Building Construction	Worker	10.0	40.0	LDA,LDT1,LDT2
Building Construction	Vendor	1.00	50.0	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
------------	--	--	--	--	-----------------------------

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
------------	------------------------	------------------------	----------------------	-------------------------------	---------------------

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Heavy Industry	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	690	0.05	0.01

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
--------------------------	----------------------	---------------	-------------

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
--------------------	---------------	-------------

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
-----------	--------	------------------------------	------------------------------

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	5.07	annual days of extreme heat
Extreme Precipitation	4.20	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about $\frac{3}{4}$ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	17.6

AQ-PM	67.2
AQ-DPM	99.3
Drinking Water	42.4
Lead Risk Housing	91.8
Pesticides	0.00
Toxic Releases	97.1
Traffic	23.6
Effect Indicators	—
CleanUp Sites	71.7
Groundwater	76.2
Haz Waste Facilities/Generators	62.6
Impaired Water Bodies	0.00
Solid Waste	52.9
Sensitive Population	—
Asthma	83.0
Cardio-vascular	92.8
Low Birth Weights	72.9
Socioeconomic Factor Indicators	—
Education	99.6
Housing	58.2
Linguistic	97.3
Poverty	97.4
Unemployment	91.3

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
-----------	---------------------------------

Appendix B - Final Environmental Assessment

Economic	—
Above Poverty	3.734120364
Employed	20.67239831
Median HI	8.109842166
Education	—
Bachelor's or higher	1.706659823
High school enrollment	20.74939048
Preschool enrollment	24.62466316
Transportation	—
Auto Access	9.085076351
Active commuting	86.1157449
Social	—
2-parent households	52.29051713
Voting	11.8311305
Neighborhood	—
Alcohol availability	4.516874118
Park access	81.35506224
Retail density	53.26575132
Supermarket access	94.25125112
Tree canopy	9.559861414
Housing	—
Homeownership	5.427948159
Housing habitability	2.361093289
Low-inc homeowner severe housing cost burden	14.65417683
Low-inc renter severe housing cost burden	73.7071731
Uncrowded housing	0.192480431
Health Outcomes	—

Appendix B - Final Environmental Assessment

Insured adults	3.002694726
Arthritis	74.6
Asthma ER Admissions	21.3
High Blood Pressure	64.8
Cancer (excluding skin)	96.9
Asthma	13.4
Coronary Heart Disease	40.3
Chronic Obstructive Pulmonary Disease	22.0
Diagnosed Diabetes	11.9
Life Expectancy at Birth	10.9
Cognitively Disabled	46.5
Physically Disabled	63.7
Heart Attack ER Admissions	21.1
Mental Health Not Good	2.6
Chronic Kidney Disease	20.1
Obesity	3.6
Pedestrian Injuries	98.5
Physical Health Not Good	2.9
Stroke	29.9
Health Risk Behaviors	—
Binge Drinking	69.8
Current Smoker	4.4
No Leisure Time for Physical Activity	4.2
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	3.5

Elderly	97.8
English Speaking	3.7
Foreign-born	92.7
Outdoor Workers	6.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	3.2
Traffic Density	49.8
Traffic Access	87.4
Other Indices	—
Hardship	99.2
Other Decision Support	—
2016 Voting	0.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	95.0
Healthy Places Index Score for Project Location (b)	6.00
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	Wilmington Long Beach Carson

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	PAR 1178 was used as a referenced.
Construction: Off-Road Equipment	The hours of operation was revised from 6 to 8 for worst case scenario.
Construction: Trips and VMT	Referenced Final EA or PAR 1178.

PAR 463-Seals-Summer Detailed Report

Table of Contents

- 1. Basic Project Information
 - 1.1. Basic Project Information
 - 1.2. Land Use Types
 - 1.3. User-Selected Emission Reduction Measures by Emissions Sector
- 2. Emissions Summary
 - 2.1. Construction Emissions Compared Against Thresholds
 - 2.2. Construction Emissions by Year, Unmitigated
- 3. Construction Emissions Details
 - 3.1. Building Construction (2026) - Unmitigated
- 4. Operations Emissions Details
 - 4.10. Soil Carbon Accumulation By Vegetation Type
 - 4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated
 - 4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated
 - 4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	PAR 463-Seals-Summer
Construction Start Date	6/1/2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.50
Precipitation (days)	16.0
Location	33.782633950840065, -118.26814130827408
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4640
EDFZ	16
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Heavy Industry <i>PAR 463</i>	36.0	1000sqft	0.83	36,000 <i>B-24</i>	0.00	0.00	—	— <i>June 2024</i>

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.62	0.52	3.93	5.55	0.01	0.13	0.32	0.45	0.12	0.08	0.19	—	1,246	1,246	0.05	0.04	1.40	1,260
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.08	0.06	0.49	0.66	< 0.005	0.02	0.04	0.06	0.01	0.01	0.02	—	152	152	0.01	< 0.005	0.07	154
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.01	0.01	0.09	0.12	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.2	25.2	< 0.005	< 0.005	0.01	25.5

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.62	0.52	3.93	5.55	0.01	0.13	0.32	0.45	0.12	0.08	0.19	—	1,246	1,246	0.05	0.04	1.40	1,260
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.08	0.06	0.49	0.66	< 0.005	0.02	0.04	0.06	0.01	0.01	0.02	—	152	152	0.01	< 0.005	0.07	154
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.01	0.01	0.09	0.12	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.2	25.2	< 0.005	< 0.005	0.01	25.5

3. Construction Emissions Details

3.1. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.47	3.72	4.18	0.01	0.12	—	0.12	0.11	—	0.11	—	807	807	0.03	0.01	—	809
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.46	0.52	< 0.005	0.02	—	0.02	0.01	—	0.01	—	99.4	99.4	< 0.005	< 0.005	—	99.8
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	16.5	16.5	< 0.005	< 0.005	—	16.5

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.08	1.31	0.00	0.00	0.28	0.28	0.00	0.07	0.07	—	291	291	0.01	0.01	0.99	295
Vendor	0.01	< 0.005	0.13	0.05	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	149	149	< 0.005	0.02	0.41	156
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	34.5	34.5	< 0.005	< 0.005	0.05	34.9
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	18.3	18.3	< 0.005	< 0.005	0.02	19.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.71	5.71	< 0.005	< 0.005	0.01	5.78
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.04	3.04	< 0.005	< 0.005	< 0.005	3.17
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
------------	-----	-----	-----	----	-----	-------	-------	-------	--------	--------	--------	------	-------	------	-----	-----	---	------

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
---------	-----	-----	-----	----	-----	-------	-------	-------	--------	--------	--------	------	-------	------	-----	-----	---	------

Appendix B - Final Environmental Assessment

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Building Construction	Building Construction	6/1/2026	8/1/2026	5.00	45.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Building Construction	Cranes	Diesel	Average	1.00	4.00	367	0.29
Building Construction	Air Compressors	Diesel	Average	1.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Building Construction	—	—	—	—
Building Construction	Worker	10.0	40.0	LDA,LDT1,LDT2
Building Construction	Vendor	1.00	50.0	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
------------	--	--	--	--	-----------------------------

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
------------	------------------------	------------------------	----------------------	-------------------------------	---------------------

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Heavy Industry	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	690	0.05	0.01

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
--------------------------	----------------------	---------------	-------------

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
--------------------	---------------	-------------

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
-----------	--------	------------------------------	------------------------------

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	5.07	annual days of extreme heat
Extreme Precipitation	4.20	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2

Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	20.8
AQ-PM	67.2
AQ-DPM	59.7
Drinking Water	42.4
Lead Risk Housing	94.8
Pesticides	44.1
Toxic Releases	98.0
Traffic	32.5
Effect Indicators	—
CleanUp Sites	28.7
Groundwater	79.1

Haz Waste Facilities/Generators	43.7
Impaired Water Bodies	0.00
Solid Waste	37.6
Sensitive Population	—
Asthma	83.0
Cardio-vascular	92.8
Low Birth Weights	35.6
Socioeconomic Factor Indicators	—
Education	88.7
Housing	64.5
Linguistic	80.2
Poverty	71.7
Unemployment	74.1

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	28.7052483
Employed	80.73912486
Median HI	28.56409598
Education	—
Bachelor's or higher	11.58732196
High school enrollment	100
Preschool enrollment	70.15270114
Transportation	—
Auto Access	15.9373797

Active commuting	71.46156807
Social	—
2-parent households	29.78313871
Voting	18.19581676
Neighborhood	—
Alcohol availability	4.516874118
Park access	81.35506224
Retail density	92.85255999
Supermarket access	94.25125112
Tree canopy	32.76016938
Housing	—
Homeownership	26.45964327
Housing habitability	13.98691133
Low-inc homeowner severe housing cost burden	62.17117926
Low-inc renter severe housing cost burden	30.28358784
Uncrowded housing	5.889901193
Health Outcomes	—
Insured adults	9.008084178
Arthritis	88.1
Asthma ER Admissions	21.3
High Blood Pressure	81.4
Cancer (excluding skin)	93.3
Asthma	55.1
Coronary Heart Disease	69.4
Chronic Obstructive Pulmonary Disease	74.0
Diagnosed Diabetes	29.7
Life Expectancy at Birth	13.0

Cognitively Disabled	70.6
Physically Disabled	57.4
Heart Attack ER Admissions	21.1
Mental Health Not Good	27.8
Chronic Kidney Disease	35.4
Obesity	19.4
Pedestrian Injuries	94.5
Physical Health Not Good	27.0
Stroke	70.4
Health Risk Behaviors	—
Binge Drinking	32.5
Current Smoker	39.2
No Leisure Time for Physical Activity	26.6
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	15.5
Elderly	91.2
English Speaking	12.1
Foreign-born	75.5
Outdoor Workers	37.1
Climate Change Adaptive Capacity	—
Impervious Surface Cover	11.6
Traffic Density	71.5
Traffic Access	87.4
Other Indices	—
Hardship	81.2

Other Decision Support	—
2016 Voting	11.4

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	85.0
Healthy Places Index Score for Project Location (b)	34.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	Wilmington Long Beach Carson

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Referenced Final EA for PAR 1178.
Construction: Off-Road Equipment	Reference Final EA for PAR 1178.
Construction: Trips and VMT	Reference Final EA for PAR 1178.

PAR 463- Seals-Winter Detailed Report

Table of Contents

- 1. Basic Project Information
 - 1.1. Basic Project Information
 - 1.2. Land Use Types
 - 1.3. User-Selected Emission Reduction Measures by Emissions Sector
- 2. Emissions Summary
 - 2.1. Construction Emissions Compared Against Thresholds
 - 2.2. Construction Emissions by Year, Unmitigated
- 3. Construction Emissions Details
 - 3.1. Building Construction (2026) - Unmitigated
- 4. Operations Emissions Details
 - 4.10. Soil Carbon Accumulation By Vegetation Type
 - 4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated
 - 4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated
 - 4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	PAR 463- Seals-Winter
Construction Start Date	1/1/2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.50
Precipitation (days)	16.0
Location	33.782633950840065, -118.26814130827408
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4640
EDFZ	16
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Heavy Industry <i>PAR 463</i>	36.0	1000sqft	0.83	36,000 <i>B-42</i>	0.00	0.00	—	— <i>June 2024</i>

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.62	0.51	3.95	5.32	0.01	0.13	0.32	0.45	0.12	0.08	0.19	—	1,231	1,231	0.05	0.04	0.04	1,243
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.07	0.06	0.46	0.62	< 0.005	0.01	0.04	0.05	0.01	0.01	0.02	—	142	142	0.01	< 0.005	0.07	144
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.01	0.01	0.08	0.11	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.5	23.5	< 0.005	< 0.005	0.01	23.8

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.62	0.51	3.95	5.32	0.01	0.13	0.32	0.45	0.12	0.08	0.19	—	1,231	1,231	0.05	0.04	0.04	1,243

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.07	0.06	0.46	0.62	< 0.005	0.01	0.04	0.05	0.01	0.01	0.02	—	142	142	0.01	< 0.005	0.07	144
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.01	0.01	0.08	0.11	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.5	23.5	< 0.005	< 0.005	0.01	23.8

3. Construction Emissions Details

3.1. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.47	3.72	4.18	0.01	0.12	—	0.12	0.11	—	0.11	—	807	807	0.03	0.01	—	809
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.43	0.48	< 0.005	0.01	—	0.01	0.01	—	0.01	—	92.8	92.8	< 0.005	< 0.005	—	93.1
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.4	15.4	< 0.005	< 0.005	—	15.4

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.09	1.09	0.00	0.00	0.28	0.28	0.00	0.07	0.07	—	276	276	0.01	0.01	0.03	279
Vendor	0.01	< 0.005	0.14	0.05	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	149	149	< 0.005	0.02	0.01	155
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	32.2	32.2	< 0.005	< 0.005	0.05	32.6
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	17.1	17.1	< 0.005	< 0.005	0.02	17.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.33	5.33	< 0.005	< 0.005	0.01	5.40
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.83	2.83	< 0.005	< 0.005	< 0.005	2.96
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
	PAR 463								B-45								June 2024	

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
---------	-----	-----	-----	----	-----	-------	-------	-------	--------	--------	--------	------	-------	------	-----	-----	---	------

Appendix B - Final Environmental Assessment

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Building Construction	Building Construction	1/1/2026	3/1/2026	5.00	42.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Building Construction	Cranes	Diesel	Average	1.00	4.00	367	0.29
Building Construction	Air Compressors	Diesel	Average	1.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Building Construction	—	—	—	—
Building Construction	Worker	10.0	40.0	LDA,LDT1,LDT2
Building Construction	Vendor	1.00	50.0	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
------------	--	--	--	--	-----------------------------

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
------------	------------------------	------------------------	----------------------	-------------------------------	---------------------

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Heavy Industry	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	690	0.05	0.01

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
--------------------------	----------------------	---------------	-------------

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
--------------------	---------------	-------------

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
-----------	--------	------------------------------	------------------------------

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	5.07	annual days of extreme heat
Extreme Precipitation	4.20	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about $\frac{3}{4}$ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events.

Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2

Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	20.8
AQ-PM	67.2
AQ-DPM	59.7
Drinking Water	42.4
Lead Risk Housing	94.8
Pesticides	44.1
Toxic Releases	98.0
Traffic	32.5
Effect Indicators	—
CleanUp Sites	28.7
Groundwater	79.1

Haz Waste Facilities/Generators	43.7
Impaired Water Bodies	0.00
Solid Waste	37.6
Sensitive Population	—
Asthma	83.0
Cardio-vascular	92.8
Low Birth Weights	35.6
Socioeconomic Factor Indicators	—
Education	88.7
Housing	64.5
Linguistic	80.2
Poverty	71.7
Unemployment	74.1

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	28.7052483
Employed	80.73912486
Median HI	28.56409598
Education	—
Bachelor's or higher	11.58732196
High school enrollment	100
Preschool enrollment	70.15270114
Transportation	—
Auto Access	15.9373797

Active commuting	71.46156807
Social	—
2-parent households	29.78313871
Voting	18.19581676
Neighborhood	—
Alcohol availability	4.516874118
Park access	81.35506224
Retail density	92.85255999
Supermarket access	94.25125112
Tree canopy	32.76016938
Housing	—
Homeownership	26.45964327
Housing habitability	13.98691133
Low-inc homeowner severe housing cost burden	62.17117926
Low-inc renter severe housing cost burden	30.28358784
Uncrowded housing	5.889901193
Health Outcomes	—
Insured adults	9.008084178
Arthritis	88.1
Asthma ER Admissions	21.3
High Blood Pressure	81.4
Cancer (excluding skin)	93.3
Asthma	55.1
Coronary Heart Disease	69.4
Chronic Obstructive Pulmonary Disease	74.0
Diagnosed Diabetes	29.7
Life Expectancy at Birth	13.0

Cognitively Disabled	70.6
Physically Disabled	57.4
Heart Attack ER Admissions	21.1
Mental Health Not Good	27.8
Chronic Kidney Disease	35.4
Obesity	19.4
Pedestrian Injuries	94.5
Physical Health Not Good	27.0
Stroke	70.4
Health Risk Behaviors	—
Binge Drinking	32.5
Current Smoker	39.2
No Leisure Time for Physical Activity	26.6
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	15.5
Elderly	91.2
English Speaking	12.1
Foreign-born	75.5
Outdoor Workers	37.1
Climate Change Adaptive Capacity	—
Impervious Surface Cover	11.6
Traffic Density	71.5
Traffic Access	87.4
Other Indices	—
Hardship	81.2

Other Decision Support	—
2016 Voting	11.4

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	85.0
Healthy Places Index Score for Project Location (b)	34.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	Wilmington Long Beach Carson

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Referenced Final EA for PAR 1178.
Construction: Off-Road Equipment	Reference Final EA for PAR 1178.
Construction: Trips and VMT	Referenced Final EA for PAR 1178.

On-Road Vehicles, VMT + Fuel Usage (As Published in the Draft EA)

Activity	Description	Trip Distance (miles)	Number Trips/yr	VMT	Fuel Type	MPG	Fuel Use (Gal/yr)
Doming 20 External Floating Roof Tanks	Equipment Delivery - Heavy-Heavy Duty Vendor Trucks	50	1940	97000	Diesel	6.4	15,226
	Equipment Installation - Passenger Auto	40	1940	77600	Gas	27.0	2,871
Installing Additional Seals for 22 Internal Floating Roof Tanks	Equipment Delivery - Heavy-Heavy Duty Vendor Trucks	50	924	46200	Diesel	6.4	7,252
	Equipment Installation - Passenger Auto	40	924	36960	Gas	27.0	1,367

Fuel Usage = VMT / MPG

Offroad Equipment Fuel Usage

Activity	Equipment	Number of Equipment	Usage Hours/day	Horse power	Load Factor	Fuel Rate (Gal/hr)	Fuel Use (Gal/day)
Doming 20 External Floating Roof Tanks	Cranes	20	10	367	0.29	3.4	199.7
	Welders	60	10	82	0.2	1.5	174.7
	Air Compressors	20	10	84	0.37	1.1	82.1
Installing Additional Seals for 22 Internal Floating Roof Tanks	Cranes	22	4	367	0.29	3.4	87.9
	Air Compressors	22	8	84	0.37	1.1	72.2
Total Diesel Fuel Usage from Offroad Equipment (Gal/yr)							50996.2

Fuel Usage = Hours/day * Days * Load Factor * Fuel Rate

Notes: Horsepower and Load Factor from CalEEMod version 2022.1.1.3

Fuel Type	Construction
Diesel Fuel Usage (Gallons)	73,474
Gas Fuel Usage (Gallons)	4,238

Annual Total Projected Fuel Usage for Construction Activities		
	Diesel	Gasoline
Projected Operational Energy Use (gal/yr) ^a	73,474	4,238
Year 2017 South Coast AQMD Jurisdiction Estimated Fuel Demand (gal/yr)	775,000,000	7,086,000,000
Total Increase Above Baseline	0.00948%	0.000060%
Significance Threshold	1%	1%
Significant?	No	No

Notes:

^a Estimated peak fuel usage from construction activities. Diesel usage estimates are based on the vendor trips and offroad equipment. Gasoline usage estimates are derived from worker trips.

ATTACHMENT I

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Socioeconomic Impact Assessment For: Proposed Amended Rule 463 – Organic Liquid Storage

June 2024

Deputy Executive Officer

Planning, Rule Development, and Implementation
Sarah L. Rees, Ph.D.

Assistant Deputy Executive Officer

Planning, Rule Development, and Implementation
Michael Krause

Planning and Rules Manager

Planning, Rule Development, and Implementation
Barbara Radlein

Authors:

Valerie Rivera – Assistant Air Quality Specialist
Daniel Penoyer – Air Quality Specialist
Chris Yu – Assistant Air Quality Specialist

Technical Assistance: Joshua Ewell – Assistant Air Quality Specialist
Isabelle Shine – Program Supervisor

Reviewed By: Xian-Liang (Tony) Tian, Ph.D. – Program Supervisor
Shah Dabirian, Ph.D. – Consultant
John L. Jones II – Senior Deputy District Counsel

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
GOVERNING BOARD**

Chair: VANESSA DELGADO
Senator (Ret.)
Senate Rules Committee Appointee

Vice Chair: MICHAEL A. CACCIOTTI
Councilmember, South Pasadena
Cities of Los Angeles County/Eastern Region

MEMBERS:

ANDREW DO
Supervisor, First District
County of Orange

CURT HAGMAN
Supervisor, Fourth District
County of San Bernardino

GIDEON KRACOV
Governor's Appointee

PATRICIA LOCK DAWSON
Mayor, Riverside
Cities of Riverside County Representative

LARRY MCCALLON
Mayor Pro Tem, Highland
Cities of San Bernardino County

HOLLY J. MITCHELL
Supervisor, Second District
County of Los Angeles

VERONICA PADILLA-CAMPOS
Speaker of the Assembly Appointee

V. MANUEL PEREZ
Supervisor, Fourth District
County of Riverside

NITHYA RAMAN
Councilmember, Fourth District
City of Los Angeles Representative

CARLOS RODRIGUEZ
Councilmember, Yorba Linda
Cities of Orange County

JOSE LUIS SOLACHE
Mayor, Lynwood
Cities of Los Angeles County/Western Region

EXECUTIVE OFFICER:

WAYNE NASTRI

TABLE OF CONTENTS

EXECUTIVE SUMMARY	ES-1
INTRODUCTION.....	1
LEGISLATIVE MANDATES	1
AFFECTED FACILITIES.....	2
SMALL BUSINESS	3
COMPLIANCE COST.....	5
Capital and One-Time Costs	5
Recurring Costs	8
Total Compliance Cost.....	9
MACROECONOMIC IMPACTS ON THE REGIONAL ECONOMY	12
Impact of PAR 463.....	12
Regional Job Impacts	13
Price Impact and Competitiveness	15
REFERENCES.....	16

EXECUTIVE SUMMARY

On March 17, 1989, the South Coast Air Quality Management District (South Coast AQMD) Governing Board adopted a resolution which requires an analysis of the economic impacts associated with adopting and amending rules and regulations. In addition, Health and Safety Code Section 40440.8 requires a socioeconomic impact assessment for any proposed rule, rule amendment, or rule repeal which “will significantly affect air quality or emissions limitations.” Lastly, Health and Safety Code Section 40920.6 requires an incremental cost-effectiveness analysis for a proposed rule or amendment which imposes Best Available Retrofit Control Technology (BARCT) or “all feasible measures” requirements relating to emissions of ozone, carbon monoxide (CO), sulfur oxides (SO_x), nitrogen oxides (NO_x), volatile organic compounds (VOC), and their precursors.

Proposed Amended Rule 463 (PAR 463) has been developed to reduce VOC emissions from the storage of organic liquids in above-ground tanks and establish contingency measures for applicable ozone standards in order to have a backstop for achieving the VOC emission reductions. A socioeconomic impact assessment has been conducted accordingly, and the following presents a summary of the analysis and findings.

**Key Elements of
PAR 463**

PAR 463 would reduce VOC emissions from storage tanks by requiring periodic optical gas imaging (OGI) inspections at affected facilities, doming for external floating roof (EFR) storage tanks, installation of secondary seals on internal floating roof (IFR) storage tanks, and increased control efficiency and performance testing for fixed-roof tank vapor recovery units (VRUs).

**Affected
Facilities
and Industries**

PAR 463 is applicable to approximately 1,600 tanks located at 429 facilities, with 320 located in Los Angeles County, 94 located in Orange County, 10 located in San Bernardino County, and five located in Riverside County. The 429 facilities are distributed according to their applicable North American Industrial Classification System (NAICS) codes as follows: 336 facilities are classified under the Oil and Gas Extraction industry (NAICS 211); 30 facilities are classified under the Wholesale Trade industry (NAICS 42); 18 facilities are Petroleum and Coal Products Manufacturers (NAICS 324); and the remaining facilities are spread over various industry sectors.

A small business analysis was conducted for the facilities affected by PAR 463. The following table presents the number of affected facilities that qualify as a small business which is dependent on the specific applicable definition used in the analysis:

Definition	Number of Facilities
South Coast AQMD Rule 102	63
South Coast AQMD's Small Business Assistance Office	262
U.S. Small Business Administration	282

Assumptions for the Analysis

The key requirements of PAR 463 that would have cost impacts for the affected facilities include: 1) periodic OGI inspections; 2) doming of EFR storage tanks; 3) installation of secondary seals on IFR storage tanks; and 4) periodic performance testing on fixed-roof storage tank VRUs.

Approximately 1,600 storage tanks would be subject to PAR 463. However, only the following would be subject to PAR 463 OGI requirements: 1) stationary above-ground tanks with a capacity > 19,815 gallons storing organic liquid with a true vapor pressure (TVP) ≥ 1.5 psi; 2) above-ground stationary tanks with a capacity $\geq 39,630$ gallons storing organic liquid with TVP ≥ 0.5 psi; 3) above-ground tanks used to store gasoline with capacity between 251 gallons and 19,815 gallons; and 4) stationary tanks with a potential for VOC emissions of six tons per year or greater used in Crude Oil And Natural Gas Production Operations. Given these thresholds, approximately 679 storage tanks located at 429 facilities, which are owned by 91 companies will be subject to the OGI requirements.

PAR 463 would require the doming of EFR tanks storing organic liquid with a TVP of 3 psia or greater at the next internal API 653 inspection or the next time a tank is cleaned and degassed, but not to exceed 23 years after a test verifies that an organic liquid stored has a TVP of 3 psia or greater. Staff identified approximately 89 EFR storage tanks and estimated that 20 out of the 89 EFR tanks will need to install domes.

PAR 463 would require the installation of secondary seals on IFR storage tanks. Staff identified approximately 98 IFR storage tanks within the PAR 463 universe and estimated 22 out of the 98 IFR tanks would need to install secondary seals. Installation would be required the next time the tanks are cleaned and degassed, but no later than 22 years after the date of adoption of PAR 463.

Lastly, PAR 463 would require performance testing on fixed-roof tank VRUs to ensure they meet the 98 percent efficiency standard. Staff identified approximately 479 storage tanks that will need VRU performance testing.

The cost analysis uses a forecast period from 2024-2080 in order to annualize all the costs associated with doming and secondary seal installation within equipment lifetime. The cost estimates of complying with

PAR 463 over the period from 2024-2080 take into account: 1) the payment of permit fees pertaining to secondary seal and VRU performance testing requirement in 2024; 2) the purchase of OGI cameras in 2025; 3) payment of permit fees pertaining to doming requirement in 2025; 4) the purchase and installation of secondary seals in 2026; 5) the purchase and installation of domes and fire suppression systems in 2027; and 6) performance testing every 10 years for fixed-roof tank VRUs beginning with an initial performance test in 2025.

Compliance Costs

The total present value of the compliance costs of PAR 463 is estimated at \$147.60 million and \$71.77 million with a 1 percent and 4 percent discount rate, respectively. The average annual compliance costs of PAR 463 are estimated to range from \$2.95 million to \$3.47 million, for a 1 percent to 4 percent real interest rate, respectively. The following table presents a summary of the average annual cost of PAR 463 by cost category.

Cost Categories	Annual Average Cost of PAR 463 (2024 – 2080)	
	1% Real Interest Rate	4% Real Interest Rate
Capital/One-time Costs		
Domed EFR - Materials	\$212,052	\$375,747
Domed EFR - Installation	\$212,052	\$375,747
Domed EFR - Permitting	\$2,824	\$5,004
Domed EFR - Title V Fee (Permit Revision)	\$749	\$1,327
Domed EFR - Fire Suppression System	\$40,483	\$71,733
Secondary Seal - Installation and Materials	\$17,820	\$22,979
Secondary Seal - Title V Fee (Permit Revision)	\$1,180	\$1,521
Secondary Seal - Permitting	\$4,538	\$5,852
OGI Camera	\$1,121,514	\$1,271,843
VRU - Title V Revision and Permitting	\$1,403	\$1,403
Recurring Costs		
Domed EFR - Operating and Maintenance	\$48,421	\$48,421
Secondary Seal - Operating and Maintenance	\$5,118	\$5,118
OGI - Operating and Maintenance	\$134,105	\$134,105
OGI - Inspection Labor	\$929,796	\$929,796
VRU Testing	\$218,491	\$218,491
Total	\$2,950,547	\$3,469,089

Using a 4 percent real interest rate, this analysis indicates roughly 67 percent of the annual average compliance cost would result from OGI inspections, followed by doming (25 percent), VRU testing (6 percent), and secondary seals (1 percent).

Job Impacts

Direct costs and corresponding revenues of PAR 463 are used as inputs to the Regional Economic Models, Inc (REMI PI+) model to assess job impacts and secondary/induced impacts for all the industries in the four-county economy on an annual basis from 2024 to 2080.

When the compliance cost is annualized using a 4 percent real interest rate, the REMI analysis forecasted 25 net jobs foregone annually in the 4-county economy on average over the forecast period, relative to the baseline forecast. The 25 annual jobs forgone represent approximately 0.0002 percent of total annual jobs in the four-county area.

The largest job loss is projected to occur in 2056, when most of the PAR 463 requirements that have cost impacts are fully implemented. In 2056, PAR 463 is projected to result in 43 jobs foregone relative to the baseline scenario according to the REMI model simulation.

**Competitiveness
and Price
Impacts**

The overall impact of PAR 463 on production cost and delivered prices in the region is not expected to be substantial. According to the REMI Model, PAR 463 is projected to increase the relative delivered price of products produced by the Oil and Gas Extraction industry by a maximum of 0.016 percent in 2025, relative to the baseline. The relative cost of production for the Oil and Gas Extraction industry is forecasted to increase by a maximum of 0.488 percent relative to the baseline scenario, which is expected to occur in 2025.

INTRODUCTION

Rule 463 – Organic Liquid Storage, limits VOC emissions from tanks storing organic liquids. This rule applies to any above-ground stationary tank with a capacity of 19,815 gallons or greater used for storage of organic liquids, and any above-ground tank with a capacity between 251 gallons and 19,815 gallons used for storage of gasoline. Rule 463 also applies to stationary tanks with a potential for VOC emissions of six tons per year (tpy) or more used in crude oil and natural gas production operations. Rule 463 requires tanks that meet the capacity and vapor pressure requirements to install control equipment based on tank type. Control requirements include specifications for tank roofs, seals, emission control systems, and covers for roof openings. For some specific types of tanks, inspection and monitoring is also required. Rule 463 tank types include fixed roof, internal floating roof (IFR), and external floating roof (EFR). Rule 463 was adopted in August 1977 and last amended in 2023.

PAR 463 was developed to further limit VOC emissions from tanks storing organic liquids by establishing more stringent leak detection and control requirements. Specifically, PAR 463 seeks to establish requirements for: 1) periodic OGI inspections with contingency measures to fulfill ozone attainment plan requirements; 2) doming EFR storage tanks; 3) installing secondary seals on IFR storage tanks; and 4) increasing the control efficiency on fixed-roof storage tank VRUs.¹

PAR 463 would affect approximately 1,600 storage tanks at 429 facilities in the South Coast AQMD jurisdiction.

LEGISLATIVE MANDATES

The legal mandates directly related to the socioeconomic impact assessment of PAR 463 include South Coast AQMD Governing Board resolutions and various sections of the Health and Safety Code.

South Coast AQMD Governing Board Resolution

On March 17, 1989, the South Coast AQMD Governing Board adopted a resolution that requires an analysis of the economic impacts associated with adopting and amending rules and regulations that considers all of the following elements:

- Affected industries;
- Range of probable costs;
- Cost-effectiveness of control alternatives; and
- Public health benefits.

Health and Safety Code Requirements

The state legislature adopted legislation which reinforces and expands the South Coast AQMD Governing Board resolution requiring socioeconomic impact assessments for rule development projects. Health and Safety Code Section 40440.8, which went into effect on January 1, 1991, requires a socioeconomic impact assessment for any proposed rule, rule amendment, or rule repeal

¹ For more information and background on why PAR 463 was developed, ~~the Coachella Valley Contingency Measure State Implementation Plan (SIP)~~ please see Chapter 1 Background Section of Draft Staff Report for PAR 463, <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-463>. The Final Staff Report is located in Attachment G of the June 7, 2024 Governing Board package for PAR 463, which upon posting, will be available 72 hours prior to the Governing Board meeting at <https://www.aqmd.gov/home/news-events/meeting-agendas-minutes>.

which "will significantly affect air quality or emissions limitations."

To satisfy the requirements in Health and Safety Code Section 40440.8, the scope of the socioeconomic impact assessment should include all of the following information:

- Type of affected industries;
- Impact on employment and the regional economy;
- Range of probable costs, including those to industry;
- Availability and cost-effectiveness of alternatives to the rule;
- Emission reduction potential; and
- Necessity of adopting, amending, or repealing the rule in order to attain state and federal ambient air quality standards.

Health and Safety Code Section 40728.5, which went into effect on January 1, 1992, requires the South Coast AQMD Governing Board to: 1) actively consider the socioeconomic impacts of regulations; 2) make a good faith effort to minimize adverse socioeconomic impacts; and 3) include small business impacts. To satisfy the requirements in Health and Safety Code Section 40728.5, the socioeconomic impact assessment should include the following information:

- Type of industries or business affected, including small businesses; and
- Range of probable costs, including costs to industry or business, including small business.

Finally, Health and Safety Code Section 40920.6, which went into effect on January 1, 1996, requires an incremental cost-effectiveness analysis for a proposed rule or amendment which imposes Best Available Retrofit Control Technology (BARCT) or "all feasible measures" requirements relating to emissions of ozone, carbon monoxide (CO), sulfur oxides (SO_x), nitrogen oxides (NO_x), VOC, and their precursors. A cost-effectiveness analysis was conducted for PAR 463 and can be found in Chapter 4 of the PAR 463 ~~Draft~~ Final Staff Report.²

AFFECTED FACILITIES

PAR 463 would affect 1,600 storage tanks at 429 facilities in the four-county area. Out of the 429 affected facilities, 320 are located in Los Angeles County, 94 are located in Orange County, 10 are located in San Bernardino County, and five are located in Riverside County. Table 1 presents the number of affected facilities by industry. The majority of the affected facilities are in the Oil and Gas extraction sector (78.3 percent), followed by the Wholesale Trade sector (7.0 percent) and the Petroleum and Coal Products Manufacturing sector (4.2 percent).

² South Coast AQMD, Draft Staff Report for Proposed Amended Rule 463 – Organic Storage Liquid, <http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/rule-463/par-463-draft-staff-report-5-7-24.pdf>, accessed May 2024. The Final Staff Report is located in Attachment G of the June 7, 2024 Governing Board package for PAR 463, which upon posting, will be available 72 hours prior to the Governing Board meeting at <https://www.aqmd.gov/home/news-events/meeting-agendas-minutes>.

Table 1
Affected Facilities by Industry

NAICS	Industry Name	Number of Facilities	Percentage of Facilities
211	Oil and gas extraction	336	78.3%
42	Wholesale trade	30	7.0%
324	Petroleum and coal products manufacturing	18	4.2%
325	Chemical manufacturing	9	2.1%
493	Warehousing and storage	7	1.6%
562	Waste management and remediation services	6	1.4%
486	Pipeline transportation	5	1.2%
213	Support activities for mining	3	0.7%
327	Nonmetallic mineral product manufacturing	2	0.5%
339	Miscellaneous manufacturing	2	0.5%
312	Beverage and tobacco product manufacturing	2	0.5%
92	State and Local Government	1	0.2%
22	Utilities	1	0.2%
811	Repair and maintenance	1	0.2%
54	Professional, scientific, and technical services	1	0.2%
332	Fabricated metal product manufacturing	1	0.2%
311	Food manufacturing	1	0.2%
326	Plastics and rubber product manufacturing	1	0.2%
481	Air transportation	1	0.2%
622	Hospitals	1	0.2%
Total		429	100%

SMALL BUSINESS

The South Coast AQMD defines a “small business” in Rule 102 for purposes of fees as one which employs 10 or fewer persons and which earns less than \$500,000 in gross annual receipts. The South Coast AQMD also defines “small business” for the purpose of qualifying for access to services from the South Coast AQMD’s Small Business Assistance Office as a business with an annual receipt of \$5 million or less, or with 100 or fewer employees. In addition to the South Coast AQMD’s definition of a small business, the United States (U.S.) Small Business Administration and the federal 1990 Clean Air Act Amendments (1990 CAAA) each have their own definition of a small business.

The 1990 CAAA classifies a business as a “small business stationary source” if it: 1) employs 100 or fewer employees; 2) does not emit more than 10 tons per year of either VOC or NO_x; and 3) is a small business as defined by the U.S. Small Business Administration. Based on firm revenue and employee count, the U.S. Small Business Administration definition of a small business varies by six-digit NAICS codes.³ For example, according to the U.S. Small Business Administration definition, a business with less than 1,250 employees in the sector of Crude Petroleum Extraction (NAICS 211120) is classified as a small business, while a business in the Petroleum Bulk Stations

³ U.S. Small Business Administration, 2023 Small Business Size Standards, <https://www.sba.gov/document/support-table-size-standards>, accessed March 29, 2024.

and Terminals (NAICS 424710) sector is considered a small business with only 225 employees.

South Coast AQMD mostly relies on Dun & Bradstreet data to conduct small business analyses for private companies. In cases where the Dun & Bradstreet data are unavailable or unreliable, other external data sources such as Manta, Hoover, LinkedIn, and company website data will be used. The determination of data reliability is based on data quality confidence codes in the Dun & Bradstreet data as well as staff's discretion. Revenue and employee data for publicly owned companies are gathered from Securities and Exchange Commission (SEC) filings. Since subsidiaries under the same parent company are interest-dependent, the revenue and employee data of a facility's parent company will be used for the determination of its small business status. Staff excluded government owned facilities from the small business analysis, which left 423 of the 429 affected facilities. Employment and revenue estimates from 2024 Dun and Bradstreet data as well as other external sources are available for only 378 facilities. Note that although the employment and revenue data for some facilities are unknown or missing, the current data used for this small business analysis represent the most thorough and accurate information obtainable as of the date of this draft report. The number of affected facilities that are small businesses based on each of the three definitions is presented in Table 2.:

Table 2
Number of Affected Small Business Facilities Based on Various Definitions

Definition	Number of Facilities
South Coast AQMD Rule 102	63
South Coast AQMD's Small Business Assistance Office	262
U.S. Small Business Administration	282

Note that staff was unable to conduct a small business analysis for the 1990 CAAA definition of a small business as most of the facilities are not required to submit annual emission reports pursuant to South Coast AQMD Rule 222.⁴

⁴ South Coast AQMD, Rule 222 – Filling Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II, <https://www.aqmd.gov/docs/default-source/rule-book/reg-ii/Rule-222.pdf>, accessed April 11, 2024.

COMPLIANCE COST

The key requirements of PAR 463 that would have cost impacts for the affected facilities include: 1) periodic OGI inspections for leak detection; 2) doming of EFR storage tanks; 3) installation of secondary seals on IFR storage tanks; and 4) periodic performance testing on fixed-roof storage tank VRUs.

PAR 463 would require one-time investments in: 1) OGI cameras; 2) doming materials and installation; 3) fire suppression systems for EFR tanks that will be domed; 4) secondary seal materials and installation; and 5) permit and Title V revision fees. In addition, the affected facilities would also incur recurring O&M costs for domes, secondary seals, and OGI cameras, bi-weekly labor costs for OGI inspections, and performance testing costs on fixed-roof tank VRUs every 10 years. The compliance cost for PAR 463 is forecasted for a 57-year period from 2024 to 2080.

Costs assumptions for PAR 463 were obtained from a variety of sources including the 2023 rule amendments for Rule 1178 and the ongoing rule development for Proposed Amended Rule 1148.1.^{5,6} All the costs discussed in this Socioeconomic Impact Assessment are presented in 2023 dollars. The estimation procedure and assumptions for each cost category are discussed in the following sections.

Capital or One-Time Costs

Doming

PAR 463 requires facilities to install a dome on each EFR tank storing organic liquid with a TVP of 3 psia or greater. A domed roof is defined as a self-supporting fixed roof attached to the top of an EFR tank to reduce evaporative losses.⁷ Staff identified 89 EFR tanks that would potentially be affected by PAR 463 doming requirements. According to the PAR 463 ~~Draft~~ Final Staff Report, a random sample of 35 EFR tanks from the total affected universe of 89 tanks indicated that eight tanks (23%) already have domes installed, 20 tanks (57%) are below the TVP threshold, and seven tanks (20%) would be required to install domes. In addition, in response to stakeholders' comments, the number of tanks relied upon to conduct a cost analysis for doming was increased from seven to nine to include two additional tanks with diameters of 253 and 299 feet, respectively. Staff estimated that 20 tanks would be required to have domes installed in accordance with PAR 463 requirements. The timing of when the domes would be installed on EFR tanks is expected to occur during the next internal API 653 inspection or the next time a tank is cleaned and degassed, but not to exceed 23 years after a test verifies that the organic liquid stored in a tank has a TVP of

⁵ South Coast AQMD, September 2023, Governing Board Meeting Agenda No. 34, Rule 1178 - Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities Amendment Process, <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2023/2023-Sep1-034.pdf>, accessed April 9, 2024.

⁶ South Coast AQMD, Proposed Amended Rule 1148.1 – Oil and Gas Production Wells Development Process, <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-1148-1>, accessed April 9, 2024.

⁷ South Coast AQMD, Draft Rule Language for Proposed Amended Rule 463 – Organic Liquid Storage, <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-463>, accessed May 2024. Final Rule Language for PAR 463 is located in Attachment F of the June 7, 2024 Governing Board package, which upon posting, will be available 72 hours prior to the Governing Board meeting at <https://www.aqmd.gov/home/news-events/meeting-agendas-minutes>.

3 psia or greater.⁸ Based on this provision, installations of domes on the estimated 20 EFR tanks would occur as early as 2027 but no later than 2048, based on an anticipated equipment life of 50 years. This analysis assumes that an equal portion of the 20 EFR tanks will be domed in each year over the period from 2027 to 2048.

The cost of doming varies substantially depending on the diameter of the tank. During the 2023 amendments to Rule 1178, cost estimates from vendors and facilities were analyzed for tanks across a range of diameters and doming costs were found to increase exponentially with diameter.⁵ Cost curves created from best fit equations that relied on this data were then relied upon in this analysis to estimate doming costs.

In addition, the diameters of the seven tanks from the initial 35-tank sample as well as the two additional, larger tanks noted by stakeholders were included as inputs to the cost curves. The total estimated cost to dome nine tanks was then used to proportionally extrapolate the total doming costs of the universe of 20 tanks that would need to have domes installed in accordance with the requirements of PAR 463. Specifically, the cost to dome the nine sample tanks (45% of the estimated number of tanks required to dome) was multiplied by 1/.45 to estimate the total costs to dome all 20 tanks. The total capital cost to purchase and install domes under this method is estimated to be \$22,000,000 for the 20 EFR tanks.

Fire Suppression Systems

The analysis assumed that for each EFR tank needing a dome installed, a fire suppression system would also be required. The fire suppression system is expected to cost \$105,000 per EFR tank according to quotes provided by vendors. The installation of the fire suppression system is assumed to occur in the same year as the dome installation and is anticipated to have a 50-year useful life. The total capital cost across all affected facilities attributed to fire suppression systems for the 20 EFR tanks is estimated to be \$2,100,000.

Secondary Seals

PAR 463 requires facilities to install secondary seals on IFR tanks. A secondary seal is a seal mounted above the primary seal of a rim seal system that consists of two seals and 98 IFR tanks were identified that would potentially require the installation of secondary seals. However, according to permit data, approximately 22 of the 98 IFR tanks have not already installed secondary seals. PAR 463 would require secondary seals to be installed the next time an IFR tank is cleaned and degassed, but no later than 22 years after the date of adoption. Based on this provision, secondary seal installations would take place as early as 2026 and no later than 2046, with an anticipated equipment life of 20 years. This analysis assumes that the number of EFR tanks that have secondary seals installed is evenly distributed over the 2026-2046 period.

Secondary seal costs are based on the linear footage of the IFR's circumference. Installing each secondary seal would involve the following costs: equipment, installation, and permit application

⁸ Please note that the effective date of this provision is June 7, 2027, to allow for planning and budgetary considerations. For more information see Draft Rule Language for PAR 463, <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-463>. Final Rule Language for PAR 463 is located in Attachment F of the June 7, 2024 Governing Board package, which upon posting, will be available 72 hours prior to the Governing Board meeting at <https://www.aqmd.gov/home/news-events/meeting-agendas-minutes>.

fees. Costs were obtained from the Final Staff Report for Rule 1178 and estimated to be \$220 per foot.⁹

The analysis estimated the average cost of secondary seal materials and installation to be approximately \$18,700 per tank, based on the average tank diameter of 85 feet of the 22 IFR tanks that do not already have secondary seals installed. The total capital cost across all affected facilities attributed to secondary seal materials and installation is estimated to be \$411,400.

OGI Cameras

PAR 463 requires facilities to monitor storage tanks for leaks by conducting inspections with an OGI device every other calendar week (biweekly) for all tanks as well as semi-annual component inspections. An OGI device as defined as an infrared camera with a detector capable of visualizing gases in the 3.2-3.4 micrometer waveband.⁷ Approximately 1,600 tanks would be subject to PAR 463; however, only above-ground stationary tanks with a capacity > 19,815 gallons storing organic liquid with TVP \geq 1.5 psi, above-ground stationary tanks with a capacity \geq 39,630 gallons storing organic liquid with TVP \geq 0.5 psi, above-ground tanks used to store gasoline with a capacity between 251 gallons and 19,815 gallons, and stationary tanks with a potential for VOC emissions of 6 tons per year or greater year used in crude oil and natural gas production operations will be subject to OGI inspections. Approximately 679 tanks located at 429 facilities would be subject to the OGI monitoring requirement and this analysis assumes that each parent company that operates an affected facility will purchase one OGI camera. Estimates indicate that there are 91 parent companies which own the 429 facilities that may be subject to PAR 463, and that these companies would purchase OGI cameras in 2025.¹⁰

Costs for OGI cameras were previously obtained from the 2023 amendments to Rule 1178 as well as from the ongoing development of PAR 1148.1 and OGI camera costs are estimated at \$120,000 per device, with an anticipated equipment lifetime of 10 years. The total capital cost across all affected facilities attributed to OGI cameras is estimated to be \$10,920,000.¹¹

Title V Revisions and Permitting

Facilities with tanks subject to the doming and secondary seal requirements in PAR 463 will need to revise their Title V facility permits. In addition, there are 24 Title V facilities that will be subject to the VRU performance testing requirement and their Title V facility permits will need to be revised accordingly. The Title V permit revisions are estimated to cost \$1,857 per revision.

PAR 463 would require affected facilities to submit a permit application for dome and secondary seal installations with a permit application fee of approximately \$7,002 and \$7,143 for installing a dome and secondary seal, respectively. Considering the timing between the submittal date of a

⁹ South Coast AQMD, September 2023, Governing Board Meeting Agenda No. 34, Proposed Amended Rule 1178 - Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities, Attachment G - Final Staff Report, pg. 94, <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2023/2023-Sep1-034.pdf>.

¹⁰ For more information on cost effectiveness analysis for OGI cameras see Chapter 4 Cost and Cost Effectiveness Analysis Section of the Draft Staff Report for PAR 463, <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-463>. The Final Staff Report is located in Attachment G of the June 7, 2024 Governing Board package for PAR 463, which upon posting, will be available 72 hours prior to the Governing Board meeting at <https://www.aqmd.gov/home/news-events/meeting-agendas-minutes>.

¹¹ Please note that affected facilities would need to repurchase OGI cameras at the end of the camera's useful life (every ten years), which is about five times during the analysis period (2024-2080).

permit application and the issuance of the permit, the permit application and Title V facility permit revision fees are expected to be paid up to two years prior to doming and secondary seal installation.

For the anticipated permits needed for the 24 Title V facilities that will be subject to the VRU performance test requirement in PAR 463, the estimated costs will include: 1) \$1,857, to update the permit conditions of the vapor recovery systems to reflect the new control efficiency standard of 98%; and 2) \$1,476, to incorporate a schedule D modification. The total cost of both Title V permit revisions (\$3,333 per facility) is expected to be paid one year prior to the initial 3-run test scheduled to occur in 2025.

Recurring Costs

Doming Operation and Maintenance

According to feedback from industry stakeholders, domes require minor and infrequent maintenance activities, such as resealing of seams. During the 2023 amendments to Rule 1178, staff estimated the lifetime cost of doming maintenance to increase linearly with tank diameter based on quotes from manufacturers and affected facilities.¹² Based on the average tank diameter of 123 feet of the 20 applicable EFR tanks, staff estimates the average lifetime O&M cost to be \$138,000 per tank. The total cost of these recurring expenses for all 20 EFR tanks is approximately \$2,760,000 over the analysis period. Maintenance activities are not expected to take place immediately and will depend on weather conditions and other variables. For the purpose of this analysis, these costs were assumed to be incurred 20 years into each tank's useful life.

Secondary Seals Operation and Maintenance

Secondary seals would require the replacement of the rubber components of the seal 10 years after installation. The cost to replace the rubber component of the secondary seal depends on the diameter of the IFR tank and is estimated to cost approximately \$42 per foot. Using the average tank diameter of 85 feet, the estimated secondary seal maintenance cost is \$3,570 every 10 years per tank.

OGI Operation and Maintenance

OGI cameras would require annual maintenance and calibration to ensure equipment performance. The annual maintenance cost per camera is approximately \$1,500. OGI camera maintenance costs are anticipated to begin in 2025, which is the year when affected facilities would purchase OGI cameras and would recur on an annual basis throughout the forecast period. The total annual cost of OGI camera maintenance is estimated to be \$136,500 for all the 91 companies.

Labor for OGI Inspections

PAR 463 requires biweekly OGI inspections at each affected facility to detect potential leaks. This analysis assumes that inspections will be conducted by employees of the parent companies which own these facilities, and that inspections can be performed in one day for all the facilities under each parent company's ownership, on average. With an assumed pay rate of \$50 per hour and eight

¹² South Coast AQMD, September 2023, Governing Board Meeting Agenda No. 34, Proposed Amended Rule 1178 - Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities, Attachment G – Final Staff Report, p. 89, <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2023/2023-Sep1-034.pdf>.

hours required to conduct the inspection, the total annual labor cost of OGI inspection is estimated at \$10,400 per parent company (\$50/hour x 8 hours per day x 26 inspection days/year). The total annual labor cost for OGI inspections is estimated to be \$946,400 for all 91 parent companies.

Vapor Recovery Unit (VRU) Performance Tests

PAR 463 requires facilities to conduct performance tests on fixed-roof tank VRUs to ensure they meet the 98 percent efficiency standard. Approximately 479 fixed-roof storage tanks were identified as needing VRU performance testing. Tests are required to be performed within one year of rule adoption, and every 10 years thereafter. The first test is expected to cost \$6,000 per tank for a more robust 3-run test, while the recurring tests every 10 years are estimated to cost \$4,000 per tank for a single-run test. The initial 3-run test is expected to occur in 2025 and the recurring test will occur in 10-year intervals following the initial test. The total costs for VRU performance tests are estimated to be \$2,874,000 for the initial 3-run tests and \$1,916,000 every 10 years for the single-run tests for the 479 affected fixed-roof tanks.

Total Compliance Cost

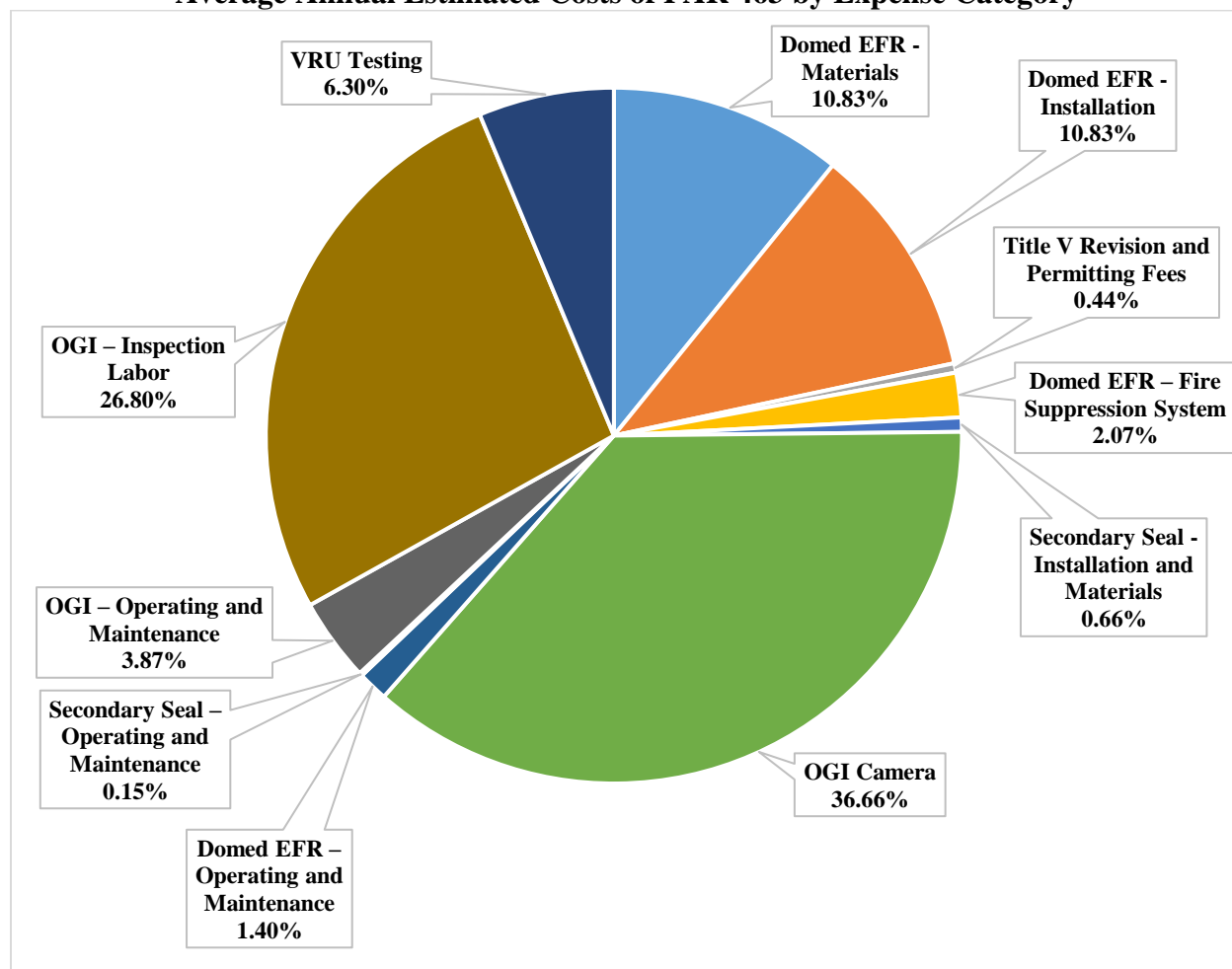
The total compliance cost includes all the estimated costs over a 57-year period, from 2024 to 2080. The total present value of compliance cost is estimated at \$147.60 million and \$71.77 million for a 1 percent and 4 percent discount rate, respectively. The average annual compliance costs of PAR 463 are estimated to range from \$2.95 million to \$3.47 million for a 1 percent to 4 percent real interest rate, respectively. Table 3 presents the estimated present value and average annual compliance cost of PAR 463 by expense categories.

Table 3
Total Present Value and Average Annual Estimated Costs of PAR 463

	Present Worth Value (2024)		Annual Average (2024-2080)	
Cost Categories	1% Discount Rate	4% Discount Rate	1% Real Interest Rate	4% Real Interest Rate
Capital Costs				
Domed EFR - Materials	\$15,209,738	\$6,159,178	\$212,052	\$375,747
Domed EFR - Installation	\$15,209,738	\$6,159,178	\$212,052	\$375,747
Domed EFR - Permitting	\$204,671	\$86,178	\$2,824	\$5,004
Domed EFR -Title V Fee (Permit Revision)	\$54,281	\$22,855	\$749	\$1,327
Domed EFR - Fire Suppression System	\$2,903,677	\$1,175,843	\$40,483	\$71,733
Secondary Seal - Installation and Materials	\$937,056	\$389,623	\$17,820	\$22,979
Secondary Seal - Title V Fee (Permit Revision)	\$68,144	\$35,292	\$1,180	\$1,521
Secondary Seal - Permitting	\$262,120	\$135,753	\$4,538	\$5,852
OGI Camera	\$54,755,818	\$27,658,439	\$1,121,514	\$1,271,843
VRU - Title V Revision and Permitting	\$159,192	\$156,907	\$1,403	\$1,403
Recurring Costs				
Domed EFR - Operating and Maintenance	\$1,980,878	\$760,926	\$48,421	\$48,421
Secondary Seal - Operating and Maintenance	\$199,621	\$70,147	\$5,118	\$5,118
OGI - Operating and Maintenance	\$5,773,544	\$2,916,351	\$134,105	\$134,105
OGI - Inspection Labor	\$40,029,902	\$20,220,036	\$929,796	\$929,796
VRU Testing	\$9,854,123	\$5,826,779	\$218,491	\$218,491
Total	\$147,602,503	\$71,773,485	\$2,950,547	\$3,469,089

Figure 1 presents the estimated average annual compliance costs of PAR 463 by expense category. The expense for OGI camera purchase accounts for 37 percent – the largest share of the average annual compliance cost, followed by OGI inspection labor (27%), doming materials (11%), and doming installation (11%).

Figure 1
Average Annual Estimated Costs of PAR 463 by Expense Category



MACROECONOMIC IMPACTS ON THE REGIONAL ECONOMY

The Regional Economic Models, Inc (REMI) PI+ v3 model was used to assess the socioeconomic impacts of PAR 463.¹³ The model links the economic activities in the counties of Los Angeles, Orange, Riverside, and San Bernardino, and it is comprised of five interrelated blocks: 1) output and demand; 2) labor and capital; 3) population and labor force; 4) wages, prices, and costs; and 5) market shares.¹⁴

It should be noted that the REMI model is not designed to assess impacts on individual operations. The model was used to assess the impacts of the proposed amended rule on various industries that make up the local economy. Cost impacts on individual operations were assessed outside of the REMI model and were aggregated to the 70-sector NAICS code level to be used as inputs into the REMI model.

Impact of PAR 463

This assessment is performed relative to a baseline (“business as usual”) forecast where PAR 463 would not be implemented. The analysis assumed that the affected facilities would finance the capital and one-time costs described above at a 4 percent interest rate, and that these one-time costs are amortized over the useful life of each piece of equipment.

Direct costs of PAR 463 are used as inputs to the REMI model which uses this information to assess secondary and induced impacts for all the industries in the four-county economy on an annual basis over the 2024-2080 period. Direct effects of PAR 463 include the purchase of domed roofs, secondary seals, OGI cameras, and contracting for installation, labor, and other costs discussed in the compliance cost section above. The total cost of each item is allocated to the four counties based on the location of affected equipment. For example, since 69 of the 89 identified EFR tanks are located in Los Angeles County, 77.5 percent of the total doming costs will be allocated to Los Angeles County in the REMI Model.

While the compliance expenditures that are incurred by affected facilities would increase their cost of doing business, the purchase of required equipment and services would increase the sales and subsequent spending of businesses in various sectors, some of which may be located in South Coast AQMD’s jurisdiction. Table 4 lists the 70-sector NAICS codes modeled in REMI that would either incur direct cost or directly benefit from the compliance spending.

¹³ Regional Economic Modeling Inc. (REMI). Policy Insight® for the South Coast Area (70-sector model). Version 3. 2023.

¹⁴ Within each county, producers are made up of 156 private non-farm industries and sectors, three government sectors, and a farm sector. Trade flows are captured between sectors as well as across the four counties and the rest of U.S. Market shares of industries are dependent upon their product prices, access to production inputs, and local infrastructure. The demographic/migration component has 160 ages/gender/race/ethnicity cohorts and captures population changes in births, deaths, and migration. (For details, please refer to REMI online documentation at <http://www.remi.com/products/pi>).

Table 4
Industries Incurring and Benefitting from Compliance Costs/Spending

Source of Compliance Cost	REMI Industries Incurring Compliance Cost (NAICS)	REMI Industries Benefitting from Compliance Spending (NAICS)
Doming Installation	Oil and gas extraction (211) Wholesale trade (42) Petroleum and coal products manufacturing (324) Chemical manufacturing (325) Warehousing and storage (493) Waste management and remediation services (562) Pipeline transportation (486) Support activities for mining (213) Nonmetallic mineral product manufacturing (327) Miscellaneous manufacturing (339) Beverage and tobacco product manufacturing (312) State and Local Government (92) Utilities (22) Repair and maintenance (811) Professional, scientific, and technical services (54) Fabricated metal product manufacturing (332) Food manufacturing (311) Plastics and rubber product manufacturing (326) Air transportation (481) Hospitals (622)	Construction (23)
Doming Materials		Fabricated metal product manufacturing (332)
Permitting and Title V Fees		State and Local Government (92)
Doming Fire Suppression System		Construction (23)
Secondary Seals Installation and Materials		Construction (23)
OGI Camera		Computer and Electronic Product Manufacturing (334)
Doming O&M		Fabricated metal product manufacturing (332)
Secondary Seals O&M		Construction (23)
OGI O&M		Computer and Electronic Product Manufacturing (334)
OGI Labor Costs		All Industries Benefitting from OGI Labor*
VRU Performance Tests		Professional, scientific, and technical services (54)

*Labor for OGI inspections is modeled as additional compensation in each affected industry, reflecting the assumption that these inspections would be performed by existing employees of affected facilities working overtime.

Regional Job Impacts

When the compliance cost is annualized using a 4 percent real interest rate, the REMI model projects that there will be 25 foregone jobs annually on average over the 2024 – 2080 period relative to the baseline forecast. The sectors of Professional, Scientific, and Technical Services, Construction, and State and Local Government are expected to forego four, three, and three jobs annually, respectively, on average relative to the baseline forecast, while the Computer and Electronic Product Manufacturing industry is anticipated to gain one job annually on average. Table 4 presents the forecasted jobs foregone or added for selected years in the sectors with the largest magnitude of average annual job impacts. The “Other Industries” row in Table 5 shows the sum of job impacts for all the other industries excluding the 10 selected industries presented

in the table.

Table 5
Projected Job Impacts of PAR 463 for Selected Industries and Years

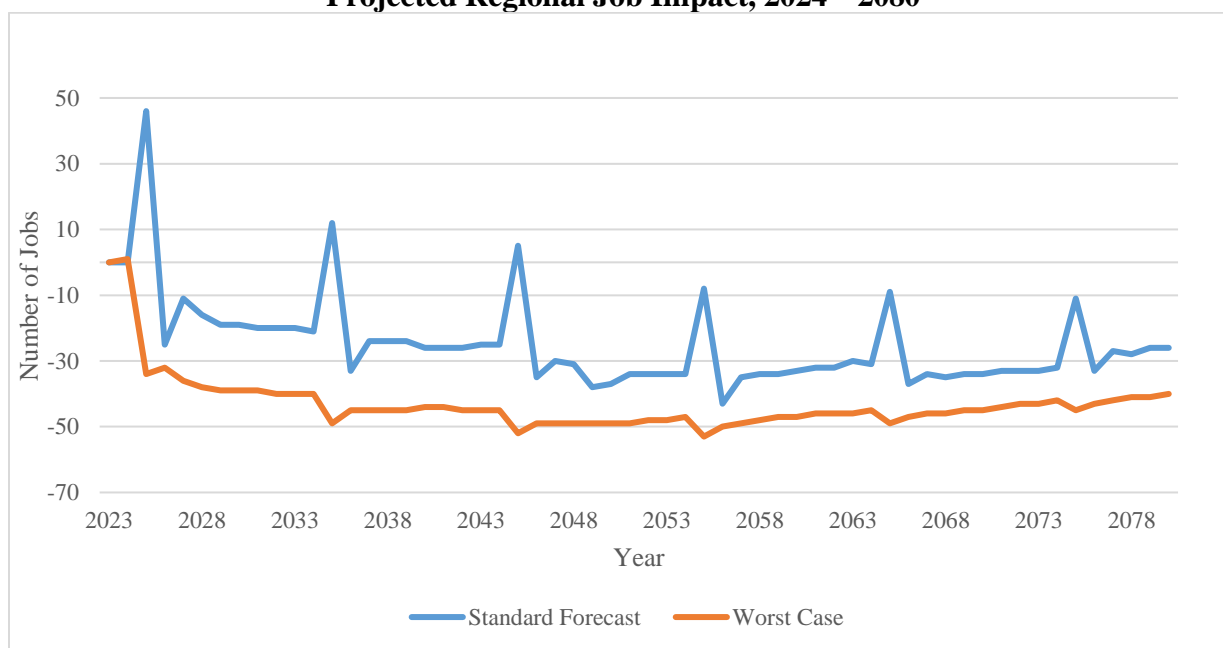
Industry	2025	2030	2050	2070	Annual Average (2024-2080)	Baseline Number of Jobs	% Of Baseline
Professional, scientific, and technical services (54)	17	-3	-6	-6	-4	1,103,469	-0.0004%
Construction (23)	0	-4	-6	-3	-3	564,165	-0.0006%
State and Local Government (NA)	2	-2	-4	-4	-3	988,219	-0.0003%
Oil and gas extraction (211)	-2	-3	-3	-2	-3	2,394	-0.1077%
Retail trade (44-45)	1	-2	-3	-3	-2	850,353	-0.0003%
Administrative and support services (561)	3	-2	-3	-3	-2	920,724	-0.0002%
Real estate (531)	1	-1	-2	-2	-2	581,801	-0.0003%
Wholesale trade (42)	2	-1	-2	-2	-2	734,489	-0.0002%
Food services and drinking places (722)	0	-1	-2	-1	-1	420,839	-0.0003%
Computer and electronic product manufacturing (334)	12	0	0	0	1	138,827	0.0006%
Other Industries	10	0	-6	-8	-4	6,026,573	-0.0001%
All Industries	46	-19	-37	-34	-25	12,331,853	-0.0002%

In addition, in 2013, South Coast AQMD contracted with Abt Associates Inc. to review the South Coast AQMD socioeconomic assessments for Air Quality Management Plans and individual rules with the goal of providing recommendations that could enhance South Coast AQMD's socioeconomic analyses. In 2014, Abt Associates Inc. published a report which included a recommendation for South Coast AQMD to enhance socioeconomic analyses by testing major assumptions through conducting a scenario analysis. As such, South Coast AQMD generally includes an alternative worst-case scenario in Socioeconomic Impact Assessments which analyzes a scenario that assumes the affected facilities would purchase all feasible monitoring equipment and services from providers located outside of the South Coast AQMD's jurisdiction.¹⁵ Permitting

¹⁵ Abt Associates Inc., August 2014, Review of the SCAQMD Socioeconomic Assessments, Chapter 6, Section 3, <https://www.aqmd.gov/docs/default-source/Agendas/aqmp/scaqmd-report---review-socioeconomic-assessments.pdf>, accessed April 2, 2024.

fee revenues were included in this scenario, as these permits are for equipment operating within the Basin and must be obtained from South Coast AQMD. In simple terms, this alternative worst-case scenario only models the impacts of the costs of compliance with PAR 463 while excluding the majority of revenues which would benefit equipment and service providers. This hypothetical scenario is designed to test the sensitivity of the embedded assumptions in the REMI model about how compliance costs and revenues would be distributed inside and outside of South Coast AQMD's jurisdiction. In practice, construction is likely to be provided by local companies and OGI inspections are likely to be performed by company employees. This worst-case scenario would result in an annual average of approximately 39 jobs foregone relative to the baseline scenario. The 39 jobs foregone represent a negligible portion of the average forecasted baseline jobs in the regional economy at an estimated 0.0003 percent. Figure 2 presents the projected regional job impacts over the 2024 – 2080 period for both the standard and the worst-case forecasts.

Figure 2
Projected Regional Job Impact, 2024 – 2080



Price Impact and Competitiveness

The impact of PAR 463 on production costs and delivered prices in the region is not expected to be substantial. In the Oil and Gas Extraction industry, which bears the majority of compliance costs associated with PAR 463, the REMI model projects an average increase in relative delivered prices of 0.007 percent over the forecast period, with a maximum increase of 0.016 percent forecasted in the year 2025. The relative cost of production for the Oil and Gas Extraction industry is forecasted to increase by 0.223 percent on average relative to the baseline scenario, with a maximum increase of 0.488 percent expected to occur in 2025. The larger percentage increase in the cost of production relative to delivered prices suggests companies in the Oil and Gas Extraction industry are largely unable to pass on additional costs to consumers. However, the small magnitude of the production cost increase implies that firms in the Oil and Gas Extraction industry should be able to absorb these costs.

REFERENCES

Abt Associates Inc., August 2014, Review of the SCAQMD Socioeconomic Assessments, Chapter 6, Section 3, <https://www.aqmd.gov/docs/default-source/Agendas/aqmp/scaqmd-report---review-socioeconomic-assessments.pdf>.

Regional Economic Modeling Inc. (REMI), Policy Insight® for the South Coast Area (70-sector model). Version 3, 2023.

South Coast AQMD, April 2023, Rule 222 – Filling Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II, <https://www.aqmd.gov/docs/default-source/rule-book/reg-ii/Rule-222.pdf>.

South Coast AQMD, January 2024, Proposed Amended Rule 1148.1 – Oil and Gas Production Wells Development Process, <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-1148-1>.

South Coast AQMD, September 2023, Governing Board Meeting Agenda No. 34, Rule 1178 - Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities Amendment Process, <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2023/2023-Sep1-034.pdf>.

South Coast AQMD, September 2023, Governing Board Meeting Agenda No. 34, Proposed Amended Rule 1178 - Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities, Attachment G - Final Staff Report, <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2023/2023-Sep1-034.pdf>.

South Coast AQMD, May 2024, Draft Rule Language for Proposed Amended Rule 463 - Organic Liquid Storage, <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-463>.

South Coast AQMD, May 2024, Draft Staff Report for Proposed Amended Rule 463 - Organic Liquid Storage, <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-463>.

United States Small Business Administration, March 2023, Table of Small Business Size Standards, <https://www.sba.gov/document/support-table-size-standards>.



Proposed Amended Rule 463 – Organic Liquid Storage

Board Meeting
June 7, 2024



Background and Need for PAR 463

Rule 463 was adopted in 1977 to reduce volatile organic compound (VOC) emissions from above-ground organic liquid storage tanks

Proposed Amended Rule 463 (PAR 463) affects 429 facilities and approximately 1,600 tanks

Rule development was initiated in response to:

Objectives in the Wilmington, Carson, West Long Beach Community Emission Reduction Plan (CERP) and the South Los Angeles CERP

Implement control measures in the 2012, 2016, and 2022 Air Quality Management Plans



Key Proposals in PAR 463

Require optical gas imaging (OGI) tank farm inspections every other week for all tanks and semi-annual OGI component inspections for floating roof tanks

Require the installation of domes on external floating roof tanks storing higher volatility products

Require secondary seals and more stringent seal gap requirements for all floating roof tanks

Increase vapor recovery emission control efficiency from 95% to 98% for fixed roof tanks

Cost-Effectiveness and Emission Reductions

The overall rule cost-effectiveness of PAR 463 is \$27,300*

Proposed Requirement	Cost-Effectiveness	Emission Reductions (tons per day)	Implementation Date
OGI Monitoring	\$15,400	0.40	July 1, 2025
Doming	\$24,800	0.05	When the tank is next emptied (no later than 23 years)
Secondary Seals	\$6,700	0.01	When the tank is next emptied (no later than 22 years)

*The overall rule cost-effectiveness includes the costs associated with performance testing and permitting for vapor recovery units, but does not include the corresponding emission reductions as it is assumed facilities are already meeting the proposed standard

Contingency Measures

The Clean Air Act requires air districts to implement contingency measures for any area classified as “serious” or above for nonattainment of National Ambient Air Quality Standards (NAAQS)

PAR 463 includes contingency measures for both the Coachella Valley and the South Coast Air Basin for multiple ozone NAAQS

If triggered, some facilities would be required to conduct more frequent (weekly) OGI inspections

Triggers are failure to meet a reasonable further progress milestone or attain an ozone NAAQS



CEQA and Socioeconomic Analysis

6

An Environmental Assessment was prepared pursuant to the California Environmental Quality Act (CEQA)

- Analyzed impacts from installation of domes and additional secondary seals

- Analysis concluded no significant environmental impacts

- No public comments were received

Socioeconomic Impact Assessment was conducted

- ~ 429 affected facilities with 1,600 tanks across four county region

- For 2024-2080, average annual cost = \$3.47 million at 4 percent interest rate

- ~ 25 jobs foregone annually on average using 4 percent real interest rate

BOARD MEETING DATE: June 7, 2024

AGENDA NO. 26

PROPOSAL: Determine That Proposed Amended Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters, Small Boilers and Process Heaters does not require a new environmental document; and Amend Rule 1146.2

SYNOPSIS: Rule 1146.2 applies to units that are between 75,000 and 2,000,000 Btu/hour that are exempt from permitting. Proposed Amended Rule 1146.2 (PAR 1146.2) proposes to require a zero- NOx emission limit for new installations of applicable large water heaters, small boilers, and process heaters based on future effective dates, implementing a 2022 AQMP Control Measure necessary to meet the NAAQS ozone standards. PAR 1146.2 proposes zero-emission limits for existing units after the unit reaches a specific age, with an allowance for units installed at residential structures and small businesses to comply with the zero-emission limits upon natural replacement, and provides alternative compliance options and a low-use exemption to address challenges transitioning to zero-emission technologies. In addition, PAR 1146.2 clarifies existing rule language, removes obsolete provisions, and is a later activity within scope of Final Program Environmental Impact Report for 2022 AQMP such that no new environmental document will be required.

COMMITTEE: Stationary Source, March 15, April 19 and May 17, 2024

RECOMMENDED ACTIONS:

Adopt the attached Resolution:

1. Determining that Proposed Amended Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters, Small Boilers and Process Heaters, is a later activity within the scope of the Final Program Environmental Impact Report for the 2022 AQMP such that no new environmental document will be required; and
2. Amending Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters, Small Boilers and Process Heaters.

Wayne Nastri
Executive Officer

Background

Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters, Small Boilers and Process Heaters (Rule 1146.2) was adopted in January 1998 to regulate NO_x emissions from natural gas-fired large water heaters, small boilers, and process heaters that have a rated heat input capacity of less than or equal to two million British thermal units (Btu) per hour. This rule does not regulate residential gas-fired tank type water heaters rated less than 75,000 Btu/hr heat input, which are regulated under Rule 1121 – Control of Nitrogen Oxides from Residential-Type, Natural Gas-Fired Water Heaters; however, residential instantaneous water heaters and pool heaters are regulated by Rule 1146.2 due to the higher Btu ratings of those type of units. The provisions of Rule 1146.2 are applicable to manufacturers, distributors, retailers, installers, refurbishers, and operators. Rule 1146.2 applies to more than one million units and the current NO_x limits were established based on a BARCT assessment conducted in 2006 that established the current NO_x emission limits of 20 parts per million by volume (ppmv), except for pool heaters, which remained at 55 ppmv.

South Coast Air Basin has been classified as in “extreme” nonattainment for the 2015 federal 8-hour ozone standard and is subject to requirements of the federal Clean Air Act (CAA). The 2022 AQMP adopted on December 2, 2022, set forth a path for improving air quality and meeting federal air pollution standards by striving for zero-emission technologies across all sectors. The 2022 AQMP included Control Measure C-CMB-01, which seeks 70 to 75 percent NO_x emission reductions by 2037 from commercial building water heating sources; PAR 1146.2 will implement that control measure.

Proposed Amendments

PAR 1146.2 requires applicable large water heaters, small boilers, and process heaters to meet a zero-emission NO_x standard for new equipment installations. The implementation approach and compliance schedule vary by the different categories of equipment and end-user. Earlier zero-emission implementation dates will be required for smaller units, beginning January 1, 2026 for installations in new buildings and January 1, 2029 for units installed in existing buildings; larger units and pool heaters will be required to transition to zero-emission units beginning January 1, 2028 for new buildings and January 1, 2031 for existing buildings, and the latest zero-emission limits will be required for high temperature units, beginning January 1, 2029 for new buildings and January 1, 2033 for existing buildings. The future effective dates will allow time for the technology to further mature, with longer timelines provided for the technologies that are not widely commercially available at time of rule adoption.

PAR 1146.2 allows existing units to reach the end of their unit age, as defined in the rule, before requiring operators to transition to zero-emission technologies. The proposed rule allows units used at residential structures and small businesses to comply with the zero-emission limits upon natural replacement as compared to replacing units at a defined unit age.

To address the challenges and costs associated with PAR 1146.2, several alternative compliance options are included to provide more time to transition to zero-emission technologies if: 1) utility upgrades are required; 2) multiple units are required to be replaced within two consecutive years; 3) an emergency replacement is required; 4) an instantaneous water heater in a mobile home is required to be replaced; 5) a new unit is required in a property under lease relying on landlords for electrical upgrades; and 6) construction is required to expand spacing or relocate a unit. During the extensions provided by the alternative compliance options, if a unit is not operational, or an emergency replacement is needed, PAR 1146.2 allows the use of a temporary unit that is certified to meet the specified low-NOx limit.

Public Process

PAR 1146.2 was developed through a public process that began in the second quarter of 2023 and included five Working Group Meetings on April 26, 2023, June 7, 2023, August 30, 2023, October 19, 2023, and December 13, 2023. The working group is composed of representatives from manufacturers, trade organizations, permit stakeholders, businesses, environmental groups, public agencies, consultants, and other interested parties. A public workshop was held on February 7, 2024, and a public consultation was held on February 23, 2024. Throughout the rulemaking, staff also met with individual stakeholders and conducted site visits to a wide variety of affected facilities.

Emission Reductions

PAR 1146.2 will affect approximately 1,070,000 units in the South Coast AQMD. The rule approach requires the transition to zero-emission units based on unit age and natural replacement; therefore, the emission reductions will occur gradually. At full implementation, PAR 1146.2 is estimated to be 5.6 tons per day (tpd) by 2058.

Key Issues

Throughout the rule development process, staff worked with stakeholders and revised PAR 1146.2 to address key issues. There are three remaining issues: impact on small businesses; limited market availability of zero-emission technologies for high temperature units; and high upfront costs for installing zero-emission equipment.

Impact on Small Businesses

PAR 1146.2 will affect many industries in the South Coast AQMD jurisdiction, including small businesses such as dry cleaning operations. In the case of dry cleaning operations, they operate high temperature units which have later compliance dates (e.g., 2029 for units installed in a new building and 2033 for units installed in an existing building). In addition, several proposed rule provisions will address impacts on small businesses, including a provision that allows small businesses to transition to zero-emission technologies at natural unit replacement instead of replacing units at the defined unit age. The rule also includes a low-use exemption that allows units installed before rule adoption to continue to operate and several alternative compliance options to

extend implementation timelines. These alternative compliance options include: 1) up to a five-year extension if utility upgrades are needed to operate the zero-emission unit; 2) up to a three-year extension if a facility is required to replace multiple units within two consecutive years; 3) up to a seven-year extension if a facility is required to replace multiple units within two consecutive years and utility upgrades are needed to operate the zero-emission unit; 4) up to a six-month extension if a facility needs to use a temporary unit for emergency replacement; 5) up to an eighteen-month extension if construction is required to expand the physical space where the unit is housed or if the unit needs to be relocated; and 6) up to a two-year extension for properties under lease requiring electrical upgrade. Numerous incentive programs are also available to help offset the high upfront costs to transition to zero-emission technologies, including an upcoming South Coast AQMD building appliance rebate program that will incentivize small businesses operating in overburdened areas to install zero-emission appliances.

Limited Market Availability of Zero-Emission Technologies for High Temperature Units
Staff analyzed available zero-emission technologies for each equipment category and acknowledges more time is needed to further develop zero-emission technologies for high temperature applications. To address this concern, PAR 1146.2 proposes later compliance dates (2029-2033) before requiring high temperature units to transition to zero-emission technologies. It is important to adopt future effective zero-emission standards, especially for units that are not yet widely commercially available; establishing zero-emission standards sends a strong market signal and provides certainty to manufacturers to encourage technology advancement. In addition, staff committed to conduct a technology check-in by June 1, 2027, to assess the technology development and market availability of high temperature units.

High Upfront Cost for Installing Zero-Emission Equipment

Some stakeholders object to the transition to zero-emission technologies citing the high upfront cost burden. To address upfront costs to transition to zero emission technologies, PAR 1146.2 requires units to be replaced at the end of the unit age, as defined by the rule; therefore, staff relied on the incremental cost between a conventional unit and a zero-emission unit. Estimated additional incremental capital and installation cost for zero-emission heat pumps ranged from \$675 to \$515,000 per unit; however, upfront costs are partially offset by fuel switching savings over the lifetime operation of the unit (range of \$600 to \$339,000 in operational cost savings). The highest estimated cost was for high temperature units and therefore the rule includes later compliance dates for those units to allow future market adoption to drive down costs. Federal, state, and local incentives could also offset some upfront costs, including the federal Inflation Reduction Act tax credits through 2032 and forthcoming rebates; state-wide TECH Clean California rebates for residential, multifamily, and commercial; the Southern California Edison program implemented by Willdan Energy Solutions; and the upcoming South Coast AQMD building appliance rebate program, which will be applicable to some PAR 1146.2 units. Staff will continue to monitor the cost impacts and provide a status update/technology check-in to the Stationary Source Committee by June 1, 2027.

California Environmental Quality Act (CEQA)

Pursuant to the CEQA and South Coast AQMD's certified regulatory program (Public Resources Code Section 21080.5, CEQA Guidelines Section 15251(l) and South Coast AQMD Rule 110), the South Coast AQMD, as lead agency, reviewed the PAR 1146.2 and determined that: 1) PAR 1146.2 implements the 2022 AQMP Control Measure C-CMB-01 – Commercial Water Heating; and 2) the Final Program Environmental Impact Report (EIR) for the 2022 AQMP evaluated Control Measure C-CMB-01 and analyzed its potential environmental impacts. Since PAR 1146.2 does not involve any new or modified impacts when compared to what was previously analyzed in the Final Program EIR for Control Measure C-CMB-01, PAR 1146.2 qualifies as a later activity within the scope of the program approved earlier for the 2022 AQMP per CEQA Guidelines Section 15168 (c), and the Final Program EIR for the 2022 AQMP adequately describes the activity for the purposes of CEQA such that no new environmental document will be required. The analysis supporting this conclusion can be found in Appendix A of the Final Staff Report (Attachment G to this Board Letter).

Socioeconomic Impact Assessment

The universe of PAR 1146.2 is based on affected units, instead of affected facilities, which is comprised of approximately 1,070,000 water heaters, high temperature units and pool heaters used in residential, commercial, or light industrial settings. Implementation of PAR 1146.2 requires the replacement of all gas-fired units with zero-emission units and unit replacements occurring at existing buildings may also involve upgrades to electrical panels. The timing of the replacement activities will be a gradual process dependent upon reaching the end of each unit's age, or at the natural turnover for units in residential structures and small businesses.

The average annual compliance costs of implementing PAR 1146.2 are estimated to range from \$48.99 million to \$96.77 million, depending on the real interest rate assumed (1 percent to 4 percent). The estimated annual costs are expected to be incurred by nearly all the industries in the South Coast AQMD jurisdiction. When the compliance costs are annualized using a 4 percent real interest rate, an annual average of 1,074 net jobs foregone is projected for the forecast period from 2026-2057. The 1,074 annual jobs foregone represents approximately 0.0084 percent of total annual jobs in the four-county area. The overall impacts of PAR 1146.2 on production cost and delivered price in the South Coast AQMD region are minimal. The details of the Socioeconomic Impact Assessment can be found in Attachment H to this Board Letter.

AQMP and Legal Mandates

Pursuant to Health and Safety Code Section 40460 (a), the South Coast AQMD is required to adopt an AQMP demonstrating compliance with all federal regulations and standards. The South Coast AQMD is required to adopt rules and regulations that carry out the objectives of the AQMP. PAR 1146.2 will implement the 2022 AQMP Control Measure C-CMB-01.

Implementation and Resource Impact

Resource impacts are expected in various divisions including Planning, Rule Development and Implementation, and Compliance and Enforcement; however, at this time, no funds have been reserved for administration and implementation of PAR 1146.2, but additional resources or staffing might be requested in the future.

Attachments

- A. Summary of Proposal
- B. Key Issues and Responses
- C. Rule Development Process
- D. Key Contacts
- E. Resolution
- F. PAR 1146.2
- G. Final Staff Report (Including the CEQA Analysis)
- H. Socioeconomic Impact Assessment
- I. Board Presentation

ATTACHMENT A

SUMMARY OF PROPOSAL

Proposed Amended Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters, Small Boilers and Process Heaters

Purpose

Reduce NOx emissions from water heaters, boilers, and process heaters as defined

Applicability

- Applicable to manufacturers, distributors, retailers, resellers, installers, owners, and operators of units that have a rated heat input capacity less than or equal to 2 MMBtu/hr

Requirements

- Emission limits prior to zero-emission requirements summarized in Table 1

Table 1 – Emission Limits

Equipment Category	NOx Emission Limit*	Carbon Monoxide (CO) Emission Limit*
Type 1 Units, excluding Pool Heaters	14 ng/J or 20 ppmv	N/A**
Type 1 Pool Heaters	40 ng/J or 55 ppmv	N/A**
Type 2 Units	14 ng/J or 20 ppmv	400 ppmv

* Nanograms per Joule (ng/J) of NOx (calculated as NO₂) of Heat Output or the specified ppmv of NOx or CO corrected at 3 percent volume stack gas oxygen (O₂) on a dry basis.

** Type 1 Units are not subject to a CO limit in Rule 1146.2 but may be subject to CO limits by other South Coast AQMD rules.

- Zero-emission requirements by equipment categories with future effective dates summarized in Table 2 and Table 3
 - Units divided into seven equipment categories
 - Zero-emission requirements by three phases, each applicable to specified equipment categories
 - For each phase, earlier compliance dates for new buildings vs. existing buildings

Table 2 – Zero-Emission Limits, Compliance Schedule, and Unit Age

Equipment Category	NOx and CO Emission Limits (ppmv)	Compliance Schedule	Unit Age (years)
Type 1 Unit*	0	Phase I	15

Instantaneous Water Heater ≤ 200,000 Btu/hr	0		25
Instantaneous Water Heater > 200,000 Btu/hr	0	Phase II	25
Type 1 Pool Heater	0		15
Type 2 Unit**	0		25
Type 1 High Temperature Unit	0	Phase III	25
Type 2 High Temperature Unit	0		25

* Referring to a Type 1 Unit that is not a High Temperature Unit, Pool Heater, or Instantaneous Water Heater.

** Referring to a Type 2 Unit that is not a High Temperature Unit or Instantaneous Water Heater.

Table 3 – Compliance Dates for Zero-Emission Limits

Phase	Building Type	Compliance Date
Phase I	New Buildings	January 1, 2026
	Existing Buildings	January 1, 2029
Phase II	New Buildings	January 1, 2028
	Existing Buildings	January 1, 2031
Phase III	New Buildings	January 1, 2029
	Existing Buildings	January 1, 2033

- Units reaching their unit age specified in Table 2 after Table 3 compliance dates of their applicable categories are subject to zero-emission standards, except for units for residential buildings and small businesses as defined by Rule 102
 - Except for residential buildings or small businesses, units reaching rule defined “unit age” after zero-emission compliance dates shall not operate if not meeting zero-emission standards

Unit Age

- Added subdivision on unit age determination

Alternative Compliance Options

- Alternative compliance options are provided for:

Proposed Amended Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters, Small Boilers and Process Heaters

- Up to a five-year extension if a utility upgrade is required and the applicable utility company is unable to provide the necessary power to operate the unit;
- Up to a three-year extension if an owner or operator has five or more units that are required to meet the Table 2 emission limits within two consecutive calendar years pursuant to paragraph (d)(3) with an option to include several extensions if utility upgrades are required beyond the control of the facility;
- Up to six-months for using a temporary gas unit meeting specified emission limits, if an owner or operator of a unit requires a short-term replacement due to sudden unit failure after the applicable Table 3 compliance date and an electrical upgrade to increase the power supply capacity to operate a unit that complies with Table 2 emission limits;
- Up to a four-year extension if an owner or operator has an instantaneous water heater installed prior to the date of rule adoption in a mobile home;
- Up to a two-year extension if an owner or operator of a unit operates the unit in a property under lease; and
- Up to an eighteen-month extension if construction is required to expand the space designed to house the unit, and associated equipment necessary for operating the unit

Labeling, Reporting, and Recordkeeping Requirements

- Labeling is required for:
 - Units supplied or offered for sale in the period between the new building compliance date and the existing building compliance date of the unit equipment category; and
 - Instantaneous water heater with rated heat input capacity of less than or equal to 200,000 Btu/hr supplied or offered for sale for use in a mobile home in the extended period for instantaneous water heaters being installed in mobile homes
- Manufacturers of natural gas-fired units shall submit an annual report for the gas units sold into or within the South Coast AQMD after the zero-emission compliance dates
- Recordkeeping requirements include:
 - General recordkeeping for manufacturer and/or distributor's written instruction, maintenance activities, building permits, and fuel use if under low-use exemption;
 - Rated heat input capacity documentation;
 - Required documents if utilizing alternative compliance options for utility upgrade
 - Required documents if utilizing alternative compliance options for units at a property under lease
 - Required documents if utilizing alternative compliance options for construction
- Small businesses shall register their qualification of small business
- Alternative reporting method is provided for when a report cannot be submitted through the compliance portal

Exemptions

- Units subject to Rule 1121 - Control of Nitrogen Oxides from Residential Type, Natural Gas-fired Water Heaters

Proposed Amended Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters,
Small Boilers and Process Heaters

- Units subject to Rule 1179.1 – Emission Reductions from Combustion Equipment at Publicly Owned Treatment Works Facilities
- Low-use exemption for 9,000 therms per calendar year with an end date on the applicable zero-emission compliance date
- Low-use exemption for 3,000 therms and 2,000 therms per calendar year
- Owners and operators of units installed or used in residential structures need not adhere to the unit age and recordkeeping requirements
- Small businesses need not adhere to the unit age requirement
- Zero-emission units exempted from the certification requirements

ATTACHMENT B

KEY ISSUES AND RESPONSES

Proposed Amended Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters, Small Boilers and Process Heaters

Throughout the rule development process, staff worked with stakeholders and revised PAR 1146.2 to address key issues. There are three remaining issues below that staff has worked on with stakeholders and proposed solutions.

Impact To Small Businesses

PAR 1146.2 will affect many industries in the South Coast AQMD jurisdiction, including small businesses such as dry cleaning operations. In the case of dry cleaning operations, they operate high temperature units which have later compliance dates (e.g., 2029 for units installed in a new building and 2033 for units installed in an existing building). In addition, several proposed rule provisions will address impacts on small businesses, including a provision that allows small businesses to transition to zero-emission technologies at natural unit replacement instead of replacing units at the defined unit age. The rule also includes a low-use exemption that allows units installed before rule adoption to continue to operate and several alternative compliance options to extend implementation timelines. These alternative compliance options include: 1) up to a five-year extension if utility upgrades are needed to operate the zero-emission unit; 2) up to a three-year extension if a facility is required to replace multiple units within two consecutive years; 3) up to a seven-year extension if a facility is required to replace multiple units within two consecutive years and utility upgrades are needed to operate the zero-emission unit; 4) up to a six-month extension if a facility needs to use a temporary unit for emergency replacement; 5) up to an eighteen-month extension if construction is required to expand the physical space where the unit is housed or if the unit needs to be relocated; and 6) up to a two-year extension for properties under lease requiring electrical upgrade. Numerous incentive programs are also available to help offset the high upfront costs to transition to zero-emission technologies, including an upcoming South Coast AQMD building appliance rebate program that will incentivize small businesses operating in overburdened areas to install zero-emission appliances.

Limited Market Availability of Zero-Emission Technologies for High Temperature Units

Staff analyzed available zero-emission technologies for each equipment category and acknowledges more time is needed to further develop zero-emission technologies for high temperature applications. To address this concern, PAR 1146.2 proposes later compliance dates (2029-2033) before requiring high temperature units to transition to zero-emission technologies. It is important to adopt future effective zero-emissions standards, especially for units that are not yet widely commercially available; establishing zero-emission standards now

sends a strong market signal and provides certainty to manufacturers to encourage technology advancement. In addition, staff committed to conduct a technology check-in by June 1, 2027, to assess the technology development and market availability of high temperature units.

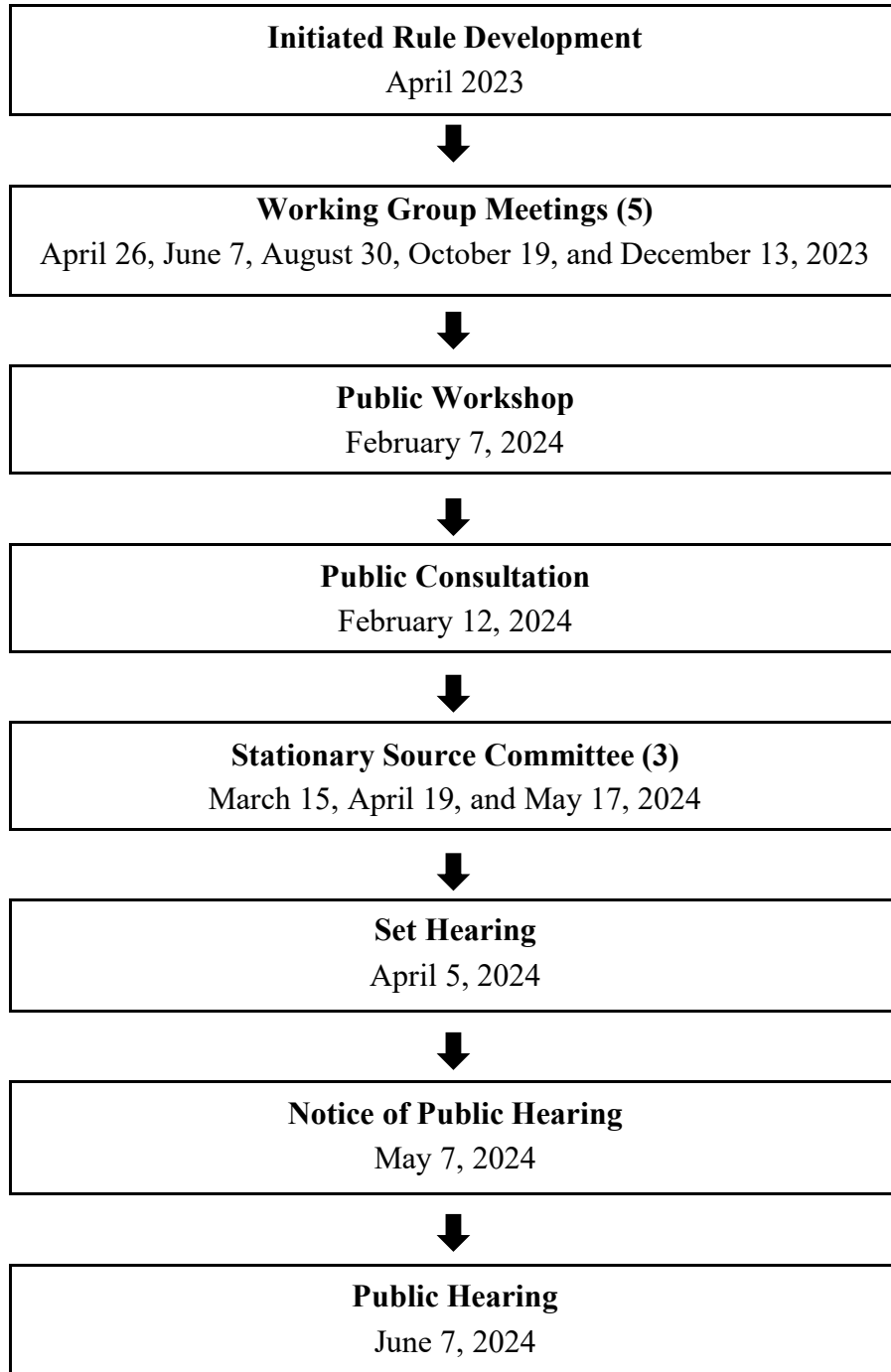
High Upfront Cost for Installing Zero-Emission Equipment

Some stakeholders object to the transition to zero-emission technologies citing the high upfront cost burden. To address upfront costs to transition to zero emission technologies, PAR 1146.2 requires units to be replaced at the end of the unit age, as defined by the rule; therefore, staff relied on the incremental cost between a conventional unit and a zero-emission unit. Estimated additional incremental capital and installation cost for zero-emission heat pumps ranged from \$675 to \$515,000 per unit; however, upfront costs are partially offset by fuel switching savings over the lifetime operation of the unit (range of \$600 to \$339,000 in operational cost savings). The highest estimated cost was for high temperature units and therefore the rule includes later compliance dates for those units to allow future market adoption to drive down costs. Federal, state, and local incentives could also offset some upfront costs, including the federal Inflation Reduction Act tax credits through 2032 and forthcoming rebates; state-wide TECH Clean California rebates for residential, multifamily, and commercial; the Southern California Edison program implemented by Willdan Energy Solutions; and the upcoming South Coast AQMD building appliance rebate program, which will be applicable to some PAR 1146.2 units. Staff will continue to monitor the cost impacts and provide a status update/technology check-in to the Stationary Source Committee by June 1, 2027.

ATTACHMENT C

RULE DEVELOPMENT PROCESS

Proposed Amended Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters, Small Boilers and Process Heaters



Fourteen (14) months spent in rule development
One (1) Public Workshop Meeting
One (1) Public Consultation Meeting
Three (3) Stationary Source Committee Meetings

ATTACHMENT D

KEY CONTACTS LIST

Proposed Amended Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters, Small Boilers and Process Heaters

Manufacturers

- A.O. Smith
- Bradford White Corporation
- Clayton Industries
- Daikin
- Johnson Controls International
- Navien, Inc.
- Parker Boiler Company
- Precision Boilers
- Rite Boilers
- Rheem Manufacturing Company
- Trane
- Nationwide Boiler

Government Agencies

- California Air Resources Board
- California Public Utilities Commission
- California Energy Commission
- Bay Area Air Quality Management District
- San Diego County Air Pollution Control District
- San Joaquin Valley Air Pollution Control District
- Metro Vancouver
- City of Portland

Utilities

- Los Angeles Department of Water & Power
- Southern California Edison
- Southern California Gas Company

Other Interested Parties

- Ace Cleaners Santa Clarita
- Active SGV
- Air-Conditioning, Heating, & Refrigeration Institute
- Amped Kitchens
- Apartment Association of Orange County
- Benz Air Engineering, Co. Inc.
- Boeing

- Building Owners & Managers Association of California
- California Apartment Association
- California Building Industry Association
- California Business Properties Association
- California Cleaners Association
- California Council for Environmental and Economic Balance
- California Hot Water Supply, Inc.
- California Manufacturers & Technology Association
- California Restaurant Association
- Coalition for Clean Air
- Commercial Real Estate Development Association
- Construction Industry Air Quality Coalition
- Construction Industry Coalition on Water Quality
- Disneyland
- Earthjustice
- Hospital Association of Southern California
- Industrious Labs
- Korean Dry Cleaners & Laundry Association of Southern California
- Latham and Watkins
- Los Angeles County Business Federation
- Marina Del Rey Lessees Association
- Mayor of City of Hermosa Beach
- Milt & Edie's Drycleaners and Tailoring Center
- Plumbing-Heating-Cooling Contractors Association of California
- Ramboll
- Regulatory Flexibility Group
- RMI
- Sierra Club
- The Northeast States for Coordinated Air Use Management (NESCAUM)
- The University of California
- The University of California, Irvine Medical Center and CO Architects
- Western Propane Gas Association
- Willdan Energy Solutions
- Whittingham Public Affairs Advisors

ATTACHMENT E

RESOLUTION NO. 24-_____

A Resolution of the Governing Board of the South Coast Air Quality Management District (South Coast AQMD) determining that Proposed Amended Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters qualifies as a later activity within the scope of the program approved earlier for the 2022 Air Quality Management Plan (AQMP) per California Environmental Quality Act (CEQA) Guidelines Section 15168 (c), and the Final Program Environmental Impact Report (EIR) for the 2022 AQMP adequately describes the activity for the purposes of CEQA such that no new environmental document will be required.

A Resolution of the South Coast AQMD Governing Board amending Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters.

WHEREAS, the South Coast AQMD Governing Board finds and determines that Proposed Amended Rule 1146.2 is considered a "project" as defined by CEQA; and

WHEREAS, the South Coast AQMD has had its regulatory program certified pursuant to Public Resources Code Section 21080.5 and CEQA Guidelines Section 15251(l), and has conducted a CEQA review and analysis of the proposed project pursuant to such program (South Coast AQMD Rule 110); and

WHEREAS, the South Coast AQMD Governing Board finds and determines that: 1) Proposed Amended Rule 1146.2 implements Control Measure C-CMB-01 – Commercial Water Heating which was previously adopted in the 2022 AQMP; 2) no subsequent EIR would be required per CEQA Guidelines Section 15168 (c)(2) because there are no new or modified physical changes that would result from implementing Proposed Amended Rule 1146.2 which were not previously analyzed in the Final Program EIR for the 2022 AQMP specific to Control Measure C-CMB-01; and 3) the Final Program EIR for the 2022 AQMP can be relied on for CEQA compliance; and

WHEREAS, the South Coast AQMD Governing Board finds and determines that Proposed Amended Rule 1146.2 is a later activity within the scope of the program approved earlier in the 2022 AQMP per CEQA Guidelines Section 15168 (c)(2), and the Final Program EIR for the 2022 AQMP adequately describes and analyzes the activities associated with implementing the proposed project for the purposes of CEQA such that no new environmental document will be required; and

WHEREAS, the South Coast AQMD Governing Board finds and determines that based on substantial evidence in the record and in accordance with the noticing requirements in CEQA Guidelines Section 15168 (e), Proposed Amended Rule 1146.2 qualifies as a later activity within the scope of the program approved earlier for the 2022 AQMP, and the Final Program EIR for the 2022 AQMP adequately describes the activity for the purposes of CEQA; and

WHEREAS, Proposed Amended Rule 1146.2, and supporting documentation, including but not limited to, the Final Staff Report which includes the CEQA analysis, and the Final Socioeconomic Impact Assessment, were presented to the South Coast AQMD Governing Board and the South Coast AQMD Governing Board has reviewed and considered this information, as well as has taken and considered staff testimony and public comment prior to approving the project; and

WHEREAS, the South Coast AQMD Governing Board finds and determines, taking into consideration the factors in Section (d)(4)(D) of the Governing Board Procedures (Section 30.5(4)(D)(i) of the Administrative Code), that the modifications to Proposed Amended Rule 1146.2 since the latest Notice of Public Hearing published through email notification on May 7, 2024 are clarifications that meet the same air quality objective and are not so substantial as to significantly affect the meaning of Proposed Amended Rule 1146.2 within the meaning of Health and Safety Code Section 40726 because: (1) revising the utility upgrade extensions in subparagraphs (i)(1)(B) and (i)(1)(C) from 18 months to 24 months including an additional 12-month extension in subparagraph (i)(1)(D) is to address implementation barriers for utility upgrades; (2) moving clause (i)(1)(C)(iii) to subparagraph (i)(1)(E) is for clarification; (3) including progress reports in subparagraph (i)(1)(E) establishes a check-in to ensure progress with the utility upgrades; (4) adding specific references to “subparagraphs (i)(1)(B), (i)(1)(C), and (i)(1)(D)” in subparagraph (i)(1)(H) is for clarity; (5) defining Rule 306 – Plan Fees as Rule 306 in subparagraph (i)(2)(A) streamlines the language; (6) replacing existing subparagraph (i)(2)(C) with the revised paragraph is for clarity and includes the extensions for the utility upgrades and progress reports included in paragraph (i)(1) for consistency; (7) revising clause (i)(2)(D)(ii) is to reflect the new provision for utility upgrade extensions; (8) replacing “or” with “and” in subparagraph (i)(3)(C) is for clarification; (9) replacing “until” with “before” in paragraph (i)(5) is for clarification; (10) adding “from the applicable compliance” date and adding that the alternative compliance option does not apply to units complying with the alternative compliance options in paragraphs (i)(1), (i)(2), and (i)(7) is for clarification; (11) adding “from the applicable compliance” date and adding “or relocate” to paragraph (i)(7) is for clarification; (12) revising six months to 18 months for additional time provided in paragraph (i)(7) for required construction or relocation is to address an implementation barrier; (13) adding the reference of “subparagraph (d)(5)(B)” in paragraph (i)(8) is for consistency; (14) correcting the typos in paragraphs (j)(1), (j)(2), and subparagraph (k)(3)(A) is for clarification; (15) adding “or subparagraph (i)(2)(C)” to paragraph (j)(6) is for clarification; (16) adding language in paragraph (j)(8) regarding unit relocation is for consistency; and: (a) the changes do not impact emission reductions, (b) the changes do not affect the number or type of sources

regulated by the rule, (c) the changes are consistent with the information contained in the notice of public hearing, and (d) the consideration of the range of CEQA alternatives was conducted in the Final Program EIR for the 2022 AQMP, which evaluated Control Measure C-CMB-01 upon which Proposed Amended Rule 1146.2 relies; and

WHEREAS, Proposed Amended Rule 1146.2 will be submitted for inclusion in the State Implementation Plan; and

WHEREAS, Health and Safety Code Section 40727 requires that prior to adopting, amending, or repealing a rule or regulation, the South Coast AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing and in the Final Staff Report; and

WHEREAS, the South Coast AQMD Governing Board has determined that a need exists to amend Rule 1146.2 to establish appropriate Best Available Retrofit Control Technology (BARCT) emission limits and implement the 2022 AQMP Control Measure C-CMB-01; and

WHEREAS, the South Coast AQMD Governing Board obtains its authority to adopt, amend or repeal rules and regulations from Health and Safety Code Sections 39002, 40000, 40001, 40440, 40702, 40725 through 40728.5, 40920.6, and 41508 as well as the federal Clean Air Act; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Amended Rule 1146.2 is written or displayed so that its meaning can be easily understood by the persons directly affected by it; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Amended Rule 1146.2 is in harmony with, and not in conflict with or contradictory to, existing statutes, court decision, or state or federal regulations; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Amended Rule 1146.2 does not impose the same requirements as any existing state or federal regulations, and the proposed amended rule is necessary and proper to execute the powers and duties granted to, and imposed upon, the South Coast AQMD; and

WHEREAS, the South Coast AQMD Governing Board, in amending Rule 1146.2, references the following statutes which the South Coast AQMD hereby implements, interprets or makes specific: Health and Safety Code Sections 39002, 40000, 40001, 40406, 40702, 40440(a), 40725 through 40728.5, 40920.6, 41508 and Clean Air Act Sections 110, 172, and 182(e); and

WHEREAS, Health and Safety Code Section 40727.2 requires the South Coast AQMD to prepare a written analysis of existing federal air pollution control

requirements applicable to the same source type being regulated whenever it adopts, or amends a rule, and that the South Coast AQMD's comparative analysis of Proposed Amended Rule 1146.2 is included in the Final Staff Report; and

WHEREAS, the South Coast AQMD Governing Board finds that staff's proposed control options for Proposed Amended Rule 1146.2 are being adopted because they constitute BARCT, and that there is no other control options that meet BARCT and the air quality objectives; and

WHEREAS, the South Coast AQMD Governing Board has determined that the Final Socioeconomic Impact Assessment for the proposed project is consistent with the March 17, 1989, Governing Board Socioeconomic Resolution for rule adoption; and

WHEREAS, the South Coast AQMD Governing Board has determined that the Final Socioeconomic Impact Assessment is consistent with the provisions of Health and Safety Code Sections 40440.8, 40728.5, and 40920.6; and

WHEREAS, the South Coast AQMD Governing Board has determined that the Final Socioeconomic Impact Assessment concludes that Proposed Amended Rule 1146.2 will result in increased costs to nearly all affected industries in the South Coast AQMD jurisdiction, yet such costs are considered to be reasonable; and

WHEREAS, the South Coast AQMD Governing Board has considered the Final Socioeconomic Impact Assessment, and has made a good faith effort to minimize such impacts; and

WHEREAS, the South Coast AQMD staff conducted a Public Workshop regarding Proposed Amended Rule 1146.2 on February 7, 2024; and

WHEREAS, the Public Hearing has been properly noticed in accordance with the provisions of Health and Safety Code Sections 40725 and 40440.5; and

WHEREAS, the South Coast AQMD Governing Board has held a Public Hearing in accordance with all provisions of state and federal law; and

WHEREAS, the South Coast AQMD Governing Board specifies the Planning, Rule Development and Implementation Manager overseeing the rule development for Proposed Amended Rule 1146.2 as the custodian of the documents or other materials which constitute the record of proceedings upon which the adoption of this proposed project is based, which are located at the South Coast Air Quality Management District, 21865 Copley Drive, Diamond Bar, California; and

NOW, THEREFORE, BE IT RESOLVED, that the South Coast AQMD Governing Board does hereby determine, pursuant to the authority granted by law, that Proposed Amended Rule 1146.2 qualifies as a later activity within the scope of the program

approved earlier for the 2022 AQMP per CEQA Guidelines 15168 (c), and the Final Program EIR for the 2022 AQMP adequately describes the activity for the purposes of CEQA such that no new environmental document will be required. This information was presented to the South Coast AQMD Governing Board, whose members exercised their independent judgement and reviewed, considered, and approved the information therein prior to acting on the proposed project; and

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board directs staff to conduct a status update/technology check-in and report to the Stationary Source Committee by June 1, 2027, if the zero-emission limits established in Proposed Amended Rule 1146.2 are technically feasible, cost effective, and represent BARCT as defined in the Health and Safety Code Section 40406; and

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board does hereby adopt, pursuant to the authority granted by law, Proposed Amended Rule 1146.2 as set forth in the attached, and incorporated herein by reference; and

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board requests that Proposed Amended Rule 1146.2 be submitted for inclusion in the State Implementation Plan; and

BE IT FURTHER RESOLVED, that the Executive Officer is hereby directed to forward a copy of this Resolution and Proposed Amended Rule 1146.2 to CARB for approval and subsequent submittal to U.S. EPA for inclusion into the State Implementation Plan.

DATE: _____

CLERK OF THE BOARDS

ATTACHMENT F

(Adopted January 9, 1998)(Amended January 7, 2005)(Amended May 5, 2006)
(Amended December 7, 2018)(Amended [Date of Rule Adoption])

[RULE INDEX TO BE ADDED AFTER RULE ADOPTION]

PROPOSED AMENDED RULE 1146.2. EMISSIONS OF OXIDES OF NITROGEN FROM LARGE WATER HEATERS AND SMALL BOILERS AND PROCESS HEATERS

(a) Purpose and Applicability

The purpose of this rule is to reduce Oxides of Nitrogen (NO_x) emissions from natural gas fired water heatersWater Heaters, boilersBoilers, and process heatersProcess Heaters fired with, or designed to be fired with, natural gas as defined in this rule. ~~This rule applies to units that have a rated heat input capacity less than or equal to 2,000,000 BTU per hour. Type 1 Units as defined in this rule are typically, but not exclusively, large water heaters or smaller sized process heaters in the above range. Type 2 Units as defined in this rule are typically, but not exclusively, small boilers or larger sized process heaters in this range. Beginning, January 1, 2000, the provisions of this rule are applicable to manufacturers, distributors, retailers, refurbishers, installers and operators of new units. Beginning July 1, 2002, the provisions of this rule are also applicable to operators of existing Type 2 Units.~~

(b) Applicability

The provisions of this rule are applicable to manufacturers, distributors, retailers, Resellers, Installers, owners, and operators of Units fired with, or designed to be fired with, natural gas that have a Rated Heat Input Capacity less than or equal to 2,000,000 British Thermal Units (Btu) per hour.

(b) Definitions

(1) ~~BEST AVAILABLE RETROFIT CONTROL TECHNOLOGY (BARCT)~~
~~as defined in the California Health and Safety Code Section 40406.~~

(21) ~~BOILER OR STEAM GENERATOR~~ means any equipment that is fired with, or is designed to be fired with, natural gas, used to produce steam or to heat water, and that is not used exclusively to produce electricity for sale. ~~Boiler or Steam Generator~~ does not include any waste heat recovery boiler that is used to recover sensible heat from the exhaust of a combustion

turbine or any unfired waste heat recovery boiler that is used to recover sensible heat from the exhaust of any combustion equipment.

~~(3) BTU means British thermal unit(s).~~

~~(42)~~ CERTIFIED RETROFIT KIT means any burner and ancillary controls or blowers that have been demonstrated to comply with the provisions of this rule, on a retrofit basis, on a particular model of ~~unit~~Unit.

~~(3)~~ COMPLIANCE PORTAL means the dedicated webpage on the South Coast AQMD website for submitting reports, notifications, or any documents to comply with South Coast AQMD rule(s).

~~(5) FIRE TUBE BOILER means a BOILER that passes hot gases from a fire box through one or more tubes running through a sealed container of water. The heat of the gases is transferred through the walls of the tubes by thermal conduction, heating the water and ultimately creating steam.~~

~~(4)~~ EXISTING BUILDING means a building that is not a New Building as defined in this rule. Existing Building includes any structures on the property including, but not limited to, sheds, detached garages, pools, and spas.

~~(65)~~ FORMER RECLAIM FACILITY means a facility, or any of its successors, that was in the Regional Clean Air Incentives Market as of January 5, 2018, as established in Regulation XX, that has received a final determination notification, and is no longer in the RECLAIM program.

~~(76)~~ HEAT INPUT means the chemical heat released due to assumed complete combustion of fuel ~~into~~ a ~~unit~~Unit, using the higher heating value of the fuel. This does not include the sensible heat of incoming combustion air.

~~(87)~~ HEAT OUTPUT means the enthalpy of the working fluid output of the ~~unit~~Unit.

~~(8)~~ HIGH TEMPERATURE UNIT means any Unit that is designed and used to produce steam or to heat water above 180 degrees Fahrenheit.

~~(9)~~ INDEPENDENT TESTING LABORATORY means a testing laboratory that meets the requirements of ~~District~~Rule 304 – Equipment, Materials, And Ambient Air Analyses, subdivision (k) and is approved by the ~~District~~Executive Officer to conduct certification testing under the Protocol: Nitrogen Oxides Emissions Compliance Testing for Natural Gas-Fired Water Heaters and Small Boilers (Protocol).

- (10) INSTALL means the action of an Installer to place a Unit in a position ready for use.
- (11) INSTALLER means a person who Installs a Unit and is required to obtain a license issued by the Department of Consumer Affairs Contractors State License Board for a classification related to buildings and appliances.
- (4012) INSTANTANEOUS WATER HEATER means a ~~WATER HEATER~~ tankless Water Heater with a ~~RATED HEAT INPUT CAPACITY~~ Rated Heat Input Capacity less than or equal to 2,000,000 BTU_{Btu} per hour that heats water only on-demand when it flows through a heat exchanger, which is a device used to transfer heat between two or more mediums of different temperatures.
- (13) MOBILE HOME means a prefabricated structure on a permanently attached chassis.
- (14) NEW BUILDING means a building that is newly constructed or a building with a major alteration which changes the occupancy classification of a building, which means a change in the formal designation of the primary purpose of the building pursuant to 2022 Title 24 California Building Code Part 2 Chapter 3 for occupancy classification and use, and that does not have a Unit installed prior to the applicable Table 3 compliance dates. New Building comprises any structures on the property including, but not limited to sheds, detached garages, pools, and spas.
- (4415) OXIDES OF NITROGEN (NO_x) EMISSIONS means the sum of nitric oxides and nitrogen dioxides emitted, calculated, and expressed as nitrogen dioxide.
- (16) PARTS PER MILLION BY VOLUME (ppmv) means, for the purpose of this rule, Parts Per Million by Volume of a pollutant at a three percent oxygen correction on a dry basis at Standard Conditions.
- (4217) POOL HEATER means a ~~WATER HEATER~~ Water Heater designed and used to heat a pool, hot tub, or spa.
- (4318) PROCESS HEATER means any equipment that is fired with, or is designed to be fired with, natural gas and which transfers heat from combustion gases to water or process streams. A Process Heater does not include any kiln or oven used for annealing, drying, curing, baking, cooking, calcining, or vitrifying; or any unfired waste heat recovery heater that is used to recover sensible heat from the exhaust of any combustion equipment.

- (1419) PROTOCOL means the South Coast Air Quality Management District AQMD Protocol to ensure standardization of compliance certification test procedures, titled: Nitrogen Oxides Emissions Compliance Testing for Natural Gas-Fired Water Heaters and Small Boilers.
- (14520) RECLAIM FACILITY means a facility, or any of its successors, that was in the Regional Clean Air Incentives Market as of January 5, 2018, as established in Regulation XX.
- (14621) RATED HEAT INPUT CAPACITY means the gross ~~HEAT INPUT~~ Heat Input of the combustion device, as supported by required documentation.
- (14722) RECREATIONAL VEHICLE means any vehicle used for recreational purposes designed to include a ~~w~~ Water h Heater and licensed to be driven or moved on the highways of California.
- ~~(18) REFURBISHER means anyone who reconditions a Type 1 Unit or TYPE 2 UNIT and offers the unit for resale, for use in the District.~~
- (14923) RESELLER means anyone who sells either retail, wholesale, or on an individual basis ~~TYPE 1 UNITS or TYPE 2 UNITS~~ any Unit.
- (2024) RESIDENTIAL STRUCTURE means any structure which is designed ~~for and used~~ exclusively as a dwelling for not more than four families, and where such equipment is used by the owner or occupant of such a dwelling. Residential Structures includes any structures on the property including, but not limited to, sheds, detached garages, pools, and spas.
- (25) SMALL BUSINESS is as defined by Rule 102 – Definition of Terms (Rule 102).
- (26) STANDARD CONDITIONS are as defined by Rule 102.
- ~~(21) TANK TYPE WATER HEATER means a WATER HEATER with a RATED HEAT INPUT CAPACITY from 75,000 BTU per hour to 2,000,000 BTU per hour and with an integral closed vessel in which water is heated and stored for use external to the vessel.~~
- (2227) THERM means 100,000 BTU Btu.
- ~~(23) THERMAL FLUID HEATER means a natural gas fired PROCESS HEATER in which a process stream is heated indirectly by a heated fluid other than water.~~
- (2428) TYPE 1 UNIT means any ~~WATER HEATER, BOILER or PROCESS HEATER~~ Unit with a ~~RATED HEAT INPUT CAPACITY~~ Rated Heat Input Capacity less than or equal to 400,000 BTU Btu per hour, excluding TANK

~~TYPE WATER HEATERS~~ Water Heaters subject to the limits of ~~District~~ Rule 1121 – Control of Nitrogen Oxides from Residential Type, Natural Gas-fired Water Heaters (Rule 1121).

(2529) ~~TYPE 2 UNIT~~ means any ~~WATER HEATER, BOILER or PROCESS HEATER~~ Unit with a ~~RATED HEAT INPUT CAPACITY~~ Rated Heat Input Capacity greater than 400,000 ~~BTU~~ Btu per hour up to and including 2,000,000 ~~BTU~~ Btu per hour.

(2630) ~~UNIT~~ means any ~~BOILER, STEAM GENERATOR, WATER HEATER~~ Boiler, Water Heater, or Process Heater as defined in ~~this rule~~ paragraph (b)(2), (b)(4), (b)(5), (b)(10), (b)(12), (b)(13), (b)(21), (b)(23), (b)(24), (b)(25) or (b)(27).

(2731) ~~WATER HEATER~~ means any equipment that is fired with, or designed to be fired with, natural gas and that is used solely to heat water for use external to the equipment.

(e) Requirements

(1) ~~On or after January 1, 2000, no person shall manufacture for use, or offer for sale for use, in the District any new Type 2 Unit, unless the NO_x emissions level is less than or equal to 30 ppm of NO_x emissions (at 3% O₂, dry) or 0.037 pound NO_x per million BTU of heat input and no more than 400 ppm of carbon monoxide (at 3% O₂, dry), as certified by the District according to subdivision (d).~~

(2) ~~On or after January 1, 2001, no person shall manufacture for use, or offer for sale for use, in the District any new Type 1 Unit, unless the NO_x emissions level is less than or equal to 40 nanograms of NO_x (calculated as NO₂) per joule (93 lb per billion BTU) of heat output or 55 ppm NO_x emissions (at 3% O₂, dry), as certified by the District according to subdivision (d).~~

(3) ~~Except for units at a RECLAIM or former RECLAIM facility, on or after July 1, 2002, no person shall operate in the District any unit with a rated heat input capacity greater than 1,000,000 BTU per hour but less than or equal to 2,000,000 BTU per hour manufactured prior to January 1, 1992, which does not meet the emissions limits required by paragraph (c)(1). Alternatively, a unit may be modified or demonstrated to meet the emission limits of paragraph (c)(1) pursuant to the provisions of subdivision (e).~~

- (1) Prior to the applicable Table 3 compliance dates, no person shall manufacture, supply, sell, offer for sale, or Install, for use within the South Coast AQMD, any Unit unless the Unit is certified pursuant to subdivision (f) not to exceed the applicable Table 1 emission limits.

Table 1 – Emission Limits

<u>Equipment Category</u>	<u>NOx Emission Limit*</u>	<u>Carbon Monoxide (CO) Emission Limit*</u>
<u>Type 1 Units, excluding Pool Heaters</u>	<u>14 ng/J or 20 ppmv</u>	<u>N/A**</u>
<u>Type 1 Pool Heaters</u>	<u>40 ng/J or 55 ppmv</u>	<u>N/A**</u>
<u>Type 2 Units</u>	<u>14 ng/J or 20 ppmv</u>	<u>400 ppmv</u>

* Nanograms per Joule (ng/J) of NOx (calculated as NO₂) of Heat Output or the specified ppmv of NOx or CO corrected at 3 percent volume stack gas oxygen (O₂) on a dry basis.

** Type 1 Units are not subject to a CO limit in Rule 1146.2 but may be subject to CO limits by other South Coast AQMD rules.

- (4) ~~Except for units at a RECLAIM or former RECLAIM facility, on or after January 1, 2006, no person shall operate in the District any unit more than 15 years old, based on the original date of manufacture as specified in paragraph (c)(6), with a rated heat input capacity greater than 1,000,000 BTU per hour but less than or equal to 2,000,000 BTU per hour and manufactured on or after January 1, 1992, which does not meet the emissions limits required by paragraph (c)(1). Alternatively, a unit may be modified or demonstrated to meet the emission limits of paragraph (c)(1) pursuant to the provisions of subdivision (e).~~
- (5) ~~Except for units at a RECLAIM or former RECLAIM facility, on or after January 1, 2006, no person shall operate in the District any unit more than 15 years old, based on the original date of manufacture as specified in paragraph (c)(6), with a rated heat input capacity greater than 400,000 BTU per hour but less than or equal to 1,000,000 BTU per hour manufactured prior to January 1, 2000, which does not meet the emissions limits required by paragraph (c)(1). Alternatively, a unit may be modified or demonstrated to meet the emission limits of paragraph (c)(1) pursuant to the provisions of subdivision (e).~~
- (6) ~~The original date of manufacture shall be determined by:~~

- ~~(A) Original manufacturer's identification or rating plate permanently fixed to the equipment. If not available, then;~~
- ~~(B) Invoice from manufacturer for purchase of equipment. If not available, then;~~
- ~~(C) Unit is deemed to be more than 15 years old.~~
- ~~(7) On or after January 1, 2010, no person shall manufacture for use or offer for sale for use within the District any Type 2 unit unless the unit is certified pursuant to subdivision (d) to a NOx emission level of less than 14 nanograms of NOx (calculated as NO₂) per joule of heat output or less than or equal to 20 ppm of NOx emissions (at 3% O₂, dry).~~
- ~~(8) On or after January 1, 2012, no person shall manufacture for use or offer for sale for use within the District any Type 1 unit (excluding pool heaters), unless the unit is certified pursuant to subdivision (d) to a NOx emission level of less than 14 nanograms of NOx (calculated as NO₂) per joule of heat output or less than or equal to 20 ppm of NOx emissions (at 3% O₂, dry).~~
- (2) No person shall manufacture, supply, sell, offer for sale, or Install, for use in the South Coast AQMD, any Unit, unless such Unit complies with the applicable Table 2 emission limits by the applicable Table 3 compliance dates.

Table 2 – Zero-Emission Limits, Compliance Schedule, and Unit Age

<u>Equipment Category</u>	<u>NOx and CO Emission Limits (ppmv)</u>	<u>Compliance Schedule</u>	<u>Unit Age (years)</u>
<u>Type 1 Unit*</u>	<u>0</u>	<u>Phase I</u>	<u>15</u>
<u>Instantaneous Water Heater ≤ 200,000 Btu/hr</u>	<u>0</u>		<u>25</u>
<u>Instantaneous Water Heater ≥ 200,000 Btu/hr</u>	<u>0</u>	<u>Phase II</u>	<u>25</u>
<u>Type 1 Pool Heater</u>	<u>0</u>		<u>15</u>
<u>Type 2 Unit**</u>	<u>0</u>		<u>25</u>
<u>Type 1 High Temperature Unit</u>	<u>0</u>	<u>Phase III</u>	<u>25</u>
<u>Type 2 High Temperature Unit</u>	<u>0</u>		<u>25</u>

* Referring to a Type 1 Unit that is not a High Temperature Unit, Pool Heater, or Instantaneous Water Heater.

** Referring to a Type 2 Unit that is not a High Temperature Unit or Instantaneous Water Heater.

Table 3 – Compliance Dates for Zero-Emission Limits

<u>Phase</u>	<u>Building Type</u>	<u>Compliance Date</u>
<u>Phase I</u>	<u>New Buildings</u>	<u>January 1, 2026</u>
	<u>Existing Buildings</u>	<u>January 1, 2029</u>
<u>Phase II</u>	<u>New Buildings</u>	<u>January 1, 2028</u>
	<u>Existing Buildings</u>	<u>January 1, 2031</u>
<u>Phase III</u>	<u>New Buildings</u>	<u>January 1, 2029</u>
	<u>Existing Buildings</u>	<u>January 1, 2033</u>

- (3) On and after the Table 3 compliance dates, an owner or operator of a Unit shall not operate a Unit which exceeds Table 2 emission limits once the Unit

age determined pursuant to subdivision (e) is greater than or equal to the applicable Table 2 Unit age.

- (4) The owner or operator of a Unit may modify a Unit and demonstrate it meets the emission limits in subdivision (d) by:
 - (A) Modifying the Unit with a Certified Retrofit Kit; or
 - (B) Causing an Independent Testing Laboratory to conduct a source test according to the South Coast AQMD Source Test Method 100.1 - Instrumental Analyzer Procedures for Continuous Gaseous Emission Sampling.
- (5) An owner or operator of a Unit that modifies or replaces a burner in the Unit shall comply with the following applicable emission limits:
 - (A) Table 1 emission limits if the modification or replacement occurs:
 - (i) Prior to the applicable Table 3 compliance dates; or
 - (ii) Before the Unit reaches its Table 2 Unit age; or
 - (B) Table 2 emission limits if the modification or replacement occurs:
 - (i) On and after the applicable Table 3 compliance dates; and
 - (ii) When the Unit has reached its Table 2 Unit age.
- (6) Except for units at a RECLAIM or former RECLAIM facility, an owner or operator shall not operate any Type 2 Unit manufactured prior to January 1, 2000, in the South Coast AQMD which does not meet the NOx emission limit of 30 ppmv, or 0.037 pound NOx per million Btu of heat input, and the CO emission limit of 400 ppmv.
- (7) An owner or operator of a Unit that elects to comply with the exemption in:
 - (A) Paragraph (k)(2) shall not operate a Unit that exceeds the applicable Table 1 emission limits on and after 180 days of failing to demonstrate compliance with paragraph (k)(2) pursuant to paragraph (g)(2);
 - (B) Paragraph (k)(3) shall not operate a Unit that exceeds the applicable Table 2 emission limits on and after 180 days of failing to demonstrate compliance with paragraph (k)(3) pursuant to paragraph (g)(2); or
 - (C) Paragraph (k)(5) shall not operate a Unit that does not comply with paragraph (d)(3) on and after 180 days of failing to meet the definition of a Small Business.

- ~~(9) — Notwithstanding the exemptions contained in Rule 2001 — Applicability and its accompanying Table 1 — Rules Not Applicable to RECLAIM Facilities for Requirements Pertaining to NOx Emissions If Rule Was Adopted or Amended Prior to October 5, 2018, on or after May 5, 2006, the owner or operator of any Type 2 unit shall perform maintenance in accordance with the manufacturer's schedule and specifications as identified in a manual and other written materials supplied by the manufacturer or distributor. The owner or operator shall maintain on site a copy of the manufacturer's and/or distributor's written instructions and retain a record of the maintenance activity for a period of not less than three years.~~
- ~~(10) — Notwithstanding the exemptions contained in Rule 2001 — Applicability and its accompanying Table 1 — Rules Not Applicable to RECLAIM Facilities for Requirements Pertaining to NOx Emissions If Rule Was Adopted or Amended Prior to October 5, 2018, the owner or operator shall maintain on site a copy of all documents identifying the unit's rated heat input capacity. The rated heat input capacity shall be identified by a manufacturer's or distributor's manual or invoice. If a unit is modified, the rated heat input capacity shall be calculated pursuant to paragraph (f)(3). The documentation of rated heat input capacity for modified units shall include a description of all modifications, the dates the unit was modified and calculation of rated heat input capacity. All documentation shall be signed by the licensed person modifying the unit.~~
- ~~(11) — Notwithstanding the requirements in paragraph (c)(7), until December 31, 2010, any person may sell, offer for sale, or install any Type 2 units that are manufactured and purchased prior to January 1, 2010 and in compliance with paragraph (c)(1).~~
- ~~(12) — Notwithstanding the requirements in paragraph (c)(8), until December 31, 2012, any person may sell, offer for sale, or install any Type 1 units that are manufactured and purchased prior to January 1, 2012 and in compliance with paragraph (c)(2).~~
- ~~(13) — By January 1, 2022, the Executive Officer shall conduct a technology assessment and report to the Governing Board if the NOx emission limits in subdivision (c) represent BARCT.~~
- ~~(A) — If the Executive Officer determines that the NOx emission limits specified in paragraph (c)(1) represents BARCT, notwithstanding~~

~~the exemptions contained in Rule 2001— Applicability and its accompanying Table 1— Rules Not Applicable to RECLAIM Facilities for Requirements Pertaining to NOx Emissions If Rule Was Adopted or Amended Prior to October 5, 2018, the owner or operator of a RECLAIM or former RECLAIM facility with any Type 2 Units shall meet the NOx emission limit specified in paragraph (c)(1) by December 31, 2023. A Type 2 unit may be modified or demonstrated to meet the emission limit of paragraph (c)(1), pursuant to the provisions of subdivision (e). Alternatively, a Type 2 unit may be replaced with a certified unit in compliance with the provisions of paragraph (c)(7).~~

~~(B) If the technology assessment specified in this paragraph demonstrates that more stringent BARCT requirements are applicable, the Executive Officer shall initiate rule development for the implementation schedule of the more stringent BARCT requirements within six months after the technology assessment.~~

(e) Unit Age

(1) For all Unit age determinations in this rule, an owner or operator of a Unit shall determine the Unit age as follows:

(A) Unit age shall be based on the original date of manufacture determined by:

- (i) Invoice from purchase of Unit provided by manufacturer;
- (ii) Original Unit manufacturer's identification or rating plate permanently affixed to the Unit; or
- (iii) Any other method of determining Unit age that can be substantiated through written information as approved by the Executive Officer.

(B) The Unit shall be deemed at the end of its Unit age as of January 1, 2025, for any Unit where the Unit age cannot be determined pursuant to subparagraph (e)(1)(A).

(d)f) Certification

(1) The manufacturer shall obtain confirmation from an Independent Testing Laboratory prior to applying for certification for a natural gas Unit that; each Unit model or retrofit kit complies with the applicable requirements

~~of subdivision (e)~~ Table 1 emission limits when fired with natural gas. -This confirmation shall be based upon emission source tests of a randomly selected ~~u~~Unit of each model, and the Protocol shall be adhered to during the confirmation testing of all ~~u~~Units subject to this rule.

(2) When applying for ~~u~~Unit(s) certification, the manufacturer shall submit to the Executive Officer the following:

(A) A statement that the model is in compliance with subdivision (~~e~~d). The statement shall be signed and dated, and shall attest to the accuracy of all statements;

(B) General Information including:

(i) Name and address of manufacturer;_;

(ii) Brand name;_; and

(iii)- Model number, as it appears on the ~~u~~Unit rating plate;

(C) A description of each model being certified; and

(D) A source test report verifying compliance with the emission limits in subdivision (~~e~~d) for each model to be certified. -The source test report shall be prepared by the confirming ~~i~~Independent ~~t~~Testing ~~l~~Laboratory and shall contain all of the elements identified in ~~Section 10 of the Protocol for each uUnit tested. -The source test shall have been conducted no more than ninety (90) days prior to the date of submittal to the Executive Officer.~~

(3) When applying for ~~u~~Unit certification, the manufacturer shall submit the items identified in paragraph (~~d~~f)(2) no more than ~~ninety (90)~~180 days after the date of the source test identified in subparagraph (~~d~~f)(2)(D) ~~and at least 120 days prior to the date of the proposed sale of the units.~~

(4) The Executive Officer shall certify a ~~u~~Unit model which complies with the provisions of subdivision (~~e~~d) and of paragraphs (~~d~~f)(1), (~~d~~f)(2), and (~~d~~f)(3).

~~(5) — Certification status shall be valid for three years from the date of approval by the Executive Officer. After the third year, recertification may be required according to the requirements of paragraphs (d)(1) and (d)(2).~~

(eg) ~~Modification (Retrofit) Provisions and Demonstration of Compliance W~~ith Emission Limits:

~~Any unit, may be modified or demonstrated to meet the requirements of paragraph (e)(1), (e)(2), (e)(3), (e)(4), or (e)(5) provided:~~

~~(1) — The unit is certified pursuant to subdivision (d); or~~

- ~~(2) A certified retrofit kit has been installed; or~~
- ~~(31) The owner or operator of a Unit shall demonstrate compliance pursuant to subparagraph (d)(4)(B) by maintaining Aa copy of athe South Coast AQMD approved source test report and making it available to the Executive Officer upon request. The source test report shall, at a minimum, include: conducted by an independent third party demonstrating the specific unit complies with the emission limits at low and high fire, shall be maintained on-site; and~~
- ~~(4A) The source test report clearly specifies tThe applicable NOx and CO emissions limit of the uUnit in parts per million or pounds of NOx per million BTU of heat input;:~~
- ~~(B) The source test report must identify that the source test was conducted pursuant to aThe DistrictSouth Coast AQMD approved test method protocoland Independent Testing Laboratory that conducted the source test; and~~
- ~~(5C) The source test report shall be maintained on-site at the facility where the unit is being operated and made available to the Executive Officer, at all times, upon request, as long as the unit is being operated. The model and serial numbers of the specified uUnit shall clearly be indicated on the source test report; and:~~
- ~~(D) The Rated Heat Input Capacity of the Unit.~~
- ~~(2) The owner or operator of a Unit electing to comply with the exemptions in paragraph (k)(2) or (k)(3) shall:~~
- ~~(A) Demonstrate compliance with the annual Therm limit for each calendar year, determined using one of the following methods:~~
- ~~(i) Fuel usage recorded by a non-resettable totalizing fuel meter, corrected to Standard Conditions;~~
- ~~(ii) Fuel usage calculated by multiplying the number of hours recorded by a non-resettable totalizing time meter and the Rated Heat Input Capacity of the Unit, as calculated using Equation 1 (Eq. 1):~~

$$\text{Fuel Usage (Therms)} = \frac{H \times R \times 1,000,000 \text{ (Btu per MMBtu)}}{100,000 \text{ (Btu per Therm)}} \quad (\text{Eq. 1})$$

Where:

H = Number of Hours Recorded

R = Rated Heat Input Capacity of the Unit (MMBtu/hr); or

(iii) Monthly fuel billing statement or equivalent documentation;

(B) Calibrate the non-resettable totalizing fuel meter or non-resettable time meter according to the manufacturer's recommendation; and

(C) Use the higher heating value of 1,050 million Btu per million standard cubic feet for converting natural gas measured in volume to Therm.

(fh) Identification of Compliant Units

(1) Newly Manufactured Units

The manufacturer shall display the model number of the ~~u~~Unit complying with subdivision (ed) on the shipping carton and permanent rating plate. The manufacturer shall also display the certification status on the shipping carton and on the ~~u~~Unit.

(2) Certified Retrofit Kits

The manufacturer shall display the model number of the retrofit kit and manufacturer and model of applicable ~~u~~Units on the shipping carton and in a plainly visible portion of the retrofit kit.

~~(3) Modified Units~~

~~A unit with a new or modified burner shall display the new rated heat input capacity and certification status on a new permanent rating plate. The gross heat input shall be based on the maximum fuel input corrected for fuel heat content, temperature and pressure.~~

~~(g) Enforcement~~

~~The Executive Officer may periodically inspect distributors, retailers, and installers of units located in the District, and conduct such tests as are deemed necessary to ensure compliance with subdivision (e).~~

(i) Alternative Compliance Options

(1) Alternative Compliance Option for Utility Upgrades

If an owner or operator of a Unit required to meet the Table 2 emission limits will encounter delays beyond the reasonable control of the owner or operator to meet the applicable compliance dates in Table 3 or paragraph (d)(3) because a utility upgrade is required and the applicable utility company is unable to provide the necessary power to operate the Unit as

demonstrated with documents specified in paragraph (j)(6), the owner or operator of a Unit shall:

(A) Notify the Executive Officer through the Compliance Portal:

(i) At least 90 days prior to the Unit's applicable compliance date in Table 3 or paragraph (d)(3) to request an extension of no more than 4824 months from the applicable compliance date; or

(ii) If utility upgrades are needed to operate a Unit that is replacing a Unit that failed and is no longer operational, no later than 30 days after the date the Unit became non-operational to request an extension of no more than 4824 months from the date of Unit failure;

(B) Obtain a letter from the Executive Officer through the Compliance Portal approving or disapproving the extension:

(i) Prior to the Unit's compliance date; or

(ii) No later than 90 days after the date the notification was submitted pursuant to clause (i)(1)(A)(ii) for a Unit failure;

(C) If the utility upgrades will not be completed within the 4824-month extension approved pursuant to subparagraph (i)(1)(B), the owner or operator may:

(i) Request an additional extension of no more than 4824 months through the Compliance Portal at least 90 days prior to the end of the initial 4824-month extension; and

(ii) Obtain a letter from the Executive Officer through the Compliance Portal prior to the end of the initial extension approving or disapproving the extension; and

(iii) Provide a progress report to the Executive Officer through the Compliance Portal every six months after the start of additional extension, which includes, but is not limited to:

(A) The status of the utility upgrade;

(B) The estimated date the utility provider will complete the utility upgrade; and

(C) Documentation which justifies the update to estimated date for completion;

- (D) If the utility upgrades will not be completed within the additional 24-month extension approved pursuant to subparagraph (i)(1)(C), the owner or operator may:

 - (i) Request a further extension of no more than 12 months through the Compliance Portal at least 90 days prior to the end of the additional 24-month extension; and
 - (ii) Obtain a letter from the Executive Officer through the Compliance Portal prior to the end of the additional 24-month extension approving or disapproving the extension;
- (E) Provide a progress report to the Executive Officer through the Compliance Portal every six months after the start of the initial extension approved pursuant to subparagraph (i)(1)(B) and for the applicable extension period(s) approved pursuant to subparagraphs (i)(1)(C) and (i)(1)(D), which includes, but is not limited to:

 - (i) The status of the utility upgrade;
 - (ii) The estimated date the utility provider will complete the utility upgrade; and
 - (iii) Documentation which justifies the update to estimated date for completion;
- ~~(F)~~ Provide a follow-up notification to the Executive Officer through the Compliance Portal no later than 72 hours after the Unit complying with the Table 2 emission limits has been installed;
- ~~(G)~~ Maintain records pursuant to paragraph (j)(6);
- ~~(H)~~ For a Unit that is non-operational during the extension(s) approved pursuant to subparagraphs (i)(1)(B), (i)(1)(C), and (i)(1)(D), the owner or operator may elect to operate a temporary Unit during the extension, provided:

 - (i) The temporary Unit complies with Table 1 emission limits;
 - (ii) No later than 72 hours after the date the temporary Unit was installed, the owner or operator notifies the Executive Officer through the Compliance Portal; and
 - (iii) No later than 72 hours after the date the temporary Unit was disconnected, the owner or operator notifies the Executive Officer through the Compliance Portal.

(2) Alternative Compliance Option for Multiple Units

An owner or operator of five or more Units that are required to meet the Table 2 emission limits within two consecutive calendar years pursuant to paragraph (d)(3) may elect to submit an alternative compliance plan requesting alternative compliance date(s), provided the owner or operator:

(A) Submit the alternative compliance plan at least one year prior to the earliest compliance due date, with a filing fee payment pursuant to Rule 306 – Plan Fees (Rule 306);

(B) Specify compliance date(s) in the alternative compliance plan for the number of Units to meet the Table 2 emission limits as below:

(i) Three or at least 30 percent of the Units by the latest applicable compliance date;

(ii) At least 30 percent of the Units one year after the latest applicable compliance date; and

(iii) The remaining Units two years after the latest applicable compliance date;

~~(C) If a Unit meets the requirements to apply for the alternative compliance option for utility upgrades pursuant to paragraph (i)(1), the owner or operator may elect to include a request in their alternative compliance plan for an extension of no more than 18 months from the earliest compliance due date of the Units in the alternative compliance plan, provided that the owner or operator shall:~~

~~(i) Include the documentation listed in paragraph (j)(6) with the application for an alternative compliance plan; and~~

~~(ii) If the utility upgrades will not be completed within the 18-month extension in the approved alternative compliance plan, the owner or operator may submit a revised alternative compliance plan at least 180 days prior to the end of the initial 18 month extension to request an additional extension of no more than 18 months before initiating the alternative compliance schedule specified in paragraph (i)(2)(B), with a filing fee payment pursuant to Rule 306 – Plan Fees; and~~

(C) In lieu of subparagraph (i)(2)(B), if an owner or operator of five or more Units electing to comply by submitting an alternative

compliance plan in subparagraph (i)(2)(A) will encounter delays beyond the reasonable control of the owner or operator to meet the applicable compliance dates because a utility upgrade is required and the applicable utility company is unable to provide the necessary power to operate the Units, as demonstrated with documents specified in paragraph (j)(6), the owner or operator of the Units may elect to:

- (i) Include a request for an extension of no more than 24 months from the earliest compliance due date of the Units included in the alternative compliance plan submitted pursuant to subparagraph (i)(2)(A); and specify alternative compliance date(s) in the alternative compliance plan for the number of Units to meet the Table 2 emission limits as below:
 - (A) Three or at least 50 percent of the Units no later than 24 months after end of the approved extension in clause (i)(2)(C)(i); and
 - (B) The remaining Unit(s) no later than 36 months after the end of the approved extension(s) in clause (i)(2)(C)(i);
- (ii) If the utility upgrades will not be completed within the initial 24-month extension period provided in clause (i)(2)(C)(i), the owner or operator may request a second extension of no more than 24 months by submitting a revised alternative compliance plan at least 180 days prior to the end of the first 24-month extension, with a filing fee payment pursuant to Rule 306 and Executive Officer approval or disapproval; and specify alternative compliance date(s) in the alternative compliance plan for the number of Units to meet the Table 2 emission limits as below:
 - (A) Three or at least 50 percent of the Units no later than 24 months after end of the approved extension in clause (i)(2)(C)(ii); and
 - (B) The remaining Unit(s) no later than 36 months after the end of the approved extension in clause (i)(2)(C)(ii);

- (iii) If the utility upgrades will not be completed within the second 24-month extension period provided in clause (i)(2)(C)(ii), the owner or operator may request a third extension of no more than 12 months by submitting a revised alternative compliance plan at least 180 days prior to the end of the second 24-month extension, with a filing fee payment pursuant to Rule 306 and Executive Officer approval or disapproval; and specify alternative compliance date(s) in the alternative compliance plan for the number of Units to meet the Table 2 emission limits as below:

 - (A) Three or at least 50 percent of the Units no later than 24 months after the end of the approved extension in clause (i)(2)(C)(iii); and
 - (B) The remaining Unit(s) no later than 36 months after the end of the approved extension in clause (i)(2)(C)(iii);
- (iv) Include the documentation listed in paragraph (j)(6) with the application for any alternative compliance plan or revised alternative compliance plan;
- (v) Provide a progress report to the Executive Officer through the Compliance Portal every six months after the start of the initial extension approved pursuant to clause (i)(2)(C)(i) for the applicable extension period(s) approved pursuant to clauses (i)(2)(C)(ii) or (i)(2)(C)(iii), which includes, but is not limited to:

 - (A) The status of the utility upgrade;
 - (B) The estimated date the utility provider will complete the utility upgrade; and
 - (C) Documentation which justifies the update to estimated date for completion;
- (D) Obtain written approval from the Executive Officer, as specified in paragraph (i)(3):

 - (i) Prior to the earliest compliance due date of all Units included in the alternative compliance plan; and

- (ii) If an additional extension(s) was requested pursuant to clauses (i)(2)(C)(ii) and/or (i)(2)(C)(iii), prior to the end of the initial previously approved 18-month extension.

(3) Approval of Alternative Compliance Option for Multiple Units

The Executive Officer shall review the request for alternative compliance date submitted pursuant to paragraph (i)(2) and provide written approval or disapproval based on whether the following criteria are met:

- (A) The owner or operator demonstrated they are operating five or more Units that are required to be replaced based on Unit age pursuant to paragraph (d)(3) to meet Table 2 emission limits within two calendar years;
- (B) The request was submitted at least one year prior to the earliest applicable compliance due date; and
- (C) The proposed alternative compliance date meets the criteria specified in subparagraph (i)(2)(B) ~~or~~ and subparagraph (i)(2)(C), if applicable.

(4) Alternative Compliance Option for Emergency Replacements

If a Unit requires a short-term replacement due to sudden Unit failure after the applicable Table 3 compliance date and an electrical upgrade is required to increase the power supply capacity to operate a Unit that complies with Table 2 emission limits, excluding Units utilizing alternative compliance options specified in paragraphs (i)(1), (i)(6), and (i)(7):

- (A) For Units used in buildings that are not Residential Structures, the owner or operator of the Unit may elect to Install and operate a temporary Unit that complies with Table 1 emission limits for up to six months prior to installing a Unit that complies with Table 2 emission limits provided the owner or operator of the Unit:
 - (i) Report the date the existing Unit failed and the date the temporary Unit was installed through the Compliance Portal no later than 72 hours after the date the temporary Unit was installed;
 - (ii) Report the date the temporary Unit was disconnected through the Compliance Portal no later than 72 hours after the date the temporary Unit was disconnected; and

(iii) Report the date the Unit complying with Table 2 emission limits was installed through the Compliance Portal no later than 72 hours after the date the new Unit was installed;

(B) For Units sold for use in Residential Structures, a manufacturer, distributor, retailer, or Installer may elect to offer a Unit for rent that complies with Table 1 emission limits for up to six months prior to installing a Unit that complies with Table 2 emission limits provided the manufacturer, distributor, retailer, or Installer report the date the temporary Unit was rented through the Compliance Portal no later than 72 hours after the date the temporary Unit was rented.

(5) Alternative Compliance Option for Mobile Homes

An owner or operator of an Instantaneous Water Heater manufactured prior to [Date of Rule Adoption] that is installed in a Mobile Home may elect to Install an Instantaneous Water Heater with Rated Heat Input Capacity of less than or equal to 200,000 Btu/hr that complies with the Table 1 emission limits until before January 1, 2033, in lieu of the applicable compliance date in Table 3 or paragraph (d)(3), provided the labeling requirement in paragraph (j)(2) is met. On and after January 1, 2033, any Instantaneous Water Heater with Rated Heat Input Capacity of less than or equal to 200,000 Btu/hr manufactured, supplied, sold, offered for sale, or installed for use in a mobile home must meet the Table 2 emission limits upon replacement.

(6) Alternative Compliance Option for Units at a Property Under Lease

An owner or operator of a Unit in a property under lease shall be provided an extension of no more than 24 months from the applicable compliance date to comply with the Table 2 emission limits, if the installation is delayed beyond the reasonable control of the owner or operator of the Unit, excluding Units utilizing the alternative compliance options specified in paragraphs (i)(1), (i)(2), and (i)(7), provided the owner or operator of the Unit:

(A) Occupies the property under a lease as a tenant before and after the applicable compliance date in Table 3 or paragraph (d)(3);

(B) Reports the date the existing Unit is required to be replaced to comply with the Table 2 emission limits to the Executive Officer

through the Compliance Portal no later than 90 days prior to the applicable compliance date in Table 3 or paragraph (d)(3);

(C) If a Unit is non-operational during the extension specified in paragraph (i)(6), the owner or operator may elect to operate a temporary Unit during the extension, provided:

(i) The temporary Unit complies with Table 1 emission limits;

(ii) No later than 72 hours after the date the temporary Unit was installed, the owner or operator notifies the Executive Officer through the Compliance Portal; and

(iii) No later than 72 hours after the date the temporary Unit was disconnected, the owner or operator notifies the Executive Officer through the Compliance Portal;

(D) Report the date the new Unit was installed to comply with the Table 2 emission limits to the Executive Officer through the Compliance Portal no later than 72 hours after the date the new Unit was installed; and

(E) Maintain records pursuant to paragraph (j)(7).

(7) Alternative Compliance Option for Construction

An owner or operator of a Unit shall be provided an extension of no more than ~~six~~18 months from the applicable compliance date to comply with the Table 2 emission limits if the installation is delayed because construction is required to expand the space designed to house or relocate the Unit, and associated equipment necessary for operating the Unit, excluding Units utilizing the alternative compliance options specified in paragraphs (i)(1), (i)(2), (i)(5), and (i)(6), provided the owner or operator of a Unit:

(A) Reports the date the existing Unit is required to be replaced to comply with the Table 2 emission limits to the Executive Officer through the Compliance Portal no later than 90 days prior to the applicable compliance date in Table 3 or paragraph (d)(3);

(B) If a Unit is non-operational during the extension specified in paragraph (i)(7), the owner or operator may elect to operate a temporary Unit during the extension, provided:

(i) The temporary Unit complies with Table 1 emission limits;

- (ii) No later than 72 hours after the date the temporary Unit was installed, the owner or operator notifies the Executive Officer through the Compliance Portal; and
 - (iii) No later than 72 hours after the date the temporary Unit was disconnected, the owner or operator notifies the Executive Officer through the Compliance Portal;
 - (C) Report the date the new Unit was installed to comply with the Table 2 emission limits through the Compliance Portal no later than 72 hours after the date the new Unit was installed; and
 - (D) Maintain records pursuant to paragraph (j)(8).
- (8) An owner or operator of a Unit electing to use any of the alternative compliance options in this subdivision that fails to comply with the applicable requirements of the alternative compliance options must comply with the applicable requirements in paragraph (d)(2)–~~or~~, (d)(3), or subparagraph (d)(5)(B).
- (j) Labeling, Reporting, and Recordkeeping Requirements
 - (1) Pursuant to the labeling schedule in Table 4, any Unit that is supplied or offered for sale for use within the South Coast AQMD prior to the applicable Table 3 compliance dates that complies with the Table 1 emission limits, but not the Table 2 emission limits, shall prominently display the statement “If Installed in South Coast AQMD: For Installation and Use in Existing Buildings Only.”

Table 4 – Labeling Schedule

<u>Unit’s Compliance Schedule</u>	<u>Labeling Requirements</u>	
	<u>Start Date</u>	<u>End Date</u>
<u>Phase I</u>	<u>January 1, 2026</u>	<u>January 1, 2029</u>
<u>Phase II</u>	<u>January 1, 2028</u>	<u>January 1, 2031</u>
<u>Phase III</u>	<u>January 1, 2029</u>	<u>January 1, 2033</u>

- (2) Effective January 1, 2029, to January 1, 2033, an Instantaneous Water Heater with Rated Heat Input Capacity of less than or equal to 200,000 Btu/hr supplied or offered for sale for use in a Mobile Home within the South Coast AQMD and complying with the alternative compliance date in

paragraph (i)(5) shall prominently display the statement “If Installed in South Coast AQMD: For Installation and Use in Mobile Homes Only.”

(3) Annual Reporting Requirement

Effective on and after the Table 3 compliance dates for Existing Buildings, manufacturers of natural gas-fired Unit(s) shall submit a report by March 1st of the following calendar year to the Executive Officer through the Compliance Portal. The report shall include:

(A) Name of the product manufacturer;

(B) List of product model(s);

(C) Number of Units and Rated Heat Input Capacity of each model that was sold into or within the South Coast AQMD; and

(D) The applicable equipment category in Table 2.

(4) General Recordkeeping Requirements

The owner or operator of a Unit shall maintain on-site, or provide upon the Executive Officer’s request, the following records:

(A) A copy of the manufacturer’s and/or distributor’s written instructions;

(B) A record of the maintenance activity for a period of not less than three years;

(C) A copy of a government-issued document that grants permission to an individual or organization to initiate a construction project which determines the eligibility of New Building or Existing Building for the compliance of the rule; and

(D) A record demonstrating annual fuel usage pursuant to subparagraph (g)(2)(D) for a period of not less than three years, if the owner or operator of a Unit is electing to comply with the exemptions in paragraph (k)(2) or (k)(3).

(5) Rated Heat Input Capacity Documentation

The owner or operator of a Unit shall maintain on-site, or provide upon the Executive Officer’s request, a copy of all documents identifying the Unit’s Rated Heat Input Capacity including:

(A) Manufacturer’s or distributor’s manual or invoice; and

(B) Maintain documentation of the Rated Heat Input Capacity for a Unit modified pursuant to paragraph (d)(5), signed by the licensed person modifying the Unit, including:

- (i) Description of all Unit modifications;
- (ii) Dates the Unit was modified; and
- (ii) Calculation of Rated Heat Input Capacity.

(6) Recordkeeping for Alternative Compliance Option for Utility Upgrades

An owner or operator of a Unit that elects to comply with paragraph (i)(1) or subparagraph (i)(2)(C) shall maintain records on-site, or make them available to the Executive Officer upon request, until three years after the end date of the approved extension(s), that demonstrate the utility provider's progress on providing the necessary power, including but not limited to an official document signed by the responsible party of the utility company that services the facility that includes:

- (A) An explanation of the utility upgrades required by the utility company;
- (B) Communications with the utility provider when the utility upgrade was requested;
- (C) Estimated date the utility provider will complete the utility upgrades;
- (D) Any additional information to substantiate that an additional time is necessary; and
- (E) Documentation which demonstrates that the delays are outside of the reasonable control of the owner or operator.

(7) Recordkeeping for Alternative Compliance Option for Units at a Property Under Lease

An owner or operator that elects to comply with paragraph (i)(6) shall maintain records on-site, or make them available to the Executive Officer upon request, until three years after reporting through the Compliance Portal pursuant to subparagraph (i)(6)(B), including but not limited to:

- (A) A legally binding contract that explains the terms and duration of the lease under which the owner or operator of the Unit is a tenant renting the property from a landlord; and
- (B) Documentation which demonstrates that the delays are beyond the reasonable control of the owner or operator of the Unit.

(8) Recordkeeping for Alternative Compliance Option for Construction

An owner or operator that elects to comply with paragraph (i)(7) shall maintain records on-site, or make them available to the Executive Officer

upon request, until three years after reporting through the Compliance Portal pursuant to subparagraph (i)(7)(A), including but not limited to:

(A) Images that show:

(i) ~~the activity of e~~Construction activity; and the

(ii) ~~e~~Expansion of the space for the Unit or new location where the Unit will be housed; and

(iii) ~~a~~Associated equipment by the construction; and

(B) Documentation which demonstrates the construction, which could be a construction permit or contract.

(9) Small Business Registration

An owner or operator of a Unit electing to comply with the exemption in paragraph (k)(5) shall register their facility as a Small Business through the Compliance Portal at least 90 days prior to the Unit reaching the Unit age specified in Table 2. The owner or operator of the Unit shall maintain records on-site, or make them available to the Executive Officer upon request, until three years after registering through the Compliance Portal, to demonstrate:

(A) Business legal owner and contact information;

(B) Number of current employees;

(C) The total gross annual receipts; and

(D) If the business is a not-for-profit training center.

(10) The owner or operator of a Unit required to submit information through the Compliance Portal in paragraph (i)(1), (i)(4), (i)(6), (i)(7), (j)(3), or (j)(9) shall provide the required information by calling 1-800-CUT-SMOG® (800-288-7664) if:

(A) The Compliance Portal is not available;

(B) The functions within the Compliance Portal do not allow the owner or operator of a Unit to enter the necessary information; or

(C) The owner or operator of a Unit does not have access to the Compliance Portal.

(~~h~~k) Exemptions

(1) The provisions of this rule shall not apply to:

(A) Units used in ~~r~~Recreational ~~v~~ehicles;

- (B) Units subject to ~~the~~ a NOx emission limits in District Rule 1121—Control of Nitrogen Oxides From Residential Type, Natural Gas-fired Water Heaters; and
 - ~~(C) Units at a RECLAIM or former RECLAIM facility subject to a NOx emission limit in a different rule for an industry-specific category defined in Rule 1100—Implementation Schedule for NOx Facilities.~~
 - ~~(D) Units at a municipal sanitation service facility subject to a NOx emission limit in a Regulation XI rule adopted or amended after December 7, 2018~~ Rule 1179.1 – Emission Reductions From Combustion Equipment at Publicly Owned Treatment Works Facilities.
- (2) Until the applicable Table 3 compliance dates, the Table 1 provisions of paragraphs (c)(3), (c)(4), and (c)(5) emission limits shall not apply to:
- ~~(A) Any residential unit.~~
 - ~~(B) Type 2 Units manufactured prior to January 1, 2000 with a rated heat input capacity greater than 400,000 BTU per hour, but less than or equal to 2,000,000 BTU per hour that are demonstrated to use less than 9,000 therms during every calendar year. Compliance with the exemption limit shall be demonstrated by a calculation based on the annual fuel consumption recorded by an in line fuel meter or the annual operating hours recorded by a timer and using one of the following methods:~~
 - ~~(i) Annual therm usage recorded by fuel meter and corrected to standard pressure; or~~
 - ~~(ii) Amount of fuel (i.e., in thousand cubic feet of gas corrected to standard pressure) converted to therms using the higher heating value of the fuel; or~~
 - ~~(iii) Annual therm usage calculated by multiplying the number of hours fuel is burned by the rated heat input capacity of the unit converted to therms.~~
- (3) The provisions of paragraphs (d)(2) and (d)(3) and subparagraph (d)(5)(B) shall not apply to the following Units installed prior to [Date of Rule Adoption] that meet Table 1 emission limits:
- (A) Units with a rated heat input capacity greater than 1,000,000 Btu per hour, but less than or equal to 2,000,000 Btu per hour that are

demonstrated to use less than 3,000 Therms during every calendar year-for; or

(B) Units with a rated heat input capacity greater than 400,000 Btu per hour, but less than or equal to 1,000,000 Btu per hour that demonstrate to use less than 2,000 Therms during every calendar year.

(4) The provisions of paragraphs (d)(3), (d)(4), (d)(5), (d)(6), and (d)(7), and the recordkeeping and reporting provisions in paragraphs (j)(4) through (j)(9) shall not apply to Units installed or used in Residential Structures.

(5) The provisions of paragraph (d)(3) shall not apply to a Unit installed in a Small Business, provided that the owner or operator of the Unit complies with paragraph (j)(9).

(6) Certification requirements specified in paragraphs (f)(1) through (f)(4) shall not apply to Units complying with Table 2 emission limits.

~~(i) — Progress Reports~~

~~Any person that manufacturers Type 1 units or Type 2 fire tube boilers, steam boilers producing steam pressure greater than 100 pounds per square inch or thermal fluid heaters subject to this rule shall submit to the District a report on progress towards compliance with the emission limits of paragraphs (e)(7) and (e)(8). Progress reports shall include detailed information on all burner and control technologies evaluated and emission tests. The progress reports shall be submitted to the District for the following categories of equipment by the specified date:~~

~~(1) — Type 2 fire tube boilers, steam boilers producing steam pressure greater than 100 pounds per square inch and thermal fluid heaters shall be submitted to the District by January 31, 2008.~~

~~(2) — Type 1 units shall be submitted to the District by January 31, 2010.~~

ATTACHMENT G

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Staff Report

Proposed Amended Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters, Small Boilers and Process Heaters

June 2024

Deputy Executive Officer

Planning, Rule Development, and Implementation
Sarah L. Rees, Ph.D.

Assistant Deputy Executive Officer

Planning, Rule Development, and Implementation
Michael Krause

Planning and Rules Manager

Planning, Rule Development, and Implementation
Heather Farr

Authors: Emily Yen – Assistant Air Quality Specialist

Contributors: Peter Campbell – Air Quality Specialist
Jennifer Vinh – Air Quality Specialist
Farzaneh Khalaj, Ph.D. – Air Quality Specialist
Daniel Penoyer – Air Quality Specialist
Dana Maxie – AQ Engineer II
Chwen-Jy Chang – AQ Engineer II
Mark VonDerAu – AQ Analysis & Compliance Supervisor
Bradley McClung – Program Supervisor
Susan Tsai – Supervising Air Quality Engineer
Angela Shibata – Senior AQ Engineering Manager
David Ono – Senior AQ Engineering Manager
David De Boer – Senior Enforcement Manager
Jillian Wong, Ph.D. – Assistant Deputy Executive Officer
Jason Aspell – Deputy Executive Officer
Victor Yip – Assistant Deputy Executive Officer
Terrence Mann – Deputy Executive Officer

Reviewed By: Yanrong Zhu – Program Supervisor
Kevin Ni – Program Supervisor
Xian-Liang (Tony) Tian, Ph.D. – Program Supervisor
Ruby Laity – Principal Deputy District Counsel
Josephine Lee – Senior Deputy District Counsel
Barbara Radlein – Planning and Rules Manager

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
GOVERNING BOARD**

Chair: VANESSA DELGADO
Senator (Ret.)
Senate Rules Committee Appointee

Vice Chair: MICHAEL A. CACCIOTTI
Council Member, South Pasadena
Cities of Los Angeles County/Eastern Region

MEMBERS:

ANDREW DO
Supervisor, First District
County of Orange

CURT HAGMAN
Supervisor, Fourth District
County of San Bernardino

GIDEON KRACOV
Governor's Appointee

PATRICIA LOCK DAWSON
Mayor, Riverside
Cities of Riverside County Representative

LARRY MCCALLON
Mayor Pro Tem, Highland
Cities of San Bernardino County

HOLLY J. MITCHELL
Supervisor, Second District
County of Los Angeles

VERONICA PADILLA-CAMPOS
Speaker of the Assembly Appointee

V. MANUEL PEREZ
Supervisor, Fourth District
County of Riverside

NITHYA RAMAN
Council Member, Fourth District
City of Los Angeles Representative

CARLOS RODRIGUEZ
Council Member, Yorba Linda
Cities of Orange County

JOSÉ LUIS SOLACHE
Mayor, Lynwood
Cities of Los Angeles County/Western Region

EXECUTIVE OFFICER:

WAYNE NASTRI

TABLE OF CONTENTS

EXECUTIVE SUMMARY	ES-1
CHAPTER 1: BACKGROUND	1-1
INTRODUCTION	1-1
REGULATORY BACKGROUND	1-1
2022 AIR QUALITY MANAGEMENT PLAN	1-3
AFFECTED INDUSTRIES	1-3
PUBLIC PROCESS	1-3
CHAPTER 2: BARCT ASSESSMENT	2-1
INTRODUCTION OF BARCT ASSESSMENT	2-1
EQUIPMENT CATEGORIES	2-1
BARCT ASSESSMENT	2-2
COST-EFFECTIVENESS AND INCREMENTAL COST-EFFECTIVENESS	2-11
ADDITIONAL BENEFITS AND CHALLENGES	2-27
CHAPTER 3: SUMMARY OF PROPOSALS	3-1
INTRODUCTION	3-1
PROPOSED AMENDED RULE STRUCTURE	3-1
PROPOSED AMENDED RULE 1146.2	3-1
CHAPTER 4: IMPACT ASSESSMENT	4-1
INTRODUCTION	4-1
EMISSIONS INVENTORY AND EMISSION REDUCTIONS	4-1
COST-EFFECTIVENESS	4-4
SOCIOECONOMIC IMPACT ASSESSMENT	4-6
CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) ANALYSIS SUMMARY ..	4-6
DRAFT FINDINGS UNDER HEALTH AND SAFETY CODE SECTION 40727	4-6
COMPARATIVE ANALYSIS	4-7
APPENDIX A: DETAILED CEQA ANALYSIS	A-1
APPENDIX B: RESPONSES TO COMMENTS	B-1

LIST OF TABLES

TABLE 1-1. CURRENT RULE 1146.2 NOX AND CO EMISSION LIMITS	1-1
TABLE 1-2. SUMMARY OF WORKING GROUP MEETINGS	1-4
TABLE 1-3. SUMMARY OF SITE VISITS	1-6
TABLE 2-1. PAR 1146.2 EQUIPMENT CATEGORIES.....	2-2
TABLE 2-2. SOUTH COAST AQMD REGULATORY REQUIREMENTS.....	2-3
TABLE 2-3. OTHER REGULATORY REQUIREMENTS	2-6
TABLE 2-4. NATURAL GAS WATER HEATER COST EXAMPLES FROM INTERNET SEARCH	2-20
TABLE 2-5. COST-EFFECTIVENESS FOR PAR 1146.2 CATEGORIES.....	2-24
TABLE 2-6. PROPOSED BARCT NOX AND CO EMISSION LIMITS, COMPLIANCE SCHEDULE, AND UNIT AGE	2-26
TABLE 2-7. CALIFORNIA PLUMBING CODE HOT WATER TEMPERATURE REQUIREMENTS (DEGREES FAHRENHEIT).....	2-32
TABLE 3-1. SUMMARY OF EMISSION LIMITS FOR NEW UNITS IN RULE 1146.2 AND NEW REVISIONS IN PAR 1146.2.....	3-1
TABLE 3-2. SUMMARY OF PHASE-OUT/RETROFIT REQUIREMENTS IN RULE 1146.2 AND NEW REVISIONS IN PAR 1146.2.....	3-2
TABLE 3-3. PAR 1146.2 TABLE 1 (NOX AND CO EMISSION LIMITS)	3-4
TABLE 3-4. PAR 1146.2 TABLE 2 (ZERO-EMISSION LIMITS, COMPLIANCE SCHEDULE, AND UNIT AGE).....	3-5
TABLE 3-5. PAR 1146.2 TABLE 3 (COMPLIANCE DATES FOR ZERO-EMISSION LIMITS).....	3-5
TABLE 3-6. EXAMPLE FOR PARAGRAPH (I)(2)(C) WITH NO REQUIRED UTILITY UPGRADE	3-11
TABLE 3-7. EXAMPLE FOR PARAGRAPH (I)(2)(C) WITH UTILITY UPGRADE	3-12
TABLE 3-8. PAR 1146.2 TABLE 4 (LABELING SCHEDULE)	3-15
TABLE 4-1. BASELINE EMISSION ESTIMATES	4-2
TABLE 4-2. COST-EFFECTIVENESS FOR PAR 1146.2 CATEGORIES.....	4-5
TABLE 4-3. COMPARATIVE ANALYSIS	4-8

LIST OF FIGURES

FIGURE 2-1. BARCT ASSESSMENT APPROACH	2-1
FIGURE 2-2. SOURCE TEST DATA: NOX PPMV AT 3 PERCENT OXYGEN FROM CERTIFICATIONS	2-5
FIGURE 2-3. EXAMPLES OF INTEGRATED HEAT PUMP (LEFT) AND SPLIT SYSTEM HEAT PUMP (RIGHT).....	2-9
FIGURE 2-4. PAR 1146.2 APPLICABLE UNITS RECATEGORIZATION.....	2-15
FIGURE 2-5. IN-STATE ELECTRIC GENERATION – SELECT FUEL TYPES, SOURCED FROM CEC QUARTERLY FUELS AND ENERGY REPORTING REGULATIONS	2-29
FIGURE 2-6. EXAMPLES OF DISHWASHING UNIT (LEFT) AND ELECTRIC BOOSTER HEATER (RIGHT)	2-34
FIGURE 4-1. 2018 NOX EMISSIONS FROM STATIONARY SOURCES (TONS PER DAY)	4-1
FIGURE 4-2. PERCENT OF BASELINE NOX EMISSIONS ESTIMATE.....	4-3

EXECUTIVE SUMMARY

South Coast AQMD Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters, Small Boilers and Process Heaters (Rule 1146.2), regulates oxides of nitrogen (NOx) emissions from natural gas-fired large water heaters, small boilers, and process heaters that have a rated heat input capacity of less than or equal to two million British thermal units (Btu) per hour. This rule does not regulate residential gas-fired tank type water heaters rated ~~at~~ less than 75,000 Btu/hr heat input, which are regulated under Rule 1121 – Control of Nitrogen Oxides from Residential-Type, Natural Gas-Fired Water Heaters (Rule 1121); however, instantaneous water heaters and pool heaters used in residential structures are regulated by Rule 1146.2 due to the higher Btu ratings of those type of units. The provisions of Rule 1146.2 are applicable to manufacturers, distributors, retailers, installers, refurbishers, and operators.

Rule 1146.2 was initially adopted in January 1998. A Best Available Retrofit Control Technology (BARCT) assessment was conducted for the 2006 amendment where the NOx emission limits were lowered from 30 parts per million by volume (ppmv) to 20 ppmv, except for pool heaters, which remained at 55 ppmv. The rule was last amended in 2018 to remove the exemption for facilities in the REgional CLean Air Incentives Market (RECLAIM) and to require applicable new installations in RECLAIM facilities to meet the 20 ppmv NOx emission limits.

Proposed Amended Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters, Small Boilers and Process Heaters (PAR 1146.2), seeks further NOx emission reductions and implements the 2022 Air Quality Management Plan (AQMP) Control Measure C-CMB-01- Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Commercial Water Heating (Control Measure C-CMB-01).

For PAR 1146.2, staff conducted a comprehensive BARCT assessment which included an analysis of the technical feasibility and cost-effectiveness of zero-emission NOx technologies. PAR 1146.2 proposes to divide the applicable large water heaters, small boilers, and process heaters into different categories and require zero-emission (0 ppmv) limits for new installations based on future effective dates ~~depending on the commercial availability of zero-emission technologies~~. The zero-emission compliance dates are further differentiated for units installed in new or existing buildings. The future effective dates will allow time for the technology to mature, with longer timelines provided for the technologies that are not widely commercially available at this time. PAR 1146.2 also proposes zero-emission limits for existing units that will reach the end of unit age after the zero-emission compliance dates, with an exemption for units used for residential structures and small businesses and provides alternative compliance options and a low-use exemption to address challenges transitioning to zero-emission technologies. In addition, PAR 1146.2 clarifies and updates rule language, restructures the rule, and removes obsolete language.

PAR 1146.2 will affect approximately 1,070,000 units in the South Coast AQMD. Staff estimates that upon full implementation, PAR 1146.2 will reduce NOx emissions by 5.6 tons per day (tpd). The public process for PAR 1146.2 consisted of five working group meetings, a public workshop, a public consultation, and multiple meetings with industry stakeholders and technology vendors to obtain feedback.

CHAPTER 1: BACKGROUND

INTRODUCTION

REGULATORY BACKGROUND

2022 AIR QUALITY MANAGEMENT PLAN

AFFECTED INDUSTRIES

~~AFFECTED EQUIPMENT~~

PUBLIC PROCESS

INTRODUCTION

Rule 1146.2 limits NO_x and carbon monoxide (CO) emissions from natural gas-fired large water heaters, small boilers, and process heaters that have a rated heat input capacity less than or equal to two million Btu per hour (MMBtu/hr). The rule was initially adopted in January 1998, and beginning on January 1, 2000, the provisions of the rule were applicable to manufacturers, distributors, retailers, refurbishers, installers, and operators of new units. Beginning July 1, 2002, the provisions of the rule were also applicable to operators of existing Type 2 units.

In Rule 1146.2, units are split into two categories based on rated heat input capacity: Type 1 units for units rated ~~at~~ less than or equal to 400,000 Btu per hour (kBtu/hr) and Type 2 units for units rated ~~at~~ greater than 400 kBtu/hr and less than or equal to 2 MMBtu/hr. Rule 1146.2 does not regulate residential gas-fired tank type water heaters rated less than 75,000 Btu/hr heat input, which are regulated under South Coast AQMD Rule 1121. However, instantaneous water heaters, also known as tankless water heaters, and pool heaters used in residential structures are regulated by Rule 1146.2 due to the higher Btu ratings of those type of units. Units used in recreational vehicles are exempt from the requirements of Rule 1146.2.

REGULATORY BACKGROUND

Rule 1146.2 was initially adopted in 1998 and has been amended three times: in 2005, 2006, and 2018. The table below summarizes the current NO_x and CO emission limits required in Rule 1146.2.

Table 1-1. Current Rule 1146.2 NO_x and CO Emission Limits

Equipment Category	NO _x Emission Limit*	CO Emission Limit*
Type 1 Units, excluding Pool Heaters	14 ng/J or 20 ppmv	N/A**
Type 1 Pool Heaters	40 ng/J or 55 ppmv	N/A**
Type 2 Units	14 ng/J or 20 ppmv	400 ppmv

* Nanograms per Joule (ng/J) of NO_x (calculated as NO₂) of heat output or the specified ppmv of NO_x or CO at three percent oxygen (O₂) correction, on a dry basis

** Type 1 units are not subject to a CO limit by Rule 1146.2 but may be subject to CO limits by other South Coast AQMD rules.

South Coast AQMD developed the Rule 1146.2 Certification Program in 1998 which requires manufacturers to submit documentation for new unit models, including source test reports, to South Coast AQMD to demonstrate compliance with Rule 1146.2 emission limits.

Rule 1146.2, as adopted in January 1998, required new Type 2 water heaters or boilers to meet an emission limit of 30 ppmv of NO_x or 0.037 pound NO_x per million Btu of heat input and 400 ppmv of CO. New Type 1 units were required to meet a NO_x emission limit of 55 ppmv of NO_x or 40 ng/J of heat output. Compliance dates for the emission limits were based on the date of unit manufacture. Following rule adoption, staff prepared three implementation studies as required by

the rule. A working group comprised of manufacturers, end-users, utilities, and other interested parties was convened to provide input and guidance to staff during each of the three implementation studies. The purpose of the third and final implementation study, Phase III Implementation Study, was to evaluate the requirement for retrofit of units greater than 400 kBtu/hr and less than or equal to 1 MMBtu/hr (smaller Type 2 units). The findings of the Phase III Implementation Study were presented at the July 2004 Governing Board meeting. The Phase III Implementation Study recommended modifying retrofit requirements and evaluating whether lower NO_x emission limits were feasible for new equipment.

Based on the findings of the Phase III Implementation Study, Rule 1146.2 was amended on January 7, 2005, to require existing in-use equipment to comply with the emission limit once the unit reached 15 years of unit age, and to address technical and cost issues for the retrofit of existing units. The rule was amended to require smaller Type 2 units up to 1 MMBtu/hr manufactured prior to January 1, 2000 with unit age over 15 years to be retrofitted to meet 30 ppmv NO_x limit and 400 ppmv CO limit; and require larger Type 2 units up to 2 MMBtu/hr manufactured on and after 1992 with unit age over 15 years to be retrofitted to meet 30 ppmv NO_x limit and 400 ppmv CO limit. Lower emission limits for new equipment were not considered for the January 7, 2005, rule amendment because additional time was needed to evaluate low NO_x technologies and their cost-effectiveness.

Rule 1146.2 was amended again in May 2006 to establish lower NO_x emission limits for new equipment. Staff noted that the technology to reduce NO_x emissions was available, that many of the new Rule 1146.2 boilers and heaters sold met the proposed 20 ppmv limit, and that the proposed amended rule allowed manufacturers four to six years to design equipment which would meet the proposed limit. New manufactured units rated greater than 400 kBtu/hr were required to meet a NO_x emission limit of 20 ppmv effective January 1, 2010, and new manufactured units rated less than or equal to 400 kBtu/hr, with the exception for pool heaters, had to meet a 20 ppmv (less than 14 ng/J heat output) NO_x limit effective January 1, 2012. The NO_x limit for pool heaters rated less than or equal to 400 kBtu/hr remained at 55 ppmv (or 40 ng/J heat output) because it was deemed not cost-effective for this category to meet a 20 ppmv NO_x limit at the time of the rulemaking, primarily due to the small number of hours these units operate each year.

Rule 1146.2 was amended in 2018 along with Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters, and Rule 1146.1 – Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters. The 2018 rule amendments were to create landing rules in anticipation of the sunset of the RECLAIM program when facilities would be transitioned to a command-and-control regulatory structure. The amendment for Rule 1146.2 extended the applicability to the RECLAIM facilities and required the RECLAIM facilities to meet applicable NO_x emission limits by December 31, 2023, for new installations. The 2018 amendment also committed staff to conduct a BARCT technology assessment by January 2022 to determine if a more stringent BARCT requirement should be applied to existing Type 2 units operated in RECLAIM facilities. About 80 RECLAIM facilities have been identified to operate one or more Rule 1146.2 units.

A technology assessment for Rule 1146.2 was completed by January 1, 2022, determining that the NO_x emission limits should be lowered in order to satisfy BARCT requirements. Staff evaluated water heaters and boilers rated less than or equal to 2 MMBtu/hr in both non-RECLAIM and RECLAIM facilities and reviewed certification test reports submitted in recent years to understand

the actual emission levels of certified models and the potential for achieving NO_x emission reductions. Staff reviewed 137 source tests conducted since 2017 for units required to be certified at 20 ppmv for NO_x emissions and found that 39 units (28 percent of units) had NO_x concentrations less than 12 ppmv and 21 units (15 percent of units) had NO_x concentrations less than 10 ppmv. As part of the 2021 technology assessment, staff met with stakeholders seeking their input and conducted a working group meeting on December 16, 2021. Staff recommended a future rule amendment and BARCT assessment to evaluate the potential for further NO_x emission reductions.

2022 AIR QUALITY MANAGEMENT PLAN

The 2022 Air Quality Management Plan (AQMP) adopted on December 2, 2022, set forth a path for improving air quality and meeting federal air pollution standards by striving for zero-emission technologies across all sectors. The 2022 AQMP included Control Measure C-CMB-01, which seeks further NO_x emission reductions from commercial building water heating sources subject to Rule 1146.2. Control Measure C-CMB-01 proposed an emission reduction of NO_x by 70 to 75 percent by 2037. The control strategy focused on a combination of long-term regulation and short-term incentives with a focus on replacing existing water heaters with new zero-emission units. The incentive approach would achieve additional emission reduction, encouraging use and further technology development of zero-emission water heating for existing buildings. PAR 1146.2 will implement the 2022 AQMP Control Measure C-CMB-01.

AFFECTED INDUSTRIES

Rule 1146.2 is applicable to manufacturers, distributors, refurbishers, retailers, resellers, installers, and operators of natural gas-fired large water heaters, small boilers, and process heaters less than or equal to 2 MMBtu/hr. The affected industries include water heater and boiler manufacturing and supply industries, professional installers, and facilities and residents that operate these types of water heaters and boilers. Nearly all industries will be affected by PAR 1146.2. Staff estimated a total of 1,070,000 units in the South Coast AQMD are regulated by PAR 1146.2.

PUBLIC PROCESS

PAR 1146.2 was developed through a public process that began in the second quarter of 2023 and included a series of working group meetings, individual stakeholder meetings, and site visits to affected facilities. South Coast AQMD staff held five working group meetings on April 26, 2023, June 7, 2023, August 30, 2023, October 19, 2023, and December 13, 2023. The working group is composed of representatives from manufacturers, trade organizations, permit stakeholders, businesses, environmental groups, public agencies, consultants, and other interested parties. The purpose of the working group meetings was to present and discuss staff's BARCT assessment and the development of the proposed amendments and NO_x limits for PAR 1146.2. Staff presented initial preliminary draft rule language at the working group meeting on December 13, 2023. A public workshop was held on February 7, 2024, and a public consultation was held on February 23, 2024. Staff presented PAR 1146.2 to the Stationary Source Committee on March 15, 2024, ~~and April 19, 2024, and will present it to the committee on~~ May 17, 2024. The table below summarizes the public meetings held throughout the development of PAR 1146.2 and provides a summary of the key topics discussed at each of the working group meetings.

Table 1-2. Summary of Working Group Meetings

Date	Meeting Title	Highlights
April 26, 2023	Working Group Meeting #1	<ul style="list-style-type: none"> • Rule development process • Rule 1146.2 background • Rule approach • Unit types and NOx emissions • BARCT analysis overview • Initiated BARCT Assessment
June 7, 2023	Working Group Meeting #2	<ul style="list-style-type: none"> • Follow-up to stakeholder comments from Working Group Meeting #1 • Discussion on alignment with rules and strategies of other agencies • Discussion on cost and electric grid infrastructure
August 30, 2023	Working Group Meeting #3	<ul style="list-style-type: none"> • Follow-up to stakeholder comments from Working Group Meeting #2 • Discussion on manufacturer survey • Federal, state, and utility incentives for commercial appliances • Discussion on technologies and other regulatory requirements • Continuation of the BARCT Assessment • Presented cost-effectiveness methods, assumptions, and initial results
October 19, 2023	Working Group Meeting #4	<ul style="list-style-type: none"> • Follow-up to stakeholder comments from Working Group Meeting #3 • Continued BARCT Assessment • Further discussion on applications • Further discussion on and updates to cost-effectiveness • Key rule proposal for BARCT limits for categories

Date	Meeting Title	Highlights
December 13, 2023	Working Group Meeting #5	<ul style="list-style-type: none"> • Follow-up to stakeholder comments from Working Group Meeting #4 • Updates to baseline emissions and cost-effectiveness • Rule language key revisions overview
January 19, 2024		Released Preliminary Draft Rule and Staff Report
February 7, 2024		Public Workshop
February 23, 2024		Public Consultation
March 15, 2024	Stationary Source Committee	
April 19, 2024	Stationary Source Committee	
May 17, 2024	Stationary Source Committee	

In addition, staff held numerous individual meetings with stakeholders who may be impacted by this rulemaking and conducted multiple site visits to various stakeholders, which are listed in the table below.

Table 1-3. Summary of Site Visits

Date	Location
March 15, 2023	SCE Energy Education Center
June 8, 2024	SCE Energy Education Center
June 29, 2023	Parker Boiler Co.
August 29, 2023	Rheem Manufacturing Company, Raypak
September 27, 2023	Cedars-Sinai Medical Center
September 29, 2023	Boeing, Seal Beach
October 3, 2023	Disneyland
November 1, 2023	South Coast AQMD Boiler Room
December 8, 2023	Oakridge Mobile Home Park
January 11, 2024	Lake Los Serranos Mobile Home Park
January 11, 2024	Food 4 Less, La Puente
January 11, 2024	Extended Stay America, Chino Hills
January 17, 2024	Corona Del Rey Apartments
March 14, 2024	The Fountains Mobile Home Park
March 27, 2024	Berkeley Square Cleaners
April 17, 2024	Milt and Edie's Dry Cleaners
April 17, 2024	Perfect Cleaners
May 1, 2024	Amped Kitchens
May 1, 2024	All Day Baby (Restaurant)
May 2, 2024	Jia (Multifamily)
May 2, 2024	Pearl MDR (Multifamily)
May 22, 2024	AVA Burbank (Multifamily)
May 22, 2024	AVA Toluca Hills (Multifamily)
May 24, 2024	Hotel Marguerite
May 24, 2024	Food 4 Less, Santa Ana
May 24, 2024	McCleaners

CHAPTER 2: BARCT ASSESSMENT

INTRODUCTION OF BARCT ASSESSMENT

EQUIPMENT CATEGORIES ~~AND PROCESSES~~

BARCT ASSESSMENT

COST-EFFECTIVENESS AND INCREMENTAL COST-EFFECTIVENESS

ADDITIONAL BENEFITS AND CHALLENGES

INTRODUCTION OF BARCT ASSESSMENT

The purpose of a BARCT assessment is to assess available pollution controls to establish emission limits for specific equipment categories consistent with state law. Under Health and Safety Code Section 40406, BARCT is defined as:

“an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source.”

The BARCT assessment follows a framework through the rule development process and includes public participation. The figure below illustrates the overall BARCT assessment approach.

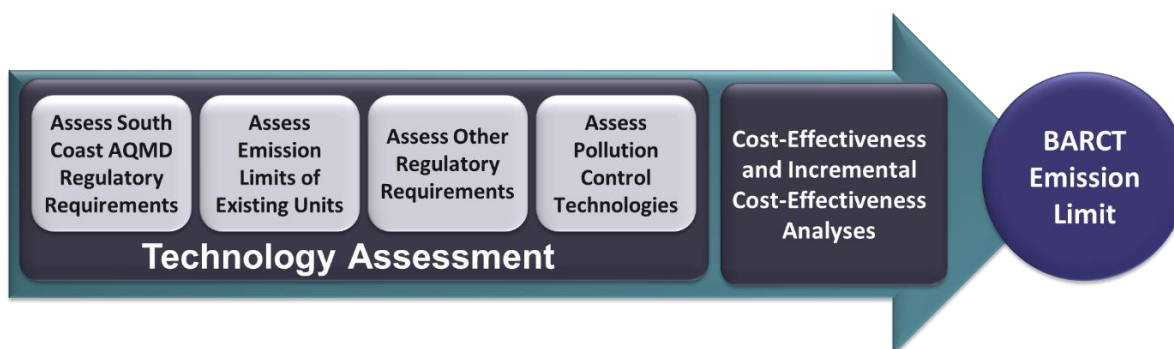


Figure 2-1. BARCT Assessment Approach

For PAR 1146.2, staff conducted a thorough technology assessment to evaluate the NO_x control technologies that will achieve the BARCT level equipment subject to PAR 1146.2. The technology assessment consists of four steps including the assessment of South Coast AQMD requirements, a complete assessment of emission limits of existing units, review of other regulatory requirements, and assessment of available pollution control technologies. Cost-effectiveness was estimated for each control technology which staff has referenced for the proposed BARCT emission limit.

EQUIPMENT CATEGORIES

One of the first steps in the BARCT assessment is to establish the category of equipment. Staff collaborated with the stakeholders to establish the categories by accounting for the type of equipment and other unique features of the units. Compared with the current Rule 1146.2, PAR 1146.2 defines Type 1 and Type 2 units by the same heat input capacities, except that additional categories are defined for Type 1 and Type 2 units for different implementation schedules. Staff categorized the equipment subject to PAR 1146.2 as presented in Table 2-1:

Table 2-1. PAR 1146.2 Equipment Categories

Equipment Category	Description
Type 1 Unit	Units with rated heat input capacity less than or equal to 400 kBtu/hr as defined in the rule. For zero-emission limit requirements, Type 1 high temperature units, Type 1 pool heaters, and instantaneous water heaters are divided out for different implementation dates.
Type 2 Unit	Units with rated heat input capacity greater than 400 kBtu/hr and up to and including 2 MMBtu/hr as defined in the rule. For zero-emission limit requirements, Type 2 high temperature units and instantaneous water heaters are divided out for different implementation dates.
Type 1 Pool Heater	Units with rated heat input capacity less than or equal to 400 kBtu/hr that are used for pool heating. Note that pool heaters in the Type 2 size range are covered under the Type 2 water heater category.
Type 1 High Temperature Unit	Referring to Type 1 units that are high temperature units, which are units used to produce steam or to heat water above 180 degrees Fahrenheit.
Type 2 High Temperature Unit	Referring to Type 2 units that are high temperature units.
Instantaneous Water Heater ≤ 200,000 Btu/hr	Units sized at or under 200 kBtu/hr that heat water only when water flows through a heat exchanger. There is no storage tank for this type of unit.
Instantaneous Water Heater > 200,000 Btu/hr	Units sized at or under 2 MMBtu/hr but greater than 200 kBtu/hr that heat water only when water flows through a heat exchanger. There is no storage tank for this type of unit.

BARCT ASSESSMENT

Assess South Coast AQMD Regulatory Requirements

Assessment of South Coast AQMD Regulatory Requirements

Staff reviewed existing South Coast AQMD NO_x regulations for large commercial water heaters, boilers, process heaters, and similar equipment. The following table summarizes the current South Coast AQMD NO_x rules that staff evaluated as part of the BARCT technology assessment. Staff presented the assessment of South Coast AQMD regulatory requirements in Working Group Meeting #1 on April 26, 2023.

Rules 1146, 1146.1, and 1121

Rule 1146 establishes emission limits for boilers, steam generators, and process heaters fueled by gaseous fuels, which are segregated into three different groups based on heat input capacity:

- Group I (greater than or equal to 75,000,000 Btu/hr, excluding thermal fluid heaters and units operated at schools and universities),
- Group II (greater than or equal to 20,000,000 Btu/hr and less than 75,000,000 Btu/hr, excluding units burning digester and landfill gases and thermal fluid heaters and units operated at schools and universities) and

- Group III (greater than or equal to 5,000,000 Btu/hr and less than 20,000,000 Btu/hr, excluding units burning digester and landfill gases and atmospheric units and thermal fluid heaters).

By the 2008 amendment, Rule 1146 Group I units were required to meet a lower NOx emission limit of 5 ppmv. Group II and III are subject to the 9 ppmv NOx limit.

Rule 1146.1 establishes emission limits for small industrial, institutional, and commercial boilers, steam generators, and process heaters with rated heat input greater than 2 MMBtu/hr and less than 5,000,000 Btu/hr. Most of the Rule 1146.1 units are subject to the 9 ppmv NOx limit.

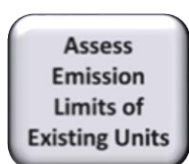
Both Rules 1146 and 1146.1 include a limit of 12 ppmv NOx for atmospheric units and a limit of 30 ppmv for thermal fluid heaters. All units subject to Rule 1146 and 1146.1 fired by landfill gases were required to meet NOx emissions limits of 25 ppmv by January 1, 2015, and units fueled by digester gas were required to meet 15 ppmv by January 1, 2015.

Rule 1121 establishes NOx emissions limits for natural gas-fired water heaters with heat input rates less than 75,000 Btu/hr which are mostly tank type water heaters used in residential buildings. Rule 1121 requires a NOx emission limit of 10 ng/J (15 ppmv) with an exemption for water heaters in recreational vehicles.

Table 2-2. South Coast AQMD Regulatory Requirements

Regulation/Rule Title	Relevant Unit/Equipment Size	Current NOx Emission Limits in ng/J or ppmv at 3% O ₂ , dry
Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters	Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters (greater than or equal to 5,000,000 Btu/hr rated heat input capacity)	<ul style="list-style-type: none"> • 7-9 ppm for units burning gaseous fuels 5,000,000 to less than 20,000,000 Btu/hr; • 5-9 ppmv for units burning gaseous fuels greater than 20,000,000 Btu/hr and less than 75,000,000 Btu/hr; • 5 ppmv for units burning natural gas greater than or equal to 75,000,000 Btu/hr; • 12 ppmv for thermal fluid heaters burning gaseous fuels; • 40 ppmv for nongaseous fuels; • 12 ppmv for atmospheric units; • 15 ppmv for units burning digester gas; • 25 ppmv for units burning landfill gas

Regulation/Rule Title	Relevant Unit/Equipment Size	Current NOx Emission Limits in ng/J or ppmv at 3% O ₂ , dry
Rule 1146.1 – Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters	Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters (greater than 2 MMBtu/hr and less than 5 MMBtu/hr rated heat input capacity)	<ul style="list-style-type: none"> • 7-9 ppmv for units greater than 2 MMBtu/hr and less than 5 MMBtu/hr burning natural gas; • 12 ppmv for atmospheric units; • 12 ppmv for thermal fluid heaters; • 15 ppmv for units burning digester gas; • 25 ppmv for units burning landfill gas
Rule 1146.2 – Emissions of Oxides of Nitrogen (NOx) from Large Water Heaters, Small Boilers and Process Heaters	Large Water Heaters, Small Boilers and Process Heaters (less than or equal to 2 MMBtu/hr rated heat input capacity, excluding tank type water heaters subject to Rule 1121)	14 ng/J; 20 ppmv (except for Type 1 pool heaters which are at 40 ng/J or 55 ppmv)
Rule 1121 – Control of Nitrogen Oxides from Residential-Type, Natural Gas-Fired Water Heaters	Residential-Type, Natural Gas-Fired Water Heaters (less than 75 kBtu/hr rated heat input capacity)	10 ng/J; 15 ppmv (except for water heaters used in recreational vehicles)



Emission Level of Existing Units

The next step of the BARCT assessment is to evaluate the emission of existing units operating within the South Coast AQMD. For this step, staff evaluated current South Coast AQMD NOx regulations for other similar combustion equipment to assess potential technology transfer. Staff reviewed 137 source tests conducted since 2017, as shown in the figure below. For Type 1 and Type 2 units required to be certified at 20 ppmv for NOx emissions, staff found that 39 units (28 percent of units) had tested under 12 ppmv and 21 units (15 percent of units) had tested under 10 ppmv. Reviewing certification tests conducted since 2017 indicated that 33 percent of certified pool heaters tested under 12 ppmv, with some testing at 3.3 ppmv.

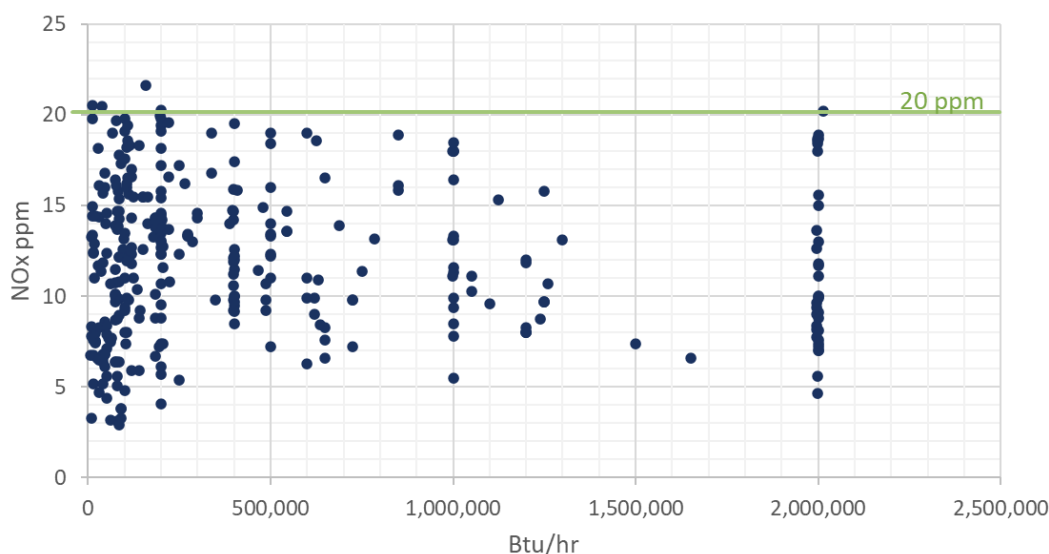


Figure 2-1-2. Source Test Data: NOx ppmv at 3 percent Oxygen from Certifications

**Assess Other
Regulatory
Requirements**

Other Regulatory Requirements

The next step of the assessment is to identify other agencies that regulate the same or similar equipment and compare the regulatory requirements and emissions limits. The purpose of this step is to evaluate if there are applicable emissions limits lower than the current South Coast AQMD limits that should be considered. The table below includes the list of regulations by other agencies which staff reviewed for applicable emissions limits. The specific emission limits and their impact on the BARCT assessment included for each category are discussed later for each of the equipment categories.

With regards to zero-emission standards for building appliances, other agencies are considering or have already adopted similar rules, and a South Coast AQMD rule cannot be less stringent than a state-wide rule. The California Air Resources Board (CARB) has commenced its rulemaking process for potential state-wide standards to “develop and propose zero-emission standards for space and water heaters sold in California” with potential implementation in 2030 as committed in the 2022 State Strategy for the State Implementation Plan.¹ CARB held its first public workshop on May 10, 2023, [and its most recent public workshop on May 29, 2024](https://ww2.arb.ca.gov/sites/default/files/2022-08/2022_State_SIP_Strategy.pdf).² The California Energy Commission’s (CEC) 2022 Building Energy Efficiency Standards (Energy Code) apply to newly constructed buildings and additions and alterations to existing buildings. The 2022 Energy Code encourages efficient electric heat pumps, establishes electric-ready requirements for new homes, expands solar photovoltaic and battery storage standards, and more.³ Buildings whose permit applications are applied for on or after January 1, 2023, must comply with the 2022 Energy Code. There are mandatory requirements for electric ready and heat pump ready multifamily buildings, and the Energy Code discourages use of electric resistance heating when an alternative method of

¹ California Air Resources Board, 2022 State SIP Strategy, p. 30, https://ww2.arb.ca.gov/sites/default/files/2022-08/2022_State_SIP_Strategy.pdf

² California Air Resources Board, Zero-Emission Appliances Meetings & Workshops, <https://ww2.arb.ca.gov/our-work/programs/building-decarbonization/zero-emission-appliance-standards/meetings-workshops>

³ California Energy Commission, 2022 Building Energy Efficiency Standards, https://www.energy.ca.gov/sites/default/files/2022-12/CEC-400-2022-010_CMF.pdf

heating is available. The Energy Code is contained in Title 24, Part 6 of the California Code of Regulations and is updated every three years. [The 2025 Energy Code will apply to newly constructed buildings, additions, and alterations, with proposed standards to be adopted in 2024 and an effective date of January 1, 2026.](#)

Bay Area Air Quality Management District (BAAQMD) adopted Rule 9-6 – Nitrogen Oxides Emissions from Natural Gas-Fired Boilers and Water Heaters in March 2023 with zero-emission limits for 2031 implementation. The BAAQMD analysis found that zero-NO_x 240-volt heat pump water heaters are widely commercially available at sizes equivalent to existing natural gas systems on market for commercial spaces; technology development and field testing is still needed to bring compliant appliances of larger water heaters and boilers up to 2 MMBtu/hr to market; and BAAQMD staff expects that the availability of zero-NO_x units will increase, and costs will decrease over time. BAAQMD committed to an Implementation Working Group and reporting back to their Board on technology developments and availability. Staff presented the assessment of other regulatory requirements in Working Group Meetings #1 and #2, detailed in the tables below.

Table 2-3. Other Regulatory Requirements

Regulatory Entity	Regulation/Rule	Relevant Emission Limits
San Joaquin Valley Air Pollution Control District (Valley Air District)⁴	Rule 4308 – Boilers, Steam Generators, and Process Heaters (units with a total rated heat input capacity of greater than or equal to 75 kBtu/hr and less than 2 MMBtu/hr) – Exempts units installed in manufactured homes, units installed in recreational vehicles, and hot water pressure washers	20 ppmv (except for pool heaters greater than or equal to 75 kBtu/hr and less than or equal to 400 kBtu/hr, which are at 55 ppmv)
Bay Area Air Quality Management District (BAAQMD)⁵	Rule 9-6 – Nitrogen Oxides Emissions from Natural Gas-Fired Boilers and Water Heaters (units with total rated heat input capacity of 75 kBtu/hr – 2 MMBtu/hr) adopted in March 2023	Zero-emission limits with implementation in 2031 – Exempts units installed in manufactured homes (40 ng/J limit), units installed in recreational vehicles, and pool/spa heaters with less than 400 kBtu/hr rated heat input capacity used exclusively to heat swimming pools, hot tubs, or spas

⁴ San Joaquin Valley Air Pollution Control District, Rule 4308, <https://ww2.valleyair.org/media/o5pdu0oe/rule-4308.pdf>

⁵ Bay Area Air Quality Management District, Rule 9-6, https://www.baaqmd.gov/~media/dotgov/files/rules/reg-9-rule-4-nitrogen-oxides-from-fan-type-residential-central-furnaces/2021-amendments/documents/20230315_rg0906-pdf.pdf?rev=436fcdb037324b0b8f0c981d869e684d&sc_lang=en

Regulatory Entity	Regulation/Rule	Relevant Emission Limits
California Air Resources Board (CARB)⁶	2022 State Strategy for the State Implementation Plan (adopted September 22, 2022) proposed measures for residential and commercial buildings; Anticipating Board consideration for rule adoption in 2025	Proposed zero-emission limits (GHG, NO _x) for new equipment and appliances sold for use in both residential and commercial buildings, with implementation in 2030

On the local level, over 60 cities and counties across California are considering policies to support zero-emission appliances for new construction.

**Assess
Pollution
Control
Technologies**

Assessment of Pollution Control Technologies

The next step is to research the commercially available emission control technologies and seek information on any emerging emission control technologies. As part of this assessment, staff met with multiple manufacturers.

South Coast AQMD Rule 1146.2 is technology and fuel neutral and is focused on achieving the maximum NO_x emission reductions possible.

Staff assessed different pollution control technologies as part of the BARCT assessment. Staff presented and discussed the pollution control technology assessment in working group meetings. The objective is to identify and evaluate control technologies, approaches, and potential emission reductions.

Emerging Technology and Zero-Emission Technology

Zero-emission technologies such as heat pumps, electric resistance, and fuel cell technologies were explored as part of the BARCT assessment. Staff conducted internet searches, met with stakeholders, and sent a survey to manufacturers to gather more information on emerging and zero-emission technology.

Manufacturer Survey

On May 10, 2023, staff sent a survey to space and water heating manufacturers to gather information on zero-emission technologies, after sending an initial draft survey to stakeholders for feedback on April 28, 2023. The survey covered types of zero-emission technology; applications for installation in residential or commercial buildings; available models; energy efficiency ranges; current annual sales in the South Coast AQMD region; incremental manufacturing cost for the technology; concerns for the technology; and focus of current and future development.⁷ Staff received eight responses to the manufacturer survey and presented the aggregate and anonymized responses in the working group meeting on August 30, 2023. Manufacturers who responded to the survey reported that they provided air source and water source heat pump water heater units and hybrid heating, cooling, and water heating, including split system units with heating capacity between 60,000 to 250,000 Btu/hr; variable speed; ducted or ductless; indoor or outdoor; and

⁶ California Air Resources Board, 2022 State SIP Strategy, p. 30, https://ww2.arb.ca.gov/sites/default/files/2022-08/2022_State_SIP_Strategy.pdf

⁷ South Coast AQMD, Proposed Amended Rule 1146.2, Manufacturer Survey, <http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/rule-1146-1146.1-and-1146.2/manufacturer-survey---may-10.xlsx?sfvrsn=6>

modular units (that can dynamically adjust their capacity) up to 2.2 MMBtu/hr. Manufacturers also reported integrated units with up to 2 MMBtu/hr output. Manufacturers reported plans for future heat pump water heater development, including: reduce necessary storage tank capacity; improve capacity and efficiency at lower ambient temperatures; improve efficiency through variable speed compressor and pump control; increase outlet water temperature; utilize alternate refrigerants that allow lower ambient and higher output temperature operation; expand integrated and split-system all-electric heat pumps (air-to-water) to units with larger heating capacities; expand water source in addition to air source technology; and expand efforts in modular design and commercial hydronic heating heat pumps.

Manufacturers who responded to the survey also reported that they provided electric resistance elements for boilers; electric resistance single-stage compressor and fan for pool heating; and all-electric air-to-water heat pumps for pool heating. Manufacturers who responded to the survey reported that they provide electric resistance storage water heater products up to 900 kW input (approximately 3 MMBtu/hr) and electric resistance instantaneous water heater products up to 150 kW (approximately 500,000 Btu/hr).

Based on the feedback from manufacturers, staff understands that there is a range of heat pump and electric resistance units available to replace gas units subject to this rule. However, manufacturers will continue development to improve and expand zero-emission products.

Heat Pump Technology

Common zero-emission water heating technology includes heat pumps. Heat pumps operate like a refrigerator or air conditioning unit by moving heat from one place (such as air, water, or ground) to another. This technology can be over three times more efficient than conventional appliances and can be used for water heating, space heating, and cooling. For pool heating, heat pump pool heaters are an option and are significantly more efficient than electric resistance pool heating.

An integrated heat pump with a water tank packaged as a single unit, as shown in the image below, can be sized for commercial applications and be located indoors. Another type of heat pump is a split system with a water tank that can be located as far as fifty feet away from the heat pump, as shown in the image below. In split systems the heat pump takes heat from outdoor air rather than indoor air.



Figure 2-2-3. Examples of Integrated Heat Pump (Left) and Split System Heat Pump (Right)

Some stakeholders have expressed concerns over how well heat pumps will operate in colder climates, such as the high-altitude locations within the South Coast AQMD. There are heat pump products available in the market that can operate at low temperatures, and the Northwest Energy Efficiency Alliance's Qualified Products List includes heat pump water heater products that are energy efficient in cold climates and products that can produce hot water via heat pump at negative 25 degrees Fahrenheit. Cold climate heat pumps can pull heat from the air even at below-zero temperatures and are utilized in colder climates in the U.S. and abroad. Maine has one of highest per capita heat-pump adoption rates, outpacing Scandinavian countries, with rebates incentivizing installation of approximately 116,000 heat pumps in a state that has fewer than 600,000 occupied housing units. Heat pump technology is also being adopted in states such as Vermont and Alaska, and according to the International Energy Agency, 60 percent of Norway's buildings are fitted with a heat pump.

One concern is whether sufficiently high-water temperatures needed to meet certain commercial applications could be achieved by using a heat pump water heater. One common practice is to use a booster heater, which can be electric, to increase water temperature up to 180 degrees Fahrenheit. This would satisfy the domestic water temperature requirements for dietary, laundry, and dishwashing. There are also products existing and emerging in the market that can meet the high-water temperature demand. For example, an internet search of units sold or installed in U.S. or Southern California with focus on high water temperatures found products providing water temperature between 160- and 248-degrees Fahrenheit, with waste heat recycling systems capable of achieving up to 248 degrees Fahrenheit. This is a type of technology where a heat pump extracts

wasted heat from a heat source (chilled water, cooling tower water, or any consistent waste heat) and raises the temperature to a useful level. The heat pump allows reuse of low-temperature heat (less than 140 degrees Fahrenheit). Through the refrigeration cycle of the heat pump, hot water temperature can be increased up to 248 degrees Fahrenheit.⁸ Applications of waste heat include sterilization; hot and chilled water for hotels, hospitals, schools, and universities; boiling processes for food manufacturing; and other industrial processes. Waste heat application is opted for only when there is an existing source that provides waste heat. It is not intended for large combustion units to be installed with the sole purpose of creating waste heat for a zero-emission unit. The energy efficiency of these products varies, with Coefficient of Performance (COP) between 4.3 and 6.0, or between 4.3 to 6 times more efficient than electric resistance units. For many commercial processes, heat pumps are a viable technology.

Staff recognizes that for steam, heat pump technology may not be viable in the market yet, and for certain industrial processes, heat pump technology is not as mature and electric resistance options are more expensive to operate due to the energy demand. As part of the BARCT assessment, including discussions with manufacturers, staff determined that a temperature threshold was necessary to provide more time for the zero-emission technology market to mature for high temperature applications. As discussed above, zero-emission technologies for providing water temperatures up to 180 degrees Fahrenheit are available. Further discussion in a later section indicates that California plumbing code hot water temperature requirements are also up to 180 degrees Fahrenheit. For PAR 1146.2, staff suggested a temperature threshold of 180 degrees Fahrenheit for special consideration on high temperature applications, to align with the Code of Federal Regulations definition for “residential-duty commercial water heater” for outlet water temperature. PAR 1146.2 provides a definition for high temperature units used to produce steam or heat water above 180 degrees Fahrenheit, and the compliance schedule for zero-emission limits differentiates high temperature units with further implementation dates. Staff intends to conduct a technology assessment prior to the proposed implementation dates for high temperature units to gather information on changes in technology development and availability.

Zero-emission technology for commercial and industrial applications is continuing to develop, with New Belgium Brewing in Colorado partnering with AtmosZero on a pilot study to replace their gas boiler with industrial electric heat pump technology in 2024.⁹ The facility is currently operating at 329 degrees Fahrenheit. An air source heat pump water heater can be used to generate steam (greater than 212 degrees Fahrenheit), operate in sub-zero temperatures, with potential applications including breweries, dairies, plastics, pharmaceuticals, food, paper, and more. The pilot study hopes to result in an off-the-shelf product at a comparable price to a combustion unit. The current unit is larger than the size range for 1146.2 units, with some potential for further technology development for smaller units. The International Energy Agency’s Technology Collaboration Programme on Heat Pumping Technologies expects high-temperature heat pump technologies to become more commercially available and implemented in coming years.¹⁰

⁸ Armstrong International Inc., <https://armstronginternational.com/products-landing/heat-pump-packages/>

⁹ The Colorado Sun, New Belgium Brewing prepares for industrial heat pump that could cut its greenhouse gas emissions, <https://coloradosun.com/2023/09/11/new-belgium-greenhouse-gases-atmoszero-heat-pump/>

¹⁰ Annex 58, Task 1: Technologies, <https://heatpumpingtechnologies.org/annex58/task1/>

Electric Resistance Technology

Another common zero-emission water heating technology is electric resistance water heating with storage. Generally, this consists of an insulated steel tank with two electric resistance elements that heat the water. These units are available in a large range of sizes for the commercial market. For a commercial electric boiler, no air intake or exhaust venting is required. There are also instantaneous/mini-tank (point-of-use) electric water heaters which provide hot water at the consumption point and only heat water when necessary. For pool heating, electric resistance swimming pool heaters are a more efficient option than gas-fired pool heaters.

There are also commercial hybrid electric water heaters which utilize heat pump heating and electric resistance heating. These units pull heat from the surrounding air to heat water and use less energy than a standard electric water heater. A commercial heat pump boiler would consist of an all-electric heat pump with an optional built-in backup electric boiler for very cold days.

Solar Water Heating Technology

Solar water heating is another option, where solar thermal hot water systems range in size from conventional-sized systems to large industrial applications and consist of flat plate collectors, a controller, pump, storage. There are also swimming pool solar heaters which consist of solar collectors, filters, pumps, and control valves. They can be standalone units, with collectors mounted on roofs or anywhere near the pool.

Fuel Cell Technology

Fuel cells have a broad range of applications from multi-megawatt systems to small units and continue to expand with emerging technologies.¹¹ Cost and durability are still critical challenges, and studies have indicated price ranges between \$4,000 to \$20,000 per kW. Natural gas fuel cells produce some NO_x emissions. Staff recognizes the applications of zero-emission fuel cells and that this is an emerging technology. Over 100,000 fuel cells have been deployed in Europe and over 300,000 units in Japan primarily for residential applications.¹² Fuel cell adoption in California currently is limited. However, fuel cell technology has the potential to replace existing units to meet the zero-emission limits, and it is especially promising for future high temperature applications.

COST-EFFECTIVENESS AND INCREMENTAL COST-EFFECTIVENESS

Initial BARCT Emission Limit and Other Considerations

After completing the technology assessment, staff recommends an initial BARCT NO_x emission limit established using information gathered from the technology assessment. All provided emission concentration values (i.e., initial and final) in this report refer to concentration in terms of parts per million by volume (ppmv) based on a dry basis. Additionally, staff evaluates other considerations that could affect the emission limits that represent BARCT, including limits for those units operating close to the BARCT NO_x limits. Heat pump technologies are still the main technologies that can achieve in the nearer-term the NO_x concentration limits proposed in PAR

¹¹ U.S. Department of Energy, Multi-Year Research, Development, and Demonstration Plan, https://www.energy.gov/sites/default/files/2017/05/f34/fcto_myrd_d_fuel_cells.pdf

¹² PACE, Fuel Cell micro-Cogeneration reaches another milestone in Japan, <https://pace-energy.eu/fuel-cell-micro-cogeneration-reaches-another-milestone-in-japan/>

1146.2. Summary of the BARCT assessment and staff's recommendations based on feasibility is shown below.

Method for Cost-Effectiveness and Incremental Cost Effectiveness Analysis

The South Coast AQMD routinely conducts cost-effectiveness analyses for proposed rules and proposed amended rules and regulations that result in the reduction of criteria pollutants (NO_x, SO_x, VOC, PM, and CO). The analysis is used as a measure of the relative effectiveness of a proposal. It is generally used to compare and rank rules, control measures, or alternative means of emissions control relating to the cost of purchasing, installing, and operating control equipment to achieve the projected emission reductions. The major components of the cost-effectiveness analysis are capital costs, emission reductions, discount rate, and equipment useful life. The cost-effectiveness for PAR 1146.2 was completed using the discounted cash flow method, explained below:

Discounted Cash Flow (DCF)

The DCF method converts all costs, including initial capital investments and costs expected in the present and all future years of equipment useful life, to present value. Conceptually, it is as if calculating the number of funds that would be needed at the beginning of the initial year to finance the initial capital investments and to set aside to pay off the annual costs as they occur in the future. The fund that is set aside is assumed to be invested and generates a rate of return at the discount rate chosen. The final cost-effective measure is derived by dividing the present value of total costs by the total emissions reduced over the equipment useful life. The equation below is used for calculating cost-effectiveness with DCF. The equation was presented in the 2022 AQMP Socioeconomic Report Appendix 2-B (p. 2-B-3):

$$\text{Cost} - \text{effectiveness} = \frac{\text{Initial Capital Investments} + (\text{Annual O\&M Costs} \times \text{PVF})}{\text{Annual Emission Reductions} \times \text{Years of Equipment Life}}$$

Where O&M = Operation and Maintenance; and
 PVF = Present Value Factor.

Equation 2-1. Discounted Cash Flow Cost Effectiveness Equation

And the PVF is calculated as follows:

$$\text{PVF} = \frac{(1 + r)^N - 1}{r * (1 + r)}$$

Where r = real interest rate (discount rate); and
 N = years of equipment life.

Equation 2-2. PVF Equation

Finally, Health and Safety Code Section 40920.6 (a)(3) states that an incremental cost-effectiveness assessment should be performed on identified potential control options that meet air quality objectives. To determine the incremental cost-effectiveness under this paragraph, South Coast AQMD calculates the difference in the dollar costs divided by the difference in the emission

reduction potentials between each progressively more stringent potential control option as compared to the next less expensive control option. Once the BARCT assessment is complete and NO_x limits are established, staff considers incrementally more stringent options to demonstrate that the NO_x limit represents the “maximum degree of reduction achievable by each class or category.” The equation for incremental cost-effectiveness is below:

$$I-CE \left(\$/\text{tons NO}_x \text{ reduced} \right) = \frac{\text{Incremental Difference in Cost (Present Worth Value)}}{\text{Incremental Difference in Emission Reductions (Lifetime Reductions)}}$$

Where I-CE = Incremental Cost-Effectiveness

Equation 2-3. Incremental Cost Effectiveness Equation

For PAR 1146.2, staff did not identify multiple control options that would meet the air quality objectives. The 2022 AQMP’s objective is to transition to zero-emission technologies wherever feasible and staff identified technically feasible zero-emission control options for each category of equipment subject to Rule 1146.2; therefore, staff did not conduct an incremental cost-effectiveness assessment.

Summary of Cost-Effectiveness Analysis and Incremental Cost-Effectiveness Analysis

In order to determine cost-effectiveness for the proposed BARCT limits, cost information and estimates for the control equipment were obtained. Staff met with multiple manufacturers and stakeholders to gather cost data and estimates for various types of units. In addition, staff also sent out a survey to the facilities to gather equipment data and cost information for recent NO_x control projects. After cost information was obtained, a bottom-up approach evaluated each unit category subject to PAR 1146.2 and cost-effectiveness analysis was conducted on a per equipment basis. Baseline emissions for each equipment were calculated using the assumption methodology outlined in Chapter 4.

Natural Gas-Fired Unit Efficiency

A major manufacturer recommended utilizing 95 percent efficiency for gas-fired units in cost effectiveness calculations. Currently products in the market range from 80 to 95 percent, with older units being less efficient. Some products in the market can reach a 95 percent efficiency, and manufacturers suggested that future U.S. Department of Energy (U.S. DOE) or CEC standards may be raised to require 95 percent efficiency. As not all units currently achieve 95 percent efficiency, this assumption results in an overestimate of the cost to switch to zero-emission technologies; however, the cost-effectiveness assessment is for future available technologies, so staff agreed to use the 95 percent efficiency assumption. For Type 1 pool heaters, staff utilized 84 percent efficiency to align with the U.S. DOE standard.

Capacity Factors

The capacity factor is the proportion of time the unit is expected to operate. Consistent with the rule development process for the Rule 1146.2 amendments in 2006, the analysis assumed the capacity factor for Type 1 and Type 2 natural gas-fired water heaters and boilers to be 21.5 percent, meaning the unit is estimated to operate 21.5 percent of time at maximum heat input capacity. This assumption was taken from a manufacturer survey conducted during the previous Rule 1146.2 rule development.

Instantaneous on-demand units operate at high heat for less time than tank-type units operate. The Energy Star's estimated annual usage for the natural gas-fired instantaneous water heater example is 178 therms or 17.8 MMBtu. The analysis divided 17.8 MMBtu by 8,760 hours in a year which resulted in approximately 2,032 Btu/hr. This number is used to estimate the capacity factor for a typical instantaneous water heater rated at 150,000 Btu/hr: $2,032 \text{ Btu/hr} \div 150,000 \text{ Btu/hr} = 0.0135$.

Incremental Installation, Maintenance, and Labor Cost

The PAR 1146.2 analysis previously considered negligible incremental maintenance and labor costs, since the requirement for zero-emission units is at the end of natural gas-fired unit age, when similar costs will be required for another natural gas-fired unit. Stakeholders commented that installation costs for heat pumps are higher than for gas units, not including equipment costs, and staff increased the unit capital cost of the zero-emission units in the cost-effectiveness analysis by 20 percent to represent additional installation and other costs. For some units this may be an overestimate, for some it may be an underestimate so applying the additional costs to all units is a conservative assumption. As heat pump installations become more commercially available and common, installation costs are anticipated to be comparable to installation costs for conventional units.

Electrical Panel Upgrade Cost

In some instances, the transition to zero-emission units will require the electrical panel to be upgraded, which will add costs for the owner or operator of the units. For the cost-effectiveness analysis, the analysis relied on the panel upgrade cost estimate of \$5,000 from the 2022 AQMP and considered a useful life of 30 years for the panel. However, the cost of an electrical panel upgrade was adjusted to account for this longer useful life of the electrical panel versus the unit. For panel upgrade cost in the PAR 1146.2 cost-effectiveness calculation, \$2,500 was utilized for pool heaters (considering the 15-year useful life) and \$4,200 was utilized for other categories (considering the 25-year useful life). For some categories involving residential units, the panel cost was split in half to account for use by multiple residential appliances. Additionally, staff assumed that 50% of residential buildings would require a panel upgrade. Data from TECH Clean California, the state-wide heat pump rebate program, showed that 9% of residential buildings required a panel upgrade. Staff expects 50% to be an overestimate but is utilizing the more conservative estimate in the analysis. Electrical panel upgrades will not be required for all instances where conventional units are replaced with zero-emission units, so staff assessed the cost-effectiveness with and without the estimated cost of the upgrades.

Applicable Units Recategorization

PAR 1146.2 defines additional categories for Type 1 and Type 2 units, shown in the figure below.

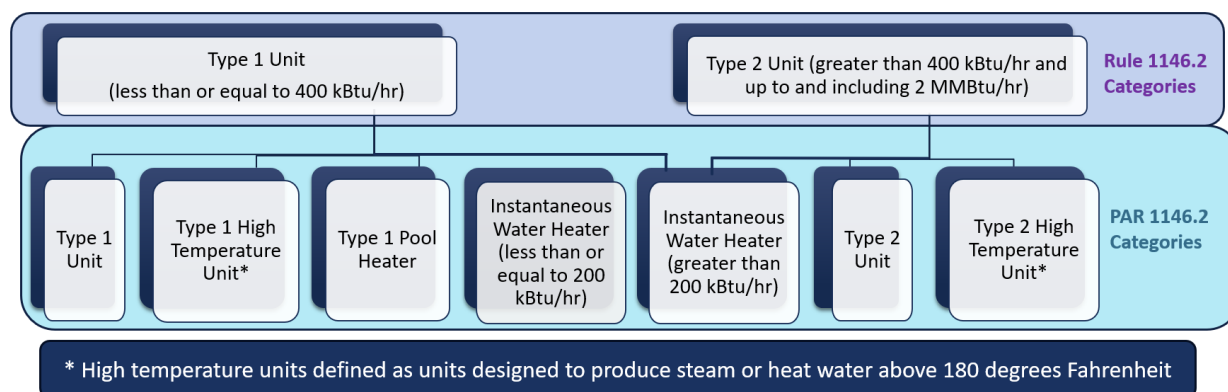


Figure 2-3-4. PAR 1146.2 Applicable Units Recategorization

Type 1 Water Heaters

For storage water heaters, U.S. DOE estimates a useful life of 10 to 15 years.¹³ For the 2022 AQMP Control Measure C-CMB-01 development, the analysis assumed a 15 year useful life for commercial water heaters.¹⁴ For this reason, the analysis for Type 1 water heaters assumes a 15-year useful life and four percent discount rate and thus a PVF of 11.118, as calculated per Equation 2-2, and the estimated cost of an electrical panel upgrade of \$2,500.

Type 2 Water Heaters

Meetings and site visits with manufacturers during the rulemaking process indicated a useful life of under and over 25 years for gas-fired water heaters. For Type 2 water heaters, the analysis assumes a 25-year useful life and four percent discount rate thus a PVF of 15.622, as calculated per Equation 2-2, and the estimated cost an electrical panel upgrade of \$4,200.

Type 1 Pool Heaters

According to U.S. DOE, heat pump swimming pool heaters work efficiently as long as the outside temperature remains above the range of 45 to 50 degrees Fahrenheit. The cooler the outside air that a heat pump draws in, the less efficient it is. However, as outdoor pools are more frequently used during warm and mild weather, this reduced efficiency is generally not an issue. Heat pump pool heaters may cost more than natural gas-fired pool heaters, but they typically have much lower annual operating costs due to their higher efficiency. With proper maintenance, heat pump pool heaters typically last longer than gas pool heaters. U.S. DOE estimates that with proper installation and maintenance, heat pump pool heaters can last 10 or more years.¹⁵ For Type 1 pool heaters, the analysis assumes a 15-year useful life and four percent discount rate and thus a PVF of 11.118, as calculated per Equation 2-2, and the estimated cost for an electrical panel upgrade of \$2,500. If splitting the panel cost between pool heating and other residential appliances, the panel cost is

¹³ U.S. Department of Energy, Tankless or Demand-Type Water Heaters, <https://www.energy.gov/energysaver/tankless-or-demand-type-water-heaters>

¹⁴ South Coast AQMD, 2022 AQMP, <https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/appendix-iv-a.pdf?sfvrsn=18>

¹⁵ U.S. Department of Energy, Heat Pump Swimming Pool Heaters, <https://www.energy.gov/energysaver/heat-pump-swimming-pool-heaters>

$\$2,500 \div 4 = \625 . The analysis also utilizes the residential utility rate forecast for Type 1 pool heaters.

Type 1 and Type 2 High Temperature Units

Meetings and site visits with manufacturers during the rulemaking process indicated a useful life of under and over 25 years for gas-fired boilers, or high temperature units. For Type 1 and Type 2 high temperature units, the analysis assumes a 25-year useful life and four percent discount rate and thus a PVF of 15.622, as calculated per Equation 2-2, and the estimated cost for an electrical panel upgrade of \$4,200.

Instantaneous Water Heaters

U.S. DOE estimates a useful life of more than 20 years for instantaneous water heaters.¹⁶ For instantaneous water heaters, the analysis assumes a 25-year useful life and four percent discount rate and thus a PVF of 15.622, as calculated per Equation 2-2, and the estimated cost of an electrical panel upgrade of \$4,200. If splitting the panel cost between pool heating and other residential appliances, the panel cost is $\$4,200 \div 4 = \$1,050$.

Estimating Fuel Switching Cost

The analysis considered the cost impacts of transitions from conventional combustion heating that uses natural gas to zero-emission technologies that use electricity as part of the cost-effectiveness assessment. For this assessment, the analysis relied upon the fuel price estimates which are based on a combination of CEC's 2023 Integrated Energy Policy Report and Energy Information Administration (EIA) national level forecasts. The current CEC forecast extends to 2050. Electricity forecasts are based on the Los Angeles Department of Water and Power (LADWP) and Southern California Edison (SCE) planning areas. Natural gas forecasts are only based on Southern California Gas company forecasts, as Southern California Gas company is the primary gas utility in the region. Forecasted prices will not match observed electric and natural gas prices in any given year and may differ materially. Current prices are affected by demand and supply shocks, geopolitical factors, and other considerations which are all unforecastable. However, the CEC forecasts are created through a rigorous modeling process and reflect the best available expectation for future prices in the region. CEC forecasts are released every two years.

The analysis utilizes the residential utility rate forecast for Type 1 pool heaters and instantaneous water heaters, and commercial utility rate forecast for other units.

Since the forecasted prices for LADWP and SCE differ, staff calculated a weighted average price based on the population served by each utility as follows:

- LADWP: $4 \text{ million} \div 17.2 \text{ million (Population served by LADWP} \div \text{regional population)} = 0.23$
- SCE: $13.2 \text{ million} \div 17.2 \text{ million} = 0.77$

To estimate the fuel switching cost by category for replacement of natural gas-fired units with zero-emission technology, the analysis:

¹⁶ U.S. Department of Energy, Tankless or Demand-Type Water Heaters,
<https://www.energy.gov/energysaver/tankless-or-demand-type-water-heaters>

1. Estimated the daily electricity demand (in kWh) of the electric unit which will be replacing the existing natural gas fired unit;
2. Estimated the daily natural gas demand (in therms) of the existing natural gas fired unit;
3. Multiplied the daily demand for each fuel type by the number of operating days in a year to estimate the annual energy demand of each unit;
4. Multiplied the annual energy demand in each year and for each fuel type by the forecasted price of each fuel in that year to estimate the annual fuel cost for each unit;
5. Netted the difference between the total electricity cost and total natural gas cost to estimate incremental fuel switching cost in each year.

The list of steps explains the process to estimate switching costs of a single unit. The analysis also utilized a bottom-up calculation with individual units that fill similar roles from different categories. The daily electricity and natural gas demand values were estimated by the following approaches, where applicable.

Energy Input Estimate Method

With this method, the fuel switching costs for electric replacement units were estimated based on electric input values (kWh) provided by the unit manufacturer.

Energy Input Calculation Method

For situations where the energy input was not provided by a unit manufacturer, an alternate, more conservative method than the Energy Input Estimate Method was relied upon to calculate fuel switching cost, which is referred to here as the “Energy Input Calculation Method.” There are certain factors that this alternate method does not take into account. For example, while the Energy Input Calculation Method assumes the same amount of energy output for the gas unit and electric replacement unit via hot water, the oversizing of heat pumps replacing gas-fired units and cycling losses may not be represented. To calculate daily kWh input:

$$\text{Gas Unit Rating in Btu/hr} \times 24 \text{ hours} \times \text{Gas Unit Capacity Factor} \div 3,412.14 \text{ Btu/kWh} \times \\ \text{Gas Unit Efficiency} \div \text{COP Heat Pump Efficiency}$$

Equation 2-4. Energy Input Calculation Method Equation

Note that 1 kWh = 3,412.14 Btu.

Cost and Cost-Effectiveness

Cost-Effectiveness Screening Threshold

The 2022 AQMP established a cost-effectiveness screening threshold of \$325,000 per ton of NO_x reduced based on 2021 dollars. The 2022 AQMP stated that this screening threshold will be adjusted based on the annual California Consumer Price Index (CPI). PAR 1146.2 currently considers a \$349,000 per ton of NO_x reduced cost-effectiveness screening threshold using 2022 dollars. The 2022 AQMP threshold is neither considered a starting point for control costs, nor an absolute cap.

Type 1 Water Heater

The analysis considered the potential replacement of a 76,000 Btu/hr natural gas-fired Type 1 water heater with a zero-emission heat pump water heater. The capital cost for a natural gas-fired

unit is estimated at \$7,000, which was derived from the Rule 1146.2 May 2006 final staff report which estimated the cost for a unit with a heat rating ranging from 100,000 to 300,000 Btu/hr and adjusted to present value by the CPI Inflation Calculator. A manufacturer provided the capital cost of \$11,000 for a zero-emission indoor packaged commercial heat pump unit with a COP of 4.2. The annual energy input of 5,841 kWh was provided by the manufacturer for the unit. The unit water use is 350 gallons per day.¹⁷ Adding an additional 20 percent to the zero-emission unit cost to address installation cost results in \$13,200 for the zero-emission unit.

By applying the Energy Input Estimate Method, the calculation for kWh of daily energy input is $5,841 \text{ kWh} \div 365 \text{ days} = 16 \text{ kWh daily input}$. Fuel switching cost savings are \$11,000. In terms of cost-effectiveness, without a panel upgrade, there are cost savings of \$190,000 per ton of NOx reduced; with a panel upgrade, cost savings are \$93,000 per ton of NOx reduced.

For contrast, by applying the Energy Input Calculation Method, the calculation for kWh of daily energy input is $76,000 \text{ Btu/hr} \times 24 \text{ hours} \times 0.215 \text{ capacity factor} \times 0.95 \text{ natural gas-fired unit efficiency} \div 3412.14 \text{ Btu/kWh} \div 4.2 \text{ heat pump COP} = 26 \text{ kWh daily input}$. Fuel switching cost savings is \$1,000. In terms of cost-effectiveness, without a panel upgrade, there is a cost of \$201,000 per ton of NOx reduced; with a panel upgrade, the cost is \$298,000 per ton of NOx reduced.

Type 2 Water Heater

Type 2 Water Heater Scenario 1: Replacement with Six Integrated Heat Pumps

The analysis considered the potential replacement of a 500,000 Btu/hr natural gas-fired Type 2 water heater with six 76,000 Btu/hr zero-emission integrated heat pump water heaters. The capital cost for a natural gas-fired commercial tank type high efficiency unit is estimated at \$14,000, which was derived from the Rule 1146.2 May 2006 final staff report which estimated the cost for a unit with a heat rating ranging from 400,000 to 500,000 Btu/hr and adjusted to present value by the CPI Inflation Calculator. The analysis also considered a case presented by an installer where two 500,000 Btu/hr units were replaced with seven integrated heat pumps. In this case, the second 500,000 Btu/hr unit and the seventh heat pump were for redundancy purposes, so the analysis considered the replacement of one 500,000 Btu/hr natural gas-fired unit with six zero-emission heat pumps. A manufacturer provided the capital cost of \$11,000 for one zero-emission indoor packaged commercial integrated heat pump unit with a COP of 4.2; the capital cost for the six zero-emission heat pumps is \$66,000, which is the cost of the individual heat pump multiplied by six. The annual energy input of 5,841 kWh was provided by the manufacturer for one unit. Adding an additional 20 percent to the zero-emission unit cost to address installation cost results in \$79,200 for the zero-emission units.

By applying the Energy Input Estimate Method, the calculation for kWh of daily energy input is $5,841 \text{ kWh} \div 365 \text{ days} \times 6 \text{ units} = 96 \text{ kWh daily input}$. Fuel switching cost savings are \$116,000. In terms of cost-effectiveness, without a panel upgrade, the cost savings will be \$178,000 per ton of NOx reduced; with a panel upgrade, the cost savings will be \$164,000 per ton of NOx reduced.

By applying the Energy Input Calculation Method, the calculation for kWh of daily energy input is $500,000 \text{ Btu/hr} \times 24 \text{ hours} \times 0.215 \text{ capacity factor} \times 0.95 \text{ natural gas-fired unit efficiency} \div 3412.14 \text{ Btu/kWh} \div 4.2 \text{ heat pump COP} = 171.03 \text{ kWh daily input}$. Fuel switching cost savings

¹⁷ AO Smith, <https://assets.hotwater.com/damroot/Original/10003/AOSZE55000.pdf>

are \$9,000. In terms of cost-effectiveness, without a panel upgrade, the cost is \$197,000 per ton of NOx reduced; with a panel upgrade, the cost is \$212,000 per ton of NOx reduced.

Type 2 Water Heater Scenario 2: Replacement with Two Split Heat Pumps

A major manufacturer recommended a different replacement case for Type 2 water heaters and recommended replacing one 500,000 Btu/hr natural gas-fired unit with two large split heat pumps with a COP of 4.38 paired with a 400-gallon tank for an anticipated capital cost of \$70,000.¹⁸ Adding an additional 20 percent to the zero-emission unit cost to address installation cost results in \$84,000 for the zero-emission unit. Capital cost for the natural gas-fired commercial tank type high efficiency unit is estimated at \$14,000, taken from the Rule 1146.2 May 2006 staff report estimated cost for the 400,000-500,000 Btu/hr unit range and adjusted to present value by the CPI Inflation Calculator.

The energy input (kWh) for this scenario was not provided by the manufacturer, so the analysis did not apply the Energy Input Estimate Method. By applying the Energy Input Calculation Method, the calculation for kWh of daily energy input is $500,000 \text{ Btu/hr} \times 24 \text{ hours} \times 0.215 \text{ capacity factor} \div 0.95 \text{ natural gas-fired unit efficiency} \div 3412.14 \text{ Btu/kWh} \div 4.38 \text{ heat pump COP} = 164 \text{ kWh daily input}$. Fuel switching cost savings are \$19,000. In terms of cost-effectiveness, without a panel upgrade, the cost is \$179,000 per ton of NOx reduced; with a panel upgrade, the cost is \$194,000 per ton of NOx reduced.

Scenario 2 provides a cost-effectiveness value estimate less than the 2022 AQMP cost-effectiveness screening threshold of \$349,000 per ton of NOx reduced. Scenario 2 has a slightly higher capital cost of \$4,800 greater than Scenario 1.

Type 1 Pool Heater

The analysis considered the potential replacement of a 125,000 Btu/hr natural gas-fired pool heater with a 90,000 Btu/hr zero-emission heat pump pool heater. As of December 2023, an internet search for a 125,000 Btu/hr natural gas-fired unit indicated that the capital cost is \$1,800.¹⁹ The table below presents other natural gas water heater cost examples obtained via an internet search. For example, as of December 2023, an internet search for a 90,000 Btu/hr zero-emission heat pump indicated that the capital cost is \$4,100.²⁰ The heat pump has a COP of 5.7. Adding an additional 20 percent to the zero-emission unit cost to address installation cost results in \$4,920 for the zero-emission unit.

¹⁸ Lochinvar, <https://www.lochinvar.com/products/commercial-heat-pump-water-heaters/veritus-air-source-commercial-heat-pump-water-heater/>

¹⁹ In the Swim, <https://intheswim.com/p/ec-462024-mastertemp-low-nox-125k-btu-natural-gas-pool-spa-heater-with-cord---limited-warranty/387225.html>

²⁰ In the Swim, <https://intheswim.com/p/w3hp21004t-heatpro-90k-btu-230v-titanium-digital-electric-pool-heat-pump/340101.html>

Table 2-4. Natural gas water heater cost examples from internet search

Heat Output Btu/hr	Price (\$)	Heat Output Btu/hr	Price (\$)	Heat Output Btu/hr	Price (\$)
105,000	2,000	206,000	2,000	300,000	4,000
125,000	2,000	240,000	3,000	333,000	4,000
156,000	2,000	264,000	3,000	360,000	4,000
180,000	3,000	266,000	3,000	404,000	4,000

By applying the Energy Input Calculation Method, the calculation for kWh of daily energy input is $125,000 \text{ Btu/hr} \times 24 \text{ hours} \times 0.024 \text{ capacity factor} \times 0.84 \text{ natural gas-fired unit efficiency} \div 3412.14 \text{ Btu/kWh} \div 5.7 \text{ heat pump COP} = 3.11 \text{ kWh daily input}$. Fuel switching cost savings are \$3,000. In terms of cost-effectiveness, without a panel upgrade, the cost is \$11,000 per ton of NOx reduced; with a panel upgrade, the cost is \$58,000 per ton of NOx reduced. When splitting the panel cost between residential appliances, with a quarter of the panel cost for pool heating, the cost-effectiveness estimate is cost savings of \$4,000 per ton of NOx reduced.

Type 1 High Temperature Unit

Type 1 High Temperature Unit Scenario 1: Replacement with Heat Pump Unit

The analysis considered the potential replacement of a 399,000 Btu/hr natural gas-fired Type 1 boiler with a 365,000 Btu/hr heat pump. A manufacturer provided a capital cost of \$24,000 for a 399,000 Btu/hr natural gas-fired Type 1 boiler. A manufacturer provided a capital cost to consumer of \$185,000 for a 365,000 Btu/hr heat pump using waste heat with a COP of 6.3.²¹ Adding an additional 20 percent to the zero-emission unit cost to address installation cost results in \$222,000 for the zero-emission unit.

The energy input (kWh) for this scenario was not provided by the manufacturer, so the analysis did not apply the Energy Input Estimate Method. By applying the Energy Input Calculation Method, the calculation for kWh of daily energy input is $399,000 \text{ Btu/hr} \times 24 \text{ hours} \times 0.215 \text{ capacity factor} \times 0.95 \text{ natural gas-fired unit efficiency} \div 3412.14 \text{ Btu/kWh} \div 6.3 \text{ heat pump COP} = 90.99 \text{ kWh daily input}$. Fuel switching cost savings are \$72,000. In terms of cost-effectiveness, without a panel upgrade, the cost is \$559,000 per ton of NOx reduced; with a panel upgrade, there is a cost of \$578,000 per ton of NOx reduced.

Type 1 High Temperature Unit Scenario 2: Replacement with Electric Resistance Unit

The analysis considered replacement of a 399,000 Btu/hr natural gas-fired Type 1 boiler with a 358,000 Btu/hr electric boiler. A manufacturer provided a capital cost of \$24,000 for a 399,000 Btu/hr natural gas-fired Type 1 boiler. As of December 2023, an internet search for a 358,000 Btu/hr electric resistance boiler indicated that the capital cost is \$25,000.²² The analysis also assumed a 100 percent efficiency for electric resistance units. Adding an additional 20 percent to

²¹ Armstrong International, Inc., <https://armstronginternational.com/products/armstrongcombitherm-heat-pumps/>

²² ecomfort, <https://www.ecomfort.com/Electro-Industries-EB-NB-105-208/p18338.html>

the zero-emission unit cost to address installation cost results in \$30,000 for the zero-emission unit.

The energy input (kWh) for this scenario was not provided by the manufacturer, so the analysis did not apply the Energy Input Estimate Method. By applying the Energy Input Calculation Method, the calculation for kWh of daily energy input is $399,000 \text{ Btu/hr} \times 24 \text{ hours} \times 0.215 \text{ capacity factor} \times 0.95 \text{ natural gas-fired unit efficiency} \div 3412.14 \text{ Btu/kWh} = 573.22 \text{ kWh daily input}$. Fuel switching cost is \$610,000. In terms of cost-effectiveness, without a panel upgrade, the cost is \$2,734,000 per ton of NOx reduced; with a panel upgrade, the cost is \$2,753,000 per ton of NOx reduced.

Type 2 High Temperature Unit

Type 2 High Temperature Unit Scenario 1: Replacement of 1 MMBtu Unit with Heat Pump

The analysis considered the potential replacement of a 1 MMBtu/hr natural gas-fired Type 2 boiler with a 1,709,000 Btu/hr heat pump. A manufacturer provided a capital cost of \$32,500 for a 1 MMBtu/hr natural gas-fired Type 2 boiler. A manufacturer provided a capital cost to consumer of \$280,000 for a 1,709,000 Btu/hr heat pump using waste heat with a COP of 5.9. Adding an additional 20 percent to the zero-emission unit cost to address installation cost results in \$336,000 for the zero-emission unit.

The energy input (kWh) for this scenario was not provided by the manufacturer, so the analysis did not apply the Energy Input Estimate Method. By applying the Energy Input Calculation Method, the calculation for kWh of daily energy input is $1 \text{ MMBtu/hr} \times 24 \text{ hours} \times 0.215 \text{ capacity factor} \times 0.95 \text{ natural gas-fired unit efficiency} \div 3412.14 \text{ Btu/kWh} \div 5.9 \text{ heat pump COP} = 243.5 \text{ kWh daily input}$. Fuel switching cost savings are \$158,000. In terms of cost-effectiveness, without a panel upgrade, there is a cost of \$257,000 per ton of NOx reduced; with a panel upgrade, the cost is \$264,000 per ton of NOx reduced.

Type 2 High Temperature Unit Scenario 2: Replacement of 1 MMBtu Unit with Electric Resistance

The analysis considered replacement of a 1 MMBtu/hr natural gas-fired Type 2 boiler with a 1 MMBtu/hr electric boiler. A manufacturer provided a capital cost of \$32,500 for a 1 MMBtu/hr natural gas-fired Type 2 boiler. As of December 2023, an internet search for a 1 MMBtu/hr electric resistance boiler indicated that the capital cost is \$34,000.²³ Adding an additional 20 percent to the zero-emission unit cost to address installation cost results in \$40,800 for the zero-emission unit.

The energy input (kWh) for this scenario was not provided by the manufacturer, so the analysis did not apply the Energy Input Estimate Method. By applying the Energy Input Calculation Method, the calculation for kWh of daily energy input is $1 \text{ MMBtu/hr} \times 24 \text{ hours} \times 0.215 \text{ capacity factor} \times 0.95 \text{ natural gas-fired unit efficiency} \div 3412.14 \text{ Btu/kWh} = 1,436.64 \text{ kWh daily input}$. Fuel switching cost is \$1,530,000. In terms of cost-effectiveness, without a panel upgrade, there is a cost of \$2,722,000 per ton of NOx reduced; with a panel upgrade, there is a cost of \$2,812,000 per ton of NOx reduced.

²³ ecomfort, <https://www.ecomfort.com/Electro-Industries-EB-NB-300-480/p18335.html>

Type 2 Boiler Scenario 3: Replacement of 2 MMBtu Unit with Heat Pump

The analysis considered the replacement of a 2 MMBtu/hr natural gas-fired Type 2 boiler with a 2,286,000 Btu/hr heat pump. A manufacturer provided a capital cost of \$43,500 for a 2 MMBtu/hr natural gas-fired Type 2 boiler. A manufacturer provided a capital cost to consumer of \$462,000 for a 2,286,000 Btu/hr heat pump using waste heat with a COP of 6.1. Adding an additional 20 percent to the zero-emission unit cost to address installation cost results in \$554,400 for the zero-emission unit.

The energy input (kWh) for this scenario was not provided by the manufacturer, so the analysis did not apply the Energy Input Estimate Method. By applying the Energy Input Calculation Method, the calculation for kWh of daily energy input is $2 \text{ MMBtu/hr} \times 24 \text{ hours} \times 0.215 \text{ capacity factor} \times 0.95 \text{ natural gas-fired unit efficiency} \div 3412.14 \text{ Btu/kWh} \div 6.1 \text{ heat pump COP} = 471.03 \text{ kWh daily input}$. Fuel switching cost savings are \$339,000. In terms of cost-effectiveness, without a panel upgrade, there is a cost of \$152,000 per ton of NOx reduced; with a panel upgrade, there is a cost of \$156,000 per ton of NOx reduced.

Instantaneous Water Heater

Instantaneous Water Heater Scenario 1: Replacement with Electric Resistance Tank Type Unit

The analysis assumed that a 150,000 Btu/hr natural gas-fired instantaneous water heater could be replaced with a 75-gallon electric resistance tank type unit. The analysis also assumed that the installation cost would be approximately 25 percent of the project cost. Drawing from an E3 study, the natural gas-fired unit capital cost is $\$3,700 \times 0.75 = \$2,775$ for a 150,000 Btu/hr instantaneous water heater.²⁴ As of December 2023, an internet search for a 75-gallon electric resistance tank type unit indicated that the capital cost is \$2,100.²⁵ Adding an additional 20 percent to the zero-emission unit cost to address installation cost results in \$2,520 for the zero-emission unit.

The energy input (kWh) for this scenario was not provided by the manufacturer, so the analysis did not apply the Energy Input Estimate Method. By applying the Energy Input Calculation Method, the calculation for kWh of daily energy input is $150,000 \text{ Btu/hr} \times 24 \text{ hours} \times 0.0135 \text{ capacity factor} \times 0.95 \text{ natural gas-fired unit efficiency} \div 3412.14 \text{ Btu/kWh} = 13.53 \text{ kWh daily input}$. Fuel switching cost is \$17,000. In terms of cost-effectiveness, without a panel upgrade, there is a cost of \$3,078,000 per ton of NOx reduced; with a panel upgrade, there is a cost of \$3,275,000 per ton of NOx reduced.

Instantaneous Water Heater Scenario 2: Replacement with Electric Resistance Instantaneous Unit

The analysis assumed that a 150,000 Btu/hr natural gas-fired instantaneous water heater could be replaced by an electric resistance instantaneous unit. The analysis assumed that installation cost is approximately 25 percent of the project cost. Drawing from the E3 study, the natural gas-fired unit capital cost is $\$3,700 \times 0.75 = \$2,775$ for a 150,000 Btu/hr instantaneous water heater. As of December 2023, an internet search for an electric resistance instantaneous unit indicated that the

²⁴ E3, Residential Building Electrification in California, Page 32, Figure 2-7, https://www.ethree.com/wp-content/uploads/2019/04/E3_Residential_Building_Electrification_in_California_April_2019.pdf

²⁵ The Home Depot, <https://www.homedepot.com/p/Rheem-Marathon-Eclipse-Light-Duty-75-gal-Commercial-277-Volt-12kW-Field-Convertible-Non-Metallic-Electric-Water-Heater-MELD75-TB-277-Volt-12-kW/305422236>

higher end capital cost is \$2,300.²⁶ Adding an additional 20 percent to the zero-emission unit cost to address installation cost results in \$2,760 for the zero-emission unit.

The energy input (kWh) for this scenario was not provided by the manufacturer, so the analysis did not apply the Energy Input Estimate Method. By applying the Energy Input Calculation Method, the calculation for kWh of daily energy input is $150,000 \text{ Btu/hr} \times 24 \text{ hours} \times 0.0135 \text{ capacity factor} \times 0.95 \text{ natural gas-fired unit efficiency} \div 3412.14 \text{ Btu/kWh} = 13.53 \text{ kWh daily input}$. Fuel switching cost is \$17,000. In terms of cost-effectiveness, without a panel upgrade, there is a cost of \$3,123,000 per ton of NOx reduced; with a panel upgrade, there is a cost of \$3,320,000 per ton of NOx reduced.

Instantaneous Water Heater Scenario 3: Replacement with Heat Pump Tank

Type Unit

The analysis assumed that a 150,000 Btu/hr natural gas-fired instantaneous water heater could be replaced with a residential 65-gallon storage volume heat pump with a COP of 3.0. The analysis also assumed that the installation cost is approximately 25 percent of the project cost. Drawing from an E3 study, the natural gas-fired unit capital cost is $\$3,700 \times 0.75 = \$2,775$ for a 150,000 Btu/hr instantaneous water heater. Energy Star by U.S. EPA provided information on a 64-gallon storage volume heat pump with a Uniform Energy Factor of 3.64, which has a capital cost of around \$2,000 from internet search.²⁷ Energy Star provides 178 therms per year for instantaneous and 1,233 kwh for an equivalent heat pump. Adding an additional 20 percent to the zero-emission unit cost to address installation cost results in \$2,400 for the zero-emission unit.

By applying the Energy Input Estimate Method, the calculation for kWh of daily energy input is $1,233 \text{ kWh} \div 365 \text{ days} = 3.4 \text{ kWh daily input}$. Fuel switching cost is cost savings of \$600. In terms of cost-effectiveness, without a panel upgrade, cost savings are \$185,000 per ton of NOx reduced; with a panel upgrade, the cost is \$12,000 per ton of NOx reduced.

When splitting the panel cost between residential appliances, with a quarter of the panel cost for pool heating, the cost-effectiveness estimate is cost savings of \$63,000.

By applying the Energy Input Calculation Method, the calculation for kWh of daily energy input is $150,000 \text{ Btu/hr} \times 24 \text{ hours} \times 0.0135 \text{ capacity factor} \times 0.95 \text{ natural gas-fired unit efficiency} \div 3412.14 \text{ Btu/kWh} \div 3.0 \text{ heat pump COP} = 4.51 \text{ kWh daily input}$. Fuel switching cost is \$1,000. In terms of cost-effectiveness, without a panel upgrade, there is a cost of \$101,000 per ton of NOx reduced; with a panel upgrade, there is a cost of \$298,000 per ton of NOx reduced.

When splitting the panel cost between residential appliances, with a quarter of the panel cost for pool heating, the cost-effectiveness estimate is cost of \$223,000 per ton of NOx reduced.

When applying the Energy Input Calculation Method for gas-fired instantaneous units replaced by heat pumps, there is a higher energy input (kWh) and higher fuel switching cost which may result from oversizing. The energy input (kWh) may be overestimated.

²⁶ Carbon Switch, Tankless Water Heater Buyer's Guide, <https://carbonswitch.com/tankless-water-heater-buyers-guide/>

²⁷ Energy Star, <https://www.energystar.gov/productfinder/product/certified-water-heaters/details/2408601>

Summary of Cost-Effectiveness

The following table summarizes the cost-effectiveness estimates for each category.

Table 2-5. Cost-Effectiveness for PAR 1146.2 Categories

Category	Replace with	Cost-Effectiveness (\$/Ton), No Panel Upgrade		Cost-Effectiveness (\$/Ton), With Panel Upgrade	
		Energy Input Estimate Method	Energy Input Calculation Method	Energy Input Estimate Method	Energy Input Calculation Method
Type 1 Water Heater	Heat Pump	(190,000)	201,000	(93,000)	298,000
Type 2 Water Heater	Six Heat Pumps (Integrated)	(178,000)	197,000	(164,000)	212,000
	Two Heat Pumps (Split)	-	179,000	-	194,000
Type 1 Pool Heater	Heat Pump	-	11,000	-	58,000
	Heat Pump and Split Panel Cost	-		-	(4,000)
Type 1 High Temperature Unit	Heat Pump	-	559,000	-	578,000
	Electric Resistance	-	2,734,000	-	2,753,000
Type 2 High Temperature Unit (1 MMBtu/hr)	Heat Pump	-	257,000	-	264,000
	Electric Resistance	-	2,722,000	-	2,812,000
Type 2 High Temperature Unit (2 MMBtu/hr)	Heat Pump	-	152,000	-	156,000

Category	Replace with	Cost-Effectiveness (\$/Ton), No Panel Upgrade		Cost-Effectiveness (\$/Ton), With Panel Upgrade	
		Energy Input Estimate Method	Energy Input Calculation Method	Energy Input Estimate Method	Energy Input Calculation Method
Instantaneous Water Heater	Heat Pump	(185,000)	101,000	12,000	298,000
	Heat Pump and Split Panel Cost	-	-	(63,000)	223,000
	Electric Resistance Tank Type	-	3,078,000	-	3,275,000
	Electric Resistance Instantaneous	-	3,123,000	-	3,320,000

The cost-effectiveness values for most categories in PAR 1146.2 were less than the \$349,000 per ton of NO_x screening threshold; thus, zero-emission (0 ppmv) technologies are considered cost-effective. While some cost-effectiveness values are greater than the 2022 AQMP screening threshold of \$349,000 per ton of NO_x reduced, future effective compliance dates will allow for market growth in the next 10 years. Market growth for emerging technologies typically includes a price decrease. Currently, the market supply is limited and some of the zero-emission units staff evaluated require preplanning and adjustment prior to installation, which will involve a considerably higher cost. Once more units are commercialized and sold as off-the-shelf units, staff expect costs to drop. Staff is proposing to conduct a technology assessment prior to the implementation of the zero-emission units that had a high cost-effectiveness and will reassess costs at that time.

Proposed BARCT Emission Limit



Health and Safety Code Section Sections 40920.6(a)(1) and 40920.6(a)(2) require that prior to adopting rules to meet the requirement of BARCT, one or more potential control options which achieve the emission reduction objectives of the rule must be identified and the cost-effectiveness assessment of the potential control option(s) must be conducted. The final proposed BARCT emission limit for each class and category is the emission limit that achieves the maximum degree of emission reductions and is determined to be cost-effective.

The following table summarizes the proposed NO_x limits that represent BARCT and the applicable CO limits for each class and category. The zero-emission technologies staff evaluated operate on electricity and have zero CO emissions in addition to zero NO_x emissions; hence, staff is proposing zero-emission limits for both pollutants.

Table 2-6. Proposed BARCT NO_x and CO Emission Limits, Compliance Schedule, and Unit Age

Equipment Category	NO _x and CO Emission Limits (ppmv)	Building Type	Compliance Date	Unit Age (years)
Type 1 Unit*	0	New	January 1, 2026	15
		Existing	January 1, 2029	
Instantaneous Water Heater ≤ 200,000 Btu/hr	0	New	January 1, 2026	25
		Existing	January 1, 2029	
Instantaneous Water Heater > 200,000 Btu/hr	0	New	January 1, 2028	25
		Existing	January 1, 2031	
Type 1 Pool Heater	0	New	January 1, 2028	15
		Existing	January 1, 2031	
Type 2 Unit**	0	New	January 1, 2028	25
		Existing	January 1, 2031	
Type 1 High Temperature Unit	0	New	January 1, 2029	25
		Existing	January 1, 2033	
Type 2 High Temperature Unit	0	New	January 1, 2029	25
		Existing	January 1, 2033	

* Referring to a Type 1 unit that is not a high temperature unit, pool heater, or instantaneous water heater.

** Referring to a Type 2 unit that is not a high temperature unit or instantaneous water heater.

Future implementation dates will allow for an increase in the supply of zero-emission technology in the market. Manufacturers are already producing heat pumps and may adjust business operations based on policy direction and market conditions. There is an expectation for the supply chain to adjust to changing market conditions. Furthermore, staff is proposing to require the zero-emissions technologies at end of unit age, with unit expected age of potentially 15 to 25 years depending on the type of unit; therefore, staff does not expect a sudden peak in demand. PAR 1146.2 proposes longer timeframes for end-of-unit-age replacements in existing buildings versus installations in new buildings and also proposes zero-emission limits for retrofits and burner modification after the proposed compliance dates.

Some of the proposed emission limits for some of the equipment categories subject to PAR 1146.2 are considered technology-forcing, meaning the emission limits are based on a technology that is not widely commercially available at the time of amending the rule. When South Coast AQMD adopts rules with technology-forcing emission limits, the limits are given a future implementation date to allow time for the technology to develop. BARCT limits evolve over time as the technology

improves or new pollution control technologies emerge; setting future effective emission limits is an approach that has been used and upheld in other rules. For example, South Coast AQMD adopted VOC limits in Rule 1113 – Architectural Coatings in 2002 with a future effective date of July 1, 2006, based on emerging technology (e.g., reformulated coatings). The technology to meet the lower VOC limits was commercially available at the time of rule development but had performance issues that had yet to be overcome. The American Coatings Association sued the South Coast AQMD for adopting technology-forcing BARCT limits, but the South Coast AQMD prevailed in the Supreme Court of California, which upheld the ability to adopt technology-forcing BARCT limits. Furthermore, staff will include a requirement to conduct a technology assessment prior to the zero-emission compliance dates.

Staff proposes to conduct a technology assessment, which will be included as part of the Governing Board resolution adopting PAR 1146.2. The technology assessment would assess any change in capital cost or technology development for certain high temperature applications; assess any change in cost-effectiveness for certain categories; and monitor market supply and growing opportunities for contractor training. Staff will also reassess the fuel switching costs. Utility rates tend to fluctuate over time and are difficult to predict, so an evaluation of utility rates would be appropriate. The technology assessment will evaluate the status of zero-emission technology for all equipment categories and address any equity issues.

ADDITIONAL BENEFITS AND CHALLENGES

Electric Grid Infrastructure

In 2021, renewable generation accounted for 33.6 percent of the total California Power Mix, not including solar photovoltaic systems installed on residential and commercial buildings that are less than one megawatt (MW) as they are typically considered distributed generation and not required to report to CEC.²⁸ The California Power Mix is the percentage of specified fuel types derived from the California Energy Mix, and the California Energy Mix is the total in-state electric generation plus energy imports. There is expected to be more renewables adoption by states in the future, and California Senate Bill 100 called for a Renewables Portfolio Standard of 60 percent by 2030. Electricity imports account for approximately 30 percent of total system electric generation, with other states pursuing Renewable Portfolio Standards and state energy goals.

The CEC, California Public Utilities Commission (CPUC), and CARB are working to coordinate across efforts, identify issues not covered by ongoing efforts, and assess needed actions to better align the energy system with the state's climate targets. Related initiatives include the CPUC's proceeding to support decarbonizing buildings in California (R.19-01-011), which eliminated gas line extension subsidies for new gas hookups to homes and commercial buildings effective July 1, 2023.²⁹ In February 2023, the CPUC ordered load serving entities to procure an additional 4,000 MW of Net Qualifying Capacity for 2026 and 2027, in addition to the mid-term reliability procurement requirements ordered in 2021 (11,500 MW, enough to power approximately 2.5 million homes). The CPUC also approved four energy storage contracts totaling 372 MW for SCE and recommended an electric resource portfolio for use in the California Independent System

²⁸ California Energy Commission, 2021 Total System Electric Generation, <https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2021-total-system-electric-generation>

²⁹ California Public Utilities Commission, Press Release, <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M496/K979/496979465.PDF>

Operator's (CAISO) 2023-24 Transmission Planning Process. The recommended portfolio includes over 85 gigawatts (GW) of new resources by 2035, including 54,000 MW of renewable resources; over 28,000 MW of batteries; 2,000 MW of long-duration storage; and 1,100 MW of demand response.

The CEC adopts an Integrated Energy Policy Report (IEPR) every two years and an update every other year. The 2022 IEPR has recognized the proposed zero-emission requirements for residential and commercial buildings in California and included recommendations and updates to the energy demand forecast.³⁰ The IEPR update released on January 1, 2024, provided forecasts for future natural gas and electricity rates, which staff utilized in the cost-effectiveness analysis. Staff used the cost averages for the period of 2024 – 2050, which are \$1.71 per therm or 5.84 cents/kWh for natural gas and 24.81 cents/kWh for electricity commercial rates. For residential rates, used for Type 1 pool heaters and instantaneous water heaters, staff used the cost averages for the period of 2024 – 2050, which are \$2.31 per therm or 7.88 cents/kWh for natural gas and 29.85 cents/kWh for electricity. Previously, staff relied on 2021 IEPR for PAR 1146.2 cost effectiveness assessment. The update impacted the cost estimates to switch from natural gas-fired units to heat pumps, as the newest IEPR projected the natural gas rate to increase 40% and electricity rate to have a more moderate increase of 28%. This resulted in a decrease in cost-effectiveness estimates from the initial assessment due to the increase in cost savings from fuel switching.

Under Assembly Bill 3232 (Friedman, Chapter 373, Statutes of 2018), the CEC must assess the feasibility of reducing greenhouse gas emissions in residential and commercial buildings 40 percent below 1990 levels by January 1, 2030. Statewide electricity consumption was over 280,000 GWh in 2021 and is forecasted to be 358,738 GWh in 2035. The 2022 Planning Scenario peak forecast for CAISO, which manages roughly 80 percent of California's load, reaches 55,117 MW by 2035. CAISO is planning \$11 billion in transmission capacity projects over the next 20 years, which covers 80 percent of the entire state service area. The 20-Year Transmission Outlook document from May 2022 considers transmission needs to meet load and renewable energy growth aligned with state policy. The plan describes \$11 billion in upgrades to the existing CAISO transmission footprint.³¹ In addition, solar photovoltaic generation continues to increase as shown in the figure below.³² Between 2022 and 2035, behind-the-meter photovoltaic generation is expected to grow on average by about six percent, reaching annual photovoltaic generation of 55,740 GWh by 2035.

³⁰ California Energy Commission, 2022 Integrated Energy Policy Report Update, <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2022-integrated-energy-policy-report-update>

³¹ California ISO, 20-Year Transmission Outlook, <http://www.caiso.com/InitiativeDocuments/20-YearTransmissionOutlook-May2022.pdf>

³² California Energy Commission, 2022 Electric Generation and Capacity, <https://www.energy.ca.gov/media/3757>

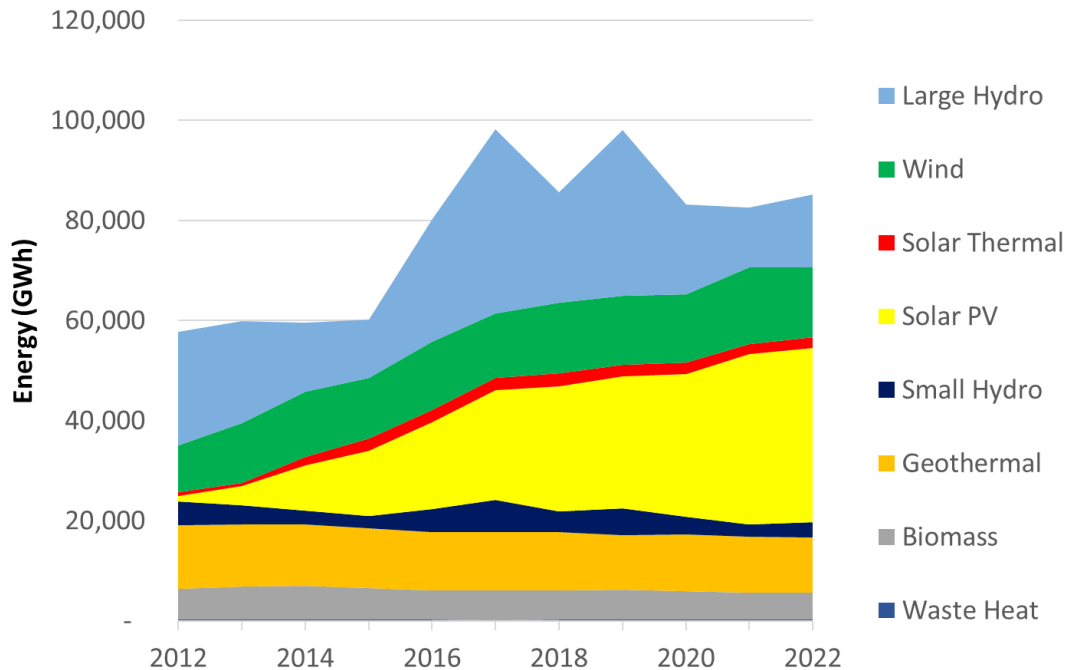


Figure 2-4-5. In-State Electric Generation – Select Fuel Types, Sourced from CEC Quarterly Fuels and Energy Reporting Regulations

According to SCE’s 2021 Sustainability Report, SCE is expected to invest over \$5 billion annually in the electric grid, with approximately 3,400 MW of energy storage installed or contracted. In 2021, SCE procured 530 MW of energy storage through three new contracts from third parties and in the same year, entered into an engineering, procurement, and construction agreement to construct approximately 535 MW of utility-owned storage. SCE also expected increases in Distributed Energy Resources such as residential solar.³³ In the Pathway to 2045 document, SCE expected a 60 percent increase in electricity load and 40 percent increase in peak load by 2045, with building electrification responsible for 15 percent of load by 2045. SCE noted that the grid will still be summer peaking due to air conditioning.³⁴

Staff recognizes the importance of electric grid reliability for electric units, but also for natural gas units, which often require electricity to operate. In 2021, the CPUC created new programs and modified existing programs to reduce energy demand and increase energy supply during critical hours of the day.³⁵ Per Senate Bill 350 (De León, 2015), the CPUC developed an integrated resource planning process to ensure that California’s electric sector meets its greenhouse gas reduction goals while maintaining reliability at the lowest possible costs.³⁶ Staff recognizes that there are externalities for both electric and natural gas production and distribution. Staff also

³³ SCE, Sustainability Report, <https://www.edison.com/sustainability/sustainability-report>

³⁴ SCE, Pathway 2045, <https://www.edison.com/our-perspective/pathway-2045>

³⁵ California Public Utilities Commission, CPUC Ensures Electricity Reliability During Extreme Weather for Summers 2022 and 2023, <https://www.cpuc.ca.gov/news-and-updates/all-news/cpuc-ensures-electricity-reliability-during-extreme-weather-for-summer-2022-and-2023>

³⁶ California Public Utilities Commission, CPUC Approves Long Term Plans To Meet Electricity Reliability and Climate Goals, <https://www.cpuc.ca.gov/news-and-updates/all-news/cpuc-approves-long-term-plans-to-meet-electricity-reliability-and-climate-goals>

recognizes the need for regulation of emissions from electricity generation. South Coast AQMD Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities, is a rule that aims to lower emissions from electricity generation.³⁷ Regarding the natural gas system, natural gas leaks into the atmosphere from natural gas wells, storage tanks, pipelines, and processing plants. In 2020, methane emissions from natural gas and petroleum systems and from abandoned oil and natural gas wells were source of approximately 33 percent of U.S. methane emissions and approximately four percent of U.S. greenhouse gas emissions. In the South Coast AQMD region, there have been examples of large leaks such as Aliso Canyon, where 109,000 metric tons of methane emissions were released between October 2015 and February 2016.

For this rulemaking, staff did not conduct lifecycle analyses related to the BARCT assessment for either the electricity or natural gas systems as a lifecycle analysis is not required under California Health and Safety Code Section 40406 for a BARCT assessment. However, other organizations have conducted lifecycle analyses which show overall NOx reductions when moving to zero-emissions. A 2021 Northeast States for Coordinated Air Use Management (NESCAUM) study estimating NOx reductions for residential scenarios where fossil fuel-burning furnaces are replaced with heat pumps found significant reductions in NOx along with sulfur dioxide and carbon dioxide.³⁸ A 2023 NESCAUM study also found emission reductions for different scenarios.³⁹ A 2022 Energy Innovation Policy & Technology study found that switching to heat pumps for industrial processes reduces NOx emissions.⁴⁰

Considerations for Dry Cleaners

Staff has been engaging in discussion with representatives of the dry cleaning industry to discuss challenges PAR 1146.2 may pose to their operations. The dry cleaners' primary concern is the high upfront cost to install a new zero-emission unit. Staff acknowledges some zero-emission technologies have higher upfront costs, but as zero-emission technologies become more mature and more widely adopted in the market, there will be less cost impact. In addition, staff is projecting lifetime utility savings based on future projected natural gas and electricity prices. The cost to operate heat pumps is lower than most electric appliances because they are so energy efficient; over the lifetime of the unit, that initial cost increase could be recovered. In addition, there are federal, state, and local incentive funding specifically to incentivize the switch from combustion to heat pump technologies. South Coast AQMD is also developing a rebate program to help lower the cost for some consumers and small businesses and will be centralizing information for incentive and financing opportunities offered by other agencies and organizations.

³⁷ South Coast AQMD, Rule 1135, <http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1135.pdf?sfvrsn=4>

³⁸ NESCAUM, Estimating the Emissions Benefits of Switching to Heat Pumps for Residential Heating, <https://otcair.org/upload/Documents/Reports/nescaum-otc-emission-reduction-analysis-for-residential-heating-202106.pdf>

³⁹ NESCAUM and OTC, Residential Building Electrification in the Northeast and Mid-Atlantic, <https://otcair.org/upload/Documents/Reports/Residential%20Building%20Electrification%20Final%20Report%20August%202023.pdf>

⁴⁰ Energy Innovation Policy & Technology LLC, <https://energyinnovation.org/wp-content/uploads/2022/10/Decarbonizing-Low-Temperature-Industrial-Heat-In-The-U.S.-Report-2.pdf>

Staff proposed several alternative compliance options, a limited exemption for small businesses, and a longer compliance timeline, further detailed in Chapter 3, that dry cleaners would be able to utilize, including:

- Paragraph (i)(1) provides an alternative compliance option for when utility upgrades delay compliance with zero-emission limits. When the applicable utility company is unable to provide the necessary power which is beyond the owner or operator's reasonable control, the owner or operator can request an extension of up to ~~36~~60 months for compliance.
- Paragraph (i)(4) provides an alternative compliance option for emergency replacement when an owner or operator requires a short-term replacement due to sudden unit failure after the applicable Table 3 compliance date if an electrical upgrade is needed to operate a unit that complies with Table 2 emission limits. In this situation, the owner or operator may elect to install and operate a temporary unit that complies with Table 1 emission limits for up to six months.
- For a dry cleaner in a property under lease, paragraph (i)(6) provides another alternative compliance option that allows an extension of up to 24 months to comply with the Table 2 emission limits, if the installation is delayed beyond the reasonable control of the owner or operator of the unit.
- Paragraph (i)(7) provides an alternative compliance option that allows for an extension of up to 18 months from the applicable compliance date for when installation is delayed because construction is required to expand the space designed to house or relocate the unit, and associated equipment necessary for operating the unit, excluding units utilizing the alternative compliance options specified in paragraphs (i)(1), (i)(2), (i)(5), and (i)(6).
- There is also an exemption in paragraph (k)(5) that the provisions of paragraph (d)(3) regarding replacing existing units once they reach their defined unit age in the rule shall not apply to units installed in facilities that meet the Rule 102 definition of a small business. For small businesses, existing units can be operated until their natural replacement after the applicable Table 3 compliance date.
- Boilers operated by dry cleaners are categorized as high temperature units, for which PAR 1146.2 has proposed a later zero-emission implementation date (i.e., 2033 for existing buildings).

Staff will continue to monitor all the challenges for zero-emission implementation and will conduct a technology check-in and report the findings to the Stationary Source Committee by ~~January 1, 2028~~June 1, 2027, before the compliance dates for the high temperature units go into effect.

Considerations for Low-Use

The existing rule includes a low-use exemption for existing older Type 2 units with annual fuel use of 9,000 therms. Those units were manufactured prior to January 1, 2000, with NO_x emissions higher than 30 ppmv NO_x. PAR 1146.2 proposes to phase out the existing 9,000 therms exemption when zero-emission implementation starts and include a new low-use exemption as a transitional

option. The new low-use exemption from Table 2 zero-emission requirements is for an existing Type 2 unit installed prior to the date of rule adoption that meets Table 1 emission limits (i.e., 20 ppmv NO_x and 400 ppmv CO) with fuel use meeting a low-use threshold for annual fuel use. This low-use threshold is 3,000 therms per year for units with a rated heat input capacity greater than 1 MMBtu/hr, but less than or equal to 2 MMBtu/hr, or 2,000 therms per year for units with a rated heat input capacity greater than 400 kBtu/hr, but less than or equal to 1 MMBtu/hr. For context, annual use of 3,000 therms is about 16 percent of normal fuel use for a 1 MMBtu/hr unit and 2,000 therms is about 27 percent of normal fuel use for a 400 kBtu/hr unit. This low-use provision provides another transitional option for phasing in existing units to the zero-emission requirement.

Hot Water Requirements for Health Facilities and Use in Hospitals

The 2022 California Plumbing Code includes sections on Water Supply and Distribution; Domestic Hot-Water Distribution Systems for Health Facilities and Clinics. For laundry, 160 degrees Fahrenheit hot water is acceptable, or 140 degrees Fahrenheit hot water if the laundry also passes through a tumbler dryer at 180 degrees Fahrenheit. Hot water between 158 to 176 degrees Fahrenheit is used to reprocess cloths and mop heads.⁴¹ For dishwashing equipment, 180 degrees Fahrenheit is acceptable, and 125 to 180 degrees Fahrenheit booster heaters are acceptable as a second piece of equipment for dishwashing. There is a redundancy requirement for dishwashing and minimum patient services such as handwashing and bathing. The California Plumbing Code hot water use temperature requirements for health facilities and clinics are displayed in the following table.

Table 2-7. California Plumbing Code Hot Water Temperature Requirements (Degrees Fahrenheit)

Clinical	Dietary	Laundry	Dishwashing
105-120	120	160	180

Staff visited a hospital in Los Angeles with sixteen natural gas-fired units below 2 MMBtu/hr, spread between two buildings. The units included four for domestic hot water and 12 for space heating, with the highest water temperature output at 180 degrees Fahrenheit. This also included redundant units, and units are often oversized. Hospital steam for sterilization is usually generated by larger boilers permitted under Rule 1146. The hospital is considering replacing conventional domestic hot water Type 1 units with heat pumps. One challenge is that it may take five to seven years for the California Department of Health Care Access and Information project approval to replace a boiler or hot water heater.

Staff also contacted the all-electric University of California, Irvine (UCI) Medical Center, which is anticipated to be operational in 2025 with the Acute Care Center and Central Utility Plant operational in 2024.⁴² Future plans include fuel cells and battery storage. The heat pump COP is three, or 300 percent more efficient than a conventional unit. The team noted lower maintenance costs of \$338,000 for all-electric distributed steam compared to \$1,751,000 for gas-fired, and \$737,000 annual operational cost savings. There was an estimated 3.8-year simple payback. In

⁴¹ CDC, Best Practices for Environmental Cleaning in Healthcare Facilities, <https://www.cdc.gov/hai/pdfs/resource-limited/environmental-cleaning-RLS-H.pdf>

⁴² Building Design+Construction, UC Irvine takes sustainability to new level with all-electric medical center, <https://www.bdcnetwork.com/uc-irvine-takes-sustainability-new-level-all-electric-medical-center>

addition to zero-emission space and water heating, electric appliances were installed in the kitchen. The team working on the UCI project mentioned they obtained approval from the California Department of Health Care Access and Information for the initial phase in about one year. The experience they shared is to have early planning and good communication and to implement the project in phases.

Hot Water Requirements and Use in Restaurants

Requirements for restaurant hot water are included in the California Retail Food Code.^{43, 44, 45} Hot water generation and distribution systems must be sufficient to meet the peak hot water demands throughout the food facility. In sizing the water heater, the peak hourly demands for all sinks, dishwashing machines, etc., are added together to determine the minimum required recovery rate. A minimum of 120 degrees Fahrenheit should be supplied from the faucet and a minimum of 100 degrees Fahrenheit for handwashing.

Restaurant dishwashers use a majority of the hot water and require 180 degrees Fahrenheit. Restaurants can use electric “booster heaters” to achieve the required temperature. Restaurants may also choose to utilize a distributed generation water system to save on water use and cost. A distributed generation water system consists of the primary heat pump water heater serving key points such as kitchen sinks and point-of-use electric heaters serving most others.

Staff visited a facility with a restaurant which utilized 500,000 Btu to 2 MMBtu sized units. Electric booster heaters were used for dishwashing to increase the temperature from 120 to 170 degrees Fahrenheit, as shown in the image below. For restaurant sanitation, 120 degrees Fahrenheit water is used so there was no need for hot water at a temperature above 180 degrees Fahrenheit.

Another potential option for commercial kitchens and other facilities are products which can use heat recovery from air conditioners or chillers to provide hot water. This technology recovers waste heat from refrigeration systems and uses it to heat water. The products include tanks with built-in heat recovery and stand-alone remote units that can connect to any tank. A heat pump could supplement for high demand situations.⁴⁶

⁴³ California Legislative Information, Health and Safety Code, https://leginfo.ca.gov/faces/codes_displaySection.xhtml?lawCode=HSC§ionNum=113953

⁴⁴ California Legislative Information, Health and Safety Code, https://leginfo.ca.gov/faces/codes_displaySection.xhtml?lawCode=HSC§ionNum=114192

⁴⁵ California Legislative Information, Health and Safety Code, https://leginfo.ca.gov/faces/codes_displaySection.xhtml?lawCode=HSC§ionNum=114195

⁴⁶ HotSpot, Heat Recovery Water Heating & Pool Heating, <https://www.hotspotenergy.com/commercial-heat-recovery/>



Figure 2-5-6. Examples of Dishwashing Unit (Left) and Electric Booster Heater (Right)

School Districts

Heat pump technology can be utilized in many applications for space and water heating, including in schools. Department of Energy Better Buildings® has presented a case study for commercial building heat pump implementation by the Los Angeles Unified School District (LAUSD).⁴⁷ LAUSD utilizes electric heat pump rooftop and wall-hung units, and other heat pump technologies, as the primary option for space heating and cooling systems for its school and administrative facilities. LAUSD has been transitioning to unitary heat pumps for space heating of buildings with a capacity of three to ten tons with plans to expand to larger spaces as larger heat pumps become commercially available. LAUSD started by replacing the smaller gas units ranging from five to ten tons as they reached the end of their life with electric units. LAUSD has replaced sixty-five percent of their decentralized HVAC units with electric heat pumps, with plans to achieve one hundred percent by 2040. Since the beginning of the project, LAUSD has saved around \$139,000 per month on utility costs. The lifecycle costs of each heat pump are projected to be twelve percent lower than the lifecycle cost of the gas heating units at current utility rates. They have also utilized on-site solar PV systems to offset the increase in electricity operating costs from the electric unitary heat pumps. As utility rates and initial costs have shifted, capital and operating costs are now lower for the electric units. Moving forward, when the options for high-capacity heat pumps become available, they will create a comprehensive plan to update electrical capacity to accommodate heat pump RTUs for larger spaces. In addition, LAUSD has started heat pump training for their engineering and maintenance staff to ensure any issues can be addressed quickly.

⁴⁷ U.S. DOE Better Buildings Case Study, https://betterbuildingssolutioncenter.energy.gov/sites/default/files/attachments/LAUSD%20Heat%20Pump%20Rooftop%20Units_.pdf

They have equipped all of their electric units with advanced controls that allow for centralized monitoring to facilitate maintenance and ensure efficient operations.

Incentives

There are several federal and state incentives for zero-emission commercial appliances. Section 179D of the Internal Revenue Code allows deductions for energy-efficient commercial buildings, including new or existing buildings.⁴⁸ The Inflation Reduction Act extended and expanded these tax deductions.⁴⁹ TECH Clean California launched more state-wide incentives for multifamily and commercial water heating in 2023.⁵⁰ Other state programs can provide more incentives such as for new construction of all-electric multifamily pool heating.⁵¹ There are also utility incentives for appliances in commercial buildings, including SCE's Willdan Commercial Energy Efficiency Program, which incentivizes replacement of an existing electric resistance or gas-fired water heater with a packaged heat pump water heater.⁵² San Diego Gas and Electric's Comprehensive Energy Management Solutions Program provides heat pump water heater rebates.⁵³

⁴⁸ U.S. Department of Energy, 179D Commercial Buildings Energy-Efficiency Tax Deduction, <https://www.energy.gov/eere/buildings/179d-commercial-buildings-energy-efficiency-tax-deduction>

⁴⁹ IRS, Inflation Reduction Act of 2022, <https://www.irs.gov/inflation-reduction-act-of-2022>

⁵⁰ TECH Clean California, Incentives, <https://techcleanca.com/incentives/multifamily-information/>

⁵¹ California Energy Commission, California Electric Homes Program, <https://caelectrichomes.com/>

⁵² Willdan Commercial Energy Efficiency Program, <https://willdanefficiency.com/commercial/>

⁵³ Comprehensive Energy Management Solutions, <http://www.savingwithcems.com/>

CHAPTER 3: SUMMARY OF PROPOSALS

INTRODUCTION

PROPOSED AMENDED RULE STRUCTURE

PROPOSED AMENDED RULE 1146.2

INTRODUCTION

The main objective of PAR 1146.2 is to propose NO_x limits that represent BARCT for the applicable equipment. PAR 1146.2 also deletes outdated rule language and reorganizes the rule structure to be consistent with recently amended or adopted rules. The proposed revised rule structure and key provisions are discussed below.

PROPOSED AMENDED RULE STRUCTURE

- (a) *Purpose*
- (b) *Applicability*
- (c) *Definitions*
- (d) *Requirements*
- (e) *Unit Age*
- (f) *Certification*
- (g) *Demonstrations of Compliance with Emission Limits*
- (h) *Identification of Compliant Units*
- (i) *Alternative Compliance Options*
- (j) *Labeling, Reporting, and Recordkeeping Requirements*
- (k) *Exemptions*

PROPOSED AMENDED RULE 1146.2

The proposed amended rule separates the purpose and applicability to be consistent with recently adopted and amended rules.

The table below shows the emission limits for new units in the current Rule 1146.2 and proposed revisions in PAR 1146.2.

Table 3-1. Summary of Emission Limits for New Units in Rule 1146.2 and New Revisions in PAR 1146.2

Rule 1146.2 Current Section	Unit Type	Compliance Date	Emission Limit (ppmv at 3%O ₂ , dry)	PAR 1146.2 Revision*
Rule 1146.2 (c)(1)	Type 2	2000	30 ppmv NO _x ; 400 ppmv CO	Obsolete; section removed
Rule 1146.2 (c)(2)	Type 1	2001	40 ng/J NO _x (55 ppmv NO _x)	Obsolete (except for pool heaters); section removed
Rule 1146.2 (c)(2)	Type 1 Pool Heaters	2001	40 ng/J NO _x (55 ppmv NO _x)	Current limits; now included in PAR 1146.2 (d)(1) and Table 1
Rule 1146.2 (c)(7)	Type 2	2010	14 ng/J NO _x (20 ppmv NO _x)	
Rule 1146.2 (c)(8)	Type 1 (excluding Pool Heaters)	2012	14 ng/J NO _x (20 ppmv NO _x)	

* PAR 1146.2 zero-emission requirements for new units installed in new and existing buildings are included in PAR 1146.2 (d)(2).

The table below shows the phase-out/retrofit requirements in the current rule and proposed revisions in PAR 1146.2. Phase-out/retrofit was required in Rule 1146.2 for unregulated old units to phase into the emission limits.

Table 3-2. Summary of Phase-out/Retrofit Requirements in Rule 1146.2 and New Revisions in PAR 1146.2

Rule 1146.2 Current Section	Unit Type and Age	Compliance Date	Emission Limit (ppmv at 3%O ₂ , dry)	PAR 1146.2 Revision*
Rule 1146.2 (c)(3)-(c)(5)	Type 2; Manufactured prior to 2000	2002-2006	30 ppmv NO _x	Should have met the limits; now included in PAR 1146.2 (d)(6) as a compliance tool if a non-compliant unit is found
Rule 1146.2 (c)(11)	Type 2; Manufactured and purchased prior to 2000 and sold/installed by December 31, 2010	Until Dec 31, 2010	20 ppmv NO _x	Obsolete; section removed

* Additionally, PAR 1146.2 will require units reaching their unit age after PAR 1146.2 Table 3 zero-emission compliance dates of their applicable categories to phase into zero-emission requirement as specified in PAR 1146.2 (d)(3).

PAR 1146.2 Purpose [Subdivision(a)]

The purpose of this rule is to reduce NO_x emissions from water heaters, boilers, and process heaters as defined in this rule.

PAR 1146.2 Applicability [Subdivision(b)]

The provisions of this rule are applicable to manufacturers, distributors, retailers, resellers, installers, owners, and operators of units that have a rated heat input capacity less than or equal to 2 MMBtu/hr. Those units could be sold through physical stores or online. An installer installing a noncompliant unit purchased online is in violation of the rule.

The provisions of the rule are primarily enforced through the supply chain (manufacturers, distributors, installers, etc.); however, enforcement staff also enforces the rule at commercial and industrial facilities that own and operate Rule 1146.2 units, especially if those facilities also own and operate other units that require a South Coast AQMD permit to operate.

Refurbishers were also subject to Rule 1146.2 but have been removed from PAR 1146.2 applicability to avoid redundancy. The term reseller has been added to PAR 1146.2 applicability. A refurbisher can be a manufacturer, reseller, or installer; therefore, removing the term refurbisher and adding the term reseller does not change the applicability.

PAR 1146.2 Definitions [Subdivision(c)]

The following are key new definitions for Proposed Amended Rule 1146.2. For all definitions, refer to PAR 1146.2 released with the staff report.

COMPLIANCE PORTAL in paragraph (c)(3), which means:

“the dedicated webpage on the South Coast AQMD website for submitting reports, notifications, or any documents to comply with South Coast AQMD rule(s)”

EXISTING BUILDING in paragraph (c)(4), which means:

“a building that is not a New Building as defined in this rule. Existing Building includes any structures on the property including, but not limited to, sheds, detached garages, pools, and spas”

HIGH TEMPERATURE UNIT in paragraph (c)(8), which means:

“any Unit that is designed and used to produce steam or to heat water above 180 degrees Fahrenheit”

INSTALL in paragraph (c)(10), which means:

“the action of an Installer to place a Unit in a position ready for use”

INSTALLER in paragraph (c)(11), which means:

“a person who Installs a Unit and is required to obtain a license issued by the Department of Consumer Affairs Contractors State License Board for a classification related to buildings and appliances”

Potential license requirements for installers include Department of Consumer Affairs Contractors State License Board Licensing Classifications C-4 - Boiler, Hot Water Heating and Steam Fitting Contractor; C-53 – Swimming Pool Contractor; and other license classifications.

MOBILE HOME in paragraph (c)(13), which means:

“a prefabricated structure on a permanently attached chassis”

NEW BUILDING in paragraph (c)(14), which means:

“a building that is newly constructed or a building with a major alteration which changes the occupancy classification of a building, which means a change in the formal designation of the primary purpose of the building pursuant to 2022 Title 24 California Building Code Part 2 Chapter 3 for occupancy classification and use, and that does not have a Unit installed prior to the applicable Table 3 compliance dates. New Building comprises any structures on the property including, but not limited to sheds, detached garages, pools, and spas”

SMALL BUSINESS in paragraph (c)(25), which is:

“as defined by Rule 102”

At the time of rule adoption, the definition of a Small Business in Rule 102 states, “a business which is independently owned and operated and meets the following criteria, or if affiliated with another concern, the combined activities of both concerns shall meet these criteria: (A) the number

of employees is 10 or less; and (B) the total gross annual receipts are \$500,000 or less; or (C) not-for-profit training center.”

STANDARD CONDITIONS in paragraph (c)(26), which is:

“as defined by Rule 102”

At the time of rule adoption, the definition of Standard Conditions in Rule 102 states, “gas temperature of 60°F and a gas pressure of 760 mm Hg (14.7 pounds per square inch) absolute.”

PAR 1146.2 Requirements [Subdivision(d)]

Paragraph (d)(1) – Current Rule 1146.2 Emission Limit

The provisions that were originally included in paragraphs (c)(2), (c)(7), and (c)(8) in Rule 1146.2 have been moved to paragraph (d)(1) in PAR 1146.2 to display current emission limits. Paragraph (d)(1) provides that no person shall manufacture, supply, sell, offer for sale, or install, for use within the South Coast AQMD, any unit subject to this rule, unless the unit is certified pursuant to subdivision (f) not to exceed the applicable NO_x and CO emission limits specified in PAR 1146.2 Table 1, prior to the compliance dates specified in PAR 1146.2 Table 3.

Table 3-3. PAR 1146.2 Table 1 (NO_x and CO Emission Limits)

Equipment Category	NO_x Emission Limit*	CO Emission Limit*
Type 1 Units, excluding Pool Heaters	14 ng/J or 20 ppmv	N/A**
Type 1 Pool Heaters	40 ng/J or 55 ppmv	N/A**
Type 2 Units	14 ng/J or 20 ppmv	400 ppmv

* Ng/J of NO_x (calculated as NO₂) of heat output or the specified ppmv of NO_x or CO at three percent oxygen (O₂) correction, on a dry basis.

** Type 1 units are not subject to a CO limit by Rule 1146.2 but may be subject to CO limits by other South Coast AQMD rules.

Paragraph (d)(2) – PAR 1146.2 BARCT Emission Limit for New Installations

PAR 1146.2 establishes updated BARCT NO_x and CO emission limits for applicable equipment as shown in Table 2. This paragraph provides that no person shall manufacture, supply, sell, offer for sale, or install, for use in the South Coast AQMD, any unit subject to this rule, unless such unit complies with the applicable Table 2 emission limits by Table 3 compliance dates.

Since the rule regulates units fired with, or designed to be fired with, natural gas, the emission limits only apply to the natural gas-fired mode for a dual fuel system. On and after the applicable compliance dates in PAR 1146.2 Table 3, any dual-fuel unit capable of being fired on natural gas and another gas, at the end of its unit age, would not be allowed to operate in natural gas-fired mode if that mode does not meet the zero-emission limit. In this case, the owner or operator could restrict the unit from operating in such a mode.

**Table 3-4. PAR 1146.2 Table 2
(Zero-Emission Limits, Compliance Schedule, and Unit Age)**

Equipment Category	NO _x and CO		Unit Age (years)
	Emission Limits (ppmv)	Compliance Schedule	
Type 1 Unit*	0	Phase I	15
Instantaneous Water Heater ≤ 200,000 Btu/hr	0		25
Instantaneous Water Heater > 200,000 Btu/hr	0	Phase II	25
Type 1 Pool Heater	0		15
Type 2 Unit**	0		25
Type 1 High Temperature Unit	0	Phase III	25
Type 2 High Temperature Unit	0		25

* Referring to a Type 1 Unit that is not a High Temperature Unit, Type 1 Pool Heater, or Instantaneous Water Heater.

** Referring to a Type 2 Unit that is not a High Temperature Unit or Instantaneous Water Heater.

**Table 3-5. PAR 1146.2 Table 3
(Compliance Dates for Zero-Emission Limits)**

Phase	Building Type	Compliance Date
Phase I	New Buildings	January 1, 2026
	Existing Buildings	January 1, 2029
Phase II	New Buildings	January 1, 2028
	Existing Buildings	January 1, 2031
Phase III	New Buildings	January 1, 2029
	Existing Buildings	January 1, 2033

Paragraph (d)(3) – Zero-Emission for Existing Units after Their Unit Age

PAR 1146.2 requires units reaching their unit age after the Table 3 compliance dates of their applicable categories to phase into the zero-emission requirement. On and after the Table 3 compliance dates, an owner or operator of a unit shall not operate a unit which exceeds Table 2 emission limits once the unit age determined pursuant to subdivision (e) is greater than or equal to the applicable Table 2 unit age. All units installed prior to the applicable Table 3 compliance dates will be subject to this requirement, including older Type 1 units installed prior to 2010 and all existing units in RECLAIM and former RECLAIM facilities. Units installed or used for residential structures or facilities meeting the Rule 102- Definitions (Rule 102) definition of a small business are exempted from this requirement pursuant to paragraph (k)(4) or (k)(5), those units will have to meet the Table 2 emission limits upon natural replacement.

For example, if an existing Type 1 unit is not used in a residential structure or small business facility, it is subject to the paragraph (d)(3) requirement. If this unit is 18 years old (i.e., beyond its unit age as indicated in PAR 1146.2 Table 2) by January 1, 2029, the Phase II zero-emission compliance date, it must comply with the zero-emission requirement no later than January 1, 2029.

Another example is also for an existing Type 1 unit subject to the paragraph (d)(3) requirement that is not used in a residential structure or small business facility. If this unit is 12 years old (i.e., before end of unit age as indicated in PAR 1146.2 Table 2) on January 1, 2029, the Phase II zero-emission compliance date, it is not subject to the zero-emission requirement until 2032 at its unit age.

Paragraph (d)(4) – Emission Demonstration at Unit Modification

Paragraph (d)(4) of PAR 1146.2 provides guidance for an owner or operator to demonstrate that a modified unit meets the NO_x and CO emission limits in subdivision (d).

Paragraph (d)(5) – Emission Limits at Burner Modification or Replacement

Paragraph (d)(5) specifies the applicable emission limit when an owner or operator modifies or replaces a burner for any unit. If the modification or replacement occurs prior to the applicable compliance dates in Table 3 or before the unit reaches its unit age, the emission limit in Table 1 will apply. If the modification or replacement occurs on and after the applicable compliance dates in Table 3 and when the unit has reached its unit age in Table 2, the emission limit in Table 2 will apply. This provision addresses stranded assets by allowing a unit that has not reached the end of its unit age but requires a burner replacement after the Table 2 limits have gone into effect, to be retrofit to continue operation. Once the unit reaches the end of its unit age, it will have to meet the Table 2 emission limits.

Paragraph (d)(6) – Type 2 Unit Manufactured Prior to January 1, 2000

The provisions that were originally included in paragraphs (c)(3), (c)(4), and (c)(5) in Rule 1146.2 have been converted into paragraph (d)(6) in PAR 1146.2. These units should already comply with the emission limits, and this provision is included in PAR 1146.2 (d)(6) as a compliance tool if a non-compliant unit is found. Paragraph (d)(6) provides that except for units at a RECLAIM or former RECLAIM facility, an owner or operator shall not operate any Type 2 unit manufactured prior to January 1, 2000, in the South Coast AQMD which does not meet the emission limit of 30 ppmv (corrected at ~~3~~three percent O₂ correction, on a dry basis) or 0.037 pound NO_x per million Btu of heat input and no more than 400 ppmv of carbon monoxide (at ~~3~~three percent O₂, dry).

Paragraph (d)(7) – If Failing to Meet the Exemption Criteria

An owner or operator of a unit that elects to comply with the exemptions in paragraph (k)(2), (k)(3), or (k)(5) will lose the exemption and be subject to the applicable emission limits within 180 days if they fail to demonstrate meeting the criteria for the exemption. The owner or operator of the unit shall not operate the unit that exceeds the applicable Table 1 emission limits within 180 days of failing to demonstrate compliance with paragraph (k)(2) pursuant to paragraph (g)(2); shall not operate the unit that exceeds the applicable Table 2 emission limits within 180 days of failing to demonstrate compliance with paragraph (k)(3) pursuant to paragraph (g)(2); or shall not operate the unit that does not comply with paragraph (d)(3) within 180 days of failing to meet the Rule 102 definition of a small business. Paragraph (d)(7) sets a backstop if the exemption criteria cannot be demonstrated and requires a timeline of up to 180 days for the compliance of applicable emission limits.

PAR 1146.2 Unit Age [Subdivision(e)]

Subdivision (e) provides guidance for an owner or operator of a unit to determine unit age.

Paragraph (e)(1) – Unit Age Determination

Paragraph (e)(1) provides guidance for an owner or operator of a unit to determine unit age. Unit age shall be based on the original date of manufacture determined by an invoice from purchase of unit provided by the manufacturer; the original unit manufacturer's identification or rating plate permanently affixed to the unit; or any other method of determining unit age that can be substantiated through written information as approved by the Executive Officer. The unit shall be deemed at the end of its unit age as of January 1, 2025, for any unit where the unit age cannot be determined pursuant to subparagraph (e)(1)(A).

PAR 1146.2 Certification [Subdivision(f)]

Subdivision (f) provides guidance to manufacturers regarding unit certification. Subdivision (f) in PAR 1146.2 was originally subdivision (d) in Rule 1146.2.

Paragraph (f)(1) – Independent Testing Laboratory

The manufacturer shall obtain confirmation from an independent testing laboratory prior to applying for certification for a natural gas unit that each unit model or retrofit kit complies with the applicable requirements of subdivision (d). This confirmation shall be based upon emission source tests of a randomly selected unit of each model, and the protocol shall be adhered to during the confirmation testing of all units subject to this rule.

Paragraph (f)(2) – Applying for Unit Certification

When applying for unit(s) certification, the manufacturer shall submit to the Executive Officer the following: a statement that the model is in compliance with subdivision (d), signed and dated, attesting to the accuracy of all statements; general information including name and address of manufacturer, brand name, and model number as it appears on the unit rating plate; a description of each unit being certified; and a source test report verifying compliance with the emission limits in subdivision (d) for each model to be certified. The source test report shall be prepared by the confirming independent testing laboratory and shall contain all the elements identified in the protocol for each unit tested.

Paragraph (f)(3) – Timeline

When applying for unit certification, the manufacturer shall submit the items identified in paragraph (f)(2) no more than 180 days after the date of the source test identified in subparagraph (f)(2)(D).

Paragraph (f)(4) – Unit Certification

The Executive Officer shall certify a unit model which complies with the provisions of subdivision (d) and of paragraphs (f)(1), (f)(2), and (f)(3).

PAR 1146.2 Demonstrations of Compliance with Emission Limits [Subdivision(g)]*Paragraph (g)(1) – Source Test Report*

The owner or operator that elects to demonstrate compliance pursuant to subparagraph (d)(4)(B) shall maintain a copy of the South Coast AQMD approved source test report or make it available to the Executive Officer upon request. The source test report shall, at a minimum, include: the emissions limit of the unit in ppmv or ng/J of NO_x or ppmv of CO of heat output; the South Coast AQMD approved test method and Independent Testing Laboratory for the source test; the model and serial numbers of the unit(s); and the rated heat input capacity of the unit(s).

Paragraph (g)(2) – Demonstrate Compliance for Exemption in Paragraph (k)(2) or (k)(3)

The owner or operator of a unit that elects to comply with the exemption in paragraph (k)(2) or (k)(3), shall demonstrate compliance with the annual therm limit determined using one of the following methods: fuel usage recorded by a non-resettable totalizing fuel meter, corrected to standard conditions; fuel usage calculated by multiplying the number of hours recorded by a non-resettable totalizing time meter and the rated heat input capacity of the unit, as calculated using Equation 1 in the rule; or monthly fuel billing statement or equivalent documentation, which can include an e-statement or a download from the utility website. The fuel meter or time meter is required to be non-resettable and calibrated according to the manufacturer's recommendation. The owner or operator also shall maintain the fuel usage records for a period of not less than three years as specified in subparagraph (j)(4)(D).

PAR 1146.2 Identification of Compliant Units [Subdivision(h)]

Subdivision (h) outlines the procedure and requirements for identification and verification of compliant units. Subdivision (h) in PAR 1146.2 was originally subdivision (f) in Rule 1146.2.

Paragraph (h)(1) – Newly Manufactured Units

The manufacturer shall display the model number of the unit complying with subdivision (d) on the shipping carton and permanent rating plate. The manufacturer shall also display the certification status on the shipping carton and on the unit.

Paragraph (h)(2) – Certified Retrofit Kits

The manufacturer shall display the model number of the retrofit kit and manufacturer and model of applicable units on the shipping carton and in a plainly visible portion of the retrofit kit.

PAR 1146.2 Alternative Compliance Options [Subdivision(i)]

Subdivision (i) provides alternative compliance options for different considerations, including utility upgrade, multiple units, emergency replacement, mobile homes, property under lease, and construction upgrade.

Paragraph (i)(1) – Alternative Compliance Option for Utility Upgrades

Paragraph (i)(1) provides an alternative compliance option when an owner or operator of a unit required to meet the Table 2 emission limits will encounter delays beyond their reasonable control and cannot meet the applicable Table 3 compliance date, or paragraph (d)(3) requirement, because a utility upgrade is required to provide the necessary power to operate the unit.

The owner or operator shall notify the Executive Officer through the compliance portal and request an extension pursuant to subparagraph (i)(1)(A) and obtain a letter from the Executive officer pursuant to subparagraph (i)(1)(B). The owner or operator shall notify the Executive Officer at least 90 days prior to the unit's applicable compliance date in Table 3 or paragraph (d)(3) to request an extension of no more than ~~18~~24 months from the applicable compliance date and obtain a letter from the Executive Officer prior to the unit's compliance date approving or disapproving the extension. If the need for the utility upgrade is discovered when a unit is being replaced due to sudden unit failure, the owner or operator of the unit shall notify the Executive Officer through the compliance portal 30 days after the date the unit became non-operational to request an extension of no longer than ~~18~~24 months from the date of unit failure. In this case, the owner or operator shall obtain a letter from the Executive Officer through the compliance portal within 90 days of the notification.

Furthermore, if the utility upgrades will not be completed within the initial ~~18~~24-month extension approved pursuant to subparagraph (i)(1)(A), the owner or operator may request an additional extension of no more than ~~18~~24 months through the compliance portal at least 90 days prior to the end of the initial ~~18~~24-month extension; and obtain a letter from the Executive Officer through the Compliance Portal prior to the end of the initial extension. If the utility upgrades will not be completed within the additional 24-month extension approved pursuant to subparagraph (i)(1)(C), the owner or operator may request a further extension of no more than 12 months through the Compliance Portal at least 90 days prior to the end of the additional 24-month extension and obtain a letter from the Executive Officer through the Compliance Portal prior to the end of the additional 24-month extension.

The owner or operator shall provide a progress report to the Executive Officer through the Compliance Portal every six months after the start of the initial extension approved pursuant to subparagraph (i)(1)(B) and for the applicable extension period(s) approved pursuant to subparagraphs (i)(1)(C) and (i)(1)(D), which includes, but is not limited to, the status of the utility upgrade, the estimated date the utility provider will complete the utility upgrade, and documentation which justifies the update to estimated date for completion.

The owner or operator also shall provide a follow-up notification to the Executive Officer through the Compliance Portal no later than 72 hours after the unit complying with the Table 2 emission limits has been installed; and maintain records pursuant to paragraph (j)(6). If a unit is not operational during the extension(s) approved pursuant to subparagraphs (i)(1)(B), (i)(1)(C), and (i)(1)(D) ~~or clause (i)(1)(C)(ii)~~, the owner or operator may elect to operate a temporary unit during the extension, provided the temporary unit complies with Table 1 emission limits; no later than 72 hours after the date the temporary unit was installed, notify the Executive Officer through the

compliance portal; and no later than 72 hours after the date the temporary unit was disconnected, notify the Executive Officer through the compliance portal.

Paragraph (i)(2) – Alternative Compliance Option for Multiple Units

Paragraph (i)(2) provides an alternative compliance option for when an owner or operator has five or more units across facilities that are required to meet the Table 2 emission limits within two consecutive calendar years pursuant to paragraph (d)(3). That means within a period of two consecutive calendar years, those units are reaching their unit age and should be replaced with zero-emission units. The owner or operator may submit an alternative compliance plan requesting alternative compliance date(s) by submitting the alternative compliance plan at least one year prior to the earliest compliance date, with a filing fee payment pursuant to Rule 306 – Plan Fees ([Rule 306](#)); and specifying compliance date(s) in the alternative compliance plan for the number of units to meet the Table 2 emission limits as three or at least 30 percent of the units by the latest applicable compliance date, at least 30 percent of the units one year after the latest applicable compliance date, and the remaining units two years after the latest applicable compliance date.

~~Additionally, In lieu of subparagraph (i)(2)(B), if a unit meets the requirements to apply for the alternative compliance option for utility upgrades pursuant to paragraph (i)(1), the~~ owner or operator ~~of five or more units electing to comply by submitting an alternative compliance plan in subparagraph (i)(2)(A) will encounter delays beyond the reasonable control of the owner or operator to meet the applicable compliance dates because a utility upgrade is required and the applicable utility company is unable to provide the necessary power to operate the Units, as demonstrated with documents specified in paragraph (j)(6), the owner or operator of the Units may~~ elect to include a request in their alternative compliance plan for an extension. Initially, the extension is no longer than ~~18~~24 months from the earliest compliance due date of the units ~~included~~ in the alternative compliance plan ~~submitted pursuant to subparagraph (i)(2)(A), by including the documentation listed in paragraph (j)(6) with the application for an alternative compliance plan, and specifying alternative compliance date(s) in the alternative compliance plan for the number of units to meet the Table 2 emission limits as pursuant to clause (i)(2)(C)(i). The alternative compliance schedule for units that require utility upgrades pursuant to clauses (i)(2)(C)(i), (i)(2)(C)(ii), and (i)(2)(C)(iii) differs from the alternative compliance schedule in subparagraph (i)(2)(B). If utility upgrades are required, the alternative schedule requires 50 percent of the units to be upgraded within two years of the end of the approved extension period, with the remaining 50 percent the following year. The compliance schedule is a little shorter as facilities have time upfront, while the utilities are being upgraded, to plan, design, and purchase zero-emission equipment. If the utility upgrades will not be completed within the initial 1824-month extension in the approved alternative compliance plan period provided in clause (i)(2)(C)(i), the owner or operator may request a second extension of no more than 24 months by submitting a revised alternative compliance plan at least 180 days prior to the end of the initialfirst 1824-month extension to request an additional extension of no more than 1824 months before initiating the alternative compliance schedule specified in subparagraph (i)(2)(B), with a filing fee payment pursuant to Rule 306—Plan Fees, and specifying revised alternative compliance date(s) in the alternative compliance plan for the number of units to meet the Table 2 emission limits as pursuant to clause (i)(2)(C)(ii). If the utility upgrades will not be completed within the second 24-month extension period provided in clause (i)(2)(C)(ii), the owner or operator may request a third extension of no more than 12 months by submitting a revised alternative compliance plan at least 180 days prior to the end of the second 24-month extension, with a filing fee payment pursuant to~~

Rule 306; and specifying alternative compliance date(s) in the alternative compliance plan for the number of units to meet the Table 2 emission limits. The owner or operator must obtain written approval from the Executive Officer, as specified in paragraph (i)(3), prior to the earliest compliance due date of all units included in the alternative compliance plan, and if an additional extension(s) was requested pursuant to clauses (i)(2)(C)(ii) and/or (i)(2)(C)(iii), prior to the end of the ~~initial previously~~ approved ~~18-month~~ extension, ~~for any unit included in the alternative compliance plan.~~

For example, six units across several facilities have compliance dates between 2030 and 2032 with two units due for compliance each year, as shown in the table below. In this example, the owner or operator may write and submit an alternative compliance plan pursuant to subparagraph (i)(2)(A). If no utility upgrade is required, the owner or operator may submit an alternative compliance plan pursuant to subparagraph (i)(2)(B). In this example, two units would have a compliance date of 2032, two units would have a compliance date of 2033, and the remaining two would have a compliance date of 2034 in the alternative compliance plan.

Table 3-6. Example for Paragraph (i)(2)(C) with No Required Utility Upgrade

<u>Unit</u>	<u>Compliance Date</u>	<u>Alternative Compliance Date</u>
<u>1</u>	<u>January 1, 2030</u>	<u>January 1, 2032</u>
<u>2</u>	<u>March 1, 2030</u>	
<u>3</u>	<u>February 1, 2031</u>	<u>January 1, 2033</u>
<u>4</u>	<u>April 1, 2031</u>	
<u>5</u>	<u>August 1, 2031</u>	<u>January 1, 2034</u>
<u>6</u>	<u>January 1, 2032</u>	

For this same example, if utility upgrades are required, subparagraph (i)(2)(C) provides the option to request a 24-month extension and submit an alternative compliance plan following clause (i)(2)(C)(i). In this example, three units would have a compliance date in 2034 and the remaining three units would be due in 2035. If the utility upgrades are not complete, the owner or operator may request a second 24-month extension immediately following the first extension. Following clause (i)(2)(C)(ii), three units would be due in 2036 and three units would be due in 2037. If the utility upgrades are still not complete, the owner or operator may request a third 12-month

extension immediately following the second extension. Following clause (i)(2)(C)(iii), three units would be due in 2037 and three units would be due in 2038.

Table 3-7. Example for Paragraph (i)(2)(C) with Utility Upgrade

<u>Unit</u>	<u>Compliance Date</u>	<u>First 24-Month Extension</u>	<u>Alternative Compliance Date</u>	<u>Second 24-Month Extension</u>	<u>Alternative Compliance Date</u>	<u>Third 24-Month Extension</u>	<u>Alternative Compliance Date</u>
<u>1</u>	<u>January 1, 2030</u>	<u>January 1, 2032</u>	<u>January 1, 2034</u>	<u>January 1, 2034</u>	<u>January 1, 2036</u>	<u>January 1, 2035</u>	<u>January 1, 2037</u>
<u>2</u>	<u>March 1, 2030</u>						
<u>3</u>	<u>February 1, 2031</u>						
<u>4</u>	<u>April 1, 2031</u>		<u>January 1, 2035</u>	<u>January 1, 2037</u>	<u>January 1, 2037</u>	<u>January 1, 2038</u>	<u>January 1, 2038</u>
<u>5</u>	<u>August 1, 2031</u>						
<u>6</u>	<u>January 1, 2032</u>						

The owner or operator shall provide a progress report to the Executive Officer through the Compliance Portal every six months after the start of the initial extension approved pursuant to clause (i)(2)(C)(i) for the applicable extension period(s) approved pursuant to clauses (i)(2)(C)(ii) and (i)(2)(C)(iii), which includes, but is not limited to, the status of the utility upgrade, the estimated date the utility provider will complete the utility upgrade, and documentation which justifies the update to estimated date for completion.

The owner or operator shall obtain written approval from the Executive Officer, as specified in paragraph (i)(3), prior to the earliest compliance due date of all units included in the alternative compliance plan; and obtain written approval if an additional extension(s) was requested pursuant to clauses (i)(2)(C)(ii) and/or (i)(2)(C)(iii) prior to the end of the previously approved extension.

Paragraph (i)(3) – Approval of Alternative Compliance Option for Multiple Units

Paragraph (i)(3) provides language on the approval of the alternative compliance option for multiple units in paragraph (i)(2). The Executive Officer shall review the request for alternative compliance date submitted pursuant to paragraph (i)(2) and provide written approval or disapproval based on whether the following criteria are met: the owner or operator demonstrated they are operating five or more units that are required to be replaced based on unit age pursuant to paragraph (d)(3) to meet Table 2 emission limits within two calendar years; the request was submitted at least one year prior to the earliest applicable compliance date; and the proposed alternative compliance date meets the criteria specified in subparagraph (i)(2)(B) ~~or~~ and subparagraph (i)(2)(C), if applicable.

Paragraph (i)(4) – Alternative Compliance Option for Emergency Replacements

Paragraph (i)(4) provides an alternative compliance option for emergency replacement when an electrical upgrade for more power supply capacity is required to comply with zero-emission limits. An owner or operator of a unit that requires a short-term replacement due to sudden unit failure after the applicable Table 3 compliance date and an electrical upgrade to increase the power supply capacity to operate a unit that complies with Table 2 emission limits, excluding units utilizing alternative compliance options specified in paragraphs (i)(1), (i)(6), and (i)(7) may elect to, for units used in buildings that are not residential structures: install and operate a temporary unit that complies with Table 1 emission limits for up to six months prior to installing a unit that complies with Table 2 emission limits; no later than 72 hours after the date the temporary unit was installed, report the date the existing unit failed and the date the temporary unit was installed through the compliance portal; and no later than 72 hours after the date the temporary unit was disconnected, report the date the temporary unit was disconnected through the compliance portal; and report the date the unit complying with Table 2 emission limits was installed through the Compliance Portal no later than 72 hours after the date the new unit was installed. For units sold for use in residential structures, a unit that complies with Table 1 emission limits can be offered for rent for up to six months prior to installing a unit that complies with Table 2 emission limits.

Paragraph (i)(5) – Alternative Compliance Option for Mobile Homes

Paragraph (i)(5) provides an alternative compliance option with more time to comply with zero-emission limits for mobile homes with an existing instantaneous water heater. An owner or operator of an instantaneous water heater manufactured prior to the date of rule adoption that is installed in a mobile home may elect to install an instantaneous water heater with rated heat input capacity of less than or equal to 200,000 Btu/hr that complies with the Table 1 emission limits ~~until~~[before](#) January 1, 2033, in lieu of the applicable compliance date in Table 3 or paragraph (d)(3). On and after January 1, 2033, any instantaneous water heater with rated heat input capacity of less than or equal to 200,000 Btu/hr manufactured, supplied, sold, offered for sale, or installed for use in a mobile home must meet the Table 2 emission limits upon replacement.

Paragraph (i)(6) – Alternative Compliance Option for Units at a Property Under Lease

Paragraph (i)(6) provides an alternative compliance option for an owner or operator of a unit, when the unit is in a property under lease. The owner or operator of the unit shall be provided an extension of no more than 24 months [from the applicable compliance date](#) to comply with the Table 2 emission limits, if the installation is delayed beyond the reasonable control of the owner or operator of the unit, [excluding units utilizing the alternative compliance options specified in paragraphs \(i\)\(1\), \(i\)\(2\), and \(i\)\(7\)](#), provided the owner or operator: occupies the property under a lease as a tenant before and after the applicable compliance date in Table 3 or paragraph (d)(3); reports the date the existing unit is required to comply no later than 90 days prior to the applicable compliance date in Table 3 or paragraph (d)(3) through the compliance portal; and reports the date the new unit was installed to comply with the Table 2 emission limits through the compliance portal no later than 72 hours after the date the new unit was installed. The intent of this provision is for commercial facilities, such as dry cleaners who typically rent their space, and need additional time to transition to zero-emissions units while the property owner provides utility upgrades. The

landlord of residential rentals has a legal obligation to provide safe and habitable living conditions for the tenants, including providing clean water and functioning heating systems. The provision is not designed for residential rentals, as most renters are not responsible for purchasing large appliances such as water heaters; however, residents are not precluded from utilizing the provision. If a unit is non-operational during the extension specified in paragraph (i)(6), the owner or operator may elect to operate a temporary unit during the extension, provided the temporary unit complies with Table 1 emission limits, and the owner or operator notifies the Executive Officer through the compliance portal no later than 72 hours after the date the temporary unit was installed and no later than 72 hours after the date the temporary unit was disconnected.

Paragraph (i)(7) – Alternative Compliance Option for Construction

Paragraph (i)(7) provides an alternative compliance option for an extension of no more than ~~six~~18 months [from the applicable compliance date](#) to comply with the Table 2 emission limits if the installation is delayed because construction is required to expand the space designed to house [or relocate](#) the Unit, and associated equipment necessary for operating the Unit, excluding Units utilizing the alternative compliance options specified in paragraphs (i)(1), (i)(2), (i)(5), and (i)(6).

The owner or operator electing to utilize this provision shall: report the existing unit is required to be replaced to comply with the Table 2 emission limits through the compliance portal no later than 90 days prior to the applicable compliance date in Table 3 or paragraph (d)(3); report the date the new unit was installed to comply with the Table 2 emission limits through the compliance portal; and maintain records pursuant to paragraph (j)(8). If a unit is non-operational during the extension provided by this provision, the owner or operation may install and operate a temporary unit that complies with Table 1 emission limits during the extension prior to installing a unit that complies with Table 2 emission limits; no later than 72 hours after the date the temporary unit was installed, notify the Executive Officer [through the compliance portal](#); and no later than 72 hours after the date the temporary unit was disconnected, notify the Executive Officer [through the compliance portal](#).

Paragraph (i)(8) – If failing to comply with the alternative compliance option requirements

Paragraph (i)(8) provides clarification regarding compliance when the owner or operator of a unit elects to use any of the alternative compliance options in subdivision (i) but fails to comply with the specified requirements. When that occurs, the owner or operator can no longer use the alternative compliance option and must meet the zero-emission requirements according to paragraph (d)(2), (d)(3), [or subparagraph \(d\)\(5\)\(B\)](#), whichever applicable.

PAR 1146.2 Labeling, Reporting, and Recordkeeping Requirements [\[Subdivision\(j\)\]](#)

Subdivision (j) addresses labeling, reporting, and recordkeeping requirements.

Labeling requirements are common for area source rules. For example, Rule 1111 has several labeling requirements. Labeling requirements are important tools for enforcement, especially when some units distributed to the market can only be installed under certain conditions. While manufacturers ship units into many markets, to ensure the labels are only included on units sold into or within the South Coast AQMD, they may elect to send a sticker or label to their distributors so they can be applied at the point of sale. PAR 1146.2 is proposing a labeling requirement under

the new subdivision (j) for the period between the new building compliance date and the existing building compliance date of an equipment category, and the extended period for tankless water heaters being installed in mobile homes.

Paragraph (j)(1) – Labeling Schedule

Pursuant to the labeling schedule in Table 4, any unit that is supplied or offered for sale for use within the South Coast AQMD prior to the applicable Table 3 compliance dates that complies with the Table 1 emission limits, but not the Table 2 emission limits, shall prominently display the statement “If Installed in South Coast AQMD: For Installation and Use in Existing Buildings Only.”

Table 3-68. PAR 1146.2 Table 4 (Labeling Schedule)

Unit's Compliance Schedule	Labeling Requirements	
	Start Date	End Date
Phase I	January 1, 2026	January 1, 2029
Phase II	January 1, 2028	January 1, 2031
Phase III	January 1, 2029	January 1, 2033

Paragraph (j)(2) – Labeling for Instantaneous Water Heaters in Mobile Homes

Effective January 1, 2029, to January 1, 2033, an instantaneous water heater with rated heat input capacity of less than or equal to 200,000 Btu/hr supplied or offered for sale for use in a mobile home within the South Coast AQMD and complying with the alternative compliance date in paragraph (i)(5) shall prominently display the statement “If Installed in South Coast AQMD: For Installation and Use in Mobile Homes Only.”

Paragraph (j)(3) – Annual Reporting Requirement

Effective on and after the Table 3 compliance dates for Existing Buildings, manufacturers of natural gas-fired unit(s) shall submit a report by March 1st of the following calendar year to the Executive Officer through the compliance portal. The report shall include: 1) name of the product manufacturer; 2) list of product model(s); 3) number of units and rated heat input capacity of each model that was sold into or within the South Coast AQMD; and 4) the applicable equipment category in Table 2.

Paragraph (j)(4) – General Recordkeeping Requirement

The owner or operator of a unit shall maintain on-site a copy of the manufacturer's and/or distributor's written instructions and retain a record of the maintenance activity and fuel use records for a period of not less than three years for low-use demonstration. The owners or operators shall also maintain copy of a government-issued document (e.g., building permit) that grants permission to an individual or organization to initiate a construction project which determines the eligibility of new building or existing building for the compliance of the rule.

Paragraph (j)(5) – Rated Heat Input Capacity Documentation

The owner or operator of a unit shall maintain on-site, or provide upon the Executive Officer's request, a copy of all documents identifying the unit's rated heat input capacity including: manufacturer's or distributor's manual or invoice; and maintain documentation of the rated heat input capacity for a unit modified pursuant to paragraph (d)(5), signed by the licensed person modifying the unit, including description of all unit modifications, dates the unit was modified, and calculation of rated heat input capacity.

Paragraph (j)(6) – Recordkeeping for Alternative Compliance Option for Utility Upgrades

If an owner or operator of a unit elects to comply with the provision in paragraph (i)(1) or subparagraph (i)(2)(C), the owner or operator shall maintain records on-site, or make them available to the Executive Officer upon request, until three years after the end date of the approved extension(s), that demonstrate the power supply and the utility provider's progress on providing the necessary power, including but not limited to an official document signed by the responsible party of the utility company that services the facility that includes: an explanation of the utility upgrades required by the utility company; communications with the utility provider when the utility upgrade was requested; the estimated date the utility provider will complete the utility upgrades; additional information to substantiate that additional time is necessary; and documentation which demonstrates that the delays are outside of the reasonable control of the owner or operator.

Paragraph (j)(7) – Recordkeeping for Alternative Compliance Option for Units at a Property Under Lease

If an owner or operator of a unit elects to comply with the provision in paragraph (i)(6), the owner or operator shall maintain records on-site, or make them available to the Executive Officer upon request, until three years after reporting through the compliance portal pursuant to subparagraph (i)(6)(B), including but not limited to: a legally binding contract that explains the terms and duration of the lease under which the owner or operator of the unit is a tenant renting a property from a landlord; and documentation which demonstrates that the delays are beyond the reasonable control of the owner or operator.

Paragraph (j)(8) – Recordkeeping for Alternative Compliance Option for Construction

If an owner or operator elects to comply with the provision in paragraph (i)(7), the owner or operator shall maintain records on-site, or make them available to the Executive Officer upon request, until three years after reporting through the compliance portal pursuant to subparagraph (i)(7)(A), including but not limited to: images that show ~~the activity of~~ construction activity; ~~and the expansion of the space for the unit~~ or new location where the unit will be housed; and associated equipment by the construction; and documentation which demonstrates the construction, which could be a construction permit or contract.

Paragraph (j)(9) – Small Business Registration

If an owner or operator of a unit elects to utilize the small business exemption from paragraph (d)(3) for end of unit life replacement pursuant to paragraph (k)(5), the owner or operator must register their facility as a small business at least 90 days prior to the unit reaches its unit age, maintain related records on-site, or make them available to the Executive Officer upon request, until three years after registering through the Compliance Portal. Paragraph (j)(9) specifies the

records as business legal owner and contract information, number of current employees, the total gross annual receipts, and if the business is a non-for-profit training center.

Paragraph (j)(10) – Reporting through 1-800-CUT-SMOG®

Staff expects to establish an online reporting platform to accommodate the reporting requirements in paragraphs (i)(1), (i)(4), (i)(6), (i)(7), (j)(3), or (j)(9) prior to their effective dates. However, staff understands that there are situations where the online reporting platform might not be operational, or the owner or operator of a unit cannot use the online reporting platform. Paragraph (j)(10) allows the owner or operator to report the required information by calling 1-800-CUT-SMOG® if the compliance portal is not available or not allowing entering of the necessary information, or if the owner or operator does not have the access to the compliance portal.

PAR 1146.2 Exemptions [Subdivision(k)]

Subdivision (k) has been updated to clarify exemptions and phase in new emission limits. Subdivision (k) in PAR 1146.2 was originally subdivision (h) in Rule 1146.2.

Paragraph (k)(1) – Units in Recreational Vehicles, Units Subject to Rule 1121, and Units subject to Rule 1179.1

The provisions of this rule shall not apply to units used in recreational vehicles; units subject to the limits in South Coast AQMD Rule 1121 – Control of Nitrogen Oxides from Residential Type, Natural Gas-fired Water Heaters; and units subject to a NOx emission limit in Rule 1179.1 – Emission Reductions from Combustion Equipment at Publicly Owned Treatment Works Facilities.

Paragraph (k)(2) – Low-Use Exemption – 9,000 therms per year

This existing exemption in Rule 1146.2 was intended for Type 2 units manufactured prior to January 1, 2000, with NOx emissions higher than 30 ppm NOx. The 9,000 therms per year low-use threshold is about 50 percent of typical annual fuel use for a medium size Type 2 unit, which is no longer justifiable as low-use. Staff proposes to phase out this provision when zero-emission requirements become effective.

Until the applicable Table 3 compliance dates, the Table 1 emission limits shall not apply to Type 2 units manufactured prior to January 1, 2000, that are demonstrated to use less than 9,000 therms during every calendar year. Subparagraph (g)(2)(D) addresses the recordkeeping requirements for paragraph (k)(2).

Paragraph (k)(3) – Low-Use Exemption – 2,000 or 3,000 therms per year

Paragraph (k)(3) provides a new low-use exemption from Table 2 zero-emission requirements for existing units installed prior to the date of rule adoption. Annual use of 3,000 therms is about 16 percent normal fuel use for a 1 MMBtu/hr unit and 2,000 therms is about 27 percent normal fuel use for a 400 kBtu/hr unit. The provisions of paragraphs (d)(2) and (d)(3) and subparagraph (d)(5)(B) shall not apply to the following existing units installed prior to the date of rule adoption that meet Table 1 emission limits: units with a rated heat input capacity greater than 1 MMBtu/hr, but less than or equal to 2 MMBtu/hr that are demonstrated to use less than 3,000 therms during every calendar year; or units with a rated heat input capacity greater than 400 kBtu per hour, but less than or equal to 1 MMBtu/hr that are demonstrated to use less than 2,000 therms during every calendar year. Subparagraph (g)(2)(D) addresses the recordkeeping requirements for paragraph (k)(3).

Paragraph (k)(4) – Residential Structures

The provisions of paragraphs (d)(3), (d)(4), (d)(5), (d)(6), (d)(7) and the recordkeeping and reporting provisions in paragraphs (j)(4) through (j)(9) shall not apply to units installed or used for residential structures. The retrofit requirement is intended for installations in industrial and commercial settings; therefore, units for residential structures are exempted from this requirement.

Paragraph (k)(5) – Zero-Emission for Existing Units after Their Unit Age for Small Businesses

The provisions of paragraph (d)(3) shall not apply to units installed in facilities that meet the Rule 102 definition of a small business if the owners or operators of the units register their facilities as small businesses and meet the specified recordkeeping requirements.

Paragraph (k)(6) – Certification Requirements

Certification requirements specified in paragraphs (f)(1) through (f)(4) shall not apply to units complying with Table 2 emission limits.

CHAPTER 4: IMPACT ASSESSMENT

INTRODUCTION

EMISSIONS INVENTORY AND EMISSION REDUCTIONS

COST-EFFECTIVENESS ~~AND INCREMENTAL COST-EFFECTIVENESS~~

SOCIOECONOMIC IMPACT ASSESSMENT

**CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) ANALYSIS
SUMMARY**

**DRAFT FINDINGS UNDER HEALTH AND SAFETY CODE SECTION
40727**

COMPARATIVE ANALYSIS

INTRODUCTION

PAR 1146.2 is expected to impact 1,070,000 units located in the South Coast AQMD region.

EMISSIONS INVENTORY AND EMISSION REDUCTIONS

The total NO_x inventory for the RECLAIM and non-RECLAIM units affected by PAR 1146.2 is estimated to be 5.6 tpd. For context, the 2022 AQMP indicated a total of 351 tpd of NO_x emitted from all sources in the region in 2018, the base-year of the emissions inventory and modeling analysis in the plan. Appliances used in residential and commercial buildings emit about 22.1 tpd of NO_x, which is about 54 percent of 2037 NO_x emissions from all stationary and area sources that South Coast AQMD regulates. Those appliances are primarily space and water heaters, cooking devices, and some other appliances combusting natural gas. The estimated baseline emissions for PAR 1146.2 are around nine percent of the total stationary source inventory, as shown in the figure below.

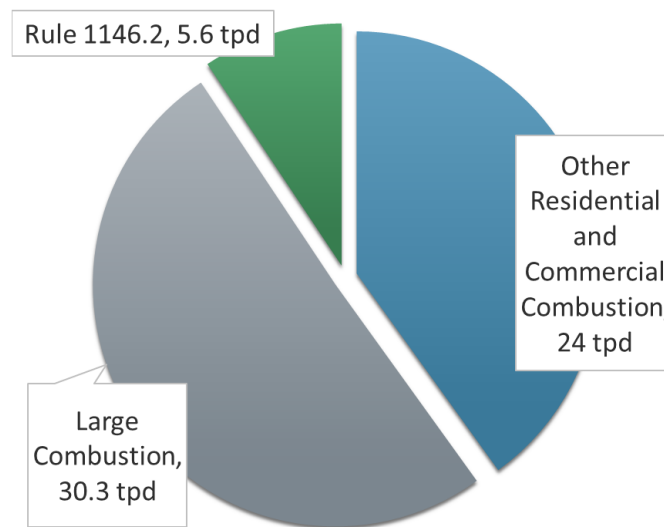


Figure 4-1. 2018 NO_x Emissions from Stationary Sources (tons per day)

Baseline Emissions

PAR 1146.2 will impact 1,070,000 units, the applicable large water heaters, small boilers, and process heaters. To estimate baseline emissions, staff evaluated the following information:

- Estimated universe by category and categories' percentage of universe
- Unit size (MMBtu/hr) of the gas unit being replaced in each category
- Baseline Emission Factor (lb/MMBtu)
- Capacity Factor (or Usage Factor)
- Unit Age (years)

The following table was presented in Working Group Meeting #5 and has since been updated to reflect new data and assumptions:

Table 4-1. Baseline Emission Estimates

Equipment Category	Estimated Universe	Baseline Emissions Estimate (tpd)
Type 1 Units (not Type 1 Pool Heaters, Instantaneous Water Heaters, or High Temperature Units)	60,000	0.50
Type 1 High Temperature Units		0.19
Type 2 Units (not Instantaneous Water Heaters)		1.39
Type 1 Pool Heaters	710,000	3.25
Instantaneous Water Heaters	300,000	0.28
Total	1,070,000	5.61

Staff estimated the Type 1 pool heater universe and updated the baseline emission estimate in Working Group Meeting #5. According to the 2019 CEC Residential Appliance Saturation Study (RASS), seven percent of homes in the SoCalGas region have spas with gas heaters and five percent have pools with gas heaters.⁵⁴ There are approximately 5.9 million homes in the region from the U.S. Census' 2021 American Housing Survey. Staff estimated approximately 710,000 Type 1 pool heaters in the region and baseline emissions of 3.25 tpd for this category as 5.9 million homes \times 0.12 = 708,000, rounding to 710,000. Based on the U.S. DOE estimate for units in California and the new DOE 84% efficiency requirement for gas pool heaters by 2028, staff calculated 211 annual operating hours for pool and spa heater units in California. Staff had previously used a capacity factor of 7.16% or 627 operating hours based on the previous Rule 1146.2 2004 implementation study, and staff had previously used 95% for gas pool heater efficiency. The updated pool and spa heater universe, annual operating hours of 211, and 84% pool heater efficiency inform the pool heater baseline emission estimate of 3.25 tpd, which is lower than the previous estimate of 5.66. This affects the total baseline emission estimate for PAR 1146.2 which is updated to 5.61 tpd.

⁵⁴ 2019 CEC Residential Appliance Saturation Study, Page 11, Table ES-3: Natural Gas UECs and Appliance Saturation Summaries by Gas Utility, <https://www.energy.ca.gov/data-reports/surveys/2019-residential-appliance-saturation-study>

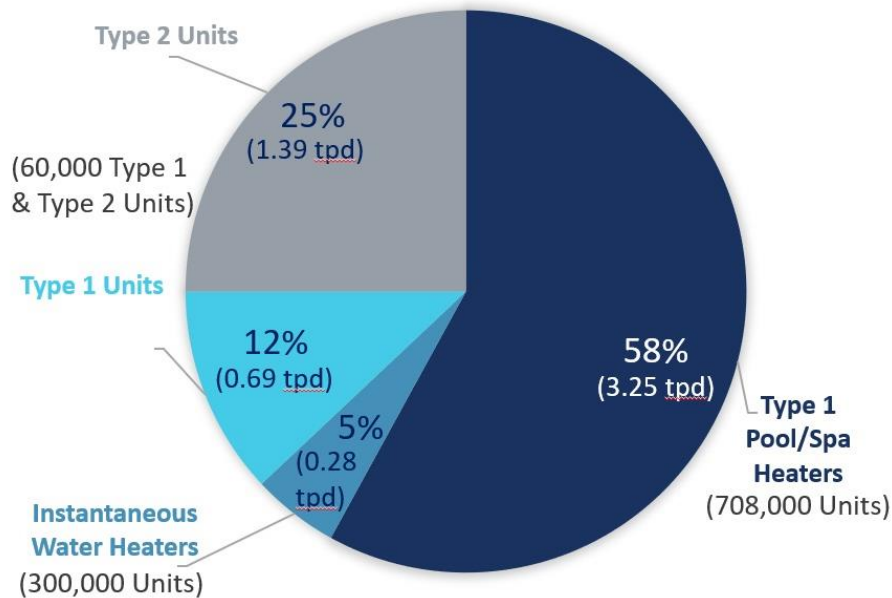


Figure 4-2. Percent of Baseline NOx Emissions Estimate

Analysis during the 2006 rule amendment estimated around 40,000 Type 1 units and 22,000 Type 2 units in the South Coast AQMD based on data provided by SoCalGas. For PAR 1146.2, staff updated the Type 1 and Type 2 water heater and boiler categories' percentages of universe based on Air-Conditioning, Heating, and Refrigeration Institute (AHRI) certifications data. Staff estimates there are approximately 60,000 Type 1 and Type 2 water heaters and boilers.

In recent years, adoption of residential instantaneous water heaters has increased with state and federal energy efficiency regulations. Staff estimated the instantaneous water heater universe to be approximately 300,000 instantaneous water heaters in the South Coast AQMD region using the 2019 California Residential Appliance Saturation Study (RASS) from the CEC and the Residential Energy Consumption Survey (RECS) from the U.S. Energy Information Administration.^{55,56}

The baseline emission was estimated per unit by category as: Lifetime NOx Baseline Emission (tons) = Unit Size (MMBtu/hr) × Baseline Emission Factor (lb/MMBtu) × Capacity Factor (or usage factor) × Annual Hours × Unit Age (years) ÷ 2,000 pounds per ton.

For Type 1 units and instantaneous water heaters, 0.238 MMBtu/hr was the Type 1 mid-range unit size utilized in the calculation. For Type 2 units (not instantaneous water heaters), 1.2 MMBtu/hr was the Type 2 mid-range unit size utilized in the calculation.

The baseline emission factor (pounds per MMBtu) taken from previous Rule 1146.2 rulemaking was 0.067 pound of NOx per MMBtu for 20 ppmv at ~~3%~~three percent oxygen for Type 1 pool

⁵⁵ California Energy Commission, 2019 California Residential Appliance Saturation Study, <https://www.energy.ca.gov/publications/2021/2019-california-residential-appliance-saturation-study-rass>

⁵⁶ U.S. Energy Information Administration, 2020 Residential Energy Consumption Survey Data, <https://www.eia.gov/consumption/residential/data/2020/>

heaters and 0.024 pound of NO_x per MMBtu for 20 ppmv at ~~3%~~three percent oxygen for other categories.

The analysis also assumed 100 percent emission reduction for zero-emission units. The estimated emission reduction is 5.61 tpd at full implementation. For context, the 2022 AQMP indicated a total of 351 tpd of NO_x emitted in 2018, the base-year of the emissions inventory and modeling analysis in the plan.

Zero-Emission Co-Benefits

South Coast Air Basin has been classified as “extreme” nonattainment for the 2015 ozone standard. Ozone is formed when NO_x and VOC react in the presence of sunlight. While both NO_x and VOC contribute to ozone, the key to attaining the ozone standard in the Basin is to reduce NO_x.⁵⁷ While PAR 1146.2 is focused on zero-NO_x standards, air quality co-benefits of zero-emission standards include reducing other emissions such as greenhouse gas (GHG) and particulate matter (PM) emissions. CARB’s current rulemaking for potential statewide zero-emission appliance standards would be focused on zero-GHG and zero-NO_x, while also quantifying the air quality co-benefits of reducing criteria pollutants such as smog-forming NO_x, CO, and toxic air contaminant emissions.⁵⁸ The PAR 1146.2 zero-emission standard will also be considered as a control strategy for the South Coast AQMD to attain the 2012 annual PM 2.5 national ambient air quality standard by 2030.

COST-EFFECTIVENESS

Health and Safety Code Section 40920.6 requires a cost-effectiveness analysis when establishing BARCT requirements. The cost-effectiveness of a control technology is measured in terms of the control cost in dollars per ton of air pollutant reduced ~~is measured in terms of the control cost in dollars per ton of air pollutant reduced~~ for each class and category of equipment. The costs for the control technology include purchasing, installation, operating, and maintaining the control technology.

As detailed in ~~e~~Chapter ~~two~~2, the South Coast AQMD typically relies on the DCF method which converts all costs, including initial capital investments and costs expected in the present and all future years of unit age, to a present value. The DCF calculation is detailed in Chapter 2.

The table below summarizes the cost-effectiveness estimates for each category.

⁵⁷ South Coast AQMD, 2022 AQMP, <https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/final-2022-aqmp.pdf?sfvrsn=16>

⁵⁸ California Air Resources Board, Zero-emission Appliances, <https://ww2.arb.ca.gov/our-work/programs/building-decarbonization/zero-emission-appliance-standards/faq>

Table 4-2. Cost-Effectiveness for PAR 1146.2 Categories

Category	Replace with	Cost-Effectiveness (\$/Ton), No Panel Upgrade		Cost-Effectiveness (\$/Ton), With Panel Upgrade	
		Energy Input Estimate Method	Energy Input Calculation Method	Energy Input Estimate Method	Energy Input Calculation Method
Type 1 Water Heater	Heat Pump	(190,000)	201,000	(93,000)	298,000
Type 2 Water Heater	Six Heat Pumps (Integrated)	(178,000)	197,000	(164,000)	212,000
	Two Heat Pumps (Split)	-	179,000	-	194,000
Type 1 Pool Heater	Heat Pump	-	11,000	-	58,000
	Heat Pump and Split Panel Cost	-	-	-	(4,000)
Type 1 High Temperature Unit	Heat Pump	-	559,000	-	578,000
	Electric Resistance	-	2,734,000	-	2,753,000
Type 2 High Temperature Unit (1 MMBtu)	Heat Pump	-	257,000	-	264,000
	Electric Resistance	-	2,722,000	-	2,812,000
Type 2 High Temperature Unit (2 MMBtu)	Heat Pump	-	152,000	-	156,000
Instantaneous Water Heater	Heat Pump	(185,000)	101,000	12,000	298,000
	Heat Pump and Split Panel Cost	-	-	(63,000)	223,000
	Electric Resistance Tank Type	-	3,078,000	-	3,275,000
	Electric Resistance Instantaneous	-	3,123,000	-	3,320,000

The proposed BARCT emission limits will take effect at the end of the presumed unit age of the equipment that is currently being used; therefore, the majority of the cost impacts are at the natural turnover of the equipment. The facilities will incur some cost to upgrade the equipment, but some of the cost will already be incurred due to end-of-unit-age replacement.

SOCIOECONOMIC IMPACT ASSESSMENT

Health and Safety Code Section 40440.8 requires a socioeconomic impact assessment for proposed and amended rules resulting in significant impacts to air quality or emission limitations. A Draft Socioeconomic Impact Assessment for PAR 1146.2 has been prepared and released for public review and comment on May 7, 2024. The Final Socioeconomic Impact Assessment is available in Attachment H of the June 7, 2024, Governing Board Package.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) ANALYSIS SUMMARY

Pursuant to the California Environmental Quality Act (CEQA) and South Coast AQMD's certified regulatory program (Public Resources Code Section 21080.5, CEQA Guidelines Section 15251(l) and South Coast AQMD Rule 110), the South Coast AQMD, as lead agency, reviewed the proposed project (PAR 1146.2) and determined that: 1) PAR 1146.2 implements the 2022 AQMP Control Measure C-CMB-01 – Commercial Water Heating; and 2) the Final Program Environmental Impact Report (EIR) for the 2022 AQMP evaluated Control Measure C-CMB-01 and analyzed its potential environmental impacts. Since PAR 1146.2 does not involve any new or modified impacts when compared to what was previously analyzed in the Final Program EIR for Control Measure C-CMB-01, PAR 1146.2 qualifies as a later activity within the scope of the program approved earlier for the 2022 AQMP per CEQA Guidelines 15168 (c), and the Final Program EIR for the 2022 AQMP adequately describes the activity for the purposes of CEQA such that no new environmental document will be required. The detailed CEQA analysis supporting this conclusion is provided in Appendix A of this staff report.

DRAFT FINDINGS UNDER HEALTH AND SAFETY CODE SECTION 40727

Requirements to Make Findings

Health and Safety Code Section 40727 requires that prior to adopting, amending, or repealing a rule or regulation, the South Coast AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing, and in the staff report.

Necessity

PAR 1146.2 is needed to establish BARCT requirements and achieve emission reductions proposed by 2022 AQMP Control Measure C-CMB-01 in order to meet the National Ambient Air Quality Standards for ozone.

Authority

The South Coast AQMD Governing Board has authority to adopt amendments to Rule 1146.2 pursuant to Health and Safety Code Sections 39002, 40000, 40001, 40440, 40702, 40725 through 40728, and 41508.

Clarity

PAR 1146.2 is written or displayed so that its meaning can be easily understood by the persons directly affected by it.

Consistency

PAR 1146.2 is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.

Non-Duplication

PAR 1146.2 will not impose the same requirements as any existing state or federal regulations. The proposed amended rule is necessary and proper to execute the powers and duties granted to, and imposed upon, the South Coast AQMD.

Reference

In amending Rule 1146.2, the following statutes which the South Coast AQMD hereby implements, interprets, or makes specific are referenced: Health and Safety Code Sections 39002, 40000, 40001, 40440, 40702, 40725 through 40728, and 41508.

COMPARATIVE ANALYSIS

Under Health and Safety Code Section 40727.2, the South Coast AQMD is required to perform a comparative analysis when adopting, amending, or repealing a rule or regulation. The comparative analysis is relative to existing federal requirements, existing or proposed South Coast AQMD rules and air pollution control requirements and guidelines which are applicable to combustion equipment subject to PAR 1146.2. There is no equivalent federal regulation applicable to be included in the table below.

Table 4-3. Comparative Analysis

Rule Element	Rule 1121	PAR 1146.2	Rule 1146.1	Rule 1146	Bay Area AQMD Rule 9-6	CARB In-Progress Rulemaking
Applicability	Natural gas-fired water heaters with heat input rates less than 75 kBtu/hr	Large water heaters, small boilers and process heaters less than or equal to 2 MMBtu/hr	Boilers, steam generators, and process heaters with maximum rated heat input capacities greater than 2 MMBtu/hr and less than 5 MMBtu/hr	Boilers, steam generators, and process heaters with maximum rated heat input capacities greater than or equal to 5 MMBtu/hr	Natural gas-fired water heater, rated heat input capacity 75 kBtu/hr – 2 MMBtu/hr	TBD: Anticipated 2030 for new equipment and appliances sold for use in both residential and commercial buildings
Requirements (All parts per million (ppmv) emission limits are referenced at three percent volume stack gas oxygen on a dry basis averaged over a period of 15 consecutive minutes)	NOx limits: Natural gas: 15 ppmv	NOx and CO limits: Natural gas: 0 ppmv (zero-emission)	NOx limits: Digester gas: 15 ppmv Landfill gas: 25 ppmv Natural gas: 7 or 9 ppmv, 12 ppmv for atmospheric, and 12 ppmv for thermal fluid heaters All others: 30 ppmv CO limit: 400 ppmv	NOx limits: Digester gas: 15 ppmv Landfill gas: 25 ppmv Natural gas: 5 ppmv for ≥ 75 MMBtu/hr, 7 or 9 ppmv for 20–75 MMBtu/hr, 12 ppmv for atmospheric, and 12 ppmv for thermal fluid heaters For other types of fuels: 30 ppmv for other gaseous fuels; 40 ppmv for nongaseous fuels CO limit: 400 ppmv	NOx limits: Natural gas: 0 ppmv (zero-emission)	TBD: Anticipated zero-emission (GHG, NOx)
Reporting	None	Manufacturers every year	None	Every 6 months for units greater	None	TBD

Rule Element	Rule 1121	PAR 1146.2	Rule 1146.1	Rule 1146	Bay Area AQMD Rule 9-6	CARB In-Progress Rulemaking
		after Table 3 compliance dates – product models, unit number, rated heat input capacity, applicable equipment category		than or equal to 40 MMBtu/hr and an annual heat input greater than 200 x 10 ⁹ Btu per year (Rule 218)		
Monitoring	None	Source test report Requirements by alternative compliance options	Source testing once every 5 years	A continuous in-stack NO _x monitor for units greater than or equal to 40 MMBtu/hr and an annual heat input greater than 200 x 10 ⁹ Btu per year Source testing once every 3 – 5 years for other units	None	TBD
Recordkeeping	None	Maintenance records = 3 years Rated heat input capacity & modification documentation	Source test records = 2 years (5 years if Title V) Monitoring data = 2 years (5 years if Title V)	Source test records Maintenance & emission records = 2 years Monitoring data = 2 years (5 years if Title V)	None	TBD

APPENDIX A: DETAILED CEQA ANALYSIS

INTRODUCTION

SUMMARY OF ENVIRONMENTAL IMPACTS

**ENVIRONMENTAL TOPIC AREA WITH POTENTIALLY
SIGNIFICANT IMPACTS**

**ENVIRONMENTAL TOPIC AREA WITH LESS THAN SIGNIFICANT
IMPACTS**

ENVIRONMENTAL TOPIC AREAS WITH NO IMPACTS

CONCLUSION

REFERENCES

INTRODUCTION

The California Environmental Quality Act (CEQA) is comprised of Public Resources Code Section 21000 et seq. and the CEQA Guidelines which are codified at Title 14 California Code of Regulations, Section 15000 et seq. CEQA requires the evaluation of all potential adverse environmental impacts of proposed projects and the identification and implementation of methods to reduce or avoid significant adverse environmental impacts of these projects, if feasible. [Public Resources Code Section 21061.1 and CEQA Guidelines Section 15364 defining feasible]. The purpose of the CEQA process is to inform decision makers, public agencies, and interested parties of potential adverse environmental impacts that could result from implementing a proposed project and to identify feasible mitigation measures or alternatives, when an impact is significant.

Control Measure C-CMB-01 of the 2022 AQMP seeks to deploy zero-emission water heating units for new and existing commercial buildings. South Coast AQMD is technology and fuel neutral, and is focused on achieving NO_x emission reductions. Should zero-NO_x natural gas technologies be developed and adopted, consumers would have the opportunity to choose between newly designed natural gas and other zero-emission appliances. The zero-emission water heating units with high energy efficiency appropriate for use in commercial applications could be integrated heat pump water heaters, which have water tanks packaged with them as single units, or split heat pump water heaters with water tanks located up to 50 feet away. These devices would increase electricity demand.

PAR 1146.2 implements Control Measure C-CMB-01 of the 2022 AQMP and proposes to achieve NO_x emission reductions by requiring zero-emission (0 ppmv) limits for new installations based on future effective dates depending on the commercial availability of zero-emission technologies, and zero-emission limits for existing units that will reach the end of unit age after the zero-emission compliance dates, with an exemption for units used for residential structures and small businesses. PAR 1146.2 affects approximately 1,070,000 units in the South Coast AQMD jurisdiction, and full implementation of PAR 1146.2 is expected to reduce NO_x emissions by 5.6 tons per day (tpd) by 2058. A technology assessment by ~~January 1, 2028~~[June 1, 2027](#) would provide the Stationary Source Committee with an update on the technology and market readiness for the rule.

The 2022 AQMP⁵⁹ was considered a “project” as defined by CEQA Guidelines Section 15378, and the South Coast AQMD was lead agency under CEQA because it was the “public agency that has the principal responsibility for carrying out or approving a project that may have a significant effect upon the environment.” [Public Resources Code Section 21067]. Further, since the South Coast AQMD Governing Board had the primary responsibility for approving the entirety of the project, the South Coast AQMD was the most appropriate public agency to act as lead agency for the project. [CEQA Guidelines Section 15051(b)].

The 2022 AQMP: 1) had environmental impacts which were evaluated in a Final Program Environmental Impact Report (Program EIR); and 2) was a discretionary action which was considered and approved by the South Coast AQMD Governing Board.

⁵⁹ South Coast AQMD, 2022 Air Quality Management Plan, December 2022. <https://www.aqmd.gov/home/air-quality/air-quality-management-plans/air-quality-mgt-plan>

Therefore, the proposed project, PAR 1146.2, is integrally related to the 2022 AQMP for which a previous environmental analysis has been prepared in the Final Program EIR for 2022 AQMP, which was certified by the South Coast AQMD Governing Board on December 2, 2022.⁶⁰

The Final Program EIR for the 2022 AQMP identified potentially significant impacts, and mitigation measures were adopted. Further, since mitigation measures were adopted for the 2022 AQMP, a Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP, pursuant to Public Resources Code Section 21081.6 and CEQA Guidelines 15097 was also required and adopted.

Further, because the Final Program EIR concluded that the 2022 AQMP will have potentially significant and unavoidable adverse impacts on the environment, Findings were made pursuant to CEQA Guidelines Section 15091, and a Statement of Overriding Considerations pursuant to CEQA Guidelines Section 15093 was adopted.

The 2022 AQMP, along with the December 2022 Final Program EIR for the 2022 AQMP (State Clearinghouse No. 2022050287) and its corresponding Findings, Statement of Overriding Considerations, and Mitigation, Monitoring, and Reporting Plan, upon which the analysis of the PAR 1146.2 relies, are incorporated by reference pursuant to CEQA Guidelines Section 15150 and are available from the South Coast AQMD's website at:

December 2022 Final Program EIR for the 2022 AQMP

Master webpage: <https://www.aqmd.gov/home/research/documents-reports/lead-agency-scaqmd-projects/south-coast-aqmd-projects---year-2022>

December 2022 Final Program EIR for the 2022 AQMP (including Appendices)

<https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2022/2022-aqmp-final-peir.pdf>

Findings, Statement of Overriding Considerations, and Mitigation Monitoring and Reporting Plan: <https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2022/2022-aqmp-attachment1toresolution.pdf>

2022 AQMP: <https://www.aqmd.gov/home/air-quality/air-quality-management-plans/air-quality-mgt-plan>

Copies of these documents may also be obtained from:

Derrick Alatorre, Deputy Executive Officer/Public Advisor
South Coast AQMD 21865 Copley Drive, Diamond Bar, CA 91765
Phone: (909) 396-2432
Email: publicadvisor@aqmd.gov

A Program EIR was considered to be the appropriate document for the 2022 AQMP pursuant to CEQA Guidelines Section 15168(a)(3) because the 2022 AQMP constituted a series of actions that can be characterized as one large project in connection with the issuance of rules, regulations,

⁶⁰ South Coast AQMD, Final Program Environmental Impact Report for the 2022 Air Quality Management Plan, December 2022. <https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2022/2022-aqmp-final-peir.pdf>

plans, or other general criteria required to govern the conduct of a continuing program. In addition, the use of a Program EIR had the following advantages by:

- Providing an occasion for a more exhaustive consideration of effects and alternatives than would be practical in an EIR on an individual action;
- Ensuring a consideration of cumulative impacts that might be slighted in a case-by-case analysis;
- Avoiding duplicative reconsideration of basic policy considerations;
- Allowing consideration of broad policy alternatives and program-wide mitigation measures at an early time when the Lead Agency has greater flexibility to deal with basic problems of cumulative impacts; and
- Allowing its use with a later activity if the later activity is within the scope of the project analyzed in the Program EIR without requiring further environmental documents.

Because PAR 1146.2 implements a previously adopted 2022 AQMP Control Measure C-CMB-01, this chapter examines whether PAR 1146.2 qualifies as a later activity within the scope of the analyses in the Final Program EIR for the 2022 AQMP, pursuant to CEQA Guidelines 15168(c) – Use with Later Activities.

As such, this chapter: 1) compares the proposed later activity of PAR 1146.2 with the previously approved program, Control Measure C-CMB-01 which was adopted in the 2022 AQMP; 2) summarizes the environmental impacts analyzed in the Final Program EIR for the 2022 AQMP for Control Measure C-CMB-01; 3) identifies the differences, if any, between the analysis of the environmental impacts in the Final Program EIR for 2022 AQMP for Control Measure C-CMB-01 and PAR 1146.2 and as needed, identifies any other impact areas which may require further analysis; and 4) considers the evidence and determines whether: a) PAR 1146.2 is a later activity within the scope of the program approved earlier for the 2022 AQMP; and b) the Final Program EIR for the 2022 AQMP adequately describes the later activity of PAR 1146.2 for the purposes of CEQA such that no new environmental document will be required.

SUMMARY OF ENVIRONMENTAL IMPACTS

The CEQA Guidelines require environmental documents to identify significant environmental effects that may result from a proposed project. [CEQA Guidelines Section 15126.2(a)]. Direct and indirect significant effects of a project on the environment should be identified and described, with consideration given to both short- and long-term impacts. The discussion of environmental impacts may include, but is not limited to, the resources involved; physical changes; alterations of ecological systems; health and safety impacts caused by physical changes; and other aspects of the resources involved including water, scenic quality, and public services. If significant adverse environmental impacts are identified, the CEQA Guidelines require a discussion of measures that could either avoid or substantially reduce any adverse environmental impacts to the greatest extent feasible. [CEQA Guidelines Section 15126.4].

The categories of environmental impacts to be studied in a CEQA document are established by CEQA [Public Resources Code Section 21000 et seq.] and the CEQA Guidelines [codified in Title

14 California Code of Regulations Section 15000 et seq]. Under the CEQA Guidelines Appendix G: Environmental Checklist Form, there are 20 environmental topic areas categories in which potential adverse impacts from a project are evaluated. The South Coast AQMD, as lead agency, has taken into consideration the environmental checklist questions in Appendix G, but has reorganized the contents to consolidate the environmental topic areas to avoid repetition. For example, South Coast AQMD's customized the environmental checklist by: 1) combining the topics of "air quality" and "greenhouse gas emissions" into one section; 2) combining the topics of "cultural resources" and "tribal cultural resources" into one section; 3) separating the "hazards and hazardous materials" topic into two sections: "hazards and hazardous materials" and "solid and hazardous waste;" and 4) distributing the questions from the topic of "utilities/service systems" into other more specific environmental areas such as "energy," "hydrology and water quality," and "solid and hazardous waste." For each environmental topic area, per CEQA Guidelines Section 15064.7(a), "[a] threshold of significance is an identifiable quantitative, qualitative, or performance level of a particular environmental effect, noncompliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant." The South Coast AQMD has developed unique thresholds of significance for the determination of significance in accordance with CEQA Guidelines Section 15064.7(b).

The CEQA Guidelines also includes provisions for the preparation of Program EIRs in connection with the issuance of plans, such as the 2022 AQMP, to govern the conduct of a continuing program, including adoptions of broad policy programs as distinguished from those prepared for specific types of projects such as land use projects, for example. [CEQA Guidelines Section 15168]. A Program EIR also allows for the consideration of broad policy alternatives and program-wide mitigation measures at an early time when an agency has greater flexibility to deal with basic problems or cumulative impacts. [CEQA Guidelines Section 15168 (b)(4)]. Lastly, a Program EIR also plays an important role in establishing a structure within which a CEQA review of future related actions can be effectively conducted. A Program EIR, by design, provides the basis for future environmental analyses and will allow future project-specific CEQA documents, if necessary, to focus solely on the new effects or detailed environmental issues not previously considered. If an agency finds that no new effects could occur, or no new mitigation measures would be required, the agency can approve the activity as being within the scope of the project covered by the Program EIR and no new environmental document would be required. [CEQA Guidelines Section 15168(c)(2)].

The Final Program EIR for the 2022 AQMP analyzed the impacts of implementing the various control measures in the 2022 AQMP on 19 environmental topic areas: aesthetics, agriculture and forestry resources, air quality and greenhouse gas emissions, biological resources, cultural and tribal cultural resources, energy, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, solid and hazardous waste, transportation, wildfire, and mandatory findings of significance. The Final Program EIR for the 2022 AQMP concluded that the implementation of all of the control measures in the 2022 AQMP would result in potentially significant impacts for the following environmental topic areas: air quality and greenhouse gas (GHG), energy, hazards and hazardous materials, hydrology and water quality, noise, and solid and hazardous waste. All other environmental topic areas were either concluded to have less than significant impacts or no impact. Mitigation measures to minimize significant impacts from implementation of the 2022

AQMP were adopted in the Mitigation, Monitoring, and Reporting Plan which can be found in Attachment 1 to the Governing Board Resolution for the Final Program EIR for the 2022 AQMP.⁶¹

Table A-1 summarizes the analysis in the Final Program EIR for the 2022 AQMP associated with the Control Measure C-CMB-01: physical changes expected, environmental topic areas affected according to level of significance impact, and the applicable mitigation measures. It should be noted that Control Measure C-CMB-01 was determined to have potentially significant impacts to the environmental topic areas of air quality and GHG, energy, noise, and solid and hazardous waste; but no impact to the environmental topic areas of hazards and hazardous materials, and hydrology and water quality. However, the Final Program EIR for the 2022 AQMP concluded potential significant impacts to hazards and hazardous materials, and hydrology and water quality as a result of implementing other control measures.

⁶¹ South Coast AQMD, Attachment 1 to the Governing Board Resolution for the Final Program Environmental Impact Report for the 2022 Air Quality Management Plan, December 2022. <https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2022/2022-aqmp-attachment1toresolution.pdf>

Table A-1. Analysis of Control Measure C-CMB-01 in the Final Program EIR for the 2022 AQMP

Physical Changes Expected From C-CMB-01		Environmental Topic Areas with Potentially Significant Impacts	Environmental Topic Areas with Less than Significant Impacts	Environmental Topic Areas with No Impacts	Applicable Mitigation Measures
<i>Construction</i>	Demolition or removal of existing building components or structures, and water heating systems	<ul style="list-style-type: none"> - Air Quality - Energy - Noise - Solid and Hazardous Waste 	<ul style="list-style-type: none"> - GHG - Transportation 	All other environmental topic areas not listed to be potentially significantly impacted, or less than significantly impacted	Air Quality and GHG: AQ-1 to AQ-26 Energy: E-3 to E-5, and E-7 Noise: NS-1 to NS-14 Solid and Hazardous Waste: SHW-1 to SHW-3
	Installation of new water heating systems	<ul style="list-style-type: none"> - Air Quality - Energy - Noise 			Air Quality and GHG: AQ-1 to AQ-26 Energy: E-3 to E-5, and E-7 Noise: NS-1 to NS-14
<i>Operation</i>	Increased use of electricity and natural gas to produce electricity	<ul style="list-style-type: none"> - Energy 	<ul style="list-style-type: none"> - Air Quality and GHG 		Energy: E-1 to E-4, and E-7 to E-9

Table A-2 summarizes the physical changes expected, environmental topic areas affected, and the applicable mitigation measures associated with implementation of PAR 1146.2 and compares the similarities to those analyzed for Control Measure C-CMB-01 in the Final Program EIR for the 2022 AQMP. The replacement of existing water heating equipment is expected to occur at the end of unit age such that operators will remove the existing equipment and install a new water heating system regardless of implementation of PAR 1146.2, and the upgrades to electrical panels and other building components to enable the increased use of zero-emission equipment are not expected to require trenching or other construction requiring soil movement. Therefore, of the above physical changes contemplated from Control Measure C-CMB-01, implementation of PAR 1146.2 is only expected to result in the increased use of electricity and natural gas to produce electricity.

Table A-2. Comparison of Environmental Impacts between C-CMB-01 and PAR 1146.2

Physical Changes Expected from PAR 1146.2	Similarity to Environmental Topic Areas with Potentially Significant Impacts	Similarity to Environmental Topic Areas with Less than Significant Impacts	Similarity to Environmental Topic Areas with No Impacts	Similarity to Applicable Mitigation Measures
Increased use of electricity and natural gas to produce electricity	- Energy	- Air Quality and GHG	<ul style="list-style-type: none"> - Aesthetics - Agriculture and Forestry Resources - Biological Resources - Cultural and Tribal Cultural Resources - Geology and Soils - Hydrology and Water Quality - Hazards and Hazardous Materials - Land Use and Planning - Mineral Resources - Noise - Population and Housing - Public Services - Recreation - Solid and Hazardous Waste - Transportation - Wildfire 	Energy: E-1 to E-4, and E-7 to E-9
<p><i>Because PAR 1146.2 does not require replacement of water heating systems before the end of unit age:</i></p> <p><i>1) demolition and removal of existing building components or structures, and water heating systems; and</i></p> <p><i>2) installation of new water heating systems</i></p> <p><i>are physical changes that will occur regardless of implementation of PAR 1146.2.</i></p>	<p><i>Implementation of PAR 1146.2 is expected to result in the same potentially significant impacts as anticipated for increased electrical demand from Control Measure C-CMB-01 of the 2022 AQMP.</i></p>	<p><i>Implementation of PAR 1146.2 is expected to result in the same less-than-significant impacts as anticipated for increased electrical demand from Control Measure C-CMB-01 of the 2022 AQMP.</i></p>	<p><i>Same as for increased electrical demand from Control Measure C-CMB-01</i></p>	<p><i>The mitigation measures minimizing impact on increased electricity demand from Control Measure C-CMB-01 of the 2022 AQMP are expected to apply to PAR 1146.2.</i></p>

While PAR 1146.2 implements Control Measure C-CMB-01 of the 2022 AQMP, because the proposed amended rule does not require replacement of water heating systems before the end of unit age and is not expected to require trenching or other construction requiring soil movement, the physical changes resulting from PAR 1146.2 will be fewer than those contemplated under the analysis in the Final Program EIR for the 2022 AQMP for Control Measure C-CMB-01. Further, the analysis of environmental impacts for Control Measure C-CMB-01 covers the breadth of impacts resulting from PAR 1146.2 such that no new physical impacts need to be evaluated.

The Final Program EIR for the 2022 AQMP determined that the increased electricity demand from implementation of Control Measure C-CMB-01 has the potential to generate significant adverse energy impacts, less than significant air quality and GHG impacts, and no impact to all other environmental topic areas.

ENVIRONMENTAL TOPIC AREA WITH POTENTIALLY SIGNIFICANT IMPACTS

The Final Program EIR for the 2022 AQMP analyzed the potential environmental impacts that may occur from implementing all of the control measures which comprise the 2022 AQMP and its goal to address the 2015 federal 8-hour ozone standard to satisfy the planning requirements of the federal Clean Air Act (CAA), and concluded that its implementation would result in potentially significant impacts for the following environmental topic areas: air quality and GHG, energy, hazards and hazardous materials, hydrology and water quality, noise, and solid and hazardous waste. Specific to the implementation of Control Measure C-CMB-01, the Final Program EIR for the 2022 AQMP analyzed and concluded potentially significant impacts to the environmental topic of energy.

Since PAR 1146.2 implements Control Measure C-CMB-01 without adding new or modifying the previously analyzed impacts for each environmental topic area, the overall conclusion of potentially significant impacts for the topic of energy in the Final Program EIR for the 2022 AQMP will remain unchanged if PAR 1146.2 is implemented.

The following section summarizes the analysis of potentially significant impacts for the topic of energy in the Final Program EIR for the 2022 AQMP.

Energy

The Final Program EIR for the 2022 AQMP identified the following potential significant energy impacts associated with implementation of PAR 1146.2: 1) increase in electricity demand due to increased usage of zero-emission technologies installed in residential and commercial settings, and 2) increase in natural gas demand to produce electricity.

Impact to Electricity Demand

The Final Program EIR for the 2022 AQMP estimated potential electricity use associated with residential and commercial water heating where sufficient data was available to make reasonable estimates. Table A-3 is a subset of Table 4.3-2. Potential Increase in Electricity Use for Residential and Commercial Equipment, from the Final Program EIR for the 2022 AQMP.

Table A-3. Potential Increase in Electricity Use for Residential and Commercial Water Heating Estimated in the Final Program EIR for the 2022 AQMP

Equipment/ Source Category	Estimated Number of Affected Units	Estimated Electricity Use Per Unit ⁽¹⁾	Estimated Total Electricity Use (GWh/yr)
Residential Water Heating	Of 2 million water heaters installed, 50% of residences will be zero-emission and 50% will be low NOx water heaters ⁽²⁾	380 - 500 kWh/month	6,000
Residential – Other Combustion Sources (pool heaters)	200,000 pool heaters ⁽³⁾	1.5 kWh/hr	60
Commercial Water Heating	96,000 ⁽⁴⁾ : 64,000 Tier I (less than 400 kBTU/hr) 32,000 Tier II (400 kBTU/hr to 2 MMBTU/hr)	Tier I: 1.4 kWh/hr Tier II: 6.8 kWh/hr	Tier I: 98 Tier II: 238

Source: Final Program EIR for the 2022 AQMP, see Chapter 4, page 4.3-11, Table 4.3-2.

(1) <https://www.siliconvalleypower.com/residents/save-energy/appliance-energy-use-chart>.

(2) For purposes of calculating maximum electricity increases, all new units are assumed to be third-party provided power even though some portions will be solar powered.

(3) Assumes pool heaters are used 200 hours per year.

(4) Assumes water heaters operates 3 hours per day.

While Table A-3 presents estimates on the total electricity use from residential water heaters and pool heaters, and commercial water heaters, the Final Program EIR for the 2022 AQMP considered Basin-wide electricity use to form its conclusion regarding energy impacts due to electricity demand. Statewide electricity consumption was more than 279,000 GWh in 2020, with approximately 118,200 GWh (42 percent) in the South Coast Air Basin. [CEC, 2021]. CEC estimated an increase in electricity demand of about 1.6 percent annually through 2035. [CEC, 2021]. By applying that growth rate, the total electricity use in California would be approximately 354,000 GWh by 2035. Approximately 150,000 GWh (42 percent) of that would be within the South Coast Air Basin (assuming the percentage attributed to the South Coast Air Basin remains the same). The 2022 AQMP control measures would then increase the electricity demand by an additional estimated 13,429 GWh (approximately 11 percent over 2020 consumption and nine percent over the CEC projected growth) and this amount did not take into account the electricity that may be needed to operate additional air pollution control equipment or to convert combustion equipment to fully electric. Thus, the overall potential increase in electricity demand could be higher.

In order for utilities to be able to provide sufficient electricity to meet future demands, the use of additional energy storage systems (e.g., battery arrays) is also a key component for being able to store electricity at the time when resources are available (e.g., when the sun shines and the wind blows), and to use that stored electricity at a later time. Further, the analysis in the Final Program EIR for the 2022 AQMP conservatively assumed that all sources affected by a control measure with the potential to increase demand for electricity, would use electricity rather than other forms

of energy. In addition, any increase in electricity demand would likely result in a concurrent reduction in demand for other types of fuels, particularly petroleum fuels. Because the control measures in the 2022 AQMP were developed with the goal of attaining the federal ozone standard, the successful implementation of some of the control measures relied on the use of electricity in order to reduce NOx emissions, an overall air quality benefit for the region. Therefore, the 2022 AQMP was expected to result in a substantial depletion of existing energy (specifically electricity) resource supplies.

Even with energy conservation programs in effect in California, additional electricity would be needed, and power plants would be required to supply the projected increase in electricity demand and general population growth. While increased demand for electricity would occur due to general population growth, additional increases in electricity demand beyond general population growth would be expected if the control measures in the 2022 AQMP, such as C-CMB-01, were implemented. The implementation of all the control measures was expected to result in an overall increase of greater than the approximately 11 percent of the existing electricity use discussed for residential, commercial, and mobile sources. This increase, along with the increases in electricity associated with other state programs and mandates, was expected to exceed the electrical generating capacity of the system. Thus, the energy impacts from the implementation of the 2022 AQMP were expected to be significant for electricity demand.

Because the energy impacts from the implementation of the 2022 AQMP are expected to be significant for electricity demand, the Final Program EIR for the 2022 AQMP provided feasible mitigation measures E-1 to E-7 for reducing impacts related to potential electricity demand. Because mitigation measure E-5 minimizes impacts from charging electric vehicles and mobile sources, and mitigation measure E-6 pertains to use of electrical transportation systems, and these two sources are not affected by Control Measure C-CMB-01, only mitigation measures E-1 to E-4, and E-7 are applicable to minimizing energy impacts from increased electricity demand due to implementation of PAR 1146.2.

The Final Program EIR for the 2022 AQMP concluded that significant adverse electricity demand impacts would be created by the 2022 AQMP because the potential increase in electricity usage would exceed baseline electricity consumption by up to 11 percent. Even after mitigation measures E-1 to E-7 were applied, electricity demand impacts would remain significant.

The data in Table A-3 is extracted from Table 4.3-2 of the Final Program EIR for the 2022 AQMP and was forecasted based on the best information available at the time. Development of PAR 1146.2 has clarified that there are currently 708,000 existing pool and spa heaters in the South Coast Basin, and that each of these pool and spa heaters operate approximately 211 hours per year. If all 708,000 of the pool and spa heaters are replaced with technology that relies on electricity from the power grid, then the energy use estimate will increase from 60 GWh/year to 224 GWh/year. Overall, this change in the number of pool and spa heaters would increase the electricity demand from all 2022 Control Measures from 13,429 GWh (approximately 11 percent over 2020) to 13,593 GWh (approximately 11.5 percent over 2020 consumption).

Thus, this projected increase in the number of affected equipment from 200,000 pool heaters to 708,000 pool and spa heaters, and the increase in the operating hours per year from 200 to 211 does not substantially change the overall energy impacts analysis or conclusions, because: 1) the

Final Program EIR for the 2022 AQMP already considered an 11% increase in overall Basin-wide use of electricity at a minimum, stating that overall potential electricity use for all control measures implemented together could be higher; 2) PAR 1146.2 does not specify the type of technology that may be employed to achieve the NO_x emission standards so solar pool and spa heaters may be part of the technology mix which if employed, would mean electricity sourced from the power grid may not be needed for the entire universe of existing pool and spa heaters being replaced and that the locations relying on solar technology would have a lesser demand for electricity that is sourced from the grid; 3) pool and spa heaters are typically used in the colder months and evenings which is generally outside of peak daily electricity demand; and 4) the timing when pool and spa heaters are expected to be replaced will occur over an extended implementation schedule between 2031 and 2046. Implementation of the 2022 AQMP was concluded to have significant energy impacts due to electricity demand, and based on the preceding update to the analysis, the increase in number of potentially affected units and operating hours does not change this conclusion.

Impact to Natural Gas Demand

Control measures in the 2022 AQMP, such as C-CMB-01, were expected to result in: 1) an increase in demand for natural gas primarily associated with the production of electricity in the short term; and 2) a decreased demand for natural gas appliances in commercial and residential setting. Control measure C-CMB-01 was expected to require additional electricity. While the electrical grid needs to generate electricity that is comprised of 100 percent renewable energy by 2045 per Senate Bill 100 (SB 100, De León)⁶² (and short-term natural gas usage for the production of electricity will cease), additional sources of electricity would be required in order to meet the 2035 goals of the 2022 AQMP.

The potential for growth in electrification poses considerable uncertainty on when, where, and how large the impact on natural gas demand in California will be. For the residential and commercial building sectors, electrification of various appliances such as water heating would have the potential to decrease the use of natural gas. However, while there will be a shift from utilizing natural gas in these types of appliances for residential and commercial land uses to electricity, the potential for increased electrification of buildings would also contribute to an overall increase in electricity demand which could require natural gas-fired turbines and engines to ramp up operations to meet the increased load. This load increase could cause additional use of natural gas in electricity generation equipment. [California Gas and Electric Utilities, 2020].

SoCal Gas projects total gas demand to decline at an annual rate of one percent between 2020 and 2035. The decline in natural gas demand is due to modest economic growth and California Public Utilities Commission (CPUC)-mandated energy efficiency standards and programs. Other factors that contribute to the downward trend are more stringent standards established in the revised Title 24 Building Codes, renewable electricity goals, a decline in core commercial and industrial demand, and conservation savings. [California Gas and Electric Utilities, 2020].

There are critical interdependencies between electricity and the natural gas system reliability in California. Natural gas-fired electricity generation has been an integral part of the electricity system, providing baseload power. It has also served as the backstop during drought conditions that reduce the availability of hydroelectric power generation. The role of natural gas-fired

⁶² Senate Bill 100, https://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB100.

electricity generation in the electricity system is shifting with the addition of large amounts of renewable generation, primarily solar and wind. The large influx of renewable energy on the grid has reduced natural gas produced electricity from 53 percent of total electric generation in 2010 to 48 percent in 2020. Renewables have displaced a portion of daytime generation previously provided by natural gas, but the intermittency of solar and wind resources necessitates flexible resources that can quickly come on-line when the sun sets, or winds stop blowing. [CEC, 2021].

Total electric generation load (including large cogeneration and non-cogeneration electric generation for a normal hydro year) is expected to decline from 245 billion cubic feet in 2020 to 182 billion cubic feet in 2035, a decrease of 2.0 percent per year. The main factors for the decline are an increasing renewable energy target level, retirement of older natural gas-fired plants, and the addition of more efficient natural gas-fired plants. [California Gas and Electric Utilities, 2020].

Ultimately, as natural gas is generally widely available, natural gas supplies were not expected to be limited if the 2022 AQMP was implemented. The combined increase in natural gas demand needed for producing electricity and hydrogen and for fueling vehicles could be somewhat offset over the long-term by a decrease in demand for natural gas appliances in commercial and residential settings. However, over the short term, the natural gas demand was expected to increase. Based upon these considerations, significant adverse energy impacts relating to natural gas demand were expected from implementing the 2022 AQMP.

Because the energy impacts from the implementation of the 2022 AQMP are expected to be significant for natural gas demand, the Final Program EIR for the 2022 AQMP provided the feasible mitigation measures E-8 to E-9 for reducing impacts related to potential natural gas demand.

The Final Program EIR for the 2022 AQMP concluded that significant adverse natural gas demand impacts would be created by the 2022 AQMP because of the potential increase in natural gas usage for electricity and hydrogen production. Even after mitigation measures E-8 and E-9 were applied, natural gas demand impacts would remain significant.

Mitigation Measures

- E-1 Project sponsors should pursue incentives to encourage the use of energy efficient equipment and vehicles and promote energy conservation during electricity generation.
- E-2 Utilities should increase the capacity of existing transmission lines to meet forecast demand that supports sustainable growth where feasible and appropriate in coordination with local planning agencies.
- E-3 Project sponsors should submit projected electricity calculations to the local electricity provider for any project anticipated to require substantial electricity consumption. Any infrastructure improvements necessary should be completed according to the specifications of the electricity provider.
- E-4 Project sponsors should include energy analyses in environmental documentation with the goal of conserving energy through the wise and efficient use of energy.

- E-5 Project sponsors should evaluate the potential for reducing peak energy demand by encouraging charging of electrical vehicles and other mobile sources during off-peak hours.
- E-6 Project sponsors should evaluate the potential for reducing peak energy demand by encouraging the use of catenary or way-side electrical systems developed for transportation systems to operate during off-peak hours.
- E-7 Project sponsors should evaluate the potential for reducing peak energy demand by encouraging the use of electrified stationary sources during off-peak hours.
- E-8 Projects that require a substantial increase in natural gas demand should consider the use of renewable gas, where available and feasible, including biofuel landfill gas and gas produced from renewable fuels projects.
- E-9 Project sponsors should submit projected natural gas demand use to the local natural gas provider for any project anticipated to require substantial natural gas consumption. Any infrastructure improvements necessary should be completed according to the specifications of the natural gas provider.

Cumulative Impacts

The Final Program EIR for the 2022 AQMP concluded that implementation of the 2022 AQMP could result in significant adverse electricity consumption impacts because the potential electricity usage increase would exceed baseline electricity consumption by an estimated 11 percent. Significant impacts were also concluded for natural gas and hydrogen demand. When combined with the Southern California Association of Governments (SCAG) Connect SoCal Plan⁶³, the CARB Proposed 2022 State SIP Strategy⁶⁴, state policies, and other past, present, and reasonably foreseeable activities, the 2022 AQMP would result in a significant increase in electricity, natural gas, and hydrogen demand which may not currently be available, and would contribute to cumulatively considerable impacts. No additional mitigation measures to reduce the significant cumulative impacts to energy were identified. Cumulative impacts to energy demand for past, present, and reasonably foreseeable future projects would remain significant and unavoidable for electricity, natural gas, and hydrogen demand. Because hydrogen use is not contemplated in implementation of PAR 1146.2, PAR 1146.2 does not contribute to cumulative impacts to energy from hydrogen demand.

⁶³ Southern California Association of Governments, Connect SoCal (2020–2045 Regional Transportation Plan/Sustainable Communities Strategy), May 2020. <https://scag.ca.gov/read-plan-adopted-final-connect-socal-2020>

⁶⁴ California Air Resources Board, 2022 State Strategy for the State Implementation Plan (2022 State SIP Strategy), September 2022. <https://ww2.arb.ca.gov/resources/documents/2022-state-strategy-state-implementation-plan-2022-state-sip-strategy>

Table A-4. Summary of Energy Analysis

Significance Criteria	Potential Significant Impacts	MMs	Cumulative Impacts
<p>Energy impacts are significant if any of the following conditions occur:</p> <ul style="list-style-type: none"> • The project conflicts with adopted energy conservation plans or standards. • The project results in substantial depletion of existing energy resource supplies. • An increase in demand for utilities impacts the current capacities of the electric and natural gas utilities. • The project uses non-renewable energy resources in a wasteful and/or inefficient manner. 	<p>Implementation of PAR 1146.2 would cause potential significant energy impacts from:</p> <ul style="list-style-type: none"> • Increase in electricity demand due to increased usage of zero-emission technologies installed in residential and commercial settings, and • Increase in natural gas demand to produce electricity 	<p>E-1 to E-4, and E-7 to E-9</p>	<p>Cumulative impacts to energy demand for past, present, and reasonably foreseeable future projects would remain significant and unavoidable for electricity and natural gas demand.</p>

ENVIRONMENTAL TOPIC AREA WITH LESS THAN SIGNIFICANT IMPACTS

Since PAR 1146.2 implements Control Measure C-CMB-01 without adding new or modifying the previously analyzed impacts for each environmental topic area, the overall conclusion of less than significant impacts for the topics of air quality and greenhouse gas emissions in the Final Program EIR for the 2022 AQMP will remain unchanged if PAR 1146.2 is implemented.

The following summarizes the analysis of less than significant impacts for the environmental topic of air quality and greenhouse gas emissions in the Final Program EIR for the 2022 AQMP.

Air Quality and Greenhouse Gas Emissions

The Final Program EIR for the 2022 AQMP concluded that implementation of the 2022 AQMP control measures, such as Control Measure C-CMB-01, would generate potentially significant air quality impacts during construction, less than significant operational air quality impacts, and potentially significant short-term increases in GHG emissions that would be offset and eventually result in a long-term net reduction in GHG emissions.

Impact to Construction Air Quality

The Final Program EIR for the 2022 AQMP contemplated that implementation of Control Measure C-CMB-01 would require construction including demolition or removal of existing building components or structures, and water heating systems, and installation of new water heating systems. These physical changes are caused by implementation of Control Measure C-CMB-01 if equipment is replaced earlier than the end of unit age. For PAR 1146.2, because replacement of existing water heating equipment is expected occur at the end of unit age such that operators will remove the existing equipment and install a new water heating system regardless of the proposed amended rule, and because upgrades to electrical panels and other building components to enable the increased use of zero-emission equipment are not expected to require trenching or other construction requiring soil movement, implementation of PAR 1146.2 is not expected to cause construction air quality impacts.

Impact to Operational Air Quality

The Final Program EIR for the 2022 AQMP contemplated that implementation of 2022 AQMP control measures would result in potential NO_x emission reductions but with a corresponding increased demand for electricity if combustion sources in residential and commercial settings were replaced with electrified equipment. The control measures were evaluated for NO_x emission reductions at the regional level using statewide data. Due to a variety of factors such as the number of pieces of equipment, the size of the equipment, and the type of the operations, etc., it was difficult to quantify all potential electricity demand impacts. Nonetheless, for the equipment which has electricity use data available, electricity demand impacts were quantified but these estimates only provide a partial quantification of the overall potential electricity demand impacts from electrified equipment used in residential and commercial settings; see Table A-3. It was concluded that as more electric residential and commercial equipment is deployed, the demand for electricity would increase, while the demand for natural gas and its corresponding emissions would decrease, resulting in an overall net reduction in combustion emissions from residential and commercial equipment.

In addition to the increased electricity demand from electrification of residential and commercial equipment, the Final Program EIR for the 2022 AQMP also evaluated increased electricity demand from large industrial combustion equipment including hydrogen production, concluding that it would result in potentially significant air quality impacts, and mobile source conversion, concluding that it would result in less than significant air quality impacts.

The South Coast AQMD air quality significance thresholds for mass daily emissions of criteria pollutants are in units of pounds per day⁶⁵. The 2022 AQMP quantified NO_x reductions in tons per day (2,000 pounds = 1 ton). The 2022 AQMP was designed to attain the 8-hour ozone standard by reducing NO_x and to a lesser degree VOC emissions. Other emissions of criteria pollutants (i.e., CO, SO_x, PM₁₀, and PM_{2.5}) were also expected to be reduced. While most of the activities associated with the 2022 AQMP control measures were individually projected to have air quality impacts that were less than significant, activities associated with implementation of some individual control measures (i.e., increased electricity demand for large combustion equipment including hydrogen production) could result in potentially significant impacts. The precise magnitude of those emissions increases is dependent on the type and size of projects designed to comply with the control measures. Nonetheless, when the effects of all of the proposed control measures were considered together, a net NO_x emission reduction of 124 tons per day was expected, which was an order of magnitude greater than any of the adverse air quality impacts from some of the individual control measures such that the 2022 AQMP was expected to result in an air quality benefit. Thus, operational activities resulting from implementation of control measures in the 2022 AQMP were expected to generate less than significant criteria pollutant air quality impacts. Since no significant air quality impacts relating to operational activities were identified, no mitigation measures were necessary or required.

Impact to Greenhouse Gas (GHG) Emissions

The Final Program EIR for the 2022 AQMP contemplated implementation of Control Measure C-CMB-01 to involve construction activities which may emit GHGs. The physical changes are only attributed to implementation of Control Measure C-CMB-01 if equipment is replaced earlier than the end of unit age. For PAR 1146.2, because replacement of existing water heating equipment is expected occur at the end of unit age such that operators will remove the existing equipment and install a new water heating system regardless of the proposed amended rule, and because upgrades to electrical panels and other building components to enable the increased use of zero-emission equipment are not expected to require trenching or other construction requiring soil movement, implementation of PAR 1146.2 is not expected to cause construction GHG impacts.

Operational GHG emission increases are projected from energy demand increases to power zero-emission technologies. As mentioned in the Energy section, the Final Program EIR for the 2022 AQMP estimated that, compared to the 2018 baseline for electricity demand, implementation of the 2022 AQMP control measures is expected to increase electricity use by 13,429 GWh, approximately an 11 percent increase, by 2037 which will produce approximately 2.76 million metric tons (MMT) of GHG emissions.⁶⁶ The electricity needed to power zero-emission

⁶⁵ South Coast AQMD, South Coast AQMD Air Quality Significance Thresholds, <https://www.aqmd.gov/docs/default-source/ceqa/handbook/south-coast-aqmd-air-quality-significance-thresholds.pdf>

⁶⁶ 2020 eGRID data of 453 lb/MWh for SCE, U.S. EPA, 2022, <https://epa.gov/egrid/download-data>.

equipment, such as zero-emission water heaters, is expected to be provided by public utility companies. Most existing power generating facilities are subject to Assembly Bill 32 and will be required to reduce their GHG emissions. Moreover, any future power generating stations that may be built in response to meeting the future electricity demand would be subject to stringent emission control requirements, including those for GHG emissions. It is important to note that the 2022 AQMP also accelerates the penetration of zero- and near-zero-emission vehicles, and a reduction in the use of petroleum-based fuels will reduce criteria pollutants, toxics, and GHG emissions which will concurrently offset the projected increases in criteria pollutants, toxics, and GHG emissions from the use of more electricity. Converting gasoline- and diesel-fired sources to electrified equipment reliant on electricity that is primarily generated by natural gas and renewable sources is expected to result in an overall decrease of GHG emissions. Therefore, after taking into consideration the short-term increases in GHG emissions which will be offset by substantial reductions of GHG emissions from the decreased use of gasoline and diesel fuels combined with the overarching goal of transitioning to electricity sourced with 100 percent renewables by 2045 as required by Senate Bill 100 (SB 100, De León) the additional electricity that may be needed to implement the 2022 AQMP control measures has been determined to generate less than significant GHG emission impacts. Since no significant GHG impacts were identified, no mitigation measures were necessary or required.

In summary, relative to cumulative impacts, the Final Program EIR for the 2022 AQMP concluded that implementation of the 2022 AQMP, when combined with past, present, and reasonably foreseeable activities, would contribute to impacts to air quality during construction, but would not contribute to cumulatively considerable impacts to air quality during operation or GHG emissions.

However, since implementation of Control Measure C-CMB-01 of PAR 1146.2 is expected to have no air quality impacts during construction and GHG emissions, and a net benefit to air quality during operation, there are no new impacts which would change the previous conclusions of the Final Program EIR for the 2022 AQMP regarding cumulatively considerable impacts to air quality. Further, no new mitigation measures would be required. Therefore, the cumulative impacts to air quality would remain significant and unavoidable.

ENVIRONMENTAL TOPIC AREAS WITH NO IMPACTS

The 2022 AQMP was designed to reduce emissions from existing emission sources and promote the use of the cleanest technology available. The 2022 AQMP control measures focused on maximizing the implementation of existing zero-emission and low NO_x technologies, recognizing that new zero-emission and ultra-low NO_x technologies may still need to be invented or made commercially available to achieve the necessary reductions required to attain the 70 ppb ozone standard. The 2022 AQMP would accelerate the replacement of high-emitting mobile sources with low NO_x and zero-emission mobile sources; encourage the use of lower-emitting alternative fuels; affect stationary sources at existing commercial/industrial facilities and residential developments; develop incentives to remove/replace higher emitting equipment; establish greater control of industrial stationary sources; control indirect sources of emissions; improve energy efficiency; improve emission leak detection and maintenance procedures; and establish educational and outreach programs. The analysis provided in the Final Program EIR for 2022 AQMP concluded that implementation of Control Measure C-CMB-01 would have no impacts to the following

environmental topic areas: aesthetics, agriculture and forestry resources, biological resources, cultural and tribal cultural resources, geology and soils, hydrology and water quality, hazards and hazardous materials, land use and planning, mineral resources, noise, solid and hazardous waste, population and housing, public services, recreation, transportation, and wildfire. Since no impacts were identified, no mitigation measures are necessary or required for these environmental topic areas. Since PAR 1146.2 implements Control Measure C-CMB-01 without adding new or modifying the previously analyzed impacts for each environmental topic area, the overall conclusions of no impacts for these environmental topic areas in the Final Program EIR for the 2022 AQMP will remain unchanged if PAR 1146.2 is implemented.

The following summarizes the conclusions of no impacts in the Final Program EIR for the 2022 AQMP for each of these environmental topic areas.

Aesthetics: The majority of control measures implemented within South Coast AQMD's jurisdiction would typically affect industrial, institutional, or commercial facilities located in appropriately zoned areas (e.g., industrial and commercial areas) that are not usually associated with scenic resources. Further, modifications would typically occur inside buildings, within the confines of the affected facilities, or because of the nature of the business (e.g., commercial or industrial), can easily blend in with the facilities with little or no noticeable effect on adjacent areas. In addition, the 2022 AQMP contained control measures which focus on certain residential sources of air pollution (e.g., water heaters), and any modifications needed would occur inside buildings or in the case of energy efficiency improvements such as installing solar, on the roofs of residential buildings. Also improved air quality would provide benefits to scenic vistas and resources throughout South Coast AQMD's jurisdiction. Implementation of the 2022 AQMP control measures, such as Control Measure C-CMB-01, was not expected to create additional demand for new lighting or exposed combustion sources (e.g., flares) that could create glare, adversely affecting day or nighttime views in any areas. Facilities affected by the 2022 AQMP control measures typically make modifications to light sources within property borders, so any new light sources would typically be inside a building or not noticeable because of the presence of existing outdoor light sources. Based on these considerations, no significant aesthetic impacts were expected due to the implementation of the 2022 AQMP.

Agriculture and Forestry Resources: Implementation of 2022 AQMP control measures, including C-CMB-01, was not expected to generate any new construction of buildings or other structures that would require conversion of farmland to non-agricultural use, conflict with zoning for agricultural uses, or a Williamson Act contract. Further, 2022 AQMP control measures would typically affect existing facilities that are located in appropriately zoned areas. Any new facilities that may be affected by 2022 AQMP control measures would be constructed and operated for reasons other than complying with the control measures. Improvements would continue to be subject to project-level review, including review of agricultural impacts under CEQA. Therefore, implementation of the 2022 AQMP would not affect Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, or conflict with a Williamson Act contract, if implemented. Physical changes associated with the 2022 AQMP were expected to occur at previously developed sites and would not warrant construction in undeveloped areas where agricultural and forest resources are more likely to exist. The 2022 AQMP control measures, including control measures related to mobile sources, would have no direct or indirect effects on agricultural or forest land resources because their focus is on achieving emission reductions by increasing the penetration of

zero and low NO_x technologies into market. The 2022 AQMP could provide benefits to agricultural and forest land resources by improving air quality in the region, thus reducing the adverse oxidation impacts of ozone on plants and animals.

Biological Resources: Implementation of the 2022 AQMP control measures, including C-CMB-01, was not expected to result in habitat modification, adversely affect any riparian habitat, or interfere with the movement of any native resident or migratory fish or wildlife species. Facilities affected by the 2022 AQMP control measures have already been disturbed and typically do not contain open space, water features, or natural vegetation. Sites might contain landscaping that consists of ornamental trees, vegetation, and turf. The sites of the affected facilities that would be subject to the control measures were not expected to support riparian habitat, federally protected wetlands, or migratory corridors because they are existing, developed, and established industrial and commercial facilities. Additionally, special status plants, animals, or natural communities identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service were not expected to be found on or in close proximity to the affected facilities. Construction projects that impact affected species were not reasonably foreseeable as part of implementation of the 2022 AQMP. Any new development potentially affecting biological resources would not be as a result of the 2022 AQMP control measures and approval of those projects, including evaluation of their environmental impacts, would occur regardless of the 2022 AQMP and would be subject to project-level CEQA review. Based upon these considerations, significant adverse biological resources were not expected from implementing the 2022 AQMP.

Cultural and Tribal Cultural Resources: Commercial and industrial areas are generally not located in historic districts, and implementation of the 2022 AQMP control measures, including C-CMB-01, was not expected to cause a substantial adverse change in the significance of a historical resource. The South Coast AQMD also provided a formal notice of the 2022 AQMP to all California Native American Tribes (Tribes) that requested to be on the Native American Heritage Commission's (NAHC) notification list per Public Resources Code Section 21080.3.1(b)(1). The NAHC notification list provides a 30-day period during which a Tribe may respond to the formal notice, in writing, requesting consultation on the proposed project. No Tribes requested consultation during the 30-day comment period. The provisions of CEQA, Public Resources Code Section 21080.3.1 et seq. (also known as AB 52), require meaningful consultation with California Native American Tribes on potential impacts to tribal cultural resources, as defined in Public Resources Code Section 21074. Tribal cultural resources are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either eligible or listed in the California Register of Historical Resources or local register of historical resources. As part of the AB 52 process, Native American tribes must submit a written request to the relevant lead agency if it wishes to be notified of projects that require CEQA public noticing and are within its traditionally and culturally affiliated geographical area. Construction resulting from implementation of the proposed control measures would need to obtain city or county planning department approvals prior to commencement of any construction activities, and would be subject to project-level review, including separate tribal consultation pursuant to AB 52, as applicable, to address site-specific requests identified by the tribes. Therefore, impacts to tribal cultural resources were considered to be less than significant, and the 2022 AQMP was not expected to cause any impacts to significant historic cultural resources.

Geology and Soils: The 2022 AQMP control measures, including C-CMB-01, would not directly or indirectly expose people or structures to earthquake faults, seismic shaking, seismic-related ground failure including liquefaction, lateral spreading, landslides, mudslides, or substantial soil erosion. Most facilities affected by 2022 AQMP control measures would be located on previously disturbed industrial and commercial sites where there is little likelihood of identifiable artifacts. It is possible, however, that cultural or archaeological resources or human remains may nevertheless be discovered. New installations of air pollution control equipment or infrastructure for zero-emission and low-NOx equipment are unlikely to require substantial soil excavation and would be located on already disturbed and developed industrial land uses. Therefore, no significant impact would occur. Further, projects implemented as a result of the 2022 AQMP would be subject to project-level review, including review of both geological and paleontological impacts under CEQA, as applicable. Therefore, implementation of the 2022 AQMP was not expected to directly or indirectly destroy a unique paleontological resource or site or unique geological feature or result in other significant adverse geology or soils impacts.

Hydrology and Water Quality: No potential impacts were expected as a result of implementing Control Measure C-CMB-01 of the 2022 AQMP. Implementation of the Control Measure C-CMB-01 would not involve the following activities which were concluded in the Final Program EIR for the 2022 AQMP to collectively cause potentially significant hydrology and water quality impacts: 1) potential increase in water demand; 2) potential increase in wastewater discharge and related water quality impacts; 3) water quality impacts associated with increased use of and accidental releases of alternative fuels; 4) water quality impacts associated with accidental releases of ammonia from operation of SCR technology; 5) water quality impacts associated with accidental releases from battery disposal and processing including acid spills; and, 6) water quality impacts associated the use and clean-up of reformulated products. Therefore, the implementation of Control Measure C-CMB-01 was not expected to create significant impact on hydrology and water quality.

Hazards and Hazardous Materials: No potential impacts were expected as a result of implementing Control Measure C-CMB-01 of the 2022 AQMP. Implementation of the Control Measure C-CMB-01 would not involve with the following activities which were concluded in the Final Program EIR for the 2022 AQMP to collectively cause potentially significant hazardous and hazardous materials impacts: 1) the routine transport, storage, and use of ammonia in air pollution control equipment; 2) the production, storage, and use of alternative fuels including but not limited to natural gas and hydrogen to produce electricity and to fuel on- and off-road mobile sources; 3) disposal of batteries, fluids, and spent catalyst; 4) increased use of lower-VOC containing products reformulated with flammable materials; and 5) conducting chipping and grinding of wood and greenwaste in fire hazard area. Therefore, Control Measure C-CMB-01 was not expected to create significant impact on hazardous and hazardous materials.

Land Use and Planning: Since the 2022 AQMP does not require construction of major new land use developments in any areas within South Coast AQMD's jurisdiction, none of the control measures, including C-CMB-01, were expected to physically divide any established communities within South Coast AQMD's jurisdiction. Potential land use impacts associated with the 2022 AQMP could come from the construction of support systems (e.g., catenary overhead electrical lines or magnetic infrastructure related to operation of zero- and low-NOx transport systems). For purposes of evaluating potential land use impacts, the analysis assumed that no new rail or truck

traffic routes would be constructed, but rather that existing truck and rail routes and corridors would be modified. The truck and rail corridors likely to be involved are primarily associated with rail yards and intermodal facilities in industrial zones within the Southern California area. Since only existing transportation routes would likely be modified (e.g., electric lines installed) and no new transportation routes were anticipated, no land use conflicts, or inconsistencies with any general plan, specific plan, local coastal program, or zoning ordinance were expected. Activities that result from implementing the various 2022 AQMP control measures would be subject to project-level review that would assess consistency with adopted land use regulations, including review of impacts to land use and planning under CEQA, as applicable. Any proposed modification to an existing rail or truck traffic route/corridor would require a separate CEQA evaluation. No significant land use impacts were identified because any activities undertaken to implement the 2022 AQMP control measures would be expected to comply with, and not interfere with, applicable land use plans, policies, or regulations of an agency with jurisdiction over the project, including, but not limited to the general plans, specific plans, local coastal programs or zoning ordinances.

Mineral Resources: There were no provisions in the 2022 AQMP that would result in the loss of availability of a known mineral resource of value to the region and the residents of the state, or of a locally-important mineral resource recovery site delineated in a local general plan, specific plan, or other land use plan. The 2022 AQMP provides incentives for the penetration of low-NOx and zero-emission technologies into the market which are not expected to result in an increase in the use of mineral resources. The 2022 AQMP was not expected to have any significant effects on the use of important minerals. Therefore, no new demand for mineral resources was expected to occur and no significant adverse mineral resources impacts from implementing the proposed project were anticipated.

Noise: Implementation of a project would be considered to have significant adverse noise impacts if any of the following conditions occur: 1) construction noise levels exceed the local noise ordinances or, if the noise threshold is currently exceeded, project noise sources increase ambient noise levels by more than three decibels (dBA) at the site boundary. Construction noise levels will be considered significant if they exceed federal Occupational Safety and Health Administration (OSHA) noise standards for workers; and 2) the proposed project operational noise levels exceed any of the local noise ordinances at the site boundary or, if the noise threshold is currently exceeded, project noise sources increase ambient noise levels by more than three dBA at the site boundary. The Final Program EIR for the 2022 AQMP concluded that implementation of 2022 AQMP control measures could result in significant noise and vibration impacts from construction activities, so mitigation measures were proposed. Potential operational noise impacts were concluded to be less than significant so that no mitigation measures were required. Control Measure C-CMB-01 of the 2022 AQMP was contemplated to have potential noise impacts during construction, and this would be the result if equipment was replaced prior to the end of its unit age. PAR 1146.2 schedules equipment replacement at the end of the existing equipment's unit age. Construction associated with demolition or removal of existing building components or structures, and water heating systems; and installation of new water heating systems, would occur regardless of PAR 1146.2 and therefore are not results of implementing the proposed amended rule. Electrical panel upgrades resulting from implementation of PAR 1146.2 are not expected to require trenching or other construction such that significant noise would be generated. Therefore, implementation of PAR 1146.2 is not expected to have an effect on noise.

Population and Housing The 2022 AQMP control measures were not anticipated to generate any significant effects, either direct or indirect, on the population or population distribution of people living in the South Coast AQMD's jurisdiction as no additional workers were anticipated to be required in order to implement any of the 2022 AQMP control measures. Consistent with past experience, it was expected that the existing labor pool within the southern California area would accommodate the labor requirements for any modifications requiring construction at affected facilities. Additionally, the 2022 AQMP control measures, including C-CMB-01, contain no provisions that would cause displacement of substantial numbers of people or housing necessitating construction of replacement housing elsewhere. Accordingly, population and housing impacts were not expected from the implementation of the 2022 AQMP.

Public Services: Fire protection and emergency medical services are provided to affected facilities and residential developments by local county and city fire departments. All activities undertaken as a result of implementing the 2022 AQMP control measures, including C-CMB-01, would be required to comply with fire-related safety features in accordance with the applicable provisions of the adopted California Fire Code, any county or city ordinances, and standards regarding fire prevention and suppression measures related to water improvement plans, fire hydrants, fire access, and water availability. Based on the preceding discussion, implementation of the 2022 AQMP control measures would not adversely affect the ability of local fire protection to provide adequate service and impacts would be less than significant. Implementation of the 2022 AQMP control measures would not result in an increase in calls for police protection. Implementation of the 2022 AQMP control measures occur at existing facilities or promote transition to cleaner emitting equipment at new developments but would not facilitate the construction of new development. At existing industrial facilities, on-site security is typical and would be expected to continue with the same demand for police department support as is currently needed. Furthermore, implementation of the 2022 AQMP control measures would not induce population growth either directly or indirectly. Therefore, with no increase in local population, there would be no additional demand for new or expanded schools, parks, and libraries and no other adverse population or housing impacts were expected.

Recreation: Demand for parks and recreational facilities in an area is usually determined by the area's population. Per Population and Housing section, the implementation of the 2022 AQMP control measures does not include the development of new homes, which would lead to an increase in population and thereby, the need for additional park and recreation facilities. Therefore, the implementation of the 2022 AQMP control measures, including C-CMB-01, would not increase the use of existing neighborhood and regional parks or other recreational facilities, nor would it require construction of new or expanded parks or recreational facilities. No impacts to park and recreational facilities would occur and no mitigation measures were necessary.

Solid and Hazardous Waste: Implementation of a project would be considered to have significant solid and hazardous waste impacts if the generation and disposal of hazardous and non-hazardous waste exceeds the capacity of designated landfills. The Final Program EIR for the 2022 AQMP concluded that implementation of 2022 AQMP control measures could result in significant solid and hazardous waste impacts, so mitigation measures were proposed. Control Measure C-CMB-01 of the 2022 AQMP was contemplated to have potential solid and hazardous waste impacts during construction activities and from disposal of old equipment, and this would be the result if equipment was replaced prior to the end of its unit age. PAR 1146.2 schedules equipment

replacement at the end of the existing equipment's unit age. Construction associated with demolition or removal of existing building components or structures, and water heating systems would occur regardless of PAR 1146.2 and therefore are not results of implementing the proposed amended rule. Electrical panel upgrades resulting from implementation of PAR 1146.2 are not expected to require trenching or other construction such that significant waste would be generated. Therefore, implementation of PAR 1146.2 is not expected to have an effect on solid and hazardous waste.

Transportation: Implementation of the 2022 AQMP control measures, including C-CMB-01, was not expected to substantially alter vehicle mileage or transportation routes. The 2022 AQMP builds upon transportation and related Transportation Control Measure (TCMs) developed by Southern California Association of Governments (SCAG) and included in the SCAG Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). Therefore, the 2022 AQMP control measures would not conflict with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. The 2022 AQMP revised the previous motor vehicle emissions budgets with new emission calculations using the latest motor vehicle emission factors and planning assumptions. The U.S. EPA's Transportation Conformity Rule requires that transportation plans and projects must not exceed SIP motor vehicle emission budgets for attaining and maintaining health-based air quality standards or a conformity lapse would occur (preventing further funding of transportation projects). By avoiding a conformity lapse, the region would continue to receive federal funding for future transportation projects, which would generally improve traffic flow. Implementation of the 2022 AQMP control measures has the potential to result in an increase in transportation related to construction of new or modified air pollution control equipment. Construction trips and vehicle miles traveled (VMT) are associated with contractors and vendors delivering and installing equipment at affected facilities. Construction activity impacts are temporary in nature and will vary depending on the number and location of facilities, and the size of the construction workforce needed. The CARB Technical Advisory on Evaluating Transportation Impacts in CEQA to comply with CEQA Guidelines Section 15064.3 focuses on permanent, new employee VMT. [California Office of Planning and Research, 2018]. Because of the temporary nature of construction activities, any increase in VMT related to construction activities would occur on a short-term basis at each location. In general, temporary construction-related increases in VMT are not considered to be a transportation impact or inconsistent with the requirements in CEQA Guidelines Section 15064.3, as they do not have a permanent impact on regional VMT. Additionally, discretionary projects at affected facilities could be subject to project-level review under CEQA. Therefore, temporary effects of construction-related vehicles would not conflict with the state's GHG reduction and associated VMT goals for the transportation sector. CEQA Guidelines Section 15064.3(a) clarifies that the primary consideration in evaluating a project's transportation impacts for CEQA purposes is the amount and distance that a project might cause people to drive. This captures two measures of transportation impacts: number of automobile trips generated and VMT. Additional permanent employees were not expected to be required to operate equipment that may require additional air pollution control equipment, due to implementation of the 2022 AQMP. As discussed in the Population and Housing paragraph, implementation of the 2022 AQMP was not expected to generate additional employee or population increases. Therefore, no increase in vehicle trips or VMT was expected. Therefore, less than significant impacts from the implementation of the 2022 AQMP control measures were expected to occur.

Wildfire: Activities that result from implementation of the 2022 AQMP control measures, including C-CMB-01, would not block or otherwise interfere with the use of evacuation routes; nor would they interfere with operations of emergency response agencies or with coordination and cooperation between such agencies. Therefore, there would be no impacts on emergency activities. For the 2022 AQMP control measures that affect residential land uses, any modifications needed would occur inside the buildings or in the case of energy efficiency improvements would not be expected to create any greater risk of wildland fires than the existing residential developments themselves. Moreover, the proposed residential control measures may involve replacing gas-fired water heaters and other combustion sources with electric devices, which would reduce the use of fuel and the potential to cause wildland fires.

In summary, relative to cumulative impacts, the Final Program EIR for the 2022 AQMP concluded that implementation of the 2022 AQMP, when combined with past, present, and reasonably foreseeable activities, would not contribute to cumulative considerable impacts to the following environmental topic areas: aesthetics, agriculture and forestry resources, biological resources, cultural and tribal cultural resources, geology and soils, hydrology and water quality, hazards and hazardous material, land use and planning, mineral resources, noise, population and housing, public services, recreation, solid and hazardous waste, transportation, and wildfire.

Since implementation of Control Measure C-CMB-01 of PAR 1146.2 is expected to have no impact on any of the above environmental topic areas, there are no new impacts which would change the previous conclusions of the Final Program EIR for the 2022 AQMP regarding cumulatively considerable impacts. Further, no new mitigation measures would be required. Therefore, there are no cumulative impacts to the environmental topic areas of aesthetics, agriculture and forestry resources, biological resources, cultural and tribal cultural resources, geology and soils, hydrology and water quality, hazards and hazardous material, land use and planning, mineral resources, noise, population and housing, public services, recreation, solid and hazardous waste, transportation, and wildfire.

CONCLUSION

PAR 1146.2 implements Control Measure C-CMB-01 that was previously adopted in the 2022 AQMP. There are no new or modified physical changes that would result from implementing PAR 1146.2 which were not previously analyzed in the Final Program EIR for the 2022 AQMP specific to Control Measure C-CMB-01. Further, implementation of Control Measure C-CMB-01 contemplated additional physical changes which would not be expected to occur if PAR 1146.2 is implemented because equipment replacements will occur at the end of the existing equipment's unit age. Construction associated with demolition or removal of existing building components or structures and water heating systems, and the installation of new water heating systems would occur regardless of PAR 1146.2 and therefore, these activities are not the consequence of implementing PAR 1146.2. Electrical panel upgrades resulting from implementation of PAR 1146.2 are not expected to require trenching or other construction requiring soil movement.

Control Measure C-CMB-01 of the 2022 AQMP was previously analyzed in the Final Program EIR for the 2022 AQMP, and implementation of PAR 1146.2 is not expected to result in new or modified physical changes or impacts that were not previously analyzed in the Final Program EIR for the 2022 AQMP.

The Final Program EIR for the 2022 AQMP concluded potentially significant impacts to the environmental topic areas of air quality and greenhouse gas emissions, energy, hazards and hazardous materials, hydrology and water quality, noise, and solid and hazardous waste. However, the Final Program EIR for the 2022 AQMP concluded that implementation of Control Measure C-CMB-01 would have no impacts to the environmental topics of hazards and hazardous materials, and hydrology and water quality. Further, because PAR 1146.2 contemplates the replacement of existing equipment at the end of its unit age, plus new installations of water heating systems would be installed regardless of the proposed amended rule, implementation of PAR 1146.2 would have no impact to air quality during construction, noise, or solid and hazardous waste. The Final Program EIR for the 2022 AQMP concluded implementation of Control Measure C-CMB-01 would have potentially significant energy impacts due to increased electricity use and increased natural gas use to produce electricity, and less than significant impact to operational air quality and greenhouse gas emissions due to use of electricity and combustion of natural gas, and these impacts are the same as what would occur if PAR 1146.2 is implemented.

For environmental topic areas which were concluded in the Final EIR for the 2022 AQMP to have potentially significant impacts, mitigation measures were adopted. Nonetheless, no environmental topic area identified as having a potentially significant impact in the Final Program EIR for the 2022 AQMP was concluded to be capable of being mitigated to less than significant levels. When combined with the Connect SoCal Plan, the SIP strategies, state policies, and other past, present, and reasonably foreseeable activities, implementation of the 2022 AQMP would result in significant environmental impacts. No additional feasible mitigation measures to reduce the significant cumulative impacts were identified, and cumulative impacts to the environmental topic areas of air quality and greenhouse gas emissions, energy, hazards and hazardous materials, hydrology and water quality, noise, and solid and hazardous waste remained significant and unavoidable.

Therefore, the environmental impacts associated with implementing PAR 1146.2 are within the scope of what was previously analyzed in the Final Program EIR for the 2022 AQMP for Control Measure C-CMB-01. Thus, no new Initial Study would need to be prepared leading to either an EIR or a Negative Declaration pursuant to CEQA Guidelines Section 15168(c)(2). PAR 1146.2 does not introduce new information which will cause new significant effects or substantially worsen or make more severe significant effects that were previously analyzed in the Final Program EIR for the 2022 AQMP. There is no change to the mitigation measures or alternatives previously considered in the Final Program EIR for the 2022 AQMP. Thus, in accordance with CEQA Guidelines Section 15168(c)(2), a subsequent EIR would not be required pursuant to CEQA Guidelines Section 15162.

Based on the preceding analysis, pursuant to CEQA Guidelines Section 15168(c)(2), PAR 1146.2 is considered a later activity within the scope of the 2022 AQMP which was analyzed in the Final Program EIR for the 2022 AQMP. The mitigation measures developed in the Final Program EIR for the 2022 AQMP for the previously adopted Control Measure C-CMB-01 in the 2022 AQMP upon which PAR 1146.2 relies are also applicable to the implementation of PAR 1146.2 and will remain in effect. [CEQA Guidelines Section 15168(c)(3)].

Therefore, PAR 1146.2 is considered a later activity within the scope of the Final Program EIR for the 2022 AQMP and the Final Program EIR for the 2022 AQMP adequately describes the later activity for the purposes of CEQA such that no new environmental document will be required.

REFERENCES

The 2022 AQMP, along with the December 2022 Final Program EIR for the 2022 AQMP (State Clearinghouse No. 2022050287) and its corresponding Findings, Statement of Overriding Considerations, and Mitigation, Monitoring, and Reporting Plan, upon which the analysis of PAR 1146.2 relies, are incorporated by reference pursuant to CEQA Guidelines Section 15150 and are available from the South Coast AQMD's website at:

December 2022 Final Program EIR for the 2022 AQMP

Master webpage: <https://www.aqmd.gov/home/research/documents-reports/lead-agency-scaqmd-projects/south-coast-aqmd-projects---year-2022>

December 2022 Final Program EIR for the 2022 AQMP (including Appendices)

<https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2022/2022-aqmp-final-peir.pdf>

Findings, Statement of Overriding Considerations, and Mitigation Monitoring and Reporting Plan: <https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2022/2022-aqmp-attachment1toresolution.pdf>

2022 AQMP: <https://www.aqmd.gov/home/air-quality/air-quality-management-plans/air-quality-mgt-plan>

INTRODUCTION

1. South Coast AQMD, December 2022, 2022 Air Quality Management Plan, <https://www.aqmd.gov/home/air-quality/air-quality-management-plans/air-quality-mgt-plan>.
2. South Coast AQMD, December 2022, Final Program Environmental Impact Report for the 2022 Air Quality Management Plan. <https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2022/2022-aqmp-final-peir.pdf>.

SUMMARY OF ENVIRONMENTAL IMPACTS

3. South Coast AQMD, December 2022, Attachment 1 to the Governing Board Resolution for the Final Program Environmental Impact Report for the 2022 Air Quality Management Plan -Findings, Statement of Overriding Considerations, and Mitigation, Monitoring, and Reporting Plan. <https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2022/2022-aqmp-attachment1toresolution.pdf>.

ENVIRONMENTAL IMPACT AREA WITH POTENTIALLY SIGNIFICANT IMPACTS

4. CEC, 2021. Final 2021 Integrated Energy Policy Report, Volume II, Ensuring Reliability in a Changing Climate. CEC-101-2021-001-V2 February 2022. <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2021-integrated-energy-policy-report>

5. Senate Bill 100,
https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB100.
6. California Gas and Electric Utilities, 2020. California Gas Report, Prepared by the California Gas and Electric Utilities, in Compliance with California Public Utilities Commission Decision D. 95-01-039. https://www.socalgas.com/sites/default/files/2020-10/2020_California_Gas_Report_Joint_Utility_Biennial_Comprehensive_Filing.pdf.
7. Southern California Association of Governments, May 2020, Connect SoCal (2020–2045 Regional Transportation Plan/Sustainable Communities Strategy),
<https://scag.ca.gov/read-plan-adopted-final-connect-socal-2020>.
8. California Air Resources Board, September 2022, 2022 State Strategy for the State Implementation Plan (2022 State SIP Strategy),
<https://ww2.arb.ca.gov/resources/documents/2022-state-strategy-state-implementation-plan-2022-state-sip-strategy>.

ENVIRONMENTAL IMPACT AREA WITH LESS THAN SIGNIFICANT IMPACTS

9. South Coast AQMD, March 2023, South Coast AQMD Air Quality Significance Thresholds, <https://www.aqmd.gov/docs/default-source/ceqa/handbook/south-coast-aqmd-air-quality-significance-thresholds.pdf>.
10. U.S. EPA, 2022, 2020 eGRID data of 453 lb/MWh for SCE.
<https://epa.gov/egrid/download-data>.

ENVIRONMENTAL IMPACT AREA WITH NO IMPACTS

11. Office of Planning and Research 2017. General Plan Guidelines, Noise Element Guidelines (Appendix D), 2017. https://opr.ca.gov/docs/OPR_Appendix_D_final.pdf

APPENDIX B: RESPONSES TO COMMENTS

PUBLIC WORKSHOP COMMENTS

Staff held the Public Workshop on February 7, 2024, to provide a summary of PAR 1146.2. The following is a summary of the comments received on PAR 1146.2 and staff responses.

Comment PW-1: Robert Benz (Benz Air Engineering, Co. Inc.)

Staff should evaluate lifecycle emissions from electric generation.

Response to Comment PW-1:

Staff recognizes that there are externalities for both electric and natural gas production and distribution. Staff also recognizes the need for regulation of emissions from electricity generation. South Coast AQMD Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities, is a rule that aims to lower emissions from electricity generation. Regarding the natural gas system, natural gas leaks into the atmosphere from natural gas wells, storage tanks, pipelines, and processing plants. In 2020, methane emissions from natural gas and petroleum systems and from abandoned oil and natural gas wells were the source of approximately 33 percent of U.S. methane emissions and approximately four percent of U.S. greenhouse gas emissions. In the South Coast AQMD region, there have been examples of large leaks such as Aliso Canyon, where 109,000 metric tons of methane emissions were released between October 2015 and February 2016. For this rulemaking, staff did not conduct lifecycle analyses related to the BARCT assessment for either the electricity or natural gas systems.

Comment PW-2: Joe Boros (Rheem Manufacturing Company)

Retrofitting gas units with heat pumps requires higher costs and more equipment space.

Response to Comment PW-2:

Staff gathered cost data for various types of units for the cost-effectiveness analysis described in Chapter 2 of this report. Heat pumps are the primary zero-emission technology evaluated. The analysis accounted for higher equipment and installation costs, operational cost of switching from gas to electricity, and electrical upgrade cost for some cases. Although the analysis determined that it is cost-effective for most of the equipment categories to implement zero-emission, staff understands the challenge of higher upfront cost. Staff is in the process of developing a rebate program to help lower the cost for some consumers and centralizing information for incentive and financing opportunities offered by other agencies and organizations. Further, as zero-emission technologies become more mature and more widely adopted in the market, there will be less cost impact.

Regarding the required space for zero-emission equipment, staff conducted numerous site visits for heat pump installations in commercial buildings such as multifamily buildings, hotels, and groceries stores, and discussed case studies with stakeholders and organizations that incentivize the installation of heat pumps. While some heat pumps may require more space for operation than natural gas-fired units, the heat pump installations that staff observed were capable of fitting in the existing room or area. Staff conducted site visits to various locations to consider the spacing challenge and found feasibility for all sites visited. Staff recognizes that some stakeholder's case studies failed to consider the high energy

efficiency of heat pumps, and thus have oversized the heat pump replacement, overestimating the number or the capacity of heat pumps and storage tanks, thus taking up more space. Nevertheless, staff has proposed to provide an extension of up to ~~six~~ 18 months for an owner or operator of a unit to comply with the zero-emission standards if the installation is delayed because construction is required to expand the space designed to house the unit and associated equipment necessary for operating the unit.

Existing buildings may have more challenges than new buildings to replace gas-fired units and thus may have potentially increased costs. To address this potential increased cost, staff included a 20 percent increase to the cost of zero-emission units, which could be an underestimate for some and overestimate for others. In addition, staff included alternative compliance options to address any potential utility upgrade and emergency replacement concerns and has provided later implementation dates to give more time for units in existing buildings to be replaced.

Staff will continue to monitor all the challenges for zero-emission implementation and is committed to conduct a technology check-in and report the findings to the Stationary Source Committee by ~~January 1, 2028~~ June 1, 2027.

Comment PW-3: Kevin Pirotin (Navien, Inc.)

There should be provisions for emergency replacement.

Response to Comment PW-3:

Staff understands the concern and added paragraph (i)(4) to provide an alternative compliance option for emergency replacement when an electrical upgrade for more power supply capacity is required to comply with zero-emission limits. This allows the use of a temporary unit that complies with Table 1 emission limits (20 ppmv NOx/400 ppmv CO) for up to six months. When the owner or operator of a unit subject to alternative compliance options in paragraph (i)(1) for utility upgrades, paragraph (i)(6) for property under lease, or paragraph (i)(7) for construction upgrade and the unit is non-operational, the owner or operator can use a temporary unit that complies with Table 1 emission limits (20 ppmv NOx/400 ppmv CO) during the approved extension.

Comment PW-4: Kevin Pirotin (Navien, Inc.)

Suggested to align proposed compliance dates with Title 24 Building Code effective dates.

Response to Comment PW-4:

Staff revised the compliance dates and extended both Phase I and Phase II compliance dates for new buildings by one year. The proposed Phase I compliance date for new buildings is January 1, 2026, aligning with the expected effective date for the next updated Title 24 Building Code.

Comment PW-5: James Phillips (Rheem Manufacturing Company)

Suggested to use 180 degrees Fahrenheit instead of 190 degrees Fahrenheit for the high temperature unit definition to align with the Code of Federal Regulations definition

Response to Comment PW-5:

Staff revised the high temperature unit definition and changed 190 degrees Fahrenheit to 180 degrees Fahrenheit, aligning the temperature threshold with the Code of Federal Regulations definition for “residential-duty commercial water heater” for outlet water temperature.

Comment PW-6: Kevin Pirotin (Navien, Inc.)

Suggested to align the instantaneous water heater compliance date with PAR 1121 implementation date.

Response to Comment PW-6:

Staff is currently working on the Proposed Amended Rule 1121 (PAR 1121); however, implementation deadlines have not been established. PAR 1121 regulates most residential water heaters, but instantaneous water heaters, which are mostly installed in residential structures, are subject to Rule 1146.2. Building readiness is being evaluated for both PAR 1146.2 and PAR 1121. Staff will consider aligning compliance dates but will determine if further analysis on technologies and other factors for PAR 1121 will require different implementation schedules.

Comment PW-7: Joe Boros (Rheem Manufacturing Company)

Expressed concern about removing the 9,000 therms per year low-use exemption.

Response to Comment PW-7:

The existing rule exemption is intended for Type 2 units manufactured prior to January 1, 2000, with NO_x emissions higher than 30 ppm NO_x. The 9,000 therms per year low-use threshold is about 50 percent of typical annual fuel use for a medium size Type 2 unit, which is no longer justifiable as low-use. Staff has proposed to phase out this exemption when zero-emission implementation starts on January 1, 2031 or January 1, 2033 for Type 2 high temperature units. PAR 1146.2 establishes a new low-use exemption from Table 2 zero-emission requirements in paragraph (k)(3). Annual use of 3,000 therms is about 16 percent of normal fuel use for a 1 MMBtu/hr unit and annual use of 2,000 therms is about 27 percent of normal fuel use for a 400 kBtu/hr unit. The provisions of paragraphs (d)(2) and (d)(3) and subparagraph (d)(5)(B) shall not apply to the following existing units installed prior to the date of rule adoption that meet Table 1 emission limits: units with a rated heat input capacity greater than 1 MMBtu/hr, but less than or equal to 2 MMBtu/hr that are demonstrated to use less than 3,000 therms during every calendar year for; or units with a rated heat input capacity greater than 400 kBtu/hr, but less than or equal to 1 MMBtu/hr that demonstrate to use less than 2,000 therms during every calendar year.

Comment PW-8: Adrian Martinez (Earthjustice)

Suggested not to have any delay on adopting zero-emission requirements.

Response to Comment PW-8:

Staff recognizes the need to pursue emission reduction with an earlier timeframe to address the air quality needs of the South Coast AQMD. PAR 1146.2 is currently scheduled to be presented to the Governing Board in ~~the second quarter of~~ June 2024 for consideration.

PUBLIC CONSULTATION COMMENTS

Staff held the Public Consultation on February 23, 2024, to provide a summary of PAR 1146.2. The following is a summary of the comments received on PAR 1146.2 and staff responses.

Comment PC-1: Steve Mertz (DB Sales & Service)

Heat pump operational cost is high.

Response to Comment PC-1:

Staff gathered cost data for various types of units for the cost-effectiveness analysis described in Chapter 2 of this report. Heat pumps are the primary zero-emission technology. The analysis has accounted for higher equipment and installation costs, operational cost of switching from gas to electricity, and electrical upgrade cost for some cases. Staff understands the challenge of higher costs and is in the process of developing a rebate program to lower the cost for some consumers and centralizing information on incentives and financial opportunities available from other agencies and organizations. Staff also expects the costs to decrease as more zero-emission technologies become available. Please see also Response to Comment PW-2 .

Comment PC-2: Robert Benz (Benz Air Engineering, Co. Inc.)

Staff should consider near-zero-emission units.

Response to Comment PC-2:

The 2022 AQMP's objective is to transition to zero-emission technologies wherever feasible and staff identified technically feasible zero-emission control options for each category of equipment subject to Rule 1146.2. The 2022 AQMP stated that near-zero-emission technology would be considered when zero-emission technologies were not technically feasible, which is not the case for PAR 1146.2.

Comment PC-3: Robert Benz (Benz Air Engineering, Co. Inc.)

Staff should evaluate life cycle emissions from electric generation.

Response to Comment PC-3:

Please see Response to Comment PW-1 which provides staff response to the same comment.

Comment PC-4: Kevin Pirotin (Navien, Inc.)

Suggested to align instantaneous water heater compliance date with PAR 1121 implementation date.

Response to Comment PC-4:

Please see Response to Comment PW-6 which provides staff response to the same comment.

Comment PC-5: William Pearce (The Boeing Company)

Suggested to increase all unit ages by five years.

Response to Comment PC-5:

In previous Rule 1146.2 rulemaking, unit age of 15 years was utilized for the analysis. Meetings and site visits with different manufacturers during the current rulemaking process indicated unit ages of under and over 25 years for gas-fired units. U.S. DOE estimates that with proper installation and maintenance, heat pump pool heaters can last 10 or more years. The BAAQMD staff report for Rules 9-4 and 9-6 indicated that water heaters were assumed to have an average lifespan of 13 years. For PAR 1146.2, staff utilized 15 years for Type 1 units that are not instantaneous water heaters or high temperature units and utilized 25 years for other categories to align more closely with other rulemakings while taking into consideration comments on longer unit ages.

Comment PC-6: Amanda Grey (University of California, Riverside)

For the alternative compliance option for multiple unit replacement, suggested to lower the threshold from five units to a number less than five units that are required to meet zero-emissions in the same calendar year.

Response to Comment PC-6:

The alternative compliance option for multiple unit replacement was initially proposed for cases where an owner or operator has five or more units that are required to meet zero-emission limits in the same calendar year. Similar provision have been included in other South Coast AQMD rules. However, staff has revised the proposal after the Public Workshop to have this provision applicable for cases where five or more units are required to meet zero-emission limits in two consecutive calendar years. The proposed provision allows three years extension for the implementation of five or more units, which means one or more units should be replaced each year. Staff believes the revised proposal is reasonable and have addressed the comment in an alternative way.

Comment PC-7: Sassan Rahimzadeh (Arya Cleaners)

Concern about dry cleaners' ability to upgrade gas-fired units to zero-emission units.

Response to Comment PC-7:

Staff has contacted the California Cleaners Association previously and is currently in contact for further discussion on any challenges. [Staff has conducted meetings and site visits with dry cleaners to understand the concern.](#) The dry cleaners' primary concern is the high upfront cost to install a new zero-emission unit. Staff is in the process developing a rebate program to help lower the cost for some consumers and centralizing information for incentive and financing opportunities offered by other agencies and organizations. As zero-emission technologies become more mature and more widely adopted in the market, there will be less cost impact. In addition, staff is projecting future utility savings based on projected natural gas and electricity prices. The cost to operate heat pumps is lower than most electric appliances because they are so energy efficient; over the lifetime of the unit, that initial cost increase could be recovered.

Staff proposed several alternative compliance options, a limited exemption for small businesses, and a longer compliance timeline, further detailed in Chapter 3, that dry cleaners would be able to utilize, including:

- Paragraph (i)(1) provides an alternative compliance option for when utility upgrades delay compliance with zero-emission limits. When the applicable utility company is unable to provide the necessary power which is beyond the owner or operator's reasonable control, the owner or operator can request an extension of up to ~~36~~60 months for compliance.
- Paragraph (i)(4) provides an alternative compliance option for emergency replacement when an owner or operator requires a short-term replacement due to sudden unit failure after the applicable Table 3 compliance date if an electrical upgrade is needed to operate a unit that complies with Table 2 emission limits. In this situation, the owner or operator may elect to install and operate a temporary unit that complies with Table 1 emission limits for up to six months.
- For a dry cleaner in a property under lease, paragraph (i)(6) provides another alternative compliance option that allows an extension of up to 24 months to comply with the Table 2 emission limits, if the installation is delayed beyond the reasonable control of the owner or operator of the unit.
- Paragraph (i)(7) provides an alternative compliance option that allows for an extension of up to 18 months from the applicable compliance date for when installation is delayed because construction is required to expand the space designed to house or relocate the unit, and associated equipment necessary for operating the unit, excluding units utilizing the alternative compliance options specified in paragraphs (i)(1), (i)(2), (i)(5), and (i)(6).
- There is also an exemption in paragraph (k)(5) that the provisions of paragraph (d)(3) regarding replacing existing units once they reach their defined unit age in the rule shall not apply to units installed in facilities that meet the Rule 102 definition of a small business. For small businesses, existing units can be operated until their natural replacement after the applicable Table 3 compliance date.
- Boilers operated by dry cleaners are categorized as high temperature units, for which PAR 1146.2 has proposed a later zero-emission implementation date (i.e., 2033 for existing buildings).

Staff will continue to monitor all the challenges for zero-emission implementation and will conduct a technology check-in and report the findings to the Stationary Source Committee by ~~January 1, 2028~~June 1, 2027.

Comment PC-8: Jed Holtzman (RMI)

Staff should reconsider the 3,000 therms per year low-use threshold which is not a de minimis value for annual fuel use of smaller units.

Response to Comment PC-8:

The existing rule allow for a low-use exemption for older Type 2 units with annual fuel use of 9,000 therms. Those units were manufactured prior to January 1, 2000, with NO_x emissions higher than 30 ppmv NO_x. PAR 1146.2 proposes to phase out the existing 9,000 therms exemption when zero-emission implementation starts and include a new low-use exemption as a transitional option. The new low-use exemption from Table 2 zero-emission requirements is for a Type 2-unit meeting Table 1 emission limits (i.e., 20 ppmv NO_x and 400 ppmv CO) with fuel use less than 3,000 therms per year. For context, annual use of 3,000 therms is about 16 percent of normal fuel use for a 1 MMBtu/hr unit and 40 percent of normal fuel use for a 400 kBtu/hr unit; 3,000 therms is about two hours of use per day, 960 lbs of NO_x per year, or 2.6 lbs of NO_x per day. Staff has further revised the low-use threshold for smaller units. For smaller units with heat input capacity rated between 400 kBtu/hr and 1 MMBtu/hr, staff is proposing a lower threshold such as 2,000 therms per year which is about 27 percent of normal fuel use for a 400 kBtu/hr unit.

Comment PC-9: Michael Corbett (Bradford White Corporation)

Opposed the labeling requirement.

Response to Comment PC-9:

Labeling requirements were previously proposed and removed. However, concerns were raised for how the zero-emission limits will be enforced when new buildings are required to have zero-emission units installed and existing buildings can have units with 20 ppmv NO_x limits installed. PAR 1146.2 is proposing a labeling requirement under the new subdivision (j) for the period between new building compliance date and existing building compliance date of an equipment category, and the extended period for tankless water heaters replacing existing tankless water heaters in mobile homes.

Labeling requirements are common for area source rules. For example, Rule 1111 has several labeling requirements. One of the requirements specified by subparagraph (e)(3)(B) of Rule 1111 requires manufacturers to display a labeling language for unit using an alternative compliance plan in lieu of meeting the 14 ng/J NO_x limit: “If installed in South Coast AQMD only: This furnace does not meet the South Coast AQMD Rule 1111 NO_x emission limit (14 ng/J), and thus is subject to a mitigation fee of up to \$450. This furnace is not eligible for the Clean Air Furnace Rebate Program: www.CleanAirFurnaceRebate.com.” Labeling requirements are important tools for enforcement, especially when some units distributed to the market can only be installed under certain conditions. Manufacturers may elect to send a sticker or label to distributors to be applied upon unit installation.

Comment PC-10: James Phillips (Rheem Manufacturing Company)

Units for multifamily structures should be exempted from retrofit requirement.

Response to Comment PC-10:

The retrofit requirement is intended for installations in industrial and commercial entities; therefore, units for residential structures are exempted from this requirement. Multifamily

structures are grouped with other commercial buildings (e.g., hotels and motels) by the CEC manual for the 2022 Building Code.⁶⁷ Although the PAR 1146.2 analysis determined that it is cost-effective for most of the equipment categories to implement zero-emission, staff understands the higher upfront cost is a concern. Staff is in the process developing a rebate program to help lower the cost for some consumers, including owners or operators of multifamily structures, and centralizing information for incentive and financing opportunities offered by other agencies and organizations. Further, as zero-emission technologies become more mature and more widely adopted in the market in the future, there will be less cost impact.

Comment PC-11: Adrian Martinez (Earthjustice)

Urged no further delay of the rule adoption and recommended allocating funding to support the early adoption of zero-emission units.

Response to Comment PC-11:

Please see Response to Comments and PW-8 which provide staff responses to the same comment.

⁶⁷ 2022 Nonresidential and Multifamily Compliance Manual, Page 2-5,
<https://www.energy.ca.gov/publications/2022/2022-nonresidential-and-multifamily-compliance-manual-2022-building-energy>

COMMENT LETTER #1



January 19, 2024

Yanrong Zhu
 Program Supervisor
 South Coast Air Quality Management District
 21865 Copley Drive
 Diamond Bar, CA 91765

Re: Rule 1146.2 Initial Preliminary Draft of Rule 1146.2

Dear Ms. Zhu:

On behalf of Bradford White Corporation (BWC), we would like to thank you for the opportunity to comment on South Coast Air Quality Management District's (SCAQMD) Initial Preliminary Draft of Rule 1146.2.

BWC is an American-owned, full-line manufacturer of residential, commercial, and industrial products for water heating, space heating, combination heating, and water storage. In Southern California, a significant number of individuals, families, and job providers rely on our products for their hot water and space heating needs. We have compiled our comments and questions to the Initial Preliminary Draft of Rule 1146.2 below:

General comments

BWC has participated in the District's five working groups related to Rule 1146.2 and has reviewed the preliminary rule language. We observe that the preliminary rule language and implementation timelines have deviated significantly from SCAQMD's 2022 Air Quality Management Plan (AQMP), where there was discussion of "infeasibility" and use of Low NOx alternatives. Specifically, C-CMB-01 stated "allow low NOx technologies as a transitional alternative when installing a zero-emission unit is determined to be infeasible." However, the Initial Preliminary Draft of Rule 1146.2 does not contain any provisions to address infeasibility of equipment, or use of Low NOx alternatives. Further, it proposes to push up the implementation timelines, as compared to the 2022 AQMP, for equipment phase out beginning in 2025, less than a year after the rule is scheduled to be adopted in April 2024.

1-1

BWC has also reviewed the staff analysis from the working group presentations, and we believe the conclusions drawn from these studies have been applied too broadly. We strongly recommend additional site evaluations are necessary to determine the market's readiness to transition to zero NOx. Water heating and boiler equipment is not limited in application to multifamily and hospitals as much of the staff analysis shows. A single commercial water heater or boiler model could be used in a wide variety of applications

Built to be the Best™

725 Talamore Drive • Ambler, PA 19002-1873 • 215-641-9400 • www.bradfordwhitecorporation.com



ranging from hotels/motels, restaurants, office buildings, and gymnasiums. Keeping this in mind, each application has its own unique challenges that must be accounted for. While zero NOx replacements could be feasible, it comes with increased cost and installation challenges, many of which are significant. We have outlined a common example below:

Cont'd
1-1

Replacing a Commercial (100 Gallon, 199,999 Btu/hr) Gas-fired Storage Water Heater

This example shows how current commercially available electric water heater product(s) could be used in lieu of a commercial gas-fired storage water heater that matches the specifications in the above subject line. These products are commonly sold for use in smaller hotels/motels, restaurants, gymnasiums, and office buildings.

	Commercial gas-fired storage water heater	Commercial ASME Tank Electric Water Heater	(2) Heavy Duty Commercial Tank Electric Water Heater	Medium Duty Commercial Tank Electric Water Heater plus 200-gallon storage tank
Input	199,999 Btu/hr or 58.59 kW	81 kW	30 kW per unit	18 kW
Amperage Requirement	5.5A	98A	36A each	22A
Recovery (100°F Rise)	235 GPH	334 GPH	124 GPH each	74 GPH
Footprint (in)	77.63"H x 28.25" W	60.88"H x 32.5" W	50.44" H x 30.5" W per unit	63" H x 30.88"W plus 78"H x 32" W storage tank
Piping	Uses existing	Uses existing	Multiple units piped in reverse return	Commercial electric paired with storage tank
Installation Challenges compared to Gas		Equipment cost premium, potential cost to upgrade service,	Equipment cost premium, Increased footprint,	Equipment cost premium, Increased footprint,

Built to be the Best™

725 Talamore Drive • Ambler, PA 19002-1873 • 215-641-9400 • www.bradfordwhitecorporation.com



	Commercial gas-fired storage water heater	Commercial ASME Tank Electric Water Heater	(2) Heavy Duty Commercial Tank Electric Water Heater	Medium Duty Commercial Tank Electric Water Heater plus 200-gallon storage tank
		panel, Increased footprint, requires ASME product, increased operation cost	Potential cost to upgrade service panel, additional labor and materials for piping, increased operation cost	ASME Product, Increased cost of piping, Recirculation pump (cost), Increased operation cost
Product Link	EF120T199	CEA80-81kW	CEHD50-30kW	E32-120R-18kW plus 200 gallon storage tank

While the example above highlights that commercially available electric products can be used to replace gas products or installed in new construction, this tradeoff comes at a premium cost for the equipment and will require additional cost and installation considerations to function properly.

In these common situations, using a heat pump water heater (HPWH) solution *may* benefit the operator by reducing the utility cost and possibly avoiding a costly upgrade to the electrical panel. However, the downside of using a HPWH is that it will require a much larger footprint, as more storage tank capacity is needed to compensate for slower recovery rates, and significant air volume is needed to transfer heat effectively. In many existing buildings, this expanded footprint can require widening doorways or closets; partially removing walls and/or ceilings; and running electrical wiring to the install area if needed. Additionally, commercial HPWHs¹ will be considerably more expensive than their gas-fired counterparts and will likely have availability concerns as these products often have longer lead times to manufacture, and may not be readily available at supply houses. These issues are especially concerning in emergency replacement situations.

Given the unique challenges water heating applications of this kind can present, BWC suggests District staff consider including rule provisions for project “infeasibility” as was originally presented in the 2022

¹ [Microsoft Word - 2021 WA Code Change - Heat Pump Water Heating](#)

Built to be the Best™

725 Talamore Drive • Ambler, PA 19002-1873 • 215-641-9400 • www.bradfordwhitecorporation.com



AQMP. BWC submitted comments on the 2022 AQMP with a suggested definition for determining whether or not a zero NOx project was feasible and reiterate this recommendation below:

Cont'd
1-1

“Where a project applicant can reasonably demonstrate that all parts and equipment required to retrofit an existing, mixed fuel building with a zero-emission water heater equipment is not:

- Commercially available;
- More costly than commercially available gas options (20% or more);
- Able to fit in the footprint of existing equipment;
- Able to meet the building/home water heating demand; and
- Available from suppliers within the district to replace inoperative equipment on an emergency basis.

In these cases, an exception shall be granted to use readily available gas Ultra Low NOx water heating equipment.”

Product Labeling

1-2

The Initial Preliminary Draft of Rule 1146.2 proposes to require manufacturers to affix labels to equipment identifying the Unit as “not to be installed or sold for New Buildings.” BWC believes the proposed labeling requirement is unnecessary to enforce the rule and will add significant cost and compliance complexity to regulated products.

SCAQMD currently maintains a qualified products list² for all manufacturer water heating and boiler models certified under Rule 1146.2. To enforce the proposed Zero NOx implementation dates, SCAQMD could simply modify their table to show models that are allowed in new construction and models that are only allowed in existing buildings. Secondly, new construction requires plans to be submitted to building jurisdictions to review, as well as Title 24 energy modeling. SCAQMD can work with building jurisdictions within their territory that review and approve project plans to enforce the use of Zero NOx water heating and boiler equipment. Lastly, new construction projects are permitted and require building inspectors to approve the construction. If a non-compliant product were to be installed, it could ultimately be flagged for removal by the building inspector.

For the reasons outlined above, BWC strongly urges staff to remove the labeling requirement as it will not aid in enforcement and will simply add cost and complexity to the manufacturing process.

Useful Life and Repairs

1-3

The Initial Preliminary Draft of Rule 1146.2 proposes to establish effective useful lives for equipment. While BWC questions how the District arrived at the stated useful lives for each product, we also have questions regarding the enforcement of useful lives. We respectfully request feedback to the following questions:

- How will SCAQMD enforce equipment operating beyond its deemed useful life?
- If affected products are still in proper working order, will the owner be required to remove and replace the product with a zero NOx product?
 - If so, will there be a timeline given? Will there be an exception process?
- What analysis did SCAQMD conduct to determine the established useful lives are appropriate?
 - Will that analysis be made available, in full, for stakeholders to review and comment on?

² [Rule 1146.2 - Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters \(aqmd.gov\)](https://www.aqmd.gov/rule-1146.2)

Built to be the Best™

725 Talamore Drive • Ambler, PA 19002-1873 • 215-641-9400 • www.bradfordwhitecorporation.com



- How will repairs be enforced?

Cont'd
1-3

As Rule 1146.2 is currently written, our understanding is an owner would be responsible for ensuring that any repair completed on a regulated water heater or boiler product burner after the zero NOx compliance date would be required to meet the new zero NOx standard.

For instance, consider a situation where a Type 1 water heater was installed on December 1, 2028, and suffered a burner failure in April 2029. Unless there was a zero NOx retrofit kit available, the owner would be compelled to replace the entire unit. Apart from potential safety concerns, attempting to retrofit an existing water heater or boiler to meet zero NOx emissions would often require significant modifications to the appliance's venting system. These modifications, such as the addition of a catalytic converter, may not be feasible in all existing buildings if the necessary zero NOx burner is incompatible with the unit. If modifications are possible, they will often represent a significant cost to the building owner if they are.

This poses an undue and significant cost to the building owner as well as other concerns. BWC recommends that unless a water heater or boiler failure results in a leaking tank, repairs to burner and other components be allowed if the equipment is within its deemed useful life, as defined in Table 2 of the rule.

Implementation Timelines

1-4

BWC recommends that SCAQMD align all new construction timelines with California Energy Commission (CEC) Title 24 Energy Code cycles. For instance, the 2025 Energy Code is currently under development and is expected to be adopted by January 1, 2025. The code does not take effect until January 1, 2026. Similarly, the following code cycle for the 2028 Energy Code, will not take effect until January 1, 2029. This change would help align SCAQMD compliance dates with changes occurring at the statewide level for designers, architects, and builders. We also recommend keeping the proposed four-year gap between new construction and existing construction compliance dates. For future rule development proceedings, we recommend SCAQMD align with state energy code cycles and Department of Energy (DOE) rulemakings.

In addition to aligning with the CEC, we recommend four additional compliance date changes.

- **Type 1 Pool Heater equipment category** align with the 2029 date for new construction and subsequently 2033 for existing construction. On May 30, 2023, the DOE published a Final Rule, which amended energy conservation standards for these products³ containing a new Integrated Thermal Efficiency (TE_i) metric to measure efficiency and sets the TE_i for gas-fired pool heaters at 84%. Additionally in this rule, the DOE is raising the efficiency requirements for electric pool heaters to effectively require the use of heat pump technology. These new requirements go into effect May 30, 2028. More closely aligning SCAQMD's proposed zero NOx compliance date with this DOE Final Rule, will help ease the burden for manufacturers, who can then be mindful of these changes, as well as those potentially adopted by SCAQMD as they work to redesign their products.
- **Type 2 (Non-High Temperature) equipment category** align with the 2029 date for new construction and subsequently 2033 for existing construction. The 2025 Energy Code is already addressing all-electric construction in smaller multifamily, hotel/motel and school building applications. Further, larger applications requiring over 1 million Btu rated input must use the highest efficiency gas equipment to achieve a combined rated efficiency of 90% Thermal Efficiency or better. In addition to Title 24, manufacturers will already have a significant challenge meeting the already finalized DOE Commercial Water Heater Energy Conservation Standards

³ [Federal Register :: Energy Conservation Program: Energy Conservation Standards for Consumer Pool Heaters](#)

Built to be the Best™

725 Talamore Drive • Ambler, PA 19002-1873 • 215-641-9400 • www.bradfordwhitecorporation.com



requirements⁴. These changes go into effect on October 6, 2026, and effectively will require all commercial storage water heaters to meet a 95% Thermal Efficiency.

- **The Instantaneous Water Heater category** be split into two categories with different compliance dates:
 - *Gas-fired instantaneous water heater* (as further defined below) with a nameplate input rating less than 200,000 Btu/hr equipment category align with the 2026 date for new construction and subsequently 2030 for existing construction. This category is predominantly used in residential new construction and the 2025 Energy Code is already proposing a HPWH baseline for residential new construction. Adopting a January 1, 2026, compliance date for this category and subsequently a 2030 date for existing construction would better align with statewide efforts to reduce emissions in new construction and make for an easier transition.
 - *Instantaneous Water Heater* (as further defined below) with a nameplate input rating greater than 200,000 Btu/hr equipment category align with the 2029 date for new construction and subsequently 2033 for existing construction. These products also fall under the DOE efficiency changes on October 6, 2026, discussed above and will require all instantaneous water heaters to meet a 96% Thermal Efficiency.

Cont'd
1-4

Our summary of proposed changes to compliance dates and equipment categories is contained in the following table:

Equipment Category	NOx and CO Emission Limits (ppmv)	Building Type	Compliance Date	Useful Life (years)
Type 1 Unit	0	New/Existing	Jan. 1, 2026/Jan 1, 2030	15
Gas-fired instantaneous water heater (≤200,000 BTU)	0	New/Existing	Jan. 1, 2026/Jan 1, 2030	25
Instantaneous Water Heater (>200,000 BTU)	0	New/Existing	Jan. 1, 2029/Jan 1, 2033	25
Type 1 Pool Heater	0	New/Existing	Jan. 1, 2029/Jan 1, 2033	15
Type 2 Unit	0	New/Existing	Jan. 1, 2029/Jan 1, 2033	25
Type 1 High Temperature Unit	0	New/Existing	Jan. 1, 2029/Jan 1, 2033	25
Type 2 High Temperature Unit	0	New/Existing	Jan. 1, 2029/Jan 1, 2033	25

Lastly, we ask the District to clarify in the rule, that the proposed compliance dates for existing buildings are based on date of equipment manufacture, and not an effective date.

⁴ [2023-20392.pdf \(govinfo.gov\)](https://www.govinfo.gov/2023-20392.pdf)

Built to be the Best™

725 Talamore Drive • Ambler, PA 19002-1873 • 215-641-9400 • www.bradfordwhitecorporation.com



Definitions

BWC recommends that SCAQMD align their equipment category definitions with the Code of Federal Regulations. The Code of Federal Regulations governs certain regulated products, including those covered by this rulemaking. By adopting these definitions in Rule 1146.2, SCAQMD can harmonize their rule with how products are built in the United States and avoid creating product classes specific to one region of southern California. Additionally, by adopting these definitions, compliance with NO_x emission standards is made simpler as manufacturers are not sorting each product class by Btu/hr to determine which model units comply. The specific equipment category changes we propose are as follows:

- **Type 1 and Type 2 (Non-High Temperature Units):** This category includes all *Storage water heaters* and *Residential-duty commercial water heaters* as defined in 10 CFR 431.102⁵
 - “*Storage Water Heater* means a water heater that uses gas, oil, or electricity to heat and store water within the appliance at a thermostatically-controlled temperature for delivery on demand, including:
 1. Gas-fired storage water heaters with a rated input both greater than 75,000 Btu/hr and less than 4,000 Btu/hr per gallon of stored water
 2. Oil-fired storage water heaters with a rated input both greater than 105,000 Btu/hr and less than 4,000 Btu/hr per gallon of stored water; and
 3. Electric storage water heaters with a rated input both greater than 12 kW and less than 4,000 Btu/hr per gallon of stored water.”
 - “*Residential-duty commercial water heater* means any gas-fired storage, oil-fired storage, or electric instantaneous commercial water heater that meets the following conditions:
 1. For models requiring electricity, uses single-phase external power supply;
 2. Is not designed to provide outlet hot water at temperatures greater than 180 °F; and
 3. Does not meet any of the following criteria:

Water heater type	Indicator of non-residential application
Gas-fired storage	Rated input >105 kBtu/hr; Rated storage volume >120 gallons.
Oil-fired storage	Rated input >140 kBtu/hr; Rated storage volume >120 gallons.
Electric instantaneous	Rated input >58.6 kW; Rated storage volume >2 gallons.

- **Type 1 and Type 2 High Temperature Units:** This category includes *Hot water supply boilers*⁶ and *Commercial package boiler* as defined in 10 CFR 431.102
 - “*Hot water supply boiler* means a packaged boiler (defined in § 431.82 of this part) that is industrial equipment and that:
 1. Has a rated input from 300,000 Btu/hr to 12,500,000 Btu/hr and of at least 4,000 Btu/hr per gallon of stored water;
 2. Is suitable for heating potable water; and
 3. Meets either or both of the following conditions:

⁵ [eCFR :: 10 CFR 431.102 -- Definitions concerning commercial water heaters, hot water supply boilers, unfired hot water storage tanks, and commercial heat pump water heaters.](#)

⁶ [eCFR :: 10 CFR 431.102 -- Definitions concerning commercial water heaters, hot water supply boilers, unfired hot water storage tanks, and commercial heat pump water heaters.](#)

Built to be the Best™

725 Talamore Drive • Ambler, PA 19002-1873 • 215-641-9400 • www.bradfordwhitecorporation.com



- i. It has the temperature and pressure controls necessary for heating potable water for purposes other than space heating; or
 - ii. The manufacturer's product literature, product markings, product marketing, or product installation and operation instructions indicate that the boiler's intended uses include heating potable water for purposes other than space heating.
- "Commercial package boiler means a packaged boiler that meets all of the following criteria:
 - 1. Has rated input of 300,000 Btu/hr or greater;
- **Instantaneous Water Heater Units:** This category includes *Instantaneous water heaters*⁷ as defined in 10 CFR 431.102 and *Gas-fired instantaneous water heaters*⁸ as defined in section 10 CFR 430.2
 - "Instantaneous water heater means a water heater that uses gas, oil, or electricity, including:
 - 1. Gas-fired instantaneous water heaters with a rated input both greater than 200,000 Btu/hr and not less than 4,000 Btu/hr per gallon of stored water;
 - 2. Oil-fired instantaneous water heaters with a rated input both greater than 210,000 Btu/hr and not less than 4,000 Btu/hr per gallon of stored water; and
 - 3. Electric instantaneous water heaters with a rated input both greater than 12 kW and not less than 4,000 Btu/hr per gallon of stored water."
 - "Gas-fired instantaneous water heater means a water heater that uses gas as the main energy source, has a nameplate input rating less than 200,000 Btu/hr, and contains no more than one gallon of water per 4,000 Btu per hour of input."

Cont'd
1-5

While the definitions above contained in the Code of Federal Regulations do not exactly align with SCAQMD's Btu/hr limits for Type 1 and Type 2, these definitions have little to no bearing on the proposed compliance dates. Specifically for Type 1 and Type 2 High Temperature units, SCAQMD proposes the same compliance dates, covering the entire Btu/hr range. We strongly believe these definition changes need to be adopted into Rule 1146.2 to align with federal equipment categories and provide additional clarity.

In closing, we would like to reiterate the need for SCAQMD to align compliance dates with Title 24 Energy Code cycles and update equipment category definitions to align with the Code of Federal Regulations. We fully understand the District's goals to reduce emissions and want to play a part in ensuring it is successful in responsibly doing so. We welcome continued dialogue on this matter and would be pleased to have further, direct, conversations with District staff.

BWC is grateful to SCAQMD for the opportunity to provide feedback on the Initial Preliminary Draft of Rule 1146.2. Please let me know if you have any questions or would like to schedule a meeting to discuss our comments further.

Respectfully Submitted,

Bradford White Corporation

⁷ [eCFR :: 10 CFR 431.102 -- Definitions concerning commercial water heaters, hot water supply boilers, unfired hot water storage tanks, and commercial heat pump water heaters.](#)

⁸ [eCFR :: 10 CFR 430.2 -- Definitions.](#)

Built to be the Best™

725 Talamore Drive • Ambler, PA 19002-1873 • 215-641-9400 • www.bradfordwhitecorporation.com



Tom Gervais
Senior Director, Regulatory Affairs

Cc: R. Carnevale; E. Truskoski; R. Simons; B. Hill; L. Prader; C. VanderRoest; T. Gervais; M. Corbett;
B. Wolfer

Built to be the Best™

725 Talamore Drive • Ambler, PA 19002-1873 • 215-641-9400 • www.bradfordwhitecorporation.com



RESPONSE TO COMMENT LETTER #1

Response to Comment 1-1:

Staff appreciates Bradford White Corporation's comments on PAR 1146.2. The 2022 AQMP's objective is to transition to zero-emission technologies wherever feasible. Staff identified technically feasible zero-emission control options for each category of equipment subject to Rule 1146.2 as discussed in Chapter 2 of this report. Allowing alternative control options (e.g., near-zero-emission technology) would not meet the air quality objectives.

The 2022 AQMP Control Measure C-CMB-01 set a goal for zero-emission standard by 2031 for all equipment categories, wherever feasible. PAR 1146.2 is consistent with this goal and has proposed a more specific schedule for each equipment category, with three implementation phases depending on building and technology readiness. Units for Phase I are more ready for zero-emission implementation and thus has an earlier implementation date. Units for Phase III require additional time for technology development and thus have a later implementation. Nevertheless, staff extended the Phase I compliance date for new buildings by one year, from 2025 to 2026, to better align with the CEC Building Code effective date.

Staff held meetings and conducted site visits for various applications including food service, grocery, hotel, hospital, multifamily, office building, and dry cleaning. Staff recognizes there are many applications with unique situations and proposed alternative compliance options to address these specific concerns.

Staff appreciates the example of replacing a gas-fired unit with an electric resistance water heater. Staff recognizes that heat pumps can be over three times more efficient than electric resistance technologies, which can lower fuel switching and operational costs. Further discussion on cost-effectiveness, including capital and installation costs, are included in Chapter 2 of this staff report. There are some commercial incentives available including the Willdan Commercial Energy Efficiency Program, which provides incentives to commercial customers who have monthly maximum energy demands of greater than 20 kW across Southern California Edison's service territory.

For further discussion on spacing, please refer to Response to Comment PW-2.

Response to Comment 1-2:

PAR 1146.2 proposes a labeling requirement under the new subdivision (j) for the period between the new building compliance dates and existing building compliance dates of each equipment category. Paragraph (j)(1) requires labeling for units to be installed in existing buildings, and paragraph (j)(2) requires labeling for instantaneous water heaters rated less than or equal to 200 kBtu/hr installed in mobile homes. Labeling requirements are being proposed to address concerns for how the limits will be enforced when new buildings are required to have zero-emission units limits installed while existing buildings are allowed to have units that meet 20 ppmv NO_x limits installed. Staff recognizes the need for a compliance tool to differentiate the units allowed to be installed in new and existing buildings. Please also see Response to Comment PC-9 for more details.

Response to Comment 1-3:

South Coast AQMD has a Compliance and Enforcement team that conducts inspections. If a unit is deemed to be operating past its unit age after PAR 1146.2 Table 3 compliance dates are in effect, the owner or operator would be required to replace the unit with a zero-emission unit. Units installed in residential structures are exempt from this retrofit requirement. Further discussion on unit age for different categories can be found in Chapter 2 of this staff report. In previous Rule 1146.2 rulemaking, unit age of 15 years was utilized for the analysis. Meetings and site visits with different manufacturers during the current rulemaking process indicated unit ages of under and over 25 years for gas-fired units. U.S. DOE estimates that with proper installation and maintenance, heat pump pool heaters can last 10 or more years. The BAAQMD staff report for Rules 9-4 and 9-6 indicated that water heaters were assumed to have an average lifespan of 13 years. For PAR 1146.2, staff utilized 15 years for Type 1 units that are not instantaneous water heaters or high temperature units and utilized 25 years for other categories. Staff believes the proposed unit age for each category of this proposed amended rule is appropriate and aligns closely with other rulemakings, while taking into consideration manufacturer comments.

PAR 1146.2 subdivision (i), as explained in Chapter 3 of this staff report, provides alternative compliance options to address specific concerns including emergency replacement, utility upgrades, replacement of five or more units within consecutive two compliance years, and other cases.

Paragraph (d)(5) of PAR 1146.2 specifies the applicable emission limit when an owner or operator modifies or replaces a burner. A unit requiring burner replacement will be subject to zero-emission if the burner replacement occurs after PAR 1146.2 Table 3 zero-emission compliance dates and the unit has reached its unit age. Otherwise, Table 2 emission limits for 20 ppmv NO_x, and 400 ppmv CO for type 2 unit, will apply.

Response to Comment 1-4:

Where appropriate, staff aligned the compliance dates with the effective dates of other agencies. Staff extended the Phase I compliance date for new buildings by one year, from 2025 to 2026, to align with the CEC Building Code effective date. However, staff does not see a compelling reason to align with the 2029 effective date for the future Building Code for which the requirements are yet unknown, or to extend other compliance dates to keep the four-year gap between new building and existing building compliance dates in the initial proposal. Staff set compliance dates to take into account the upcoming 2026 effective year for the CEC Building Code, the BARCT assessment, and feedback from stakeholders.

Staff acknowledges the 84 percent efficiency set by U.S. DOE for gas-fired pool heaters and did reflect this efficiency in the revised calculations. Staff recognizes that the DOE final rule will apply to efficiency standards for electric pool heaters, which is not directly applicable to PAR 1146.2, which is focused on reducing NO_x emissions. Staff extended the Phase II compliance date for new buildings by one year, from 2027 to 2028, to allow more time for technology to mature. Staff strives to align with other agencies on timelines, but mainly relies on the South Coast AQMD's independent BARCT assessment to establish the appropriate compliance schedule. PAR 1146.2 provides shorter timelines for

units where the BARCT assessment indicated that zero-emission technology is available now, and longer timelines where the BARCT assessment indicates more time is needed.

Staff recognizes that the 2025 Energy Code is already addressing all-electric construction in smaller multifamily, hotel/motel and school building applications. Staff extended the Phase II compliance date for new buildings by one year, from 2027 to 2028, which will include the Type 2 (non-high temperature unit) category.

Staff divided instantaneous water heaters into two categories by rated heat input capacities as suggested so that larger units will have more time to comply. Further, staff extended the Phase I compliance date for new buildings by one year, from 2025 to 2026, to align with the CEC Building Code effective date.

For clarification regarding the zero-emission compliance dates for existing buildings, they are effective dates for new installations applicable to the supply chain including manufacturers, distributors, sellers, and installers. They are also the effective dates for the retrofit requirement applicable to owners and operators, after which units are required to be phased into the zero-emission technologies once their unit age as listed in Table 2 is reached.

Response to Comment 1-5:

Staff revised the high temperature unit definition by changing the temperature threshold from 190 degrees Fahrenheit to 180 degrees Fahrenheit, as was recommended by stakeholders to align with the Code of Federal Regulations definition for “residential-duty commercial water heater” for outlet water temperature. Staff divided instantaneous water heaters into two categories by rated heat input capacities as suggested. Staff notes that PAR 1146.2 applies to natural gas-fired units, and the definitions detailed by the commenter include fuel types other than natural gas.

COMMENT LETTER #2



February 6, 2024

VIA E-MAIL

Michael Krause, Assistant DEO
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

RE: 1146.2 Public Workshop Comments

Dear Mr. Krause,

Thank you and your staff for the ongoing opportunity to discuss Proposed Rule 1146.2. Navien will be making comments in the Public Workshop tomorrow and wanted to provide those in writing as well.

As we have previously noted, Navien's tankless water heaters fall between 1121's residential rules and 1146.2 commercial rules. However, Navien tankless water heaters are mostly used in residences and are for use by consumers. Therefore, we believe that the compliance date for tankless water heaters should align with other residential products covered under 1121.

2-1

Further, we encourage staff and the Board to give careful consideration to the detailed definitions and revised implementation timelines spelled out in the Bradford White letter of January 19, 2024. Navien agrees with Bradford White that implementation timelines should match the **California Energy Commission Title 24 Energy Code** of January 1, 2026, compliance dates for new buildings. Furthermore, SCAQMD should maintain a four-year gap between new and existing construction where it is anticipated for Department of Energy (DOE) to implement new efficiency targets in 2030, to align and be consistent with DOE.

2-2

Moreover, we believe the staff report's number of 300,000 tankless water heaters in the South Coast Basin is low, perhaps by as much as two to three times. Navien alone has sold more than 200,000 tankless units in the Basin. Since our units are more efficient than non-condensing units, we believe the NOx reductions achieved by replacing these units are over-estimated and the costs to consumers will be greater than estimated, and we request the final staff report to consider these factors.

2-3

20 Goodyear, Irvine, CA 92618

T 949.420.0420

F 949.420.0430

W Navieninc.com



Page 2 of 2
SCAQMD
February 6, 2024

Finally, we request staff clarify its intentions about the useful life/repairs section of the Proposed Rule. Under "burner replacement" scenarios, when it is **after** the compliance date and the unit has **not** reached useful life, must we then comply with Table 1 Emission Limit? If any part other than a burner needs to be replaced, then are we correct that Table 2 compliance shall not be applicable since the parts are not related to emissions? We note that the lack of clarity of this section points to additional future enforcement challenges.

2-4

Again, thank you for the opportunity to share our concerns with the AQMD. We look forward to your responses and to working together to improve air quality in our region.

Sincerely,

A handwritten signature in black ink, appearing to read "KPI", is written over a light blue horizontal line.

KEVIN PIROTIN
Vice President
Engineering & Service
Navien, Inc.

RESPONSE TO COMMENT LETTER #2**Response to Comment 2-1:**

Staff appreciates Navien's comments on PAR 1146.2 and input on the rule language. For clarification, PAR 1121 rulemaking is in progress with an anticipated public hearing date in the fourth quarter of 2024. Instantaneous water heaters are not subject to PAR 1121, even though they are mostly installed in residential structures similar to PAR 1121 units. Building readiness is being evaluated for both PAR 1146.2 and PAR 1121. Staff will consider aligning compliance dates and determining if further analysis of technologies and other factors for PAR 1121 will require any different implementation timelines.

Response to Comment 2-2:

Staff extended Phase I compliance date for new buildings by one year, from 2025 to 2026, to better align with the CEC Building Code effective date. Please refer to Response to Comment 1-4 for more detail.

Response to Comment 2-3:

Staff estimated the instantaneous water heater universe to be approximately 300,000 units in the South Coast AQMD region using the 2019 California RASS from the CEC and the RECS from the U.S. Energy Information Administration. Staff appreciates any detailed estimate and data source on the number of instantaneous water heaters in the region. Staff understands instantaneous water heaters can be more efficient than non-condensing units, the 95% energy efficiency used in the cost-effectiveness calculations for instantaneous water heaters aligns with their energy efficiency level.

Response to Comment 2-4:

Paragraph (d)(5) specifies the applicable emission limit when an owner or operator modifies or replaces a burner. Zero-emission limits in Table 2 will only apply when the modification or replacement occurs on and after the Table 3 compliance date and the unit has reached its unit age; otherwise, Table 1 limits apply. Paragraph (d)(5) specifies that this is for a burner modification or replacement. If any part other than a burner needs to be replaced, Paragraph (d)(5) is not applicable. This provision was added to address a stakeholder's concern that a burner replacement might occur before the end of a unit's unit age resulting in stranded assets.

COMMENT LETTER #3

**ACTIVE SGV
COALITION FOR CLEAN AIR
EARTHJUSTICE
INDUSTRIOUS LABS
SIERRA CLUB**

VIA: ELECTRONIC MAIL

February 5, 2024

Michael Krause, Assistant DEO
Heather Farr, Planning and Rules Manager
South Coast Air Quality Management District (South Coast AQMD)
21865 Copley Dr.
Diamond Bar, CA 91765
mkrause@aqmd.gov
hfarr@aqmd.gov

Re: Proposed Rule 1146.2

Dear Mr. Krause and Ms. Farr:

The undersigned organizations are grateful for the opportunity to comment on Proposed Amended Rule 1146.2. The current proposal – the second major regulation targeting Nitrogen Oxide (NOx) emissions after adoption of the 2022 Air Quality Management Plan (AQMP) - marks an important milestone, in that the Air District including zero-emission standards for all equipment covered under the rule. We support moving swiftly to adoption of a true zero-emission regulation. The points below provide feedback on the most recent iteration of the rule and the presentation at Working Group Meeting 5 in December of 2023.

I. Great Urgency Exists to Pass This Regulation.

3-1

There is great urgency to move forward with these rule amendments no later than the April Governing Board meeting, the proposed date presented at the last Working Group Meeting. The region has failed to attain even the 1997 8-hour ozone standard, much less any of the subsequent ozone standards. The region has also failed to attain the annual PM2.5 standard. The NOx emission reductions achieved by these rule amendments will help the Air District make progress on attainment for both pollutants, resulting in significant health benefits for residents. In addition to banking critical emission reductions, timely adoption of this regulation will maximize lead time for market and complementary policy development and allow staff to move onto other life-saving rules that are dearly needed. It is concerning that Slide 42 of the presentation for Working Group Meeting #5 noted that the April adoption hearing timeline could be “subject to change.” We highly encourage staff not to delay this rulemaking.

The South Coast AQMD has already delayed these amendments to Rule 1146.2. During Working Group Meeting #1 in April of 2023, the AQMD staff projected that these rule amendments were going to be adopted in September of that year. That timeline was later moved

down to November 2023, then over to the first quarter of 2024, before landing on the current proposed date in April 2024.

Cont'd
3-1

While we generally understand the motivation behind these timeline changes and have not opposed moving the adoption date, the April 2024 proposal is already a delay of seven months from the proposal originally presented to the public, and we would be unlikely to support additional delays.

As the Air District is aware, these delays have real and serious consequences for public health. The 2022 Air Quality Management Plan (AQMP) makes clear that passing zero-emission regulations for stationary sources must be a top priority. The AQMP aptly states:

Previous AQMPs have relied on increasingly stringent regulations targeting tailpipe and exhaust stack emissions, new engine technologies, or fuel mix improvements. However, these approaches rely on additional reductions from already strictly regulated sources and cannot achieve an additional 67 percent reduction beyond the 2037 baseline. Therefore, there is no viable pathway to achieve the needed reductions without widespread adoption of zero emissions (ZE) technologies across all mobile sectors and stationary sources, large and small.¹

With so many control measures needing to be accomplished in the near term, the Air District must quickly pass zero-emission regulations on these sources and others. Moreover, given that some facilities covered under these rules will be changing equipment due to the REgional CLean Air Incentives Market (RECLAIM) transition, setting these standards sooner will provide a stronger signal to focus on advancing zero-emission solutions instead of continued combustion technologies.

We support the April adoption date for these amendments and urge that the AQMD stick to this timeline for passing this important life-saving regulation.

II. Zero--Emission Standards Are Critical, and Faster Compliance is Feasible.

3-2

Moving to zero-emission equipment where feasible remains critical to attaining federal and state ozone and PM2.5 standards, and our organizations are pleased that this regulation includes zero-emission standards for all categories of equipment:

¹ See 2022 Final AQMP, at ES-4, available at <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/final-2022-aqmp.pdf?sfvrsn=16>.



Modify Requirements:

- Present future effective limits in table format

(2) No person shall manufacture, supply, sell, offer for sale, or install, for use in the South Coast AQMD, any Unit subject to this rule, unless such Unit does not exceed the applicable NOx and CO emission limit and compliance date set forth in Table 2.

Table 2 – NOx and CO Emission Limits, Compliance Schedule, and Unit Useful Life

Equipment Category	NOx and CO Emission Limits (ppmv)	Building Type	Compliance Date	Useful Life (years)
Type 1 Unit*	0	New	January 1, 2025	15
		Existing	January 1, 2029	
Instantaneous Water Heater	0	New	January 1, 2025	25
		Existing	January 1, 2029	
Type 1 Pool Heater	0	New	January 1, 2027	15
		Existing	January 1, 2031	
Type 2 Unit**	0	New	January 1, 2027	25
		Existing	January 1, 2031	
Type 1 High Temperature Unit	0	New	January 1, 2029	25
		Existing	January 1, 2033	
Type 2 High Temperature Unit	0	New	January 1, 2029	25
		Existing	January 1, 2033	

* Referring to a Type 1 Unit that is not a High Temperature Unit, Type 1 Pool Heater, or Instantaneous Water Heater.

** Referring to a Type 2 Unit that is not a High Temperature Unit.

34

Some compliance dates can and should be moved up, however. Importantly, given the need for additional NOx reductions by 2031 to attain the 2008 8-hour ozone standard after more than 20 years of excess impacts to health and air quality, all equipment categories currently listed with 2033 compliance dates should be shifted to 2031. Maximizing emissions reductions in the District by 2031 will be necessary to avoid further years of nonattainment and its concomitant harms to residents of the region.

In a similar vein, equipment categories currently listed with 2029 compliance dates should be bumped up to 2028 in order to allow for a greater penetration of equipment before the 2031 attainment deadline arrives.

III. The Current Approach of Assuming Natural Gas Will Be Abundant and Cheap for Decades Does Not Comport with Reality.

3-3

On December 1, 2022, the California Public Utilities Commission (CPUC) “adopted a new framework to comprehensively review utility natural gas infrastructure investments in order to help the state transition away from natural gas-fueled technologies and avoid stranded assets in the gas system.”² There is a cognitive dissonance between air quality planning and these proceedings happening at the state level. The current BARCT assessments assume electricity prices will go up over the next two decades, but natural gas prices are predicted to go down.

These assumptions arise from South Coast AQMD’s use of the gas and electricity rate projections included in the California Energy Commission’s (CEC) California Energy Demand

² CPUC Creates New Framework to Advance California’s Transition Away from Natural Gas, Press Release, (December 1, 2022), available at <https://www.cpuc.ca.gov/news-and-updates/all-news/cpuc-creates-new-framework-to-advance-california-transition-away-from-natural-gas>.

Update 2022-2035³ – which assumes gas demand will remain steady through time despite California’s many policies to reduce fossil fuel use and corresponding greenhouse gas emissions.⁴

Cont'd
3-3

The economic assumptions underpinning the analysis that fossil methane will be cheap and abundant ignore many factors. For example, as more and more people and entities leave the gas system, fewer and fewer users will remain to pay for the fixed infrastructure costs of the increasingly expensive gas system. It is not clear why gas prices in the South Coast Air Basin would defy the tenets of economics and remain cheap for decades to come.

The same year CEC published the document staff is using, the agency published another report, “The Challenge of Retail Gas in California’s Low-Carbon Future,” which takes future demand and future customer base into account and that work finds that gas rates will increase steadily over time especially as California implements its programs to curb air and climate pollution.⁵ For example, the chart below shows that building electrification at a high level will result in increased rates for industrial facilities.

³ California Energy Demand Update available at <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2022-integrated-energy-policy-report-update-2>.

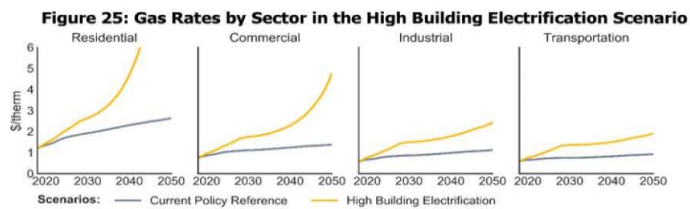
⁴ The Environmental Defense Fund (EDF) filed significant comments on the gas assumptions portion of the Integrated Energy Policy Report (IEPR). In particular, EDF pointed out “Currently, the IEPR preliminary model projects stable future gas demand...”

EDF highlights two concerns around these projections. First, stable gas demand is at odds with California’s climate policies aimed at reducing fossil fuel use—including natural gas demand. These state policies include the Senate Bill 32 targets of reducing California’s greenhouse gas emissions by 40% below 1990 levels by 2030, the Assembly Bill 1279 target of reaching net zero by 2045, the California Air Resources Board (CARB) 2022 Scoping Plan targets of reducing total fossil fuel consumption by 86% below 2022 levels by 2045, the California Public Utilities Commission (CPUC) decision to eliminate gas extension subsidies, and various local ordinances on gas appliances...

Second, EDF contends that it is unreasonable to assume constant demand beyond a future point in time simply because no existing projections are available. It is true that no future projection can be made with 100% confidence and accuracy; and that confidence will decline further out into the future the projection is made. However, the entire IEPR process has uncertainty of projections baked in, and holding this one element constant is not worthy of the IEPR process. To project *no change* and assume constant future gas demand beyond a certain point, however, would be to overlook existing market trends of electrification and various state policies.”

EDF Comments on Gas Demand Forecasts in IEPR, (May 2, 2023).

⁵ CEC, *The Challenge of Retail Gas in California’s Low Carbon Future*, available at <https://www.energy.ca.gov/sites/default/files/2021-06/CEC-500-2019-055-F.pdf>.



Cont'd
3-3

The CEC is currently working on its 2023 Integrated Energy Policy Report (IEPR), which is examining load modifier scenarios, including additional achievable fuel substitution through policies like zero-emission appliance standards. These scenarios are still overly conservative – for example, most assume that SCAQMD will take no action in this area, and CARB’s own statewide zero-emission standards to come are not examined at all – however the agency should monitor the 2023 IEPR process and integrate its updated gas rate projections into BARCT analyses when available.

The context for the assumptions staff use in the BARCT analysis is important as well. While the South Coast AQMD’s primary regulatory concern is reducing traditional criteria pollutants, there is overwhelming consensus that we must dramatically drive down the use of methane to stave off the worst consequences of climate change. The sector being discussed today is a large user of gas, and this rule provides great opportunity for reductions in climate pollution.

As such, equipment covered by this rule will be a priority target for addressing greenhouse gas emissions moving forward. Moreover, we are disappointed in the approach of some working group participants seeking to drop anchors in the process for achieving zero-emissions. We do not have time for delays and half measures to clean up this equipment.

IV. Our Organizations Support the Definition of “High Temperature Unit.”

3-4

At the workshop, staff requested feedback on the definition of “high temperature unit.” The current temperature is set at 190 degrees Fahrenheit. Commenters question the premise here that arbitrary temperature levels should dictate the speed of clean up of equipment. We also question any presumption – whether express or implied – of the infeasibility of zero-emissions technologies for equipment above 190 degrees. Not only are there zero-emission alternatives like electric boilers available now that can provide zero-emission heat, it is safe to assume that technology will only improve in the coming years as technology forcing regulations such as 1146.2 are implemented. Given technology development is not static, we suggest staff build into its technology review an assessment of this “high temperature unit” definition as technology continues to advance.

V. Technology Investments.

3-5

Record amounts of funding exists for addressing emissions. The South Coast AQMD Technology Advancement team should work to secure funding for incentive programs to advance zero-emissions equipment in this sector. Given the proposed rule’s zero-emission market signal, it will be important to develop an incentive program in the next couple of years before

compliance dates for existing buildings arrive. As such, the AQMD should establish a \$25 million program, including technical assistance to support entities that want to advance zero-emission technologies quicker than proposed deadlines for equipment covered by this rule. These monies could come from state or federal funds, such as the Food Production Investment Program and the Industrial Decarbonization and Improvement of Grid Operations program, which are administered by the California Energy Commission.

Cont'd
3-5

VI. Technology Summit.

3-6

The technological changes in this sector are rapidly evolving. To play its proper leading role in this area, SCAQMD should participate in and/or host a technology workshop focused on equipment covered by this rule and other related sectors (e.g., residential space and water heating, or industrial heat). This workshop should be conducted in coordination with our energy agencies (CEC and CPUC), in addition to our electric utilities, and it could be held regularly to capture a variety of sectors and technologies.

As an interim step, we recommend that the South Coast AQMD staff invite the Industrial Heat Pump Alliance to present to the Stationary Source Committee about new clean industrial heat solutions and what the agency can do to start eliminating more sources of health-harming and climate-disrupting fossil fuel combustion.

We appreciate your consideration of these comments, and we look forward to the adoption of these rule amendments to get one step closer to the emissions reductions the region desperately needs.

Sincerely,

Adrian Martinez
Earthjustice

David Diaz, MPH
ActiveSGV

Chris Chavez
Coalition for Clean Air

Evan Gillespie
Industrious Labs

Kim Orbe
Sierra Club, Angeles Chapter

RESPONSE TO COMMENT LETTER #3

Response to Comment 3-1:

Staff thanks the Coalition for their participation and comments on PAR 1146.2. Staff recognizes the need to pursue emission reduction with an earlier timeframe to address the air quality needs of the South Coast Air Basin. At this time, the public hearing has been further delayed; however, staff is seeking a June 2024 Public Hearing.

Response to Comment 3-2:

Staff recognizes the need for earlier compliance timelines to encourage greater adoption of zero-emission equipment before attainment deadlines. The proposed compliance dates in PAR 1146.2 Table 3 will allow for greater technology and market development to occur. In addition, staff is proposing to conduct a status check-in/technology review before ~~January 1, 2028~~[June 1, 2027](#), to assess the technology development and market availability of zero-emission units. The compliance dates also align with the goal set by the 2022 AQMP Control Measure C-CMB-01.

Response to Comment 3-3:

For cost-effectiveness calculations, staff utilized the CEC's Integrated Energy Policy Report (IEPR), which is released every two years and reports projected future rates of gas and electricity. Previously, staff utilized the 2021 IEPR for the PAR 1146.2 cost-effectiveness assessment, which impacts the cost to switch from natural gas-fired units to heat pumps. Staff has updated the cost-effectiveness assessment according to the new IEPR released on January 1, 2024, which projected natural gas rates increased by 40 percent and projected electricity cost showed a more moderate increase of 28 percent. Utilizing these new projected rates improved cost-effectiveness estimates. Staff recognizes that this is an estimate, and that future projections and actual prices may differ. A technology assessment scheduled for before ~~January 1, 2028~~[June 1, 2027](#), will consider changes in rate forecasts and integrate updated gas rate projections into BARCT analyses when available. Staff also acknowledges that California's many policies to reduce fossil fuel use and corresponding greenhouse gas emissions will lower gas demand over time, leading to increased gas costs. Staff also recognizes that there are co-benefits to reducing NOx emissions from this universe.

Response to Comment 3-4:

Staff included a high temperature unit definition with threshold of 180 degrees Fahrenheit, aligning with the Code of Federal Regulations definition for "residential-duty commercial water heater" for outlet water temperature, to provide a later implementation date for zero-emission units in this category. As discussed in Chapter 2 of this report, staff has identified some technologies that can provide hot water beyond the 180 degrees Fahrenheit threshold; however, high efficiency technology (e.g., heat pump) for this equipment category may not be mature in the market yet. While electric resistant boiler for high temperature is a mature technology, it is not viable to heavily rely on this technology due to its high-power demand that could overburden the grid. PAR 1146.2 provides a separate equipment category for high temperature units which will allow for further technology development and market

advancement prior to compliance dates. A technology assessment scheduled for before June 1, 2027, will consider the technology development and market availability of high temperature units, including whether the “high temperature unit” category should remain at the later implementation date as technology continues to advance.

Response to Comment 3-5:

Staff understands the challenge of higher upfront cost and is in the process developing a rebate program to help lower the cost for some consumers. The initial phase of the program will include incentives to water heating zero-emission technologies for small businesses that are subject to this rule. In addition, staff is requesting the third-party contractor that implements the program help direct applicants to other state, federal, and local funding opportunities that can be stacked with the South Coast AQMD rebate program. There are many funding opportunities currently available or targeted for the near future that staff will work toward securing to help defer the upfront costs to transition to zero-emission technologies.

Response to Comment 3-6:

Staff appreciates the recommendation to hold a technology workshop or summit and the suggestion to invite the Industrial Heat Pump Alliance to present to the Stationary Source Committee about new clean industrial heat solutions. Staff will consider these ideas for future meetings.

COMMENT LETTER #4**Benz Air Engineering, Co. Inc.**

531 Cypress Ave, Hermosa Beach, CA 90254

Ph: (888)203-7224: Fax (209)602-1019

info@benzair.com

CLEAN AND INTELLIGENT ENERGY SOLUTIONS

LAS VEGAS, NV - LOS ANGELES, CA - MODESTO, CA - PORTLAND, OR

February 7, 2024**Public comment PAR1146.2**

Benz Air Engineering Co, INC, ("BAE") files these comments in response South Coast Air Quality Management District's (SCAQMD) Initial Preliminary Draft of Rule 1146.2

About BAE

Having expertise in electrical generation and all aspects of steam, its generation and use, and driven by its vision of the affordable, reliable, net-zero carbon grid of the future, BAE has developed and commercialized a new steam generation technology – the hybrid Boiler Accessory – decarbonizing existing hard to electrify boilers and fluid heaters with renewable electrical power when available while providing local power at less than half the current grid heat rate. BAE's boiler accessory offers a unique capacity and energy solution that simultaneously addresses the critical AND immediate need to reduce greenhouse gas and criteria pollutant emissions, while also providing a near-term use of excess renewable electric production.

Modular and scalable, BAE's boiler accessory leverages existing hard-to-electrify emission sources as a heat and electrical energy sink, amplifying the carbon reduction of excess renewable electrical generation and firming California's grid at half the carbon rate of the highest known efficient electric generation. Depending on the grid supply, BAE's Boiler Accessory can utilize up to the limit of the existing facility's electrical supply to directly reduce greenhouse gas emissions from generating hot water or steam in a wide range of commercial and industrial applications. As the electrical grid transitions from periods of high renewable generation to generation supplied by traditional greenhouse gas emitting combined cycle generation and higher carbon single cycle sources such as fuel cells and linear generators, BAE's flameless Boiler Accessory complements fluid heaters and boilers to provide the most efficient incremental use of fuel, resulting in a net heat rate of just 4000btu/kw/hr HHV – less than half the carbon intensity of any local generation technology such as linear generators. BAE's inverter-based technology offers the widest range of valuable grid and environmental benefits including the fastest transition from consuming renewable electricity to generating ultra-low NOx and carbon emission electricity, the only known way to decarbonize hard-to-electrify emissions sources such as boilers while firming the grid at less than half the carbon footprint of microturbines, linear generators or fuel cells.

BAE's commitment to developing cost-effective and maximal efficiency heat and power generation technologies that support our nearly overloaded electrical grid infrastructure and prioritize ultra-low greenhouse gas emissions implores our public response to the AQMD's proposed regulation PAR 1146.2.

BAE provides the following comments on this preliminary draft of Rule PAR1146.2 Through these comments, we strongly recommend...

1. **AQMD EMISSION INVENTORY** analysis must include greater consideration for electrical service availability. 4-1
 - a. There are many areas within Southern California where there is insufficient electrical grid capacity to accommodate the added electrical load needed to electrify existing 1146.2 emission sources, precluding these sources from increasing their grid demand to accommodate the electrification of their 1146.2 equipment. This critical oversight must be accounted for in any EMISSION INVENTORY analysis either through the inclusion of individually reported demand from inventoried facilities and/or grid demand capacity for substation localities via the U.S Energy Information Administration¹.
 - b. of the **EMISSION INVENTORY**, there requires a determination of Technology Readiness Level of the proposed zero NOx heat pump technology. While generating sub 180F hot water via heat pump technology is available, heat pump generation of higher temperature water does not exist. Indeed, the staff report acknowledges that the zero-emission technology is “continuing to develop”² citing a public relations article about AtmosZero doing a “pilot study” at New Belgium Brewing³. A pilot study is anything but a product that is available or deployable on the scale of PAR 1146.2.
2. The **EMISSION REDUCTIONS** must include the analysis of electrical grid heat rate – the average BTU/kw-hr of the electricity supplied via the electrical grid in order accurately to determine NOx reductions. 4-2
 - a. Whereas electrical generation in the spring, winter and fall afternoon hours is largely zero carbon and zero NOx, the afternoon and early night electrical generation supplying the electrical grid is anything but zero NOx. Until the electrical grid in Southern California is supplied solely by solar or other zero carbon means, zero emission water heating or steam production is a fallacy exactly counterintuitive to the proposed goals of the AQMD outlined in PAR 1146.2.
3. The PAR1146.2 staff report on **COST-EFFECTIVENESS** should include analysis of specific 1146.2 installations instead of fictional scenarios presented. 4-3
 - a. The **INCREMENTAL COST-EFFECTIVENESS of Electrical Panel Upgrade Cost** on Page 2-14 of the Staff Report “panel upgrade cost estimate of \$5,000”⁴ should be

¹ U.S.E.I.A

https://www.eia.gov/about/copyrights_reuse.php

² Preliminary Draft Staff Report PAR 1146.2 Presentation

<https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/rule-1146-1146.1-and-1146.2/par-1146-2-preliminary-draft-staff-report-january-2024.pdf?sfvrsn=19>

³ Atmos

Zero, New Belgium Brewing

<https://www.craftbrewingbusiness.com/featured/new-belgium-brewing-continues-to-embrace-clean-tech-works-with-atmoszero-on-first-of-its-kind-electrified-boiler/>

⁴ Preliminary Draft Staff Report PAR 1146.2 (Pg. 2-14)

- reviewed and confirmed by a third party as it is far more likely to be the cost of getting an estimate for an electrical panel upgrade than the actual panel upgrade itself. A 600amp panel for the electrification of a 2mmbtu/hour steam boiler will be between \$50,000 to as much as \$200,000, depending on if there's utility service available AND the costs of the utility line/transformer upgrade. This possible deviation from 2022 AQMP estimates must be concretely falsified before any implementation of PAR 1146.2.
- b. The AQMD 2022 Air Quality Management Plan (Dec 2, 2022) states the following – page 8-17:
 - i. "...many buildings will likely need additional electrical panel upgrades and other infrastructure to support the increased electrical load needed to power the replacement appliances. These infrastructure upgrades can be far more costly than the cost of replacing gas appliances."⁵
 - c. PAR 1146.2 staff report fails to include the cost associated with utility charges for upgraded service. Assuming the local utility grid has capacity, the upgrade from the line transformer to the newly upgraded panel could be more than the newly powered equipment and the electrical panel upgrade combined.

Cont'd
4-3

- 4. Any **Incremental Cost Effectiveness Equation, Energy Input Method** must include theoretical Coefficient of Performance (COP).
 - a. The theoretical COP of a heat pump serves as a check of heat pump manufacturers advertised COP – as any advertised COP cannot exceed that of theoretical as dictated by the temperature of the cold and hot heat sinks. (The pilot study of AtmosZero COP of 329F steam given sub-zero heat supply cannot exceed 2.39)⁶
 - b. **Incremental Cost Effectiveness** calculation as presented in PAR 1146.2 is incomplete in that the stated COP relies solely on that provided by vendors rather than actual temperature and mass flow of all hot water and boiler demand scenarios.

4-4

Discussion:

4-5

California needs three times more power capacity to reach 100% clean energy by 2045. An initial analysis suggests the goal is technically feasible but only with a sustained high pace of construction: 6 GW annually for the next 25 years⁷. PAR 1146.2 imposes significant complications toward that goal as the electrification of 1146.2 sources adds to a significantly overloaded Southern California electric grid. Concurrently, the electrification of the transportation sector has exposed the severe shortage of electrical transmission.

<https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/rule-1146-1146.1-and-1146.2/par-1146-2-preliminary-draft-staff-report-january-2024.pdf?sfvrsn=19>

⁵ The AQMD 2022 Air Quality Management Plan. Dec 2, 2022 (pg. 8-17)

<https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/final-2022-aqmp.pdf?sfvrsn=16>

⁶ Ibid: AtmosZero, New Belgium Brewing

⁷ CalMatters Race to Zero (pt. 1)

<https://calmatters.org/environment/2023/01/california-electric-cars-grid/#:~:text=California's%20target%20to%20build%20at,gigawatt%20of%20wind%20per%20year.>

The requirement of electrifying 1146.2 sources is conceived in ignorance of the State's clean energy plan, in that the additional load on the grid falls within the same time frame where Southern California utilities grid demand approaches that of available supply⁸. The electrification of the heavy truck transportation sector alone doubles the existing grid demand of 60 gigawatts.

Cont'd
4-5

I recognize that the AQMD has no interest in facilitating the State's clean energy goals, however efforts to reduce NOx emissions via electrification of 1146.2 sources irrefutably depends on electricity being available and cheap, both of which are unreasonable assumptions.

Where does Electricity come from: As stated earlier, PAR1146.2 incorrectly assumes that the electrification of 1146.2 sources is zero carbon. Assuming the latest SCE electrical heat rate of 8000btu/kw-hr alongside the location of these incremental fossil fueled peaker plants within AQMD jurisdiction AND that such peaker plants have an emission rate of 2.5ppm corrected to 15% O₂, *the electrification mandated by PAR 1146.2 may actually increase basin NOx emissions.*

Conclusion:

Should the AQMD fail to consider these critical oversights and implement PAR1164.2 without significantly greater adherence to: 1) the reality of rapidly approaching grid overload in the State of California, 2) in-depth facility-level costs for Types 1 & 2 Boiler and Pool Heater electrification *beyond abstraction*, and 3) emissions sourcing and generation coincident to boiler and pool heater electrification on the scale of PAR 1146.2; electrical infrastructure, industrial function, carbon emissions and, most counterintuitively, *even the NOx emissions targeted by the proposed regulation* may be irreversibly worsened.

In support for the well-being of residents and businesses in southern and greater California AND our necessary commitment to reducing toxic and greenhouse gas emissions BAE implores that these comments be taken into consideration before implementation of the potentially harmful and dangerous PAR 1146.2.

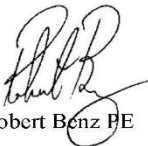
Thanks

Robert Benz PE

Benz Air Engineering Co.

Phone: 209-602-1019

Email: robert@benzair.com


Robert Benz PE



⁸ California ISO

<https://www.caiso.com/TodaysOutlook/Pages/demand.html>

RESPONSE TO COMMENT LETTER #4

Response to Comment 4-1:

Staff appreciates BAE's comments on PAR 1146.2. Staff recognizes the importance of electric grid reliability for electric units, but also for natural gas units, which often require electricity to operate. The CEC, CPUC, and CARB are working to coordinate efforts, identify issues not covered by ongoing efforts, and assess needed actions to better align the energy system with the state's climate targets. The CEC adopts an IEPR every two years and an update every other year, and the 2022 IEPR has recognized the proposed zero-emission requirements for residential and commercial buildings in California and included recommendations and updates to the energy demand forecast. Furthermore, CAISO is planning billions of dollars in transmission capacity projects over the next 20 years, and the 20-Year Transmission Outlook document from May 2022 considers transmission needs to meet load and renewable energy growth aligned with state policy. In 2021, the CPUC created new programs and modified existing programs to reduce energy demand and increase energy supply during critical hours of the day. Per Senate Bill 350 (De León, 2015), the CPUC developed an integrated resource planning process to ensure California's electric sector meets its greenhouse gas reduction goals while maintaining reliability at the lowest possible costs. On the utility level, according to SCE's 2021 Sustainability Report, SCE is expected to invest significantly in the electric grid, including energy storage. SCE also expected increases in Distributed Energy Resources such as solar.

There are products existing and emerging in the market that can meet the high-water temperature demand. For example, an internet search of examples of units sold or installed in U.S. or Southern California with focus on high water temperatures found products providing water temperature between 160- and 248-degrees Fahrenheit, with waste heat recycling systems capable of achieving up to 248 degrees Fahrenheit. Staff recognizes that for steam, heat pump technology may not be viable in the market yet, and for certain industrial processes, heat pump technology is not as mature. As part of the BARCT assessment, including discussions with manufacturers, staff determined that a temperature threshold was necessary to provide more time for the zero-emission technology market to mature for high temperature applications. As discussed above, zero-emission technologies for providing water temperatures up to 180 degrees Fahrenheit are available. Further discussion in a later section indicates that California Plumbing Code hot water temperature requirements are also up to 180 degrees Fahrenheit. Staff is proposing a temperature threshold of 180 degrees Fahrenheit for special consideration on high temperature applications with further implementation dates. Staff intends to conduct a status update /technology check-in prior to the proposed implementation dates for high temperature units to gather information on changes in technology development and availability.

Response to Comment 4-2:

Rule 1146.2 regulates the emission levels of the water heater, boiler, or process heaters themselves and does not include a lifecycle analysis of the emissions generated when producing the fuel needed to power the units. That is how BARCT assessments are conducted, and it is the same regardless of if the units are powered by natural gas, hydrogen, electricity, etc. Emissions generated during the production of natural gas,

hydrogen, or electricity are controlled by other South Coast AQMD regulations. The goal of the proposed amended rule is zero NO_x emissions at the unit level. Staff does not claim the generation of electricity produces zero NO_x emissions.

Please see Response to Comment PW-1 for more details on emissions from the electric and natural gas systems.

Response to Comment 4-3:

The cost-effectiveness analysis for PAR 1146.2 includes case studies recommended by manufacturers and installers. The capital costs were sourced from internet searches and manufacturer information, and more discussion on the data sources can be found in Chapter 2 of this staff report. The cost-effectiveness analysis relied on the panel upgrade cost estimate of \$5,000 from the 2022 AQMP and considered a unit age of 30 years for the panel. However, the cost of an electrical panel upgrade was adjusted to account for this longer unit age of the electrical panel versus the unit. For some categories involving residential units, the panel cost was split between residential appliances. Electrical panel upgrades will not be required for all instances where conventional units are replaced with zero-emission units, so staff assessed the cost-effectiveness with and without the estimated cost of the upgrades.

Staff consulted contractors for utility line/transformer upgrade and understands this type of upgrade may be required but is not commonly required. Upgrades on the utility side of the meter is utility company's responsibility, but consumers do bear most of the cost. PAR 1146.2 was updated to include alternative compliance options to address utility upgrade and emergency replacement concerns that allow additional time if needed. Staff will monitor the cost impact and include it in the status update/technology check-in by June 1, 2027.

In addition to options under Rule 1146.2, the South Coast AQMD has several NO_x rules for boilers and heaters, based on their rated heat input. Over the years, many facilities opted to install [many multiple](#) small water heaters or boilers subject to Rule 1146.2 for a variety of reasons including costs, flexibility, no permit requirements, etc. Facilities will maintain this flexibility and if the estimated cost of installing a zero-emission unit less than 2 MMBtu/hour is too high, the facility can opt to install a larger unit regulated by Rule 1146 or Rule 1146.1 that allows for low-NO_x units that would not require a utility upgrade. Those rules have lower NO_x limits than Rule 1146.2 so emission reductions would still be achieved if facilities opted for that approach, though it would be speculative to estimate the emissions impact on such business decisions.

Response to Comment 4-4:

Staff acknowledges that the heat pump product energy efficiency measure, COP, is an industry standard, and that the COP of heat pump products varies between 3.0 and 6.0 or more depending on the product. There will be case-by-case differences between different

installations. For the analysis, staff made assumptions, disclosed those assumptions, discussed them in public meetings, and sought and considered stakeholder input.

Response to Comment 4-5:

Regarding electric grid capacity and supply, please see Response to Comment 4-1 which provides staff response to a similar comment and Chapter 2 in this staff report for further discussion.

Regarding the lifecycle emissions from electric generation, please see Response to Comment PW-1. Nevertheless, staff has reviewed the calculations provided by the commenter through email communication and recognizes that several inaccurate assumptions were made by the commenter: a lower NOx emission by gas-fired units (10 ppm) than the current Rule 1146.2 limit (20 ppm); that 100 percent of electricity comes from natural gas power plants using the highest emission limit, when 24.7 percent of electricity in SCE comes from natural gas; that an electric boiler would replace the gas-fired unit, rather than a heat pump which is at least three times more efficient. The lifecycle emission should be much lower than the commenter's estimate.

COMMENT LETTER #5

From: Brian <brian@calhot.com>
Sent: Monday, February 19, 2024 12:51 PM
To: Heather Farr <hfarr@aqmd.gov>
Subject: [EXTERNAL] Rule 1146.2 proposed changes

I understand the want for new buildings to be equipped with heat pumps. Retrofitting an existing building is going to be a bigger endeavor than you may think. In Rule 1146.2 when changing out the standard atmospheric equipment for Low NOx equipment you were changing a gas box that used the same power requirements for another box that was about a foot longer and the storage tank stayed the same size. In changing a gas water heater to heat pump that box is being replaced by a number of slightly smaller boxes. That is not the problem, the amount of storage required for the heat pumps is the problem. 5-1

The roof or the building was designed for 500 gallons of water now has to be upgraded to handle 2,000 to 4,000 gallons of water. The structural for the roof in most apartment buildings will need to be reinforced to handle the additional weight of the storage tanks and the water they hold. 5-2

The power to the building will need to be upgraded to handle the current that the heat pumps require. Again you are not changing out one or two boxes for the gas box that uses 120V you are going to need to supply 240V to 10 or more units. The line entering the building is about as thick as your thumb for the gas, the power wires needed to enter the building will need to be about as thick as your wrist. This upgrade in power will be expensive, some of it will have to wait as the power grid in the area is upgraded to supply the needed power. Until the power company has the infrastructure to power the heat pumps, your rule can not be enacted. 5-3

For buildings that have the equipment rooms inside the building, the boilers use one square inch for every 4,000 BTUs of fresh air for combustion and for ventilation. A million BTU boiler will need two screened opening to the room two (2) feet by two (2) feet. Each heat pump will need an opening about five (5) feet by eight (8) feet and to replace the million BTU heater you will need about eight (8) of the units. 5-4

Most installations are going to close the business for a time, my guess is 3 to 9 months to do the upgrades and set up the equipment. In the case of a Hotel, Motel, Restaurant, coin laundry, and apartment complex they will need to close. Many of the companies will not be able to afford the millions of dollars required in your change out to handle the added weights and power requirements of the equipment. 5-5

For apartment dwellers, they will need to move out and find another place to live, the good news is that in LA that landlord has to pay each lease \$12,000 to move. Rents will increase, to pay for the moving costs, the lost rents while the building is retrofitted, and the cost of the equipment and labor to do the work. Condo owners will have to move out, pay mortgage, pay rent, and pay their part in the cost of the equipment and upgrades to make the equipment work.

With the replacement of Gas BTU to Electric KW we are going to need to add about 293 KW for each Million BTUs you eliminate. We don't have the power production capacity to meet the needs. Before you say renewable sources, they turned off all fossil fueled sources and we had less than 7 minutes of renewable power. It was actually around 5 seconds but I am guessing that after a year it may have increased up to 40% new sources. There was talk about building a power plant in Arizona to power Los Angeles. But what would stop that local Air Quality Board from passing a rule that forbids plants that export power or taxes / fines them excessively? Is the SCAQMD going to allow new gas powered power plants in the SCAQMD area? Other wise we are going to have to ration power. Only charge your electric car on even or odd days according to your address?

5-6

We sell Heat Pumps. But as I said the problem is three fold, not sufficient power or infrastructure, the amount of water and the weight needed for a heat pump to work, and the closing of businesses and residents to make the switch from BTU to KW that will result in an increase in the costs of Housing, lodging, food, laundry, and as those go up associated business will raise their prices.

Brian McDonald

Sales

o 310.725.5144

c 424-391-0833

e Brian@calhot.com

15705 Condon Ave #D-2

Lawndale Ca 90260

www.calhot.com



RESPONSE TO COMMENT LETTER #5**Response to Comment 5-1:**

Staff appreciates the comments on PAR 1146.2. Regarding the required space for zero-emission equipment, please refer to Response to Comment PW-2.

Response to Comment 5-2:

Staff recognizes that there may be some roof installations, and that there may be options for installations in other locations for those cases. Staff also acknowledges that some stakeholder's case studies have oversized the heat pump replacement, overestimating the number or the capacity of heat pumps and storage tanks, thus taking up more space. For oversized units and the need for multiple units, facilities have the ability to install a larger unit that complies with Rules 1146 and 1146.1. For a further discussion, please see Response to Comment 4-3.

Response to Comment 5-3:

Regarding electrical upgrade and associated cost impact, please see Response to Comment 4-3. Existing buildings may have more challenges than new buildings to replace gas-fired units, so staff included alternative compliance options to address utility upgrade and emergency replacement concerns and later implementation dates to give more time for units in existing buildings to be replaced. In addition, staff included an additional 20 percent to the cost of each unit to address installation and other potential additional costs. As stated in Chapter 2 of this staff report, for some units this may be an overestimate, for some it may be an underestimate so applying the additional costs to all units, estimated to be approximately 1.07 million units, is a conservative assumption. Further, as heat pump installations become more commercially available and common, the installation costs are anticipated to be comparable to installation costs for conventional units. In addition, staff included costs for electrical panel upgrades. Staff will evaluate the electrical upgrade and associated cost impact and include it in the status update/technology check-in by June 1, 2027.

Response to Comment 5-4:

Please see Response to Comment 5-1.

Response to Comment 5-5:

Staff understands the concern and added paragraph (i)(4) to provide an alternative compliance option for emergency replacement when an electrical upgrade for more power supply capacity is required to comply with zero-emission limits. This allows the use of a temporary unit that complies with Table 1 emission limits (20 ppmv NOx/400 ppmv CO) for up to six months. Staff visited several commercial locations, and more details are included in Response to Comment 1-1. Staff discussed the installation efforts with the

commercial businesses and stakeholders and have not heard of any facility shutdowns required.

Staff gathered cost data for various types of units for the cost-effectiveness analysis described in Chapter 2 of this report. Heat pumps are the primary zero-emission technology. The analysis accounted for higher equipment and installation cost, operational cost of switching from gas to electricity, and electrical upgrade cost for some cases. Although the analysis determined that it is cost-effective for most of the equipment categories to implement zero-emission, staff understands the challenge of higher upfront costs. Staff also recognizes that many residents live in tenant-occupied multifamily homes, and that increases in rent may be attributed to factors other than zero-emission water heater replacements. Staff also recognizes that PAR 1146.2 would require unit replacement at end of unit age, which means that the analysis should consider incremental cost. Staff is developing a rebate program to help lower the cost for some consumers and centralizing information for incentive and financing opportunities offered by other agencies and organizations. Further, as zero-emission technologies become more mature and more widely adopted in the market in the future, there will be less cost impact.

Response to Comment 5-6:

Staff recognizes the importance of electric grid reliability for electric units, but also for natural gas units, which often require electricity to operate. The CEC, CPUC, and CARB are working to coordinate across efforts, identify issues not covered by ongoing efforts, and assess needed actions to better align the energy system with the state's climate targets. The CEC adopts an IEPR every two years and an update every other year, and the 2022 IEPR has recognized the proposed zero-emission requirements for residential and commercial buildings in California and included recommendations and updates to the energy demand forecast. Furthermore, CAISO is planning billions in dollars in transmission capacity projects over the next 20 years, and the 20-Year Transmission Outlook document from May 2022 considers transmission needs to meet load and renewable energy growth aligned with state policy. In 2021, the CPUC created new programs and modified existing programs to reduce energy demand and increase energy supply during critical hours of the day. Per Senate Bill 350 (De León, 2015), the CPUC developed an integrated resource planning process to ensure that California's electric sector meets its greenhouse gas reduction goals while maintaining reliability at the lowest possible costs. On the utility level, according to SCE's 2021 Sustainability Report, SCE is expected to invest significantly in the electric grid, including energy storage. SCE also expected increases in Distributed Energy Resources such as solar. In 2021, according to the CEC, renewable generation accounted for 33.6 percent of the total California Power Mix, not including solar photovoltaic systems installed on residential and commercial buildings that are less than one MW as they are typically considered distributed generation and not required to report to CEC. The California Power Mix is the percentage of specified fuel types derived from the California Energy Mix, and the California Energy Mix is the total in-state electric generation plus energy imports. There is expected to be more renewables adoption by states in the future, and California Senate Bill 100 called for a Renewables Portfolio Standard of 60 percent by 2030. Electricity imports account for

approximately 30 percent of total system electric generation, with other states pursuing Renewable Portfolio Standards and state energy goals.

COMMENT LETTER #6

From: Anna Haney <acecleanerssantaclarita@gmail.com>
Sent: Tuesday, February 20, 2024 2:12 PM
To: Emily Yen <eyen@aqmd.gov>
Subject: [EXTERNAL] Proposed Amended Rule 1146.2 comments

Hi!

Hope you're doing well. I just wanted to send a comment in regards to the proposal amended rule for 11 46.2. This rule would have a detrimental impact to our business as the cost of replacing our current equipment would be financially unsustainable, and would possibly cause us to close our doors. Please take into consideration the smaller businesses when proposing such a widespread change . 6-1

A major concern of mine is not only the price of the equipment, but the cost of operations. As well as the impact this will have on the electrical grid. We are already facing power, shut, offs, and possible rolling blackouts in during the summer and winter months. Such shut off, would be catastrophic to our business if we become reliant entirely on electricity.

Thank you ,
Anna
Sent from my iPhone

RESPONSE TO COMMENT LETTER #6

Response to Comment 6-1:

Staff appreciates the comment on PAR 1146.2 and recognizes the concerns of small businesses. Staff gathered cost data for various types of units for the cost-effectiveness analysis described in Chapter 2 of this report. Heat pumps are the primary zero-emission technology. The analysis has accounted for higher equipment and installation costs, operational cost of switching from gas to electricity, and electrical upgrade cost for some cases. Although the analysis determined that it is cost-effective for most of the equipment categories to implement zero-emission, staff understands the challenge of higher upfront costs. Staff is in the process of developing a rebate program to help lower the cost for some consumers and centralizing information for incentive and financing opportunities offered by other agencies and organizations. There are some federal and state incentives for zero-emission commercial appliances including Section 179D of the Internal Revenue Code, which allows deductions for energy-efficient commercial buildings, including new or existing buildings.⁶⁸ The Inflation Reduction Act extended and expanded these tax deductions.⁶⁹ TECH Clean California launched more state-wide incentives for multifamily and commercial water heating in 2023.⁷⁰ There are also utility incentives for appliances in commercial buildings, including SCE's Willdan Commercial Energy Efficiency Program, which incentivizes replacement of an existing electric resistance or gas-fired water heater with a packaged heat pump water heater.⁷¹ GoGreen Financing also provides loan financing options.⁷² Further, as zero-emission technologies become more mature and more widely adopted in the market in the future, there will be less cost impact. To address further concerns, PAR 1146.2 provides alternative compliance options to address specific concerns including emergency replacement, utility upgrades, construction, replacement of more than four units with in-the-same consecutive compliance years, properties under lease, and other cases. There is also an exemption for small businesses from the unit age requirement, so that small businesses are not subject to the zero-emission requirements at the end of unit age. They can operate their equipment beyond the unit age, replace them at natural turn-over or break down, and are subject to zero-emission requirements if the replacement is on and after Table 3 zero-emission compliance dates.

Regarding electric grid reliability, please refer to Response to Comment 4-1.

⁶⁸ U.S. Department of Energy, 179D Commercial Buildings Energy-Efficiency Tax Deduction, <https://www.energy.gov/eere/buildings/179d-commercial-buildings-energy-efficiency-tax-deduction>

⁶⁹ IRS, Inflation Reduction Act of 2022, <https://www.irs.gov/inflation-reduction-act-of-2022>

⁷⁰ TECH Clean California, Incentives, <https://techcleanca.com/incentives/multifamily-information/>

⁷¹ Willdan Commercial Energy Efficiency Program, <https://willdanefficiency.com/commercial/>

⁷² GoGreen Financing, <https://www.gogreenfinancing.com/>

COMMENT LETTER #7

2311 Wilson Boulevard Suite 400 Arlington VA 22201 USA
Phone 703 524 8800 | Fax 703 562 1942
www.ahrinet.org

March 1, 2024

Emily Yen
Planning, Rule Development, and Implementation
South Coast Air Quality Management District (SCAQMD)
21865 Copley Drive, Diamond Bar, CA 91765
(Submitted via email to: eyen@aqmd.gov)

Re: Proposed Amended Rule 1146.2. Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters

Dear Ms. Yen:

AHRI appreciates the opportunity to submit comments on SCAQMD's updated Proposed Amended Rule 1146.2 (PAR 1146.2) regarding "Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters" posted to AQMD's docket on February 20, 2024¹.

Background on AHRI

AHRI represents more than 330 manufacturers of heating, ventilation, air conditioning, commercial refrigeration (HVACR) and water heating equipment. It is an internationally recognized advocate for the HVACR and water heating industry and certifies the performance of many of the products manufactured by its members. In North America, the annual economic activity resulting from the HVACR industry is more than \$211 billion. In the United States alone, AHRI member companies, along with distributors, contractors, and technicians employ more than 704,000 people.

Introduction

AHRI and its members have reviewed the updated PAR 1146.2 and understand that its purpose is to obtain further NO_x emission reductions and to implement the 2022 Air Quality Management Plan (AQMP) Control Measure C-CMB-01-Emission Reductions from Replacement with Zero

¹ Proposed Amended Rule 1146.2 (aqmd.gov); <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/rule-1146-1146.1-and-1146.2/par-1146-2-draft-rule-language-february-2024.pdf?sfvrsn=6>.

Emission or Low NOx Appliances – Commercial Water Heating (Control Measure C-CMB-01).

AHRI and its members support many of the changes in the updated PAR 1146.2. However, AHRI and its members have additional concerns and request that SCAQMD consider our comments herein.

General Comments

1. BARCT Assessment

7-1

AHRI and its members understand that the purpose of a BARCT assessment is to establish emission limits for specific equipment categories consistent with state law and is defined as: “an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source.”² AHRI and its members have the following comments with regards to several steps in this approach.

a. Equipment Categories

In the Preliminary Draft Staff Report PAR 1146. 2³ (Staff Report), Table 2-1, the “Type 1 High Temperature Unit” refers to “Type 1 units that are high temperature units, which are units used to produce steam or to heat water above 190 degrees Fahrenheit.” AHRI and its members are pleased to see that in the updated PAR 1146.2, SCAQMD has now set the limit at 180 degrees Fahrenheit for water heaters.

While AHRI and its members would prefer the clarity given in the Working Group 4 proposal, which highlighted boilers and process heaters instead of “High Temperature Units,” we support the compromise decision to adopt a limit of 180 degrees rather than 190 degrees. This decision will align the PAR with the American Society of Mechanical Engineers (ASME) thresholds that impact storage water heaters, which is 180°F.⁴ Therefore, while aligning to DOE classifications for boilers and process heaters is preferred, it is more reasonable to define the limit at 180 degrees instead of 190 degrees as it will harmonize with existing standards.

AHRI and its members appreciate that SCAQMD staff “intends to conduct a technology assessment prior to the proposed implementation dates for high temperature units to gather information on changes in technology development

² CA Health and Safety Code Section 40406.

³ <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/rule-1146-1146.1-and-1146.2/par-1146-2-preliminary-draft-staff-report-january-2024.pdf?sfvrsn=19>; <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/rule-1146-1146.1-and-1146.2/par-1146-2-preliminary-draft-staff-report-january-2024.pdf?sfvrsn=19>.

⁴ <https://www.asme.org/codes-standards>.

and availability”⁵ as this endeavor will be instrumental in ensuring that key technologies required to carry out this rule are both commercially available and economically justified. AHRI looks forward to participating in those discussions. Additionally, AHRI and its members support the proposal to bifurcate the instantaneous water heater category. The bifurcation of this product class brings this PAR into alignment with the U.S. Department of Energy (DOE) classification of the residential and commercial sizes of these products. Alignment of state regulations with federal product classifications is paramount to reducing regulatory burden as manufacturers design and build their products based off the DOE classification.

Cont'd
7-1

b. Economic Impacts

The BARCT assessment must also look at economic impacts and the Staff Report states that “major components of the cost-effectiveness analysis are capital costs, emission reductions, discount rate, and equipment useful age” and provides equations to explain its reasoning. However, AHRI members have questions and concerns about this approach.

Although AHRI and its members recognize and appreciate that SCAQMD staff make extensive changes in this area in the updated PAR 1146.2, we still have concerns about whether the Cost Effectiveness Analysis provides a proper threshold and whether it provides sufficient transparency in its data sources or cost justifications.

Furthermore, SCAQMD has created a “cost-effectiveness screening threshold” that essentially has no enforcement mechanism (please also see our comments in the “Screening Threshold” section below).

2. Support for Exemptions

7-2

AHRI and its members are pleased to see that SCAQMD restored the Low Use Exemption in the updated PAR 1146.2. We believe this is important because the underlying issue allows for the use of emergency backup. For example, during a power outage, gas equipment could run on a generator backup, but it is unlikely any heat pump or electric resistance equipment could. We have not yet, however, had an opportunity to evaluate other updates in this section, such as the change from 9000 therms to 3000 therms. Therefore, AHRI and its members support this but acknowledge that certain aspects of the new proposals may need further consideration or refinement. Additionally, AHRI is supportive of SCAQMD creating an exemption acknowledging the difficulties surrounding mobile homes. We acknowledge that this conversation stemmed out of the working group meetings for PAR 1111/1121⁶ for furnaces and water heaters and hope that this exemption is carried through in that PAR as well.

⁵ <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/rule-1146-1146.1-and-1146.2/par-1146-2-preliminary-draft-staff-report-january-2024.pdf?sfvrsn=19>; <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/rule-1146-1146.1-and-1146.2/par-1146-2-preliminary-draft-staff-report-january-2024.pdf?sfvrsn=19>.

⁶ Control of Nitrogen Oxides from Residential Type, Natural Gas-Fired Water Heaters.

3. Support for Harmonization with Other Agencies

7-3

To avoid adding unnecessary extra burden on manufacturers, AHRI and its members applaud SCAQMD's efforts to align compliance dates with other agencies such as the California Energy Commission (CEC) and the Department of Energy (DOE) in its updated PAR 1146.2 and ask that the agency continue this effort wherever feasible. For example, AHRI appreciates that SCAQMD aligns its phase 1 new construction timelines with CEC Title 24 Energy Code cycles. The 2025 CEC Energy Code is currently under development and is expected to be adopted by January 1, 2025. The code is not expected to take effect until January 1, 2026. The 2025 version of Title 24 will have a large emphasis on heat pump so alignment with the code provides a cohesive effective date for the market to transition over.

SCAQMD should align with state energy code cycles and Department of Energy (DOE) rulemakings. AHRI and its members also recommend keeping the proposed four-year gap between new construction and existing construction compliance dates.

4. Screening Threshold

7-4

SCAQMD has created a "cost-effectiveness screening threshold" that essentially has no enforcement mechanism. The staff report states that,

The 2022 AQMP established a cost-effectiveness screening threshold of \$325,000 per ton of NO_x reduced based on 2021 dollars. The 2022 AQMP stated that this screening threshold will be adjusted based on the annual California Consumer Price Index (CPI). PAR 1146.2 currently considers a \$349,000 per ton of NO_x reduced cost-effectiveness screening threshold using 2022 dollar-figures. The 2022 AQMP threshold is neither considered a starting point for control costs, nor an absolute cap.⁷

AHRI and its members also recommend that SCAQMD enforce this limit as a cap. We also recommend that the cost-effectiveness calculations be done without any TECH Clean California incentives.⁸

5. Labeling Requirement

7-5

The updated PAR 1146.2 SCAQMD is proposing a labeling requirement under the new Subdivision (j) for the period between the new building compliance date and the existing building compliance date of an equipment category. AHRI and its members do not support this proposal.

⁷ <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/rule-1146-1146.1-and-1146.2/par-1146-2-preliminary-draft-staff-report-january-2024.pdf?sfvrsn=19>.

⁸ <https://techcleanca.com/>.

This information is already available to building inspectors and managers in several forms. SCAQMD currently operates a compliance database with product listings for all compliant products, the acceptable installation cases can be added to that database with limited impact to manufacturers production lines.⁹

Cont'd
7-5

Furthermore, given that a 0 NOx limit would effectively ban gas installation, inspectors can easily verify compliance simply by confirming the fuel source of the appliance without the need for labels.

Lastly, in reference to PAR 1146.2, Subdivision (j)(1) "Labeling and Reporting Requirement," Table 4, (below) AHRI and its members do not understand the rationale for requiring units shipped prior to all Table 3 compliance dates to be marked "For Installation and Use in Existing Buildings Only." We would expect this marking to be applicable to units supplied or offered for sale on or after the start date and before the end dates in Table 4.

PAR 1146.2, Subdivision (j)(1) Labeling and Reporting Requirement, Table 4 – Labeling Schedule

Unit's Compliance Schedule	Labeling Requirements	
	Start Date	End Date
Phase I	January 1, 2026	January 1, 2029
Phase II	January 1, 2028	January 1, 2031
Phase III	January 1, 2029	January 1, 2033

For these reasons, we ask SCAQMD to remove this labeling requirement proposal, as it is unnecessary and would be expensive and burdensome for manufacturers.

6. Alternate Compliance Pathways

7-6

AHRI supports SCAQMD's addition of the Section (i) for Alternative Compliance Options. The addition of a section to account for delays caused by utilities will be instrumental in ensuring a smooth transition to 0 NOx without affecting services to a building. However, given that this rule will be phasing out the ability to sell these products into the district, AHRI would recommend that SCAQMD staff review and understand what the availability of ultra-low NOx gas fired products will be in the state that can be used as a temporary unit while a building is awaiting a service upgrade. While there could be options available at the onset of this rule, in 15-25 years, the available stock may be limited when the last of these products are being transitioned.

7. Need for Broader Stakeholder Engagement

7-7

While we appreciate SCAQMD's stakeholder engagement efforts, we urge the agency to

⁹ <https://www.aqmd.gov/home/rules-compliance/rules/support-documents/rule-1146-2-details>

continue to work with key affected sectors of the regulated community including engagement with installers and end users such as building owners to ensure any unknown issues or consequences are identified.

Cont'd
7-7

Conclusion

AHRI and its members appreciate SCAQMD's stakeholder engagement efforts towards this goal and have been attending meetings and workshops. AHRI and its members additionally look forward to collaborating with SCAQMD to achieve policy solutions that are practical, economical, and technologically feasible.

Thank you for allowing us to provide comments to SCAQMD on the updated Proposed Amended Rule 1146.2 regarding "Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters."

Please feel free to contact us directly if you have questions or need additional information.

Sincerely,



Stacy Tatman, MS, JD
AHRI Senior Director, Regulatory Affairs
Email: statman@ahrinet.org

RESPONSE TO COMMENT LETTER #7

Response to Comment 7-1:

Staff appreciates AHRI's comment on PAR 1146.2. Staff is proposing a temperature threshold of 180 degrees Fahrenheit for special consideration on high temperature applications with further implementation dates. Staff intends to conduct a technology assessment prior to the proposed implementation dates for high temperature units to gather information on changes in technology development and availability. Staff has also separated instantaneous water heaters into two categories by rated heat input capacities and appreciates the comment on this subject.

Staff gathered cost data for various types of units for the cost-effectiveness analysis described in Chapter 2 of this report, which were discussed with the Working Group throughout the rule development process. The analysis accounted for higher equipment and installation costs, operational cost of switching from gas to electricity, and electrical upgrade cost. Although the analysis determined that it is cost-effective for most of the equipment categories to implement zero-emission, staff understands the challenge of higher upfront costs. During the rule development process, staff strives to maximize emission reductions while considering cost-effectiveness. The cost-effectiveness threshold is neither considered a starting point or absolute cap for control costs, nor an enforcement tool. Instead, it provides a guide during rule development to identify cost-effective control options to present to the Governing Board for consideration during the Public Hearing. Staff is committed to identifying and proposing the cost-effective control options, but this cannot be done at the expense of foregoing emission reductions necessary for regional air quality attainment, especially given the magnitude of the emission reductions needed to meet the ozone standards.

Response to Comment 7-2:

Staff recognizes the importance of electric grid reliability for electric units, but also for natural gas units, which often require electricity to operate. The proposed new low-use exemption could be a transitional option for the implementation of zero-emission. Since the Public Consultation Meeting, staff has refined the proposal and divided the low-use threshold to two tiers based on unit size. Regarding zero-emission implementation in existing mobile homes, the proposed alternative compliance option is to provide more time for mobile home with instantaneous water heaters, during which time a natural gas fired instantaneous water heaters meeting the Table 2 emission limits can be installed.

Response to Comment 7-3:

Staff agreed with the commenter and extended the Phase I compliance date for new buildings by one year, from 2025 to 2026, to better align with the CEC Building Code effective date. Staff does not see a compelling reason to extend existing building compliance dates to keep the initially proposed four-year gap between new and existing building compliance dates.

Response to Comment 7-4:

Health and Safety Code 40920.6 requires the South Coast AQMD to consider cost-effectiveness as a factor in the rule process to adopt a control option as BARCT. The 2022 AQMP cost-effectiveness threshold provides a guide or reference for the cost-effectiveness analysis, which staff and the Governing Board consider when proposing and adopting BARCT emission limits. The cost-effectiveness threshold is not a hard cap and is not intended as an enforcement mechanism. Staff is committed to identifying and proposing cost-effective control/compliance options, while striving to achieve the emission reductions necessary for regional air quality attainment, especially given the magnitude of the emission reductions needed to meet the ozone standards. Cost-effectiveness is an important basis for the proposed implementation schedule. PAR 1146.2 proposes a later implementation for equipment categories that are less cost-effective.

Staff presented various incentive and financing opportunities (e.g., TECH Clean California incentives) that could lower the costs. However, for the cost-effectiveness calculations, staff did not include the incentives to mitigate the costs.

Response to Comment 7-5:

PAR 1146.2 is proposing a labeling requirement under the new subdivision (j) for the period when a gas unit can be installed in some applications and not in others. Table 4 start dates are the zero-emission implementation dates for installations in new buildings, and Table 4 end dates are the zero-emission implementation dates for installations in existing buildings. The period between start and end dates is when gas units can be installed in existing buildings but not in new buildings, which is the message the required label pursuant to paragraph (j)(1) would convey. Paragraph (j)(2) requires labeling for instantaneous water heaters rated less than or equal to 200 kBtu/hr installed in mobile homes during the period when natural gas fired instantaneous water heaters can replace the existing instantaneous water heaters in mobile homes but cannot be installed in other applications. Labeling requirements were previously proposed during the rulemaking process and then removed after stakeholder meetings. However, concerns were raised over enforcement during these in-between periods in the absence of labeling. Staff recognizes the need for labeling requirements to differentiate the units allowed to be installed in new and existing buildings. Please also see Response to Comment PC-9 for more details.

Response to Comment 7-6:

Staff recognizes the need to provide additional time for emergency replacements prior to future effective dates or when utility upgrades are needed outside of the facility's reasonable control. The proposed alternative compliance options and exemption provisions will allow limited use of gas units. The demand for these temporary units could be met by a robust rental marketplace; a rental unit market exists today and could expand to meet future demand, and scaled back as the transition to zero-emission units nears completion.

Response to Comment 7-7:

PAR 1146.2 was developed through a public process that began with the development of the 2022 AQMP and was re-initiated during the second quarter of 2023. The public process

included a series of working group meetings, a public workshop, and a public consultation meeting. In addition, staff held numerous individual meetings with stakeholders who may be impacted by this rulemaking and conducted multiple site visits to various stakeholders. Staff continues to be open to stakeholder feedback and input during the rulemaking process.

COMMENT LETTER #8



March 4, 2024

Via Email: eyen@aqmd.gov

Ms. Emily Yen
Planning, Rule Development, and Implementation
South Coast Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765

RE: Proposed Amended Rule 1146.2 – Control of Oxides of Nitrogen from Large Water Heaters, Small Boilers, and Process Heaters

Dear Ms. Yen:

Rheem Manufacturing Company (Rheem) appreciates the opportunity to submit the following comments in response to the South Coast Air Quality Management District's (SCAQMD) Proposed Amended Rule 1146.2 – Control of Oxides of Nitrogen from Large Water Heaters, Small Boilers, and Process Heaters (Proposed Rule).

Rheem is an industry leader in total heating, cooling, refrigeration and water heating solutions and one of the few global brands with product offerings covering residential and commercial heating, cooling, conventional and hybrid storage water heaters (HPWH), tankless water heaters, solar water heating systems, pool and spa heaters, commercial boilers, residential hydronic and geothermal systems, commercial refrigeration products, indoor air quality accessories, and replacement parts for all categories. Rheem is headquartered in Atlanta, Georgia, and has U.S. based manufacturing facilities in Alabama, Arkansas, California, Connecticut, and North Carolina. The company also operates distribution facilities throughout the US, Canada, and many other countries around the world. Rheem manufactures commercial boilers and pool heating equipment at the Raypak facility in Oxnard, CA, both equipment types are affected by this Proposed Rule.

Rheem appreciates SCAQMD staff's efforts to update Rule 1146.2, and specifically to include and consider stakeholder input. To that end, we are pleased to see improvements in the latest Proposed Rule language that address many concerns raised during the last working group meeting. Rheem would like to affirm the latest changes and reiterate our concerns around the compliance dates and the newly added labeling and reporting requirements.

Definitions

Rheem supports the updated definitions of high temperature unit, instantaneous water heater, mobile home, and new building.

8-1





Building Type

Rheem recommends aligning the residential and multifamily structure definitions with California's Building Code (Title 24).¹ Title 24 exhaustively lists the building types in their "Residential Building" and "Multifamily Building" definitions, while also excluding certain types of dwellings that are for commercial purposes, such as hotels. Rheem notes that under the proposed definitions a hotel could be considered a dwelling for more than four families and fall under the multifamily structure definition.

High Temperature

Rheem appreciates SCAQMD amending the definitions of "high temperature unit" to include "designed" instead of "used" and 180°F instead of 190°F. These changes align with the historic understanding of high temperature applications and ease certification and compliance burden as the requirements will be around the unit and not the specific installed application.

It is becoming more well understood that electrification is only viable when there are heat pump solutions to an application.² Rheem notes that most heat pump water heaters can provide temperatures up to 140°F, with some capable of up to 160°F. Select heat pumps with higher temperature capability, have been identified, yet their market availability and suitability to replace existing equipment has not been reviewed. Also, it is not clear how much of the higher temperature rise is achieved with built-in electric resistance heating.

The US DOE definition of a "Residential-Duty Commercial Water Heater" includes, "Is not designed to provide outlet hot water at temperatures greater than 180 °F." Therefore, the US DOE has set >180°F as the starting point for commercial high temperature operation (where there is no longer a residential application) for water heaters. Above 180°F is also referenced throughout the ASHRAE Handbook as the recommended temperature for many applications such as sanitation, commercial kitchen, and laundry. Greater than 190°F is more typical of boiler applications. Many gas-fired water heaters and boilers operate within the 180-190°F range and, if the 190°F threshold was maintained, some of this equipment will likely be replaced with gas-fired equipment that can operate above 190°F, while other applications may not have viable solutions.

Finally, Rheem recommends added language to the rule to clarify how the high temperature qualification will be determined. More specifically, we recommend that a manufacturers declaration be used, with supporting certification standards documents to demonstrate high temperature operations.

¹ See Section 100.1 of TITLE 24, PART 6, BUILDING ENERGY EFFICIENCY STANDARDS FOR RESIDENTIAL AND NONRESIDENTIAL BUILDINGS.

² Electric resistance equipment uses much more electricity than heat pump equipment, which significantly increases emissions at the source. Even as more renewables come online, if significantly more capacity is needed due to electric resistance equipment the non-renewable electrical generation will continue to be needed.





Compliance dates

8-2

Rheem appreciates SCAQMD amending the January 1, 2025 compliance date; however, Rheem recommends SCAQMD either include an exemption for buildings constructed under permits obtained under the 2022 code or set a January 1, 2027, date as new construction permitted under the 2022 code can be initiated up to 12 months after the permit issue date (with 180-day extensions allowed).³ In addition, a later date would align more closely with the Bay Area AQMD zero emission date for this range of equipment.

Rheem also recommends that SCAQMD divide Type 2 units into above and below 1 MMBtu/h and set the greater than 1 MMBtu/h category as Phase III. Heating capacities greater than 1 MMBtu/h are significantly more difficult to produce with heat pump technology.

Labeling and Reporting

8-3

Rheem does not support the labeling and annual reporting requirements in section (j). Region-specific labeling adds significant complexity to the supply chain. Further, Rheem typically only has visibility to the first step in the distribution channel and has no clear way of determining where a unit is installed. This reporting requirement should be limited to distributors, retailers, and resellers operating within the South Coast region.

Exemptions

8-4

Rheem supports the exemption for "low usage" as described in sections (k)(2-3). However, Rheem recommends that the therms per year in section (k)(3) (*i.e.*, 3,000 therms) be scaled to the equipment input rate. For example, SCAQMD could determine a representative value of annual operating hours⁴ at full firing rate.

Thank you for the opportunity to provide these comments. If there are questions, please contact me directly.

Sincerely,

James Phillips
Senior Regulatory Affairs Manager
Rheem Manufacturing Company

cc: Karen Meyers, Joe Boros

³ See section 105.5.1 of the California Building Code: <https://codes.iccsafe.org/content/CABC2022P3/chapter-1-scope-and-administration>.

⁴ The operating hours could be based on 1) the expected downtime to replace or repair the primary zero NOx equipment that has failed or 2) the heating degree days for the region above which the zero NOx equipment has trouble meeting the load.



INTEGRATED HOME COMFORT

RESPONSE TO COMMENT LETTER #8

Response to Comment 8-1:

Staff appreciates Rheem's comment on PAR 1146.2. The proposed amended rule defines a Residential Structure as, "any structure which is designed exclusively as a dwelling for not more than four families, and where such equipment is used by the owner or occupant of such a dwelling. Residential Structures includes any structures on the property such as sheds and detached garages and appurtenances such as pools and spas."

Staff does not consider a hotel to be a multifamily building. Although the proposed amended rule language does not define hotels or multifamily structures, units subject to Rule 1146.2, e.g., water heaters, boilers, and process heaters fired with, or is designed to be fired with, natural gas that have a rated heat input capacity less than or equal to 2 MMBtu/hr, that are operated at a hotel or multifamily structure are subject to the rule. Moreover, there is no requirement proposed for units operated at hotel or multifamily buildings that differentiates them from units operated at other commercial buildings; therefore, there is no need for a multifamily or hotel definition in PAR 1146.2.

There are products existing and emerging in the market that can meet the high-water temperature demand. For example, an internet search of examples of units sold or installed in U.S. or Southern California with focus on high water temperatures found products providing water temperature between 160- and 248-degrees Fahrenheit, with waste heat recycling systems capable of achieving up to 248 degrees Fahrenheit. Chapter 2 of this report provides further detail on high temperature applications. Response to Comment PW-5 provides further detail on the temperature threshold. Staff intends to conduct a technology assessment prior to the proposed implementation dates for high temperature units to gather information on changes in technology development and availability.

High Temperature Unit is defined in the proposed amended rule language and described in the staff report. The rule's intent is to ensure high temperature units are installed for high temperature use. Only specifying units designed for high temperature can create rule circumvention. For example, a boiler is designed for high temperatures, but it could be used for comfort air or hot water with output water temperature less than 180 degrees Fahrenheit. For clarity, staff suggests the definition of "high temperature unit" shall specify that the unit is designed and used to produce steam or to heat water above 180 degrees Fahrenheit.

Response to Comment 8-2:

As the South Coast Air Basin has been classified as "extreme" nonattainment for the 2015 ozone standard, staff is required to consider emission reduction for all categories and set future effective dates to reduce emissions as early as feasible. Staff does consider other agencies' plans and rulemakings for alignment where appropriate but does not use a later implementation date set by another air district as the justification for pushing back proposed compliance dates for the South Coast Air Basin. PAR 1146.2 proposes earlier implementation dates for some equipment categories and later implementation dates for others based on the BARCT assessment.

Staff also considers that South Coast AQMD standards cannot be less stringent than the state-wide standard which will be set by CARB during its ongoing rulemaking process for zero-emission standards for space and water heaters sold in California with potential implementation in 2030. Staff believes that alignment with the Title 24 implementation date of January 1, 2026, for new buildings is feasible for the categories of units in Phase I of the compliance schedule.

Staff understands that Type 2 units that are not high temperature units or instantaneous water heaters may require more time for the technology to be feasible, and the compliance dates in Phase II of the compliance schedule provide time for greater technology and market development to occur, with a technology assessment scheduled for before June 1, 2027. Staff agrees more time is needed for high temperature units, and thus divided Type 2 high temperature units out from the Type 2-unit category. Type 2 high temperature units are subject to Phase III implementation schedule. Staff recognizes that the technology is feasible for heat pumps above 1 MMBtu/hr and that the future implementation dates will allow for greater market growth. The technology assessment scheduled for before June 1, 2027, will consider the market readiness for Type 2 units.

Response to Comment 8-3:

Staff recognizes the need for a compliance tool to differentiate the units allowed to be installed in new and existing buildings. Please see Response to Comment PC-9 or Response to Comment 7-5 for more details.

Response to Comment 8-4:

Staff recognizes that referring to an annual fuel use in therms for low-use is consistent with other boiler and water heater rules and can be a more accurate way to demonstrate low-use than operation hours. Please refer to Response to Comment 7-2 for more detail on low use.

COMMENT LETTER #9



Karen Bass, Mayor
 Board of Commissioners
 Nicole Neeman Brady, Vice President
 Nurit Katz
 Mia Lehrer
 George S. McGraw
 Chante L. Mitchell, Secretary

Martin L. Adams, General Manager and Chief Engineer

March 5, 2024

Mr. Michael Krause, Assistant DEO
 South Coast Air Quality Management District
 21865 Copley Drive
 Diamond Bar, CA 91765

Dear Mr. Krause:

Subject: Los Angeles Department of Water and Power's (LADWP) Comments on Proposed Amended Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters

LADWP appreciates the opportunity to provide comments on the Proposed Amended Rule (PAR) Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters. LADWP remains committed to working with the South Coast Air Quality Management District (SCAQMD) during this rulemaking process and looks forward to refining the proposed language in ensuring a successful implementation of the proposed rule.

I. Key Concerns for SCAQMD's Consideration: Recognizing that the proposed transition from gas-powered water heaters, boilers, and process heaters to all-electric alternatives has raised some concerns among the stakeholders, LADWP requests that SCAQMD take into account the following considerations:

9-1

a. Energy Demand and Grid Capacity:

The widespread adoption of electric heating systems across the South Coast Air Basin would result in an increased demand for electricity that could potentially strain local electrical grids. Upgrades to the grid infrastructure may be necessary to accommodate the additional load. Similarly, upgrades to building infrastructure (such as electrical panels and wiring) which would involve detailed design/engineering, permitting, installation, and testing may be necessary to support the increased electrical demand. LADWP appreciates SCAQMD's proposed phased implementation schedule as this could reduce the impact on energy demand but encourages SCAQMD to work with utilities and stakeholders to ensure that the intended electrification of these equipment and the resulting increase in energy demand would not significantly impact grid reliability.

b. Reliability and Resilience:

Interruptions in power supply may disrupt heating systems, impacting the functionality of commercial buildings. In particular, LADWP's water facilities which supply water for the City of Los Angeles are dependent on water heater and boiler operations. Interruptions to power, especially during emergencies, may negatively impact water facility operations. Also, compared their gas-powered counterparts, electric water heaters and boilers have a short track record, making it challenging to assess their long-term reliability and durability.

Mr. Michael Krause
Page 2
March 5, 2024

- | | |
|--|-----------------------|
| <p>c. <u>Technology Maturity and Availability:</u>
There are concerns with the availability of large electric water heaters, small boilers, and process heaters since the market for electric alternatives is currently not as mature and established as their gas counterparts. Though the market is expected to expand in the future, there is no assurance that the electric alternatives available in the market would be reliable and suitable replacements for existing gas-fired water heaters, boilers, and process heaters. Concerns also remain as to whether these electric alternatives would be compatible with current equipment and building specifications. For instance, sizing constraints for existing equipment (e.g. water heaters and boilers that are located in tightly enclosed areas), could pose challenges in finding appropriate replacements.</p> | <p>Cont'd
9-1</p> |
| <p>II. Proposed Updates to the Rule Language: LADWP would also like to propose some updates to the second preliminary draft Rule 1146.2 language for added clarification:</p> | |
| <p>a. Condition (d)(1) states "Prior to the applicable Table 3 compliance dates, no person shall manufacture, supply, sell, offer for sale, or install, for use within the South Coast AQMD, any Unit unless the Unit is certified pursuant to subdivision (f) not to exceed the applicable Table 1 emission limits." However, the intention is to allow water heaters and boilers to operate at the NOx and CO emission limits until the compliance date, or the end of useful life, whichever is later. LADWP's proposed language is as follows:
"Prior to the applicable Table 3 compliance dates <u>or the end of unit useful life, whichever is later</u>, no person shall manufacture, supply, sell, offer for sale, or install, for use within the South Coast AQMD, any Unit unless the Unit is certified pursuant to subdivision (f) not to exceed the applicable Table 1 emission limits."</p> | <p>9-2</p> |
| <p>b. Similarly, for clarity, LADWP proposes a change to Condition (d)(3): "On and after the Table 3 compliance dates, an owner or operator of a Unit shall not operate a Unit which exceeds Table 2 emission limits once the Unit age determined pursuant to subdivision (e) is greater than or equal to the applicable Table 2 Unit age" to the following:
"On and after the Table 3 compliance dates <u>or the end of unit useful life, whichever is later</u>, an owner or operator of a Unit shall not operate a Unit which exceeds Table 2 emission limits <u>once the Unit age determined pursuant to subdivision (e) is greater than or equal to the applicable Table 2 Unit age</u>."</p> | |
| <p>c. LADWP also suggests that SCAQMD include clarification about the Labeling and Reporting Requirements in Condition (j)(1). Since labeling has not previously been required by Rule 1146.2, LADWP requests clarification as to whether these requirements apply to already installed water heater and boilers.</p> | |

Mr. Michael Krause
Page 3
March 5, 2024

LADWP requests SCAQMD's consideration of these comments and other stakeholders' comments and looks forward to working further with SCAQMD during this rulemaking process.

If you have any questions or would like additional information, please contact Ms. Andrea Villarin of my staff at (213) 367-0409 or Ms. Tejasree Ganapa at (213) 367-6332.

Sincerely,

Katherine Rubin Digitally signed by Katherine Rubin
Date: 2024.03.05 15:39:25 -08'00'

Katherine Rubin
Director of Corporate Environmental Affairs
Division

TG:cy
c: Ms. Andrea Villarin (LADWP)
Ms. Tejasree Ganapa (LADWP)

RESPONSE TO COMMENT LETTER #9

Response to Comment 9-1:

Staff appreciates LADWP's comment on PAR 1146.2. The state and local agencies in California are aligned working towards similar policy direction for zero-emission building appliances and are planning for the corresponding future demand for grid capacity, reliability, and resilience. BAAQMD adopted the zero-emission standards effective in 2027 for small water heaters and in 2031 for other space and water heaters in residential and commercial buildings in March 2023. CARB has commenced its rulemaking process for potential state-wide standards to "develop and propose zero-emission standards for space and water heaters sold in California" with potential implementation in 2030 as committed in the 2022 State Strategy for the State Implementation Plan. Many cities and counties have adopted ordinances for zero-emission appliances. The CEC, CPUC, and CARB are working to coordinate across efforts, identify issues not covered by ongoing efforts, and assess needed actions such as infrastructure upgrades to better align the energy system with the state's climate targets and electrical demand. The CEC adopts an IEPR every two years and an update every other year, and the ~~2022~~2023 IEPR has recognized the proposed zero-emission requirements for residential and commercial buildings in California and included recommendations and updates to the energy demand forecast. Furthermore, CAISO is planning billions in transmission capacity projects over the next 20 years, and the 20-Year Transmission Outlook document from May 2022 considers transmission needs to meet load and renewable energy growth aligned with state policy. In 2021, the CPUC created new programs and modified existing programs to reduce energy demand and increase energy supply during critical hours of the day. Per Senate Bill 350 (De León, 2015), the CPUC developed an integrated resource planning process to ensure that California's electric sector meets its greenhouse gas reduction goals while maintaining reliability at the lowest possible costs. On the utility level, according to SCE's 2021 Sustainability Report, SCE is expected to invest significantly in the electric grid, including energy storage. SCE also expected increases in Distributed Energy Resources such as solar. In 2021, according to the CEC, renewable generation accounted for 33.6 percent of the total California Power Mix, not including solar photovoltaic systems installed on residential and commercial buildings that are less than one MW as they are typically considered distributed generation and not required to report to CEC. There is expected to be more renewables adoption by states in the future, and California Senate Bill 100 called for a Renewables Portfolio Standard of 60 percent by 2030. Electricity imports account for approximately 30 percent of total system electric generation, with other states pursuing Renewable Portfolio Standards and state energy goals.

Staff has accounted for potential infrastructure upgrades in the cost-effectiveness analysis and included alternative compliance options related to potential utility upgrades and emergency replacement situations. The future effective dates will allow for reduced impact on energy demand, and many existing units will be replaced when they reach their unit age which may be after the compliance dates which will result in a slower, phased transition to zero-emission technologies.

Zero-emission technologies such as heat pump water heaters and electric resistance water heaters and boilers have been in operation for years and continue to be installed in various

applications. Staff expects the capital costs for heat pumps to decrease over time in the lead up to future effective dates and beyond as the market matures and availability increases.

Regarding spacing, please refer to Response to Comment PW-2 for more details.

Response to Comment 9-2:

Staff appreciates the suggestion for rule language. Prior to the Table 3 compliance dates, whether the unit is at the end of unit age or not, Table 2 emission limits apply. Units reaching their unit age after the zero-emission compliance dates of their applicable categories are required to phase into the zero-emission requirement. Staff believes the mentioned rule language clearly expresses the intent without revising the rule language.

Regarding the labeling and reporting requirement, the labeling requirements do not apply to already installed water heaters and boilers.

COMMENT LETTER #10

**COMPACT, HIGHLY EFFICIENT, QUICK STARTING
STEAM GENERATOR SYSTEMS**

March 8th, 2024

Subject: SCAQMD Rule 1146.2 potential rule change

Attention: Michael Krause -Assistant DEO, 909-396-2706, Emily Yen – Assistant Air Quality Specialist, 909-396-3206, Heather Farr – Planning & Rules Mgr., 909-396-3672

To whom this may concern:

Clayton Industries opposes the proposed rule change which in effect would require all small steam boilers to be electric only. Opposition is based on the following:

It would present an economic hardship to our customers:

- a) These customers have already paid a premium for SCAQMD pre-certified equipment.
- b) Infrastructure does not exist to bring newly required electrical power into most facilities effected. Targeted small commercial boilers typically used by small businesses/manufacturers that would now be forced to make very expensive upgrades that may not even be possible in some cases due to permitting/zoning, economic requirements. (example: 49 BHP boiler, even if they had three phase/ high voltage power available, would need 600 amps to run at 460volts. The amperage would be even higher if they used lower voltage or single- phase power!)
- c) Cost of running an electrical boiler is substantially more expensive than running on gas due to high cost of electricity.
- d) Increased dependence on a less reliable power source will make it more difficult to run a business. Without electrical power, the boiler and work/services will be off- line.

It will further perpetuate California's hostile business environment to the detriment of Californians:

- a) Many small manufacturers and services (dry cleaners for example) may be forced to relocate or go out of business.
- b) This will discourage many new companies from manufacturing/processing or providing services in California.
- c) With less good paying jobs, the middle class will continue to be pushed out of California.
- d) The above means less tax revenue that adds to California's financial problems.

Clayton Industries
17477 Hurley Street, City of Industry, CA 91744
www.claytonindustries.com

COMPACT, HIGHLY EFFICIENT, QUICK STARTING
STEAM GENERATOR SYSTEMS



It is not practical at this time:

- a) Aside from the electrical current capacity limitation of local users, the power grid throughout California is already having trouble keeping up with current statewide electrical requirements, evidenced by rolling blackouts and the high cost of electricity.
- b) even the push for electric car mandates has had to deal with the realities of the current electric grid.
- c) The latest low NOx gas fired burners provide extremely low levels of air pollution.
- d) Majority of air pollution caused by vehicle emissions.
- e) The impact to small businesses would be too large in relation to the actual impact to the overall air pollution problem.

10-3

Recommendation:

Rather than go to the extreme of all electric boilers, reduce the NOx limit from 20ppm to 15ppm, CO under 50ppm, and requirement for full premix burners.

10-4

We hope that the SCAQMD will re-consider this radical change.

Sincerely,

Brian T. Dominici

CLAYTON INDUSTRIES

17477 Hurley Street

City of Industry, CA 91744

www.claytonindustries.com

661-263-0923 (office)

661-904-2111 (Mobile)

Clayton Industries
17477 Hurley Street, City of Industry, CA 91744
www.claytonindustries.com

RESPONSE TO COMMENT LETTER #10**Response to Comment 10-1:**

Staff appreciates Clayton Industries' comment on PAR 1146.2. The proposed zero-emission limits will not take effect until future compliance dates for new installations, and at the end of the presumed unit age of the equipment currently being used; therefore, the majority of the cost impacts are at the natural turnover of the equipment. The facilities will incur some cost to upgrade the equipment, but some of the cost will already be incurred due to end-of-unit-age replacement. The boiler example described by the commenter appears to be a large unit for industrial use with a heat input capacity beyond PAR 1146.2's applicability. Units with a rated heat input capacity greater than 2 MMBtu/hour are subject to either Rule 1146 or 1146.1, depending on the rated heat input capacity, which have lower emissions limits than Rule 1146.2 but are not transitioning to zero-emission limits at this time. In addition, staff included alternative compliance options to address utility upgrade and emergency replacement concerns and later implementation dates to give more time for units in existing buildings to be replaced and for high temperature unit installations. Boilers for output water temperature higher than 180 degrees Fahrenheit will not be subject to zero-emission limit until 2033. Staff also committed to a technology assessment by June 1, 2027, to review technology development and market availability and address any further concerns.

Common zero-emission water heating technology includes heat pumps, which can be over three times more efficient than conventional appliances. The CEC adopts an Integrated Energy Policy Report (IEPR) every two years and an update every other year. The IEPR update released on January 1, 2024, provided forecasts for future natural gas and electricity rates, which staff utilized in the cost-effectiveness analysis. As the newest IEPR projected the natural gas rate to increase 40% and electricity rate to have a more moderate increase of 28%, this resulted in increased cost savings from fuel switching in the cost-effectiveness analysis for transitioning to heat pumps. Most categories for heat pump replacements were below the cost-effectiveness screening threshold, ranging from cost-effectiveness savings of \$190,000 to cost-effectiveness of \$264,000 per ton of NOx reduced. The Type 1 high temperature category was above the screening threshold at around \$580,000 per ton of NOx reduced, and staff is proposing a longer compliance schedule for high temperature units to comply with zero-emission limits. Costs are expected to decrease as technology matures, and a future technology check-in will provide further cost analysis prior to compliance dates for high temperature units.

Staff recognizes the importance of electric grid reliability for electric units, but also for natural gas units, which often require electricity to operate. The CEC, CPUC, and CARB are working to coordinate across efforts, identify issues not covered by ongoing efforts, and assess needed actions to better align the energy system with the state's climate targets. Please see Response to Comments 4-1 and 9-1 for more on electric grid reliability.

Response to Comment 10-2:

Staff recognizes the concerns of small businesses and added an exemption for small businesses from the unit age requirement, so that small businesses can operate their equipment beyond the rule defined unit age. Staff gathered cost data for various types of units for the cost-effectiveness analysis described in Chapter 2 of this report. Heat pumps are the primary zero-emission technology. The analysis accounted for higher equipment and installation cost, operational cost of switching from gas to electricity, and electrical upgrade cost for some cases. Although the analysis determined that it is cost-effective for most of the equipment categories to implement zero-emission [standards](#), staff understands the challenge of higher upfront costs. Staff is in the process of developing a rebate program to help lower the cost for some consumers and centralizing information for incentive and financing opportunities offered by other agencies and organizations. Please refer to Response to Comment 6-1 for more detail. Further, as zero-emission technologies become more mature and more widely adopted in the market in the future, there will be less cost impact.

To address further concerns, PAR 1146.2 provides alternative compliance options to address specific concerns including emergency replacement, utility upgrades, replacement of five or more units with the same compliance year, and other cases. PAR 1146.2 is accompanied by a socioeconomic impact assessment which considers potential impacts to job growth forecast, among other metrics.

We should also recognize the health benefit to the communities. BAAQMD evaluated ambient air quality and health impacts from natural gas-fired furnaces and water heaters in commercial and residential buildings in support of the zero-emission standards BAAQMD adopted in March 2023. According to the BAAQMD staff report, the proposed zero emission space and water heaters in residential and commercial buildings will result in reductions in NOx emissions and reductions in secondary PM2.5 across the Bay Area.⁷³ These reductions in secondary PM2.5 avoid an estimated 23 to 52 deaths per year and about 71 new cases of asthma per year. Reductions in total PM2.5 attributable to the targeted appliances, including reductions in primary PM2.5 from adoption of electric appliances, would avoid an estimated 37 to 85 premature deaths per year and about 110 new cases of asthma each year. The valuations of the health impacts from total PM2.5 were estimated to be between 400 to 890 million U.S. dollars annually. Similar benefits would accrue to communities in the South Coast AQMD.

Response to Comment 10-3:

Regarding electric grid supply and reliability, please refer to Response to Comment 4-1.

As the South Coast Air Basin has been classified as “extreme” nonattainment for the 2015 ozone standard, staff is required to consider emission reduction for all categories and set future effective dates to reduce emissions as early as feasible. The estimated baseline emissions for PAR 1146.2 is around nine percent of the total stationary source inventory. Staff also considers that South Coast AQMD standards cannot be less stringent than state-wide standards. CARB has commenced its rulemaking process for potential state-wide standards to “develop and propose zero-emission standards for space and water heaters

sold in California” with potential implementation in 2030 as committed in the 2022 State Strategy for the State Implementation Plan.

Staff gathered cost data for various types of units for the cost-effectiveness analysis described in Chapter 2 of this report, which was discussed with the Working Group throughout the rule development process. The analysis accounted for higher equipment and installation costs, operational cost of switching from gas to electricity, and electrical upgrade costs. Although the analysis determined that it is cost-effective for most of the equipment categories to implement zero-emission, staff understands the challenge of higher upfront cost. During the rule development process, staff strives to maximize emission reductions while considering cost-effectiveness. The cost-effectiveness threshold is neither considered a starting point or absolute cap for control costs, nor an enforcement tool. Instead, it provides a guide during rule development to identify cost-effective control options. Staff is committed to identifying and proposing cost-effective control options, while striving to achieve the emission reductions necessary for regional air quality attainment, especially given the magnitude of the emission reductions needed to meet the ozone standards.

Response to Comment 10-4:

PAR 1146.2 only applies to a subset of large water heaters and small boilers and process heaters. At this time, South Coast AQMD is not proposing all boilers transition to zero-emission limits – only the units less than 2 MMBtu/hour. Staff conducted a thorough technology assessment for PAR 1146.2 to evaluate the NO_x control technologies that will achieve the BARCT level equipment subject to PAR 1146.2. The final proposed zero-emission limit for each class and category is the emission limit that achieves the maximum degree of emission reductions and is determined to be cost-effective and feasible with future year implementation. With regards to the commenter calling zero-emission standards for building appliances “extreme,” other agencies are considering or have already adopted similar rules, and a South Coast AQMD rule cannot be less stringent than a state-wide rule. CARB has commenced its rulemaking process for potential state-wide standards to “develop and propose zero-emission standards for space and water heaters sold in California” with potential implementation in 2030 as committed in the 2022 State Strategy for the State Implementation Plan. The CEC 2022 Building Energy Efficiency Standards (Energy Code) apply to newly constructed buildings and additions and alterations to existing buildings. The 2022 Energy Code encourages efficient electric heat pumps, establishes electric-ready requirements for new homes, expands solar photovoltaic and battery storage standards, and more. BAAQMD adopted Rule 9-6 – Nitrogen Oxides Emissions from Natural Gas-Fired Boilers and Water Heaters in March 2023 with zero-emission limits for 2031 implementation. Some manufacturers are opposed to interim lower NO_x emission limits when zero-emission limits are deemed feasible for future implementation and will be the ultimate policy direction. Those manufacturers would be focused on expanding zero-emission products, instead of spending resources on developing lower NO_x emission technologies for an interim time period.

COMMENT LETTER #11



The Boeing Company
4000 Lakewood Blvd.
Long Beach CA 90808-1700

March 04, 2024

SCAQMD
21865 E. Copley Drive
Diamond Bar, CA 91765

ATTN: Heather Farr
Planning and Rules Manager

Re: SCAQMD Rule 1146.2 Proposed Amendments

Thank you for the opportunity to provide comments relating to the proposed amendments to SCAQMD Rule 1146.2 (Emissions of Oxides of Nitrogen From Large Water Heaters and Small Boilers and Process Heaters). Boeing requests that the following changes be incorporated into the proposed amendments to the rule:

- Proposed Amended Rule 1146.2 (Table 2) assigns a life expectancy (unit age) of 15 Years for Type 1 units and 25 years for Type 2 units. The Boeing Company (Boeing) typically sees longer life expectancy for these types of units due to the maintenance programs employed by the company. Even the draft staff reports states that 25 years is used for Type 1 and Type 2 boilers (Page 2-15) with respect to the cost-effectiveness analyses. Boeing requests that the unit age for Type 1 boilers be increased to 25 years and Type 2 boilers increased to 30 years. 11-1
- PAR 1146.2 (d)(9) provides that Type 1 and Type 2 units that do not meet specified NOx limits must be removed from service within one year after rule adoption. Boeing anticipates having to replace a number of units currently in the RECLAIM program and the specified time frame is insufficient to allow replacement. Boeing has replaced several of these units over the past few years. The projects typically takes anywhere from 12-18 months for planning, permitting and installation, assuming there are no issues with delivery of equipment. In addition, this relatively short time frame does not allow adequate time to perform the necessary engineering evaluations to determine if a switch to heat pumps might be a suitable approach. Boeing requests that the compliance dates contained in Table 3 for existing equipment be utilized for these units. 11-2
- PAR 1146.2 (g)(1) requires that copies of source tests be retained onsite. These reports are usually maintained at a central office and Boeing requests that the language in recently adopted SCAQMD Rule 1147 (h)(8) be utilized in lieu of the proposed language. 11-3
- PAR 1146.2 (h)(3) specifies that the owner/operator maintain documentation identifying the rated Heat input capacity of the unit. The manufacturer's label on the unit specifying the required information should be sufficient to meet this requirement. 11-4
- PAR 1146.2 (i)(1) specifies requirements for obtaining relief with respect to the lack of power availability at a facility. Utility upgrades, especially for larger facilities, may be a multi-year project. Is the intent that a company will have to request a new extension every year from SCAQMD until the facility has completed the work, since the company will have spelled out the 11-5



The Boeing Company
4000 Lakewood Blvd.
Long Beach CA 90808-1700

specific requirements in (i)(1)(D)? With respect to (i)(1)(C), notification period should be changed to 72 hours to allow adequate time for internal review, especially if completion occurs over weekends or holidays. Boeing also seeks clarification on what information is required under (i)(1)(D)(i)(E). Companies are dependent upon the utility to provide the necessary infrastructure upgrades and the associated time table for when the upgrades will be completed. Boeing is unsure what information SCAQMD is requesting in this section that demonstrate delays are beyond the control of the owner/operator.

Boeing looks forward to continuing to work with District staff in the development of the proposed amendments to SCAQMD Rule 1146.2. Note that we are continuing to assemble cost and emission information for the Boeing facilities and are working to providing the additional information this week. If you should have any questions or require additional information, please do not hesitate to contact me.

A handwritten signature in black ink, appearing to read 'W Pearce', with a long horizontal line extending to the right.

William Pearce
Senior Environmental Engineer
Environmental Services
Environment, Health & Safety

RESPONSE TO COMMENT LETTER #11**Response to Comment 11-1:**

Staff appreciates Boeing's comment on PAR 1146.2. Please refer to Response to Comment 1-3 for discussion on unit age.

Response to Comment 11-2:

Staff agrees that RECLAIM and former RECLAIM need more time to replace the existing units that are not meeting the NOx standards of 30 ppmv for Type 2 units and 55 ppmv for Type 1 units. Staff removed the lower NOx requirements previously proposed in paragraph (d)(9). This proposal revision means RECLAIM and former RECLAIM facilities will be subject to paragraph (d)(3) of PAR 1146.2 for zero-emission requirements once the existing units reach their unit age on and after the applicable Table 3 compliance dates. This change allows facilities to keep operating older units and will potentially achieve higher emission reductions as facilities will not be required to replace older units with newer combustion units that can operate for an additional 25 years; facilities will have the option to continue to operate the older units until the future effective zero-emission limits go into effect.

Response to Comment 11-3:

Staff agrees with the comment and revised the proposed amended rule. The owner or operator will be required to make the copies of source tests available to the Executive Officer upon request, instead of retaining the copies onsite.

Response to Comment 11-4:

The provision regarding rated heat input capacity documentation is PAR 1146.2 paragraph (j)(5) is an existing requirement. This provision streamlined recordkeeping requirements in existing Rule 1146.2 paragraph (c)(10) for rated heat input capacity documentation. The definition for rated heat input capacity in both the existing rule and proposed amended rule specifies that the gross heat input shall be supported by required documentation, and which shall be specified on a permanent rating plate. Requiring documentation is especially important when the burner of a unit is modified. The documentation must be signed by the licensed person modifying the unit and the rating plate must be updated accordingly as required by the rule. Staff does not agree with the suggestion to change the proposal to only require the rating plate or label on the unit for the demonstration of rated heat input capacity.

Response to Comment 11-5:

Staff revised paragraph (i)(1). The owner or operator of the unit is provided ~~18~~²⁴ months additional time to comply if a utility upgrade is required and the applicable utility company is unable to provide the necessary power to operate the unit, which is causing a delay beyond the facility's reasonable control. In addition, the owner or operator can request an extension of an additional ~~18~~²⁴ months and an additional 12 months. The total allowed delay in this situation is up to ~~36~~⁶⁰ months. When there are also multiple units subject to the situation, the owner or operator can submit an alternative compliance plan for the

scheduled extended implementation as specified in paragraph (i)(2). The owner or operator may seek variance or other alternatives beyond PAR 1146.2 if further relief is needed.

Regarding the comment on notification period, staff agrees and changed the notification period from 24 hours to 72 hours to provide adequate time for internal review. Regarding documentation which demonstrates that the delays are beyond the reasonable control of the owner or operator, this could be documentation showing timely communication, utility companies' statements, contract for the work with projected work plan, etc. A good example would be a letter from the utility that says the issue is on the utility side of the meter.

COMMENT LETTER #12**California Council for Environmental and Economic Balance**

369 Pine Street, Suite 720, San Francisco, CA 94104

(415) 512-7890 | cceeb.org

March 13, 2024

Mr. Michael Krause, Assistant DEO
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Dear Mr. Krause:

Subject: Comments on Proposed Amended Rule 1146.2 – Emissions of Oxides from
Large Water Heaters and Small Boilers and Process Heaters

The California Council for Environmental and Economic Balance (CCEEB) is a coalition of business, labor and public policy leaders that work together in pursuit of balanced and effective policy solutions. Many CCEEB member organizations operate large facilities in the South Coast Air Quality Management District (SCAQMD or “District”) and, as such, we are closely following the development of PAR 1146.2.

While CCEEB recognizes the need to transition to zero emission (ZE) and low-NOx technologies where feasible, we also recognize these strategies are far more complex and costly to implement than other strategies developed by the District. Additionally, CCEEB recognizes that some of these concerns have been previously communicated to the District, and in reiterating these concerns, CCEEB intends to highlight the importance and potential impacts of these rulemaking decisions. CCEEB wishes to focus its comments on three areas of the proposal:

1. Concern with the Availability of Sufficient Energy to Implement this Proposal

While CCEEB supported the adoption of the 2022 AQMP, we raised the concern to staff and the Board that initiatives to electrify large sectors could strain the grid. The 1146.2 rule, as proposed, is a prime example of the concern we raised in our comments to the SCAQMD where we stated:

“Mandates to deploy ZE technologies must be closely aligned and coordinated with development of energy infrastructure and maintaining system reliability. This is particularly important for the state’s electrical grid, which must respond to several

12-1

2

equally important but overlapping mandates, such as the shift to 100% renewable and carbon-free electricity generating resources and a “hardening” of the system to prevent and protect against catastrophic wildfires.”

CCEEB encourages the District to work with state agencies, the utilities and all stakeholders to ensure that the proposal takes into consideration, and adjusts where necessary, its potential impact on the grid. Facilities that need to upgrade power have to take into account demands from switching all types of equipment to electric at relatively the same time. Thus, some publicly-owned utility providers may have even greater difficulty providing facilities with enough electricity in time to meet the demands of 1146.2 and other proposed zero-emission rules.

2. Cost-Effectiveness Does Not Take Into Account the Degree of Work Necessary to Make these Transitions

12-2

SoCalGas, a CCEEB member, articulated this point to the District quite well in its March 8 comment letter.

“The South Coast AQMD’s cost-effectiveness analysis has focused on single pieces of equipment at a single facility. It has not evaluated the cost associated with retrofits at larger commercial and/or industrial facilities that have multiple affected pieces of equipment, many of which are located in multiple buildings/structures on the site. The South Coast AQMD has also not included cost for cutting concrete and/or asphalt and trenching to distribute new on-site electrical power distribution to these pieces of equipment and/or buildings, which will be the costliest aspect of conversion.”

This concern has been echoed by many CCEEB members. Again, in our comments to the 2022 AQMP, CCEEB stated:

“Given the range of costs associated with ZE technology and the significant degree of uncertainty, the District will need to work closely with stakeholders and other partners in developing a reliable way to assess a fair scope of costs. An added challenge is the robustness of low-NOx controls, which lowers the marginal benefit of ZE strategies. How the District will apply its cost-effectiveness thresholds will be important. Similarly, staff assessments of technological feasibility will be more complicated than ever before. In its work, the District can serve as an important model for other jurisdictions.”

3. Implementation Periods Need to be Extended

12-3

Many CCEEB members are in the RECLAIM program and, as such, CCEEB has a particular concern with PAR 1146.2 (d)(9). As we understand the proposal, the current language requires Type 1 and Type 2 boilers that do not meet specific NOx limits to be removed from service within one year of rule adoption. Many of our organizations have multiple units that would fall into this category and CCEEB does not believe it is feasible to make this

3

changeover in such a tight window. Further, the proposal is not clear as to why RECLAIM facilities are called out with this short compliance deadline. CCEEB requests compliance dates contained in Table 3 for existing equipment to be utilized for these units.

For facilities with multiple units, we appreciate staff's addition of the Alternate Compliance Option. Even with this option, the time to plan, obtain additional power, and install for these larger facilities will likely result in some facilities being unable to achieve compliance within the 3-year phased option as described in section (i)(2)(B). CCEEB requests the District to consider a 5-year phased-in approach (20% of units per year) for facilities with more than 20 units.

12-4

Given the significance of our comments above and the fact that several of our members are working closely to provide more accurate information on cost-effectiveness, we sincerely request a one-month delay in moving this proposal forward to the Board for an April Set Hearing and a May Public Hearing.

CCEEB recognizes the importance of this proposal and, along with our members, commits to work with you to find solutions to these concerns. Thank you for considering our comments.

Sincerely,



William J. Quinn
CCEEB Consultant

cc: Tim Carmichael, CCEEB President
Allegra Curiel, CCEEB
Members, CCEEB's South Coast Air Project

RESPONSE TO COMMENT LETTER #12

Response to Comment 12-1:

Staff appreciates CCEEB's comment on PAR 1146.2. Please see Response to Comment 9-1.

Response to Comment 12-2:

The cost-effectiveness analysis for BARCT is to evaluate the incremental cost per ton of emission reductions by retrofitting or replacing a type of equipment with newer technologies. This analysis is equipment based, and it considers incremental installation and electrical upgrade costs as explained in Chapter 2 of this staff report. Although the cost-effectiveness does not evaluate the total cost for a facility with multiple units, the socioeconomic impact analysis for this project, ~~a draft of~~ which ~~will be~~was released ~~30 days~~ prior to the public hearing for PAR 1146.2, assesses the total cost impact for the region. [The Final Socioeconomic Impact Assessment is available in Attachment H of the June 7, 2024, Governing Board Package.](#)

Regarding the installation cost, staff recognizes that there may be some cases where a utility upgrade is required and could include trenching, which can add additional cost. While trenching is costly, the end user would not bear the full cost when the trenching is required before the facility's meter. Furthermore, not every unit replacement will require trenching. Staff acknowledges that alternative compliance options could be useful in cases where a utility upgrade is needed, or multiple units need to be replaced. Regarding alternative compliance options for utility upgrades and multiple units, please see Response to Comment 5-3. Please refer to Response to Comment 7-1 for further details on the cost-effectiveness threshold.

Response to Comment 12-3:

Please see Response to Comment 11-2 regarding RECLAIM units. Please see Response to Comment 11-5 regarding multiple units.

Response to Comment 12-4:

Staff has been available throughout the public process to meet with stakeholders and appreciates any further input or data that may be provided.

COMMENT LETTER #13

UNIVERSITY OF CALIFORNIA

BERKELEY • DAVIS • IRVINE • LOS ANGELES • MERCED • RIVERSIDE • SAN DIEGO • SAN FRANCISCO



SANTA BARBARA • SANTA CRUZ

OFFICE OF RISK SERVICES—
ASSOCIATE VICE PRESIDENT & CHIEF RISK OFFICER

OFFICE OF THE PRESIDENT
1111 Franklin Avenue, 10th Floor
Oakland, California 94607-5200

BY E-MAIL ONLY

March 15, 2024

Yanrong Zhu
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765
yzhu1@aqmd.gov

Re: Second Preliminary Draft Rule: Proposed Amended Rule 1146.2(d)(7)

Dear Ms. Zhu:

The Regents of the University of California (“University”), on behalf of its campuses in Los Angeles, Irvine, and Riverside, has discovered what it believes to be an error in the Second Preliminary Draft of Proposed Amended Rule 1146.2, and would like to bring this error to the Air District’s attention before the Draft Rule is officially released for public review on April 2, 2024.

Specifically, the University believes an error exists in PAR 1146.2(d)(7). Subsection (d)(7) proposes: “An owner or operator shall not operate any Type 1 Unit manufactured prior to January 1, 2012, in the South Coast AQMD which does not meet the NOx emission limit of 55 ppmv.” As written, this amendment would immediately prohibit the use of Type 1 Units manufactured and in operation prior to January 1, 2001, with emissions exceeding 55 ppm NOx. We do not believe this reflects the Air District’s intent for two reasons:

1. *Existing* Rule 1146.2 does not expressly prohibit the use of Type 1 Units manufactured and in operation before January 1, 2001, even if emissions exceed 55 ppm NOx.
2. Tables 2 and 3 in PAR 1146.2 include a phase-out schedule for Type 1 Units manufactured and in operation before January 1, 2001.

If subsection (d)(7) is adopted as proposed, the compliance schedule in Tables 2 and 3 would be rendered meaningless because Type 1 Units manufactured before January 1, 2001 that exceed 55 ppm would need to immediately cease operation upon the Rule’s effective date. In other words, our campuses and any other facilities with pre-2001 Type 1 Units would be forced to leave buildings unheated without any opportunity to phase out these Units in accordance with proposed Tables 2 and 3.

For the above reasons, the University requests that PAR 1146.2(d)(7) be modified to correct this error. The University proposes the following edit for the Air District’s consideration: “An owner or

13-1

South Coast Air Quality Management District
March 15, 2024
Page 2

operator shall not operate any Type 1 Unit manufactured after January 1, 2001, and prior to January 1, 2012, in the South Coast AQMD which does not meet the NOx emission limit of 55 ppmv.”

The University recognizes that the Air District has yet to open a formal comment period on the Draft Rule, but we believe this error is significant enough that subsection (d)(7) should be changed before the formal comment period begins.

Thank you for your consideration of this concern and related request.

Sincerely,



Ken Smith, CHP CIH RRPT
Executive Director of Environment Health & Safety

cc: Sarah Quiter, UC Legal Principal Counsel

13-1

RESPONSE TO COMMENT LETTER #13**Response to Comment 13-1:**

Staff appreciates the University of California's comment on PAR 1146.2.

Staff understands Preliminary Draft PAR 1146.2 paragraph (d)(7) for Type 1 units is not in existing Rule 1146.2; however, previous rule language was for 15 years of unit age (useful life) and current PAR 1146.2 language includes 15 years of unit age for Type 1 units that are not high temperature units or instantaneous water heaters. Thus, staff expected Type 1 units would have been phased out by now through natural turnover and did not anticipate the provision would result in stranded assets. That said, staff agrees that it is more meaningful to replace those old Type 1 units with zero-emission units on and after Table 3 compliance dates and that approach is estimated to result in more lifetime emission reductions. Therefore, staff is proposing to remove paragraph (d)(7). Type 1 units manufactured prior to January 1, 2001, with emissions exceeding 55 ppmv NO_x limit will be required to transition to zero-emission technologies based on the future effective dates in Table 3.

COMMENT LETTER #14

March 27, 2024

Emily Yen
 Planning, Rule Development, and Implementation
 South Coast Air Quality Management District
 21865 Copley Drive
 Diamond Bar, CA 91765

Re: Rule 1146.2 Second Preliminary Draft of Rule 1146.2

Dear Ms. Yen:

On behalf of Bradford White Corporation (BWC), we would like to thank you for the opportunity to comment on South Coast Air Quality Management District's (SCAQMD) Second Preliminary Draft of Rule 1146.2, dated February 20, 2024.

We have compiled our comments and questions to the Second Preliminary Draft of Rule 1146.2 below.

General

BWC has reviewed the Second Preliminary Draft of Rule 1146.2, and we appreciate staff's consideration of our comments and other stakeholders, as reflected in the current draft. In particular, alignment of the new construction compliance dates for Type 1 Water Heaters and Instantaneous Water Heaters rated 200,000 Btu/hr and under with the California Energy Code cycle, the inclusion of an exception process for utility delays and extending compliance dates for mobile homeowners. However, BWC has concerns regarding the reintroduction of labeling requirements, along with the newly introduced annual reporting requirements for equipment.

14-1

Product Labeling

The Second Preliminary Draft of Rule 1146.2 proposes to require manufacturers to affix labels to equipment identifying the Unit as "For installation and use in existing buildings only." In addition, the draft proposes a second labeling requirement for instantaneous water heaters that would take effect in 2029 labeling these products as "For Installation and Use in Mobile Homes Only." As stated in our previous letter dated January 19, 2024, and repeated below, we strongly believe the proposed labeling requirement, as written, is unnecessary to enforce the rule and will add significant burdens to compliance for manufacturers of regulated products:

14-2

Built to be the Best™

725 Talamore Drive • Ambler, PA 19002-1873 • 215-641-9400 • www.bradfordwhitecorporation.com



“SCAQMD currently maintains a qualified products list¹ for all manufacturer water heating and boiler models certified under Rule 1146.2. To enforce the proposed Zero NOx implementation dates, SCAQMD could simply modify their table to show models that are allowed in new construction and models that are only allowed in existing buildings. Secondly, new construction requires plans to be submitted to building jurisdictions to review, as well as Title 24 energy modeling. SCAQMD can work with building jurisdictions within their territory that review and approve project plans to enforce the use of Zero NOx water heating and boiler equipment. Lastly, new construction projects are permitted and require building inspectors to approve the construction. If a non-compliant product were to be installed, it could ultimately be flagged for removal by the building inspector.”²

We understand that the intent of the labels is to aid the District’s inspectors in verifying equipment in the field. However, as currently proposed, the labeling nomenclature will create market confusion outside of the SCAQMD territory. If the District maintains that a labeling requirement is necessary instead of utilizing its qualified products list, we strongly encourage the District to provide manufacturers and our wholesalers autonomy as to how we label our products. We request the District remove the specific language requirement and replace it with a more generic statement, such as “affected products must include a mechanism to verify local emissions limits.” We would like to discuss this alternative in more detail with the District prior to implementation of the rule.

14-3

Product Reporting

BWC does not agree with the newly proposed annual reporting requirements for manufacturers. As a manufacturer, we have limited influence or knowledge on where a product will ultimately be installed after it is manufactured. Manufacturers have limited capability to control a product’s final installation location. We are unclear as to why the District believes annual reporting of product sales will be necessary.

The phased, compliance schedule, as outlined in the proposed rule, clearly shows which product categories cannot be sold within the District after a specified date. We would like to request further discussion with the District regarding the reporting requirements and the purpose they will serve to enforce the proposed rule. Furthermore, if reporting is to be required, we ask that the District use the manufacture date of equipment, consistent how other regulatory bodies implement requirements, including the Bay Area Air Quality Management District³, and not the date of sale or installation.

In closing, we encourage SCAQMD to reconsider the labeling requirements altogether. However, if the District maintains labeling requirements, we strongly encourage revising the language, revising the reporting requirements to reduce compliance burdens on product manufacturers and adopt the manufacture date as the date of compliance. We welcome continued dialogue on these matters and would be pleased to have further, direct, conversations with District staff.

Please let me know if you have any questions or would like to schedule a meeting to discuss our comments further.

Respectfully Submitted,

¹ [Rule 1146.2 - Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters \(aqmd.gov\)](https://aqmd.gov/rule-1146-2-emissions-of-oxides-of-nitrogen-from-large-water-heaters-and-small-boilers-and-process-heaters)

² [bradford-white-corporation-comment-letter---01-19-2024.pdf \(aqmd.gov\)](https://aqmd.gov/bradford-white-corporation-comment-letter---01-19-2024.pdf)

³ [20230315_rg0906-pdf.pdf \(baaqmd.gov\)](https://baaqmd.gov/20230315_rg0906-pdf.pdf)

Built to be the Best™

725 Talamore Drive • Ambler, PA 19002-1873 • 215-641-9400 • www.bradfordwhitecorporation.com



Bradford White Corporation

Tom Gervais
Senior Director, Regulatory Affairs

Cc: R.B. Carnevale; E. Truskoski; R. Simons; B. Hill; L. Prader; C. VanderRoest; M. Corbett; B. Wolfer

Built to be the Best™

725 Talamore Drive • Ambler, PA 19002-1873 • 215-641-9400 • www.bradfordwhitecorporation.com



RESPONSE TO COMMENT LETTER #14**Response to Comment 14-1:**

Staff appreciates Bradford White Corporation's comment on PAR 1146.2 and participation in the rulemaking process.

Response to Comment 14-2:

The labeling requirement by paragraph (j)(2) for mobile homes is similar to the labeling requirement by paragraph (j)(1) for existing buildings, where the unit can be installed in some buildings but not others. Instantaneous water heaters with the labeling requirement for the specified period are only allowed for installations in mobile homes, not in other buildings. The labeling requirement is important to educate and remind the buyer of an unpermitted unit. Please refer to Response to Comment PC-9 for a further discussion on labeling.

Response to Comment 14-3:

The reporting requirement is intended to better understand how many natural gas units would be installed following the provisions of the exemption and alternative compliance sections. Since those are unpermitted units without sufficient installation records, the reporting requirement will provide emission inventory data that can be utilized for future evaluation of the benefit achieved by the rule. Manufacturers have reported units distributed to the region through previous Rule 1121 and Rule 1111 mitigation fee compliance options. The reporting for PAR 1146.2 could be similar, except there would be no associated fee.

COMMENT LETTER #15



Kevin Barker
 Senior Manager
 Energy and Environmental Policy
 555 West 5th Street
 Los Angeles, CA 90013
 Tel: (916) 492-4252
 KBarker@socalgas.com

March 8, 2024

Yanrong Zhu
 Program Supervisor
 South Coast Air Quality Management District
 21865 Copley Drive
 Diamond Bar, CA 91765

Subject: Comments on the Initial Preliminary Draft of Proposed Amended Rule 1146.2

Dear Ms. Zhu:

Southern California Gas Company (SoCalGas) appreciates the opportunity to provide public comments on the South Coast Air Quality Management District (South Coast AQMD) Initial Preliminary Draft of Proposed Amended Rule (PAR) 1146.2. SoCalGas has multiple facilities which will be affected by this rule and has been an active participant in the South Coast AQMD rulemaking. SoCalGas recommends South Coast AQMD provide an adequate compliance schedule for entities with multiple facilities in order to accommodate the heavy workload necessary to design, engineer, contract, equipment/materials procurement and construction of these new equipment.

15-1

SoCalGas supports policies incentivizing the adoption of zero-emissions appliances and equipment as part of a broader strategy to achieve NO_x reductions, provided such policies are feasible, permitted by federal law, cost-effective, and commercially available. However, SoCalGas has concerns that the proposed rule effectively bans certain appliances covered by the federal Energy Policy and Conservation Act (EPCA).

15-2

Under a recent ruling by the Ninth Circuit, *California Restaurant Association v. City of Berkeley*, 89 F.4th 1094 (9th Cir. 2024) the Court held that EPCA preempts all regulations “that relate to ‘the quantity of [natural gas] directly consumed by’ certain consumer appliances at the place where those products are used.” *Id.* at 1101. “[A] regulation on ‘energy use’ fairly encompasses an ordinance that effectively eliminates the ‘use’ of an energy source.” *Id.* at 1102. Here, similar to the Berkeley ordinance, the effect of the proposed rule is to reduce the quantity of gas consumed by EPCA-covered appliances to zero. Under *Berkeley*, States and localities cannot avoid EPCA’s

preemption provisions “by doing *indirectly* what Congress says they can’t do *directly*.” *Id.* at 1107 (emphasis in original).

Putting EPCA aside, the South Coast AQMD’s cost-effectiveness analysis has focused on single pieces of equipment at a single facility. It has not evaluated the costs associated with retrofits at larger commercial and/or industrial facilities that have multiple affected pieces of equipment, many of which are located in multiple buildings/structures on the site. The South Coast AQMD has also not included costs for cutting concrete and/or asphalt and trenching to distribute new on-site electrical power distribution to these pieces of equipment and/or buildings, which will be the costliest aspects of conversion.

The South Coast AQMD should perform an analysis that incorporates this type of cost and its impact on cost-effectiveness. This type of cost, as well as other costs, have not typically been accounted for in the South Coast AQMD’s previous Best Available Retrofit Control Technology (BARCT) rule analyses, as historically, BARCT rules only required retrofits (burners or add-on emission controls) or replacement of existing natural gas fueled equipment with similar natural gas fueled equipment which had a much smaller reconstruction cost and footprint. Replacement with electric driven equipment is a much different project with new construction beyond the equipment location and new power supply requirements. These new costs must be included when evaluating a project’s cost-effectiveness. Due to these and other factors, the cost-effectiveness of transitioning existing buildings to zero emissions space and water heating equipment can vary significantly.

Accordingly, based on the information provided at the PAR 1146.2 workgroup meetings and SoCalGas’ meeting with South Coast AQMD staff in January, we asked Ramboll to apply the South Coast AQMDs cost-effectiveness analysis technique of the proposed zero emission standard for Large Water Heaters, Small Boilers and Process Heaters (Appendix) to get a better understanding of the actual installation costs associated with the transition to electric water heaters and boilers at our facilities. SoCalGas recently presented this information to South Coast AQMD staff and will follow up with additional information requested in that meeting. The analysis shows that:

- With design and engineering costs and electrical infrastructure upgrade costs (including the concrete cutting and trenching mentioned above) included in the cost effectiveness (CE) calculations for new zero-emission units, replacing 5 NG units with electric resistance heaters and boilers incurred an incremental installation cost of approximately \$1.81 million, while heat pumps resulted in even higher costs at \$1.89 million. This is significantly higher than the incremental installation cost assumptions in Staff’s CE calculations.
- Zero-emission units are not cost effective when all components of the installation costs are considered in the CE analysis. The CE values are between \$2.6 million and \$5.4 million dollars per ton of NOx emission reductions for the SoCalGas facilities we examined.

There will be cases where it will not be practical or financially viable to retrofit existing buildings with zero-emissions space and water heating equipment. Therefore, PAR 1146.2 should incorporate measures to handle situations where such equipment isn't feasible or where power supply to a facility is unavailable. In cases where installing zero-emissions units isn't feasible, transitional alternatives such as low-NOx technologies should be allowed.

Conclusion

SoCalGas appreciates the chance to provide feedback on PAR 1146.2. Prioritizing control measures that enhance reliability and resiliency will yield reductions in NOx and other criteria pollutants, including reductions in GHG. Exploring a diversified energy supply will ensure enduring and cost-effective emission reductions. SoCalGas eagerly anticipates working together to mutually pursue California's shared objectives of advancing air quality objectives.

Respectfully,

/s/ Kevin Barker

Kevin Barker
Senior Manager
Energy and Environmental Policy

RESPONSE TO COMMENT LETTER #15**Response to Comment 15-1:**

Staff appreciates SoCalGas' comments on PAR 1146.2. Please refer to Response to Comment PC-6 for the discussion on multiple units.

Response to Comment 15-2:

Staff disagrees that the *Berkeley* decision stands for the proposition that *all* regulations that relate to the natural gas use of certain consumer appliances are preempted by the EPCA. The court in the *Berkeley* case made it very clear and repeatedly emphasized that its holding is “very narrow” and is “limited” only to building codes that regulate the gas usage of certain consumer appliances. (*California Restaurant Ass’n v. City of Berkeley*, 89 F.4th 1094, 1101, 1103, 1106.) The court also expressly acknowledged that the EPCA’s preemptive scope is “not unlimited.” (*Id.* at 1103.) As Judge Baker explained in his concurrence, “EPCA preemption is unlikely to reach a host of state and local regulations that incidentally impact ‘the quantity of natural gas’ directly consumed by a [covered] product at point of use.” (*Id.* at 1117.)

The EPCA expressly preempts “regulations concerning the energy efficiency, energy use or water use” of certain appliances. (42 U.S.C. section 6297(c).) In *Berkeley*, the court held that the EPCA preempted a local building code that prohibited new buildings from connecting to the natural gas meter, effectively preventing the use of natural gas appliances covered by the EPCA in those buildings and thus reducing the natural gas use of those appliances to zero. Unlike Berkeley’s regulation, PAR 1146.2 does not ban natural gas or otherwise regulate the amount of natural gas used by the equipment subject to PAR 1146.2. This rulemaking is not any different from previous rulemakings lowering NOx emission limits of various equipment. PAR 1146.2 is technology and fuel-neutral and is focused on achieving the maximum NOx emission reductions possible. Equipment that meets the NOx emission limits, regardless of the energy source, is not prohibited by PAR 1146.2. While PAR 1146.2 may have some impact on natural gas use depending on a number of factors, including how they are designed to meet the zero-NOx emission standard and when zero-NOx natural gas technology becomes available, any such impact is incidental to the emission reduction purpose of PAR 1146.2. BAAQMD reached a similar conclusion in its response to a similar comment regarding the *Berkeley* case and EPCA preemption when it finalized its determination to submit its new zero-NOx emission rules for building appliances for inclusion in the State Implementation Plan. (Response to Comments: Submittal of Rules 9-4 and 9-6 to SIP, available at <https://www.baaqmd.gov/rules-and-compliance/rule-development/building-appliances>.)

Response to Comment 15-3:

Please refer to Response to Comment 12-2 and Response to Comment PW-2 for the discussions on trenching and additional construction cost.

Response to Comment 15-4:

Staff appreciated the meeting with SoCalGas to go through the SoCalGas cost estimation details, provide staff clarification and suggestions to adjust the estimation, and request further information. SoCalGas agreed to reevaluate the cost details and estimation, and staff will continue working with SoCalGas to identify any challenges.

COMMENT LETTER #16



남가주 한인 세탁 협회 (KDLA)

Korean Dry Cleaners & Laundry Association of Southern California

555 W Redondo Beach Blvd #247 Gardena, CA 90248

Tel: (310) 679-1300 Fax: (310) 324-3293 (Fax)

www.sckdla.org Email: koreandla@gmail.com

April 15, 2024

Hon. Vanessa Delgado, Chair
 South Coast Air Quality Management District Governing Board
 21865 Copley Dr.
 Diamond Bar, CA 91765

Subject: Urgent Request for Deferral of Consideration for Proposed Amended Rule 1146.2:
 Mitigating Economic Impact on Korean Drycleaners Laundry Association

Dear Chair Delgado and Esteemed Governing Board Members,

We write to you on behalf of the Korean Drycleaners Laundry Association (KDLA), representing FKDA members nationwide and KDLA members in Southern California. Urgently, we request the deferral of consideration of Proposed Amended Rule 1146.2. KDLA members embody the dynamic essence of an underrepresented community, along with the resilience of small businesses that form the cornerstone of Southern California's economy.

16-1

Our primary concern revolves around the lack of outreach and awareness regarding PAR 1146.2. Many members only recently became aware of this rulemaking have significant concerns regarding its potential economic impacts and feasibility. We fear the potential consequences this rule could have on the economic viability of the minority community, KDLA and related businesses.

The implementation of PAR 1146.2 poses an existential threat to numerous KDLA members, potentially driving them out of business. The financial burden imposed by mandatory upgrades and retrofits could prove insurmountable for these small businesses, which are already grappling with the devastating economic impacts of the COVID-19 pandemic. Approximately 30% of Korean American cleaners in Southern California have already closed their doors due to the pandemic's repercussions. The additional costs associated with compliance could make this situation even worse, leading to further closures, job losses, and economic instability within our community and the state of California.

16-2

Moreover, PAR 1146.2 risks triggering a ripple effect throughout the local economy by imposing substantial financial burdens on property owners and managers. Increased utility expenses and the need for rent hikes to offset compliance costs would place additional strain on tenants, further dampening consumer spending and exacerbating economic challenges in our region. Furthermore, the potential closure of KDLA would not only eliminate vital employment opportunities but also erode the cultural fabric and social cohesion of our communities.

16-3

In light of these pressing concerns, we urgently request the SCAQMD Governing Board to postpone consideration of PAR 1146.2. Additionally, we implore the Board to instruct District staff to actively engage with our organization and other stakeholders to foster a comprehensive dialogue on the feasibility and economic implications of this proposed rule.

Thank you for your attention to this matter. We stand ready to collaborate with you in finding equitable and sustainable solutions that prioritize both environmental and economic resilience in our region.

Sincerely,

Yoon Dong Kim
President
Korean Drycleaners Laundry Association Southern California



RESPONSE TO COMMENT LETTER #16

Response to Comment 16-1:

Staff appreciates the comments by the Korean Dry Cleaners & Laundry Association of Southern California on PAR 1146.2. Staff contacted the California Cleaners Association in October 2023 and has been in communication with representatives of the dry cleaning industry, including a member of the Korean Dry Cleaners & Laundry Association, since February 2024. Through meetings and site visits, staff has been working with the dry cleaners to identify challenges and propose potential solutions. As detailed in Chapter 2, the following changes were made to the rule to address the dry cleaners' concerns:

- Alternative compliance option that allows up to two consecutive ~~18~~²⁴-month extensions and an additional 12 month extension when utility upgrades delay compliance with zero-emission limits;
- Alternative compliance option that allows for an 18-month extension when construction is required to expand the space designed to house or relocate the unit and associated equipment necessary for operating the unit;
- Alternative compliance option that allows for a 6-month rental unit for emergency replacement when an owner or operator requires a short-term replacement due to sudden unit failure;
- Alternative compliance option that allows an extension of up to 24 months for a property under lease;
- Exemption for small businesses where existing units can be operated until their natural replacement after the applicable Table 3 compliance date; and
- Extended compliance date (i.e., 2033 for existing buildings) for boilers operated by dry cleaners, which are categorized as high temperature units.

Response to Comment 16-2:

Staff acknowledges some zero-emission technologies have higher upfront costs, but as zero-emission technologies become more mature and widely adopted in the market, there will be less upfront cost impact. In addition, staff is projecting lifetime utility savings based on future projected natural gas and electricity prices. The cost to operate heat pumps is lower than most electric appliances because they are so energy efficient; over the lifetime of the unit, that initial cost increase could be recovered. In addition, there are federal, state, and local incentive funding specifically to incentivize the switch to zero-emission technologies such as heat pumps. South Coast AQMD is developing a rebate program to help lower the cost for some consumers and small businesses and will be centralizing information for incentive and financing opportunities offered by other agencies and organizations.

Staff proposed several alternative compliance options as explained above and detailed in Chapter 3 that dry cleaners would be able to utilize. Staff will continue to monitor all the challenges for zero-emission implementation and will conduct a technology check-in and report the findings to the Stationary Source Committee by June 1, 2027, before the compliance dates for the high temperature units go into effect.

Response to Comment 16-3:

Staff recognizes the need to pursue emission reduction to address the air quality needs of the South Coast AQMD and also to send a market signal to manufacturers ahead of future implementation dates. Staff continues to communicate with representatives of the dry cleaning industry to discuss challenges PAR 1146.2 may pose to their operations.

COMMENT LETTER #17

LATHAM & WATKINS^{LLP}

May 3, 2024

Michael Krause, Assistant Deputy Executive Officer
 Heather Farr, Planning and Rules Manager
 Planning, Rule Development and Implementation
 South Coast Air Quality Management District
 21865 Copley Drive
 Diamond Bar, CA 91765

355 South Grand Avenue, Suite 100
 Los Angeles, California 90071-1560
 Tel: +1.213.485.1234 Fax: +1.213.891.8763
 www.lw.com

FIRM / AFFILIATE OFFICES

Austin	Milan
Beijing	Munich
Boston	New York
Brussels	Orange County
Century City	Paris
Chicago	Riyadh
Dubai	San Diego
Düsseldorf	San Francisco
Frankfurt	Seoul
Hamburg	Silicon Valley
Hong Kong	Singapore
Houston	Tel Aviv
London	Tokyo
Los Angeles	Washington, D.C.
Madrid	

Re: Regulatory Flexibility Group Comments on Proposed Amended Rule 1146.2

Dear Mr. Krause and Ms. Farr:

We write on behalf of our client the Regulatory Flexibility Group (“RFG”) regarding Proposed Amended Rule 1146.2 (“PAR 1146.2”). The RFG is an industry coalition that includes companies in the refining, utility and aerospace sectors that operate facilities within the jurisdiction of the South Coast Air Quality Management District (“SCAQMD” or the “District”) that will be affected by PAR 1146.2.

We appreciate the work that Staff has done so far to incorporate stakeholder feedback into PAR 1146.2, and we are thankful for the opportunity to comment on the proposed amendments and rulemaking process. We write to raise concerns with the legality of a ban on natural gas-fired water heaters, the sufficiency of the current cost-effectiveness analysis, the lack of environmental analysis under the California Environmental Quality Act (“CEQA”), and the ability of the electrical grid to handle PAR 1146.2’s wide-scale electrification. We also propose extending the timeline for PAR 1146.2 implementation in order to accommodate needed infrastructure upgrades, and for RECLAIM and former RECLAIM facilities to replace existing units. Each issue is discussed below.

PAR 1146.2 Effectively Bans Energy Policy and Conservation Act Covered Products

The Energy Policy and Conservation Act (“EPCA”) preempts any “State regulation concerning the... energy use... of [a] covered product.”¹ EPCA defines “energy use” as “the quantity of energy directly consumed by a consumer product at point of use.”² The Ninth Circuit recently interpreted EPCA preemption in the context of a City of Berkeley building code ordinance

¹ 42 U.S.C. § 6297(c).

² *Id.* § 6291(4).

17-1

May 3, 2024
Page 2

LATHAM & WATKINS LLP

17-1

that banned installation of natural gas piping in new construction, invalidating the ordinance as preempted by EPCA.³ While the case concerned the legality of Berkeley's ordinance and the application of EPCA preemption to building codes,⁴ the court's reasoning indicates that EPCA preemption likely also applies to a ban on natural gas appliances, such as water heaters and pool heaters, that are "covered products" under EPCA.⁵

In reaching the conclusion that EPCA preempted Berkeley's ordinance, the Ninth Circuit reasoned:

"EPCA preempts regulations... that relate to 'the quantity of [natural gas] directly consumed by' certain consumer appliances at the place where those products are used.... EPCA is concerned with the end-user's ability to *use* installed covered products at their intended final destinations, like restaurants. After all, a building code that prohibits consumers from using natural gas-powered appliances in newly constructed buildings necessarily regulates the "quantity of energy directly consumed by [the appliances] at point of use.... *In other words, a regulation on 'energy use' fairly encompasses an ordinance that effectively eliminates the 'use' of an energy source.*"⁶

PAR 1146.2, by mandating the installation of zero-emission equipment after the applicable effective date, effectively eliminates the use of an energy source (natural gas) for these EPCA-covered appliances. Accordingly, PAR 1146.2 falls squarely within the scope of the Ninth Circuit's EPCA preemption analysis. "Put simply, by enacting EPCA, Congress ensured that the States and localities could not prevent consumers from using covered products in their homes, kitchens, and businesses."⁷ EPCA therefore preempts PAR 1146.2.

The Cost-Effectiveness Analysis Excludes Substantial Costs

17-2

We appreciate that Staff has updated its cost-effectiveness analysis throughout the rulemaking process. We note, however, that the most recent analysis does not include the substantial costs associated with the on-site electrical infrastructure upgrades necessary to transition to zero-emissions technology at many facilities, particularly at facilities with multiple units subject to PAR 1146.2, spread across many buildings.

³ *California Restaurant Association v. City of Berkeley* (9th Cir. 2024) 89 F.4th 1094, 1098.

⁴ *Id.* at 1101.

⁵ See 42 U.S.C. §§ 6292(a) (covered products include water heaters and pool heaters). EPCA preemption also extends to certain industrial equipment. 42 U.S.C. § 6316(a). See also 88 Fed. Reg. 69686 (Oct. 6, 2023) (establishing standards for commercial water heating equipment).

⁶ *California Restaurant Association*, 89 F.4th at 1101–02.

⁷ *Id.* at 1103.

May 3, 2024
Page 3

LATHAM & WATKINS LLP

17-2

Other than the potential need for an electrical panel upgrade, Staff's analysis regarded the difference in installation costs between natural gas-fired and zero-emission units to be negligible.⁸ This is a vast underestimation. Staff's assumption fails to appropriately consider the cost of the electrical infrastructure design, engineering, and installation that is necessary to support the installation and operation of zero-emissions units at a facility. Such infrastructure upgrades depend on the specifics of each facility and may include replacement of air handlers, installation of new switch gears, seismic building upgrades, and *even new electrical substations to handle increased electricity demand*. For larger facilities, these infrastructure upgrades could result in facilities expending tens of millions of dollars (if not more) to comply with PAR 1146.2 requirements. As detailed fully in a comment letter submitted by RFG member SoCalGas,⁹ this is a substantial cost that is unique to the deployment of zero-emissions units, making the cost of installing zero-emission units significantly higher than the costs associated with replacing natural gas-fired units with like units. Specifically, SoCalGas calculated a multi-unit installation scenario and concluded that replacing five natural gas-fired units with zero-emission units would be over \$1.8 million more expensive than replacing the natural gas-fired units with like units. This incremental cost increase will quickly compound to substantial capital outlays for facilities that must replace many units and for entities with multiple facilities. These costs must be considered in order to conduct an accurate cost-effectiveness analysis.

The Cost-Effectiveness Exceeds Screening Thresholds

17-3

The 2022 Air Quality Management Plan ("AQMP") adopted a cost-effectiveness threshold of \$325,000 per ton of NO_x reduced, which was updated to \$349,000 to reflect 2022 dollars for the PAR 1146.2 rulemaking.¹⁰ Pursuant to the AQMP, when the cost-effectiveness threshold is exceeded, District Staff must hold a public meeting to discuss "emission standards with a cost-effectiveness at or below the proposed screening threshold and/or compliance or implementation options to address an emission standard that is above the proposed screening threshold."¹¹ Further, at the public hearing for the proposed amendments, Staff must present the various emission standard options and the emission reductions associated with each.¹²

The most recent cost-effectiveness figures calculated by Staff exceed the screening threshold for Type 1 High Temperature Units.¹³ When including the costs associated with electrical infrastructure design, engineering, and installation, SoCalGas' analysis confirms that the cost-effectiveness for replacement of all unit categories will greatly exceed the screening threshold.¹⁴ For example, when considering all installation costs, the cost-effectiveness of replacing a Type 1 water heater with a heat pump water heater is over \$3 million per ton of NO_x

⁸ SCAQMD, PAR 1146.2 Preliminary Draft Staff Report (Jan. 2024) p. 2-14 (*hereafter*, "Staff Report").

⁹ See March 8, 2024 letter from Kevin Barker, SoCalGas, to Yangrong Zhu, SCAQMD, regarding Comments on the Initial Preliminary Draft of Proposed Amended Rule 1146.2, appendix (*hereafter*, "SoCalGas Comment").

¹⁰ Staff Report, pp. 2-16 to 2-17.

¹¹ SCAQMD, 2022 Air Quality Management Plan (Dec. 2, 2022) p. 4-83.

¹² *Id.*

¹³ SCAQMD, PAR 1146.2 Public Consultation Presentation (Feb. 23, 2024), p. 10.

¹⁴ See SoCalGas Comment.

May 3, 2024
Page 4

LATHAM & WATKINS LLP

17-3

reduced, and the cost-effectiveness of replacing a Type 2 boiler with a heat pump water heater is over \$2.5 million.¹⁵ Staff must adhere to the public process outlined in the 2022 AQMP before bringing PAR 1146.2 to the Board for a public hearing.

PAR 1146.2 Requires Additional CEQA Analysis

17-4

We are concerned that the District's decision not to prepare additional environmental analysis for PAR 1146.2 may run afoul of CEQA. The scope of the proposed amendments in PAR 1146.2 is greater than the project descriptions of the relevant control measures analyzed in the Final Program Environmental Impact Report for the 2022 AQMP ("2022 AQMP PEIR"). While the analysis of control measure C-CMB-01 in the 2022 AQMP PEIR appears to encompass the replacement of Type 1 and Type 2 water heaters subject to PAR 1146.2, the scope of the project has changed substantially in regard to replacement of instantaneous water heaters and Type 1 pool/spa heaters.

Specifically, control measure C-CMB-01 was analyzed to include the replacement of 64,000 Type 1 and 32,000 Type 2 water heaters,¹⁶ but there appears to be no analysis for the 300,000 instantaneous water heaters that Staff estimates will be subject to replacement under PAR 1146.2.¹⁷ Additionally, control measure R-CMB-04, which includes replacement of pool heaters with zero-emission technology, analyzed replacement of only 200,000 pool heaters¹⁸ while Staff estimates that PAR 1146.2 will apply to 708,000 units.¹⁹

Beyond the substantial increase in the number of affected sources, the District continues to vastly underestimate the on-site infrastructure upgrades that will be required to install PAR 1146.2-required units. Replacing natural gas-fired boilers with zero-emission units requires replacing the associated infrastructure as well, particularly at larger facilities. Most notably, some facilities will need to construct new substations to support the electrical needs of PAR 1146.2-required units. Existing electrical supplies are already strained to accommodate planned facility growth and other in-process electrification efforts such as installing electric vehicle charging infrastructure. Other infrastructure upgrades may also be necessary, for example:

- Replacing a boiler can also require replacing associated air handlers, and facilities with many boilers may have scores of air handlers to replace.
- At facilities with boilers spread across multiple buildings, new switch gears will need to be installed in each building.
- Seismic upgrades may be necessary when equipment is installed on the roofs of buildings because heat pumps and associated equipment can be considerably heavier than natural-gas fired equipment.

¹⁵ See *id.*, appendix, p. 4.

¹⁶ SCAQMD, 2022 AQMP Final Program Environmental Impact Report (Nov. 2022), p. 4.2-32.

¹⁷ SCAQMD, PAR 1146.2 Public Consultation Presentation (Feb. 23, 2024), p. 6.

¹⁸ SCAQMD, 2022 AQMP Final Program Environmental Impact Report (Nov. 2022) p. 4.2-32.

¹⁹ SCAQMD, PAR 1146.2 Public Consultation Presentation (Feb. 23, 2024) pp. 5, 6.

May 3, 2024
Page 5

LATHAM & WATKINS LLP

17-4

Staff has concluded that the 2022 AQMP PEIR “adequately describes the activities associated with implementing PAR 1146.2 for the purposes of CEQA” and that PAR 1146.2 is a “later activity” within the scope of the 2022 AQMP PEIR.²⁰ However, the project changes described above may lead to different effects or more severe effects than those analyzed in the 2022 AQMP PEIR. Further, the on-site infrastructure upgrades needed to install zero-emissions units at larger facilities greatly exceed what the District has acknowledged to date, and the impacts from that construction were not considered in the 2022 AQMP PEIR. Accordingly, further environmental analysis is required to comply with CEQA.²¹ Prior to considering the rule for adoption, the District should conduct a subsequent environmental analysis of PAR 1146.2 and release the resulting document for public comment.

17-5

The Compliance Dates Should be Extended to Allow Time for Infrastructure Upgrades and Development of a Robust Supply Chain

As discussed above, replacement of natural gas water heaters with electric units will require significant infrastructure upgrades at many facilities. This will take both significant time and require significant capital outlay. Implementation of PAR 1146.2 on the currently proposed timeline may therefore cause facilities to forgo growth opportunities and have the effect of slowing the progress of other important electrification initiatives in order to meet PAR 1146.2 compliance deadlines. Additionally, we are concerned that the proposed compliance timelines do not adequately account for the needed ramp up in manufacturing and supply chains sufficient to provide the electric units that facilities will need in order to comply with the rule. Facilities will be unable to maintain compliance if supply is not sufficient and may be forced to incur inflated costs in order to obtain units that are in short supply. *For all of these reasons, we propose that the compliance dates in PAR 1146.2, Table 3 each be extended ten years.*

17-6

We Are Concerned with the Grid’s Ability to Handle the Transition

Implementation of PAR 1146.2 will significantly increase the load on the power grid. As RFG raised in letters commenting on the 2022 AQMP, the electrification measures proposed in the 2022 AQMP will require increased electrical generation and development of associated infrastructure. The increased load on the grid could adversely impact the affordability, availability, and reliability of the regional energy market. Further, there are significant cost and timing challenges associated with the deployment of needed infrastructure, including likely delays driven by strategic litigation brought under CEQA. Increased litigation risk may discourage investments from public utilities and private parties that are necessary to realize a resilient and reliable grid that can handle the wide-scale deployment of zero-emission technologies. These challenges are yet to be solved and may threaten the ability for facilities to implement wide-scale electrification measures like those contemplated by PAR 1146.2.

²⁰ SCAQMD, PAR 1146.2 Stationary Source Committee Presentation (March 15, 2024), p. 13.

²¹ See Cal. Code Regs. tit. 14, § 15168(c)(1) (“If a later activity would have effects that were not examined in the program EIR, a new initial study would need to be prepared leading to either an EIR or a negative declaration.”); see also Cal. Code Regs. tit. 14, § 15162(a)(1) (subsequent EIR required when “[s]ubstantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects.”)

May 3, 2024
Page 6

LATHAM & WATKINS LLP

17-6

As discussed above, proposed amendments in PAR 1146.2 will prompt electrification on a scale even more expansive than contemplated in the relevant 2022 AQMP control measure. The resulting environmental effects of the expanded scope of electrification driven by PAR 1146.2 must be carefully considered and fully understood prior to the adoption of the rule to avoid unintended consequences.

17-7

It is not Feasible for RECLAIM and Former RECLAIM Facilities to Replace Certain Existing Boilers Within One Year of Rule Adoption

Another area of concern is the requirement that RECLAIM and former RECLAIM facilities replace existing units that do not meet specific NOx limits within one year of rule adoption. Specifically, effective one year after rule adoption, PAR 1146.2 paragraph (d)(9) prohibits current and former RECLAIM facilities from operating Type 2 units manufactured prior to January 1, 2010 that do not meet NOx emission limits of 30 ppmv and Type 1 units manufactured prior to January 1, 2012 that do not meet NOx emission limits of 55 ppmv. One year is not sufficient time for the required design, planning, engineering, permitting, and infrastructure upgrades necessary to replace these units with zero-emissions units. To facilitate a successful transition, we propose that current and former RECLAIM facilities be given three years to phase these units out.

Conclusion

We greatly appreciate the opportunity to provide these comments on PAR 1146.2. We would also appreciate a meeting to discuss the concerns expressed in this letter. Please contact me at (213) 891-7395, or by email at john.heintz@lw.com with your availability to schedule a discussion.

Best regards,



John C. Heintz
of LATHAM & WATKINS LLP

Cc: Yanrong Zhu, SCAQMD
Jennifer Vinh, SCAQMD
Peter Campbell, SCAQMD
Emily Yen, SCAQMD
RFG Members
Nick Cox, Latham & Watkins LLP

RESPONSE TO COMMENT LETTER #17**Response to Comment 17-1:**

Staff appreciates the comments by the Regulatory Flexibility Group. Please see Response to Comment 15-2 regarding EPCA preemption.

Response to Comment 17-2:

The cost-effectiveness analysis for BARCT is to evaluate the incremental cost per ton of emission reductions by retrofitting or replacing a type of equipment with newer technologies. This analysis is equipment based, and it considers incremental installation and electrical upgrade costs as explained in Chapter 2 of this staff report. Although the cost-effectiveness does not evaluate the total cost for a facility with multiple units, the socioeconomic impact analysis for this project assesses the total cost impact for the region.

Please see Response to Comment 5-3 regarding incremental installation cost and Response to Comment 12-2 regarding the cost of multiple unit replacement and potentially required electrical infrastructure construction (e.g., trenching).

Staff met with SoCalGas to go through the SoCalGas cost estimation details, provided staff clarification and suggestions to adjust the estimations, and requested further information. As noted in Response to Comment 15-4, SoCalGas agreed to reevaluate the cost details and estimation. Staff will follow up with SoCalGas for their updated cost estimation.

Response to Comment 17-3:

For PAR 1146.2, staff did not identify multiple control options that would meet the air quality objectives. The 2022 AQMP's objective is to transition to zero-emission technologies, wherever feasible, and staff identified technically feasible zero-emission control options for each category of equipment subject to Rule 1146.2.

Staff understands the cost-effectiveness for Type 1 high temperature units is over the 2022 AQMP cost-effectiveness threshold, and thus proposed later implementation dates for high temperature units, which are 2029 for installations in new buildings and 2033 for installations in existing buildings. In addition, staff has committed to conducting a technology check-in by June 1, 2027, prior to the implementation dates for high temperature units. The technology check-in will reassess the costs and cost-effectiveness to transition high temperature units to zero-emissions and may recommend changes to the emission limits or compliance schedule at that time. Establishing the zero-emission limits at this time is important to set the market signal that will drive technology development and reduce costs overtime. A public process will be included as part of the technology check-in.

Staff did not apply the installation costs suggested by SoCalGas to the installation of all units subject to PAR 1146.2. All installations will have unique challenges, as some costs might be higher than the staff's estimates and some might be lower. Overall, our cost-effectiveness approach is balanced and resulted in one category, Type I high temperature units, being over the cost screening threshold. Staff discussed the cost effectiveness of that category in several public Working Group Meetings and at Stationary Source Committee meetings. Page 4-83 of the 2022 AQMP requires discussing at public meetings, "other

emission standards with a cost-effectiveness at or below the proposed screening threshold **and/or** compliance **or** implementation options to address an emission standard that is above the proposed screening threshold." (Emphasis added.) The approach staff has discussed in public meetings, presented to the Stationary Source Committee, and will present at the Public Hearing, is the implementation approach to allow for an extended compliance schedule for high temperature units, coupled with the technology check-in to reassess costs. In addition, the rule includes a number of alternative compliance options designed to address potential challenges and costs for the transition to zero-emission technologies. Finally, the average cost-effectiveness of PAR 1146.2 when considering the entire rule universe is about \$137,000 per ton of NO_x reduction, which is well below the 2022 AQMP cost-effectiveness screening threshold.

Response to Comment 17-4:

The Final Program EIR for the 2022 AQMP extensively analyzes a full suite of control measures that were adopted in the 2022 AQMP, including Control Measure C-CMB-01 upon which PAR 1146.2 relies. Appendix A of this staff report provides the evidence which explains how implementation of PAR 1146.2 comports with the analysis in the Final Program EIR for the 2022 AQMP relative to implementing Control Measure C-CMB-01. In particular, Table A-1 contains a summary of the conclusions for the environmental topic areas with potentially significant impacts in the Final Program EIR for the 2022 AQMP which are specific to implementing Control Measure C-CMB-01 (see Appendix A of this staff report, p. A-6). Further, Table A-2 (see Appendix A of this staff report, p. A-7) summarizes the physical changes expected, environmental topic areas affected, and the applicable mitigation measures associated with implementation of PAR 1146.2 and compares the similarities to those analyzed for Control Measure C-CMB-01 in the Final Program EIR for the 2022 AQMP. The replacement of existing water heating equipment is expected to occur at the end of unit age. Regarding instantaneous water heaters, they are predominantly installed in residential settings which will undergo natural replacement, such that operators will remove the existing equipment and install a new water heating system, including the estimated 300,000 potential new instantaneous water heaters, regardless of implementation of PAR 1146.2. Thus, the replacement of water heaters is not considered a new impact.

Further, the replacement of existing water heating equipment is, in some cases, expected to require upgrades to electrical panels and other building components to enable the increased use of zero-emission equipment. Therefore, of the physical changes contemplated from Control Measure C-CMB-01, implementation of PAR 1146.2 is primarily expected to result in the increased use of electricity and natural gas to produce electricity.

It is important to note that PAR 1146.2 includes long implementation timeframes; therefore, when examining the peak daily impacts of the rule during construction and operation, whether replacing water heaters, pool heaters, or boilers and modifying the infrastructure accordingly the conclusions in the Final Program EIR for the 2022 AQMP are not anticipated to change.

Specific to the remark regarding the potential increase from 200,000 pool heaters to 708,000 pool and spa heaters, the energy estimates were updated accordingly and the

potential increase in energy usage was less than one percent, which is the criteria relied upon to determine whether the change is significant for energy use. For this reason, the change in the overall number of potential pool heater replacements over time was not considered significant new information. The details of the reasoning behind this conclusion can be found in Appendix A of this staff report (see pp. A-10 through A-11).

Finally, there is no other new additional detailed information currently available to further refine the analysis beyond what was conducted in the Final Program EIR for the 2022 AQMP for industrial facilities and CEQA does not require speculation [CEQA Guidelines Section 15145]. Of course, at the time when large industrial facilities are ready to modify their equipment to replace their units with zero-emission technology, modifications to the facility's air permits will be required and the application(s) seeking the necessary modifications will be required to undergo a project-level CEQA review at that time.

Response to Comment 17-5:

Staff has worked with stakeholders on the proposed implementation dates throughout the rulemaking process and made adjustments accordingly. Response to Comment 1-4 is an example of the adjustment of implementation dates for several categories. Staff understands an infrastructure upgrade may be needed for some existing buildings, and thus [proposes to provide an 18-month extension for construction or relocation needed and increase the extension allowance for utility upgrades from two 18-month extensions to a total of 60 months of extensions, to provide more time in these situations. Further, staff](#) has proposed more time for implementation in existing buildings versus in new buildings. For installations in existing buildings, the earliest implementation is phase one by January 1, 2029, for smaller units that have mature zero-emission technology market adoption, and a later implementation is phase three by January 1, 2033, for high temperature units. This implementation schedule provides time for owners or operators to prepare for any future installation and sends a market signal to manufacturers for more product development. Zero-emission units are available now and have been available for a long time. Staff met with appliance manufacturers who are increasing production. Further, the South Coast AQMD needs these emission reductions to achieve the NAAQS ozone and PM standards and cannot extend the compliance dates 10 years beyond what is being proposed and still achieve the NAAQS standards.

Staff will continue to monitor all the challenges for zero-emission implementation and will conduct a technology check-in and report the findings to the Stationary Source Committee by ~~January 1, 2028~~ [June 1, 2027](#), prior to the compliance dates for installations in existing buildings.

Response to Comment 17-6:

Regarding electric grid capacity and supply, please see Response to Comment 4-1 which provides staff response to a similar comment and Chapter 2 in this staff report for further discussion.

Response to Comment 17-7:

Staff removed the lower NO_x requirements previously proposed in paragraph (d)(9) and added an exception for units at RECLAIM and former RECLAIM facilities to paragraph (d)(6). This proposal revision means RECLAIM and former RECLAIM facilities will be subject to paragraph (d)(3) of PAR 1146.2 for zero-emission requirements once the existing units reach their unit age on and after the applicable Table 3 compliance dates. Please see Response to Comment 11-2 regarding the proposal revision for units in RECLAIM and former RECLAIM facilities.

ATTACHMENT H

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Socioeconomic Impact Assessment For Proposed Amended Rule 1146.2 – Control of Oxides of Nitrogen from Large Water Heaters, Small Boilers and Process Heaters

June 2024

Deputy Executive Officer

Planning, Rule Development, and Implementation
Sarah L. Rees, Ph.D.

Assistant Deputy Executive Officer

Planning, Rule Development, and Implementation
Michael Krause

Planning and Rules Manager

Planning, Rule Development, and Implementation
Barbara Radlein

Authors: Xian-Liang (Tony) Tian, Ph.D. – Program Supervisor
Shah Dabirian, Ph.D. – Consultant
Daniel Penoyer – Air Quality Specialist
Chris Yu – Assistant Air Quality Specialist

Contributors: Yanrong Zhu – Program Supervisor
Peter Campbell – Air Quality Specialist
Emily Yen – Assistant Air Quality Specialist
Valerie Rivera – Assistant Air Quality Specialist

Reviewed By: Barbara Radlein – Planning and Rules Manager
Ruby Laity – Principal Deputy District Counsel
Josephine Lee – Senior Deputy District Counsel

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
GOVERNING BOARD**

CHAIR: VANESSA DELGADO
Senator (Ret.)
Senate Rules Committee Appointee

VICE CHAIR: MICHAEL A. CACCIOTTI
Councilmember, South Pasadena
Cities of Los Angeles County/Eastern Region

MEMBERS:

ANDREW DO
Supervisor, First District
County of Orange

CURT HAGMAN
Supervisor, Fourth District
County of San Bernardino

GIDEON KRACOV
Governor's Appointee

PATRICIA LOCK DAWSON
Mayor, Riverside
Cities of Riverside County Representative

LARRY MCCALLON
Mayor, Highland
Cities of San Bernardino County

HOLLY J. MITCHELL
Supervisor, Second District
County of Los Angeles

VERONICA PADILLA-CAMPOS
Speaker of the Assembly Appointee

V. MANUEL PEREZ
Supervisor, Fourth District
County of Riverside

NITHYA RAMAN
Councilmember, Fourth District
City of Los Angeles Representative

CARLOS RODRIGUEZ
Councilmember, Yorba Linda
Cities of Orange County

JOSE LUIS SOLACHE
Councilmember, Lynwood
Cities of Los Angeles County/Western Region

EXECUTIVE OFFICER:

WAYNE NASTRI

TABLE OF CONTENTS

EXECUTIVE SUMMARY	ES-1
INTRODUCTION	1
LEGISLATIVE MANDATES	1
South Coast AQMD Governing Board Resolutions	1
Health and Safety Code Requirements	2
AFFECTED FACILITIES AND INDUSTRIES.....	2
Affected Industries and Small Business	3
COMPLIANCE COSTS.....	6
Water Heaters	6
High Temperature Units	7
Instantaneous Water Heater and Pool Heater Replaced with Heat Pump	7
Fuel Switching Cost.....	8
Total Compliance Cost of PAR 1146.2	10
MACROECONOMIC IMPACTS ON THE REGIONAL ECONOMY	15
Impact of Proposed Amendments.....	15
Regional Job Impacts.....	17
Competitiveness.....	20
REFERENCES	21

EXECUTIVE SUMMARY

On March 17, 1989, the South Coast Air Quality Management District (South Coast AQMD) Governing Board adopted a resolution which requires an analysis of the economic impacts associated with adopting and amending rules and regulations. In addition, Health and Safety Code Section 40440.8 requires a socioeconomic impact assessment for any proposed rule, rule amendment, or rule repeal which “will significantly affect air quality or emissions limitations.” Lastly, Health and Safety Code Section 40920.6 requires an incremental cost-effectiveness analysis for a proposed rule or amendment which imposes Best Available Retrofit Control Technology (BARCT) or “all feasible measures” requirements relating to emissions of ozone, carbon monoxide (CO), sulfur oxides (SOx), nitrogen oxides (NOx), volatile organic compounds (VOC), and their precursors.

Proposed Amended Rule (PAR) 1146.2– Control of Oxides of Nitrogen from Large Water Heaters, Small Boilers and Process Heaters was developed to seek further emission reductions of NOx from natural gas-fired equipment within the South Coast AQMD’s jurisdiction and implement the 2022 Air Quality Management Plan (AQMP) Control Measure C-CMB-01: Emission Reductions from Replacement with Zero-emission or Low NOx Appliances – Commercial Water Heating. Upon full implementation, PAR 1146.2 is expected to reduce NOx emissions by 5.6 tons per day (tpd).

A socioeconomic impact assessment has been conducted to assess the cost impacts of PAR 1146.2 and the following presents a summary of the analysis and findings.

Key Elements of PAR 1146.2 PAR 1146.2 requires zero-emission technologies at future effective dates for natural gas-fired large water heaters, small boilers, and process heaters with a heat input greater than 75,000 British thermal units per hour (Btu/hr) and less than or equal to 2 million Btu per hour (MMBtu/hr).

Affected Facilities and Industries PAR 1146.2 is applicable to manufacturers, distributors, retailers, resellers, installers, owners, and operators of natural gas-fired large water heaters, small boilers, and process heaters with a heat input rating between 75,000 Btu/hr and 2 MMBtu/hr. PAR 1146.2 does not regulate residential gas-fired tank type water heaters rated less than 75,000 Btu/hr heat input. However, residential instantaneous water heaters and pool heaters are regulated by Rule 1146.2 due to higher Btu ratings of those type of units. The PAR 1146.2 universe is comprised of approximately 1,070,000 units of water heaters, high temperature units and pool heaters, which are used in residential, commercial, or light industrial settings. Nearly all industries will be affected by PAR 1146.2. Specifically, the warehousing and storage sector (NAICS 493) will be most affected by PAR 1146.2, followed by sectors of nursing and residential care facilities (NAICS 623) and museums, historical sites, and similar institutions (NAICS 712). Prior analyses in South Coast AQMD indicate that most of the facilities in these sectors do not qualify as a small business pursuant to South Coast AQMD Rule 102 – Definition of Terms. Due to insufficient data on the universe of the facilities affected by PAR 1146.2, a full-blown small business impact analysis is not feasible for this socioeconomic impact assessment.

Assumptions for the Analysis

Most of the compliance costs of PAR 1146.2 are related to the transition from gas-fired to zero-emission water heating equipment. Cost estimation involves an estimated universe of 1,070,000 units of Type 1 and Type 2 units, tank type or instantaneous water heaters, high temperature units and pool heaters, 90 percent (%) of which are assumed to be replacement of old gas-fired units in existing commercial, residential, or light industrial buildings, while the remaining 10% are first-time installations in new buildings for the applicable category pursuant to PAR 1146.2 paragraph (d)(2) on and after the applicable PAR 1146.2 compliance dates.

The analysis assumed the unit age of all existing units is uniformly distributed over a period of their full useful life, implying that implementing PAR 1146.2 at the existing buildings will be a linear, phased-in process. After the phase-in is completed, all of the old gas-fired units will have been replaced by zero-emission units. In addition, PAR 1146.2 provides an implementation grace period for existing buildings, that is, the first year of implementation is allowed to occur three or four years later than what is required for new buildings. Equipment replacement occurring in existing buildings may involve an electric panel upgrade cost, while installing zero-emission units in new buildings has no such upgrade cost.

To estimate the fuel switching cost/saving of transitioning from natural gas to zero-emission water heating technologies that use electricity, this analysis considered the anticipated energy demand and forecasted prices in the future for both natural gas and electricity. The source of the forecasted energy prices is the 2023 California Energy Commission (CEC) Integrated Energy Policy Report (IEPR). For Type 1 pool heaters and instantaneous water heaters, residential utility rates are applied, while commercial utility rates are applied for all the other categories of units. In addition, the CEC IEPR considers three different scenarios: a baseline scenario, a high energy demand scenario and a low energy demand scenario. The analysis in this report applied the electricity price forecast from the baseline scenario.

Compliance Costs

The average annual compliance costs of PAR 1146.2 are estimated to range from \$48.99 million to \$96.77 million, depending on the real interest rate assumed (1% to 4%). The estimated annual costs are expected to be incurred by nearly all the industries in the South Coast AQMD region.

The following table presents the summary of the average annual cost of PAR 1146.2 by equipment category. Except for instantaneous water heaters, all the equipment categories exhibit a cost savings in their recurring fuel-switching cost. With one-time and recurring costs combined, about 32% of the total annual compliance cost is attributed to

Type 2 water heaters being replaced with two split heat pumps, followed by instantaneous water heaters which would be about 21% of the total annual cost.

Average Annual Compliance Costs (2026-2057)

Cost Categories	1% Real Interest Rate	4% Real Interest Rate
One-Time Cost		
Type 1 Water Heater replaced by heat pump	\$16,289,888	\$19,728,126
Type 1 High Temperature Unit replaced by heat pump	\$8,260,714	\$11,309,575
Type 2 Water Heater - Scenario with replacement by two split heat pumps	\$32,344,304	\$44,281,929
Type 2 High Temperature Unit replaced by heat pump	\$6,294,343	\$8,617,457
Type 1 Pool Heater replaced by heat pump	\$121,291,936	\$146,892,519
Instantaneous Water Heater replaced by heat pump	\$3,847,000	\$5,266,850
Recurring Costs		
Type 1 Water Heater replaced by heat pump	(\$2,671,829)	(\$2,671,829)
Type 1 High Temperature Unit replaced by heat pump	(\$4,376,038)	(\$4,376,038)
Type 2 Water Heater - Scenario with replacement by two split heat pumps	(\$12,786,700)	(\$12,786,700)
Type 2 High Temperature Unit replaced by heat pump	(\$4,819,582)	(\$4,819,582)
Type 1 Pool Heater replaced by heat pump	(\$129,540,284)	(\$129,540,284)
Instantaneous Water Heater replaced by heat pump	\$14,865,970	\$14,865,970
Total	\$48,999,721	\$96,767,993

Job Impacts

Direct effects of the proposed project are used as inputs to the REMI model in order for the model to assess secondary/induced impacts for all the industries in the four-county economy on an annual basis and across a user-defined horizon.

When the compliance cost is annualized using a 4% real interest rate, it is projected that an annual average of 1,074 net jobs will be foregone from 2026 to 2057. The 1,074 annual jobs foregone represents approximately 0.0084% of total annual jobs in the four-county area.

In 2031, about 600 additional jobs are projected to be added to the economy due to the compliance expenditures and additional spending associated with the installation of zero-emission water heaters. These additional jobs are expected to come from sectors such as retail (NAICS 44-45), fabricated metal product manufacturing (NAICS 332), and wholesale trade (NAICS 42).

However, as affected facilities continue to bear the amortized capital expenditures of zero-emission water heaters, a gradual reduction in the positive job impacts from earlier years is expected to occur. Consequently, this reduction would lead to jobs foregone in the subsequent years following the initial implementation.

The construction sector (NAICS 23) is anticipated to bear the largest share of average annual jobs foregone, with an estimated 173 jobs foregone.

Competitiveness

The overall impacts of the PAR 1146.2 on the production costs and delivered prices in the region is not expected to be significant. According to the REMI Model, PAR 1146.2 is projected to increase the cost of production of all the industries in South Coast AQMD's jurisdiction by 0.002% and increase the relative delivered price of the goods provided by those industries by 0.002% in 2032, when PAR 1146.2 has the greatest impacts upon cost of production and relative delivered price in affected industries.

INTRODUCTION

Rule 1146.2– Control of Oxides of Nitrogen from Large Water Heaters, Small Boilers and Process Heaters, regulates NOx emissions from natural gas-fired large water heaters, small boilers, and process heaters with a heat input greater than 75,000 Btu/hr and less than or equal to 2 MMBtu/hr. Rule 1146.2 was adopted in January 1998 and last amended in 2018.

Proposed Amended Rule (PAR) 1146.2 seeks further NOx emission reductions from natural gas-fired equipment in South Coast AQMD’s jurisdiction and implements the 2022 AQMP Control Measure C-CMB-01: Emission Reductions from Replacement with Zero-emission or Low NOx Appliances – Commercial Water Heating. Upon full implementation, PAR 1146.2 is expected to reduce NOx emissions by 5.6 tpd.

The provisions of PAR 1146.2 are applicable to manufacturers, distributors, retailers, resellers installers, owners, and operators of natural gas-fired large water heaters, small boilers, and process heaters less than or equal to 2 MMBtu/hr. PAR 1146.2 does not regulate residential gas-fired tank type water heaters less than 75,000 Btu/hr heat input which are regulated under South Coast AQMD Rule 1121 – Control of Nitrogen Oxides from Residential Type, Natural Gas-Fired Water Heaters (Rule 1121); however, residential instantaneous (tankless) water heaters and pool heaters are regulated by Rule 1146.2 due to the higher Btu ratings of those type of units. Units used in recreational vehicles are exempt from the requirements of Rule 1146.2.

PAR 1146.2 will affect approximately 1,070,000 units in the South Coast AQMD, including approximately 710,000 pool heaters, 300,000 instantaneous water heaters, and 60,000 other Type 1 and Type 2 units. Type 1 units are the units with rated heat input capacity less than or equal to 400,000 Btu/hr, and Type 2 units are the ones sized greater than 400,000 Btu/hr and less than or equal to 2,000,000 Btu/hr.

LEGISLATIVE MANDATES

The legal mandates directly related to the assessment of PAR 1146.2 include South Coast AQMD Governing Board resolutions and various sections of the Health and Safety Code.

South Coast AQMD Governing Board Resolution

On March 17, 1989, the South Coast AQMD Governing Board adopted a resolution that calls for an economic analysis associated with adopting and amending rules and regulations that considers all of the following elements:

- Affected industries
- Range of probable costs
- Cost-effectiveness of control alternatives
- Public health benefits

Health and Safety Code Requirements

The state legislature adopted legislation which reinforces and expands the South Coast AQMD Governing Board resolution requiring socioeconomic impact assessments for rule development projects. Health and Safety Code Section 40440.8, which went into effect on January 1, 1991, requires a socioeconomic impact assessment for any proposed rule, rule amendment, or rule repeal which "will significantly affect air quality or emissions limitations."

To satisfy the requirements in Health and Safety Code Section 40440.8, the scope of the socioeconomic impact assessment should include all of the following information:

- Type of affected industries;
- Impact on employment and the regional economy;
- Range of probable costs, including those to industry;
- Availability and cost-effectiveness of alternatives to the rule;
- Emission reduction potential; and
- Necessity of adopting, amending, or repealing the rule in order to attain state and federal ambient air quality standards.

Health and Safety Code Section 40728.5, which went into effect on January 1, 1992, requires the South Coast AQMD Governing Board to: 1) actively consider the socioeconomic impacts of regulations; 2) make a good faith effort to minimize adverse socioeconomic impacts; and 3) include small business impacts. To satisfy the requirements in Health and Safety Code Section 40728.5, the socioeconomic impact assessment should include the following information:

- Type of industries or business affected, including small businesses; and
- Range of probable costs, including costs to industry or business, including small business.

Finally, Health and Safety Code Section 40920.6, which went into effect on January 1, 1996, requires an incremental cost-effectiveness analysis for a proposed rule or amendment which imposes Best Available Retrofit Control Technology (BARCT) or "all feasible measures" requirements relating to emissions of ozone, carbon monoxide (CO), sulfur oxides (SO_x), nitrogen oxides (NO_x), VOC, and their precursors. The BARCT and cost-effectiveness analyses for PAR 1146.2 were conducted and are located in Chapter 2 of the Final Draft Staff Report.

AFFECTED FACILITIES AND INDUSTRIES

Water heaters, boilers, and pool heaters which are subject to PAR 1146.2 requirements can be used in residential as well as commercial and light industrial settings. Since residences are not facilities, the universe of PAR 1146.2 is based on the number of affected units (e.g., water heaters, boilers and pool heaters), instead of affected facilities. The affected units are split into two categories: Type 1 units with a rated heat input capacity less than or equal to 400,000 Btu/hr, and Type 2 units whose rated heat input capacity is greater than 400,000 Btu/hr but less than or equal to 2,000,000 Btu/hr. The total PAR 1146.2 universe is comprised of approximately 1,070,000 units, with approximately 710,000 pool heaters, 300,000 instantaneous water heaters, and 60,000 other units.

The 2019 Residential Appliance Saturation Study (RASS) finds that 7% of homes in the region where SoCalGas is the natural gas provider have gas-heated spas and 5% have pools with gas

heaters.¹ There are approximately 5.9 million homes in the South Coast AQMD region based on the U.S. Census' 2021 American Housing Survey. Thus, staff conservatively estimated that there are approximately 710,000 (calculated as 5,900,00 x 12%) Type 1 pool heaters operating at residences in the South Coast AQMD region.

The 2006 rule amendment also relied on data provided by SoCalGas which estimated that there were 40,000 and 22,000 units of Type 1 and Type 2 water heaters and boilers, respectively, in the South Coast AQMD jurisdiction at the time. For the PAR 1146.2 analysis, the analysis assumed 60,000 total units for these categories in the region. Meanwhile, the proportions of Type 1 and Type 2 units in the universe that are not Type 1 pool heaters or instantaneous water heaters was also updated utilizing the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) certifications data.

Recently, the deployment of residential instantaneous water heaters has increased in response to federal and state energy efficiency regulations. Using the 2019 California Residential Appliance Saturation Study (RASS) from the CEC and the Residential Energy Consumption Survey (RECS) from the U.S. Energy Information Administration, there are approximately 300,000 instantaneous water heaters in the South Coast AQMD jurisdiction.²

Affected Industries and Small Business

PAR 1146.2 is applicable to manufacturers, distributors, retailers, installers, and operators of natural gas-fired large water heaters, small high temperature units, and process heaters less than or equal to 2 MMBtu/hr. Staff estimated a universe of 1,070,000 units of tank type/instantaneous water heaters, pool heaters, and other units. The majority of the instantaneous water heaters and pool heaters are used in residential buildings while the rest are primarily used in commercial or light industrial installations. For rental properties, the transition from gas-fired units to zero-emission equipment will increase operation costs of commercial buildings, which then could be passed on to tenants through raised rents. Nearly all industries that will be affected by PAR 1146.2 rent office space. Table 1 presents the ratio of the value of real estate usage to total output for various industries³; this ratio can be used as a proxy for the extent that the industries will be affected by increased rents due to the implementation of PAR 1146.2. As shown in Table 1, the warehousing and storage sector (NAICS 493) will be the most affected by PAR 1146.2, followed by the nursing and residential care facilities sector (NAICS 623) and the museums, historical sites, and similar institutions sector (NAICS 712). Prior analyses conducted in South Coast AQMD show that most of the facilities in these sectors do not qualify as a small business pursuant to South Coast AQMD Rule 102. However, due to the lack of data on the universe of the affected facilities and the broad scope of the proposed project, a more robust small business impact analysis is not feasible for this socioeconomic impact assessment.

¹ California Energy Commission, 2019 California Residential Appliance Saturation Study, <https://www.energy.ca.gov/publications/2021/2019-california-residential-appliance-saturation-study-rass> (please refer to Table ES-3 in Page 11)

² U.S. Energy Information Administration, 2020 Residential Energy Consumption Survey Data, <https://www.eia.gov/consumption/residential/data/2020/>

³ The input-output (IO) table in 2024 REMI v3 model was relied upon to prepare Table 1.

Table 1
Value of Real Estate Usage as a Proportion of Output Across Industries

NAICS Code	Industry	Ratio of Real Estate Usage to Output
493	Warehousing and storage	12.54%
623	Nursing and residential care facilities	11.35%
712	Museums, historical sites, and similar institutions	10.78%
61	Educational services; private	10.28%
624	Social assistance	10.08%
812	Personal and laundry services	8.41%
722	Food services and drinking places	7.95%
44-45	Retail trade	7.91%
713	Amusement, gambling, and recreation industries	7.76%
813	Religious, grantmaking, civic, professional, and similar organizations	7.51%
621	Ambulatory health care services	5.61%
55	Management of companies and enterprises	4.99%
622	Hospitals; private	4.55%
531	Real estate	4.11%
512	Motion picture and sound recording industries	3.91%
42	Wholesale trade	3.75%
523, 525	Securities, commodity contracts, other investments; Funds, trusts, other financial vehicles	3.70%
54	Professional, scientific, and technical services	3.45%
711	Performing arts, spectator sports, and related industries	3.38%
517	Telecommunications	2.99%
811	Repair and maintenance	2.97%
532, 533	Rental and leasing services; Lessors of nonfinancial intangible assets	2.97%
521, 522	Monetary authorities - central bank; Credit intermediation and related activities	2.58%
524	Insurance carriers and related activities	2.43%
518, 519	Data processing, hosting, and related services; Other information services	2.41%
721	Accommodation	2.32%
562	Waste management and remediation services	2.27%
561	Administrative and support services	2.25%
511	Publishing industries, except Internet	2.08%
323	Printing and related support activities	1.82%
485	Transit and ground passenger transportation	1.79%
492	Couriers and messengers	1.61%

Table 1 (continued)
Value of Real Estate Usage as a Proportion of Output Across Industries

NAICS Code	Industry	Ratio of Real Estate Usage to Output
487-488	Scenic and sightseeing transportation; Support activities for transportation	1.56%
484	Truck transportation	1.44%
23	Construction	1.21%
337	Furniture and related product manufacturing	1.18%
332	Fabricated metal product manufacturing	1.07%
3364-3369	Other transportation equipment manufacturing	1.07%
486	Pipeline transportation	0.95%
326	Plastics and rubber products manufacturing	0.85%
313-314	Textile mills; Textile product mills	0.79%
22	Utilities	0.79%
515	Broadcasting, except Internet	0.78%
483	Water transportation	0.65%
321	Wood product manufacturing	0.65%
339	Miscellaneous manufacturing	0.61%
322	Paper manufacturing	0.61%
211	Oil and gas extraction	0.59%
327	Nonmetallic mineral product manufacturing	0.52%
325	Chemical manufacturing	0.51%
312	Beverage and tobacco product manufacturing	0.44%
315-316	Apparel manufacturing; Leather and allied product manufacturing	0.39%
333	Machinery manufacturing	0.38%
481	Air transportation	0.33%
334	Computer and electronic product manufacturing	0.32%
335	Electrical equipment, appliance, and component manufacturing	0.28%
482	Rail transportation	0.27%
814	Private households	0.24%
311	Food manufacturing	0.24%
213	Support activities for mining	0.23%
3361-3363	Motor vehicles, bodies and trailers, and parts manufacturing	0.22%
331	Primary metal manufacturing	0.18%
113-114	Forestry and Logging; Fishing, hunting and trapping	0.17%
212	Mining (except oil and gas)	0.11%
324	Petroleum and coal products manufacturing	0.03%
115	Support activities for agriculture and forestry	0.01%

COMPLIANCE COSTS

Most of compliance costs associated with implementing PAR 1146.2 are related to the transition from gas-fired to zero-emission water heating equipment. The cost estimate relies on the estimated universe of 1,070,000 units of tank type/instantaneous water heaters, high temperature units, pool heaters, and other Type 1 and Type 2 units, 90% of which are assumed to be replacements of old gas-fired units in existing commercial or residential buildings, while the remaining 10% are first-time installations to new buildings on and after the applicable PAR 1146.2 compliance dates.

The analysis assumed the unit age of all existing units is uniformly distributed over a period of their full useful life, implying that implementing PAR 1146.2 at the existing buildings will be a linear, phased-in process. After the phase-in is completed, all of the old gas-fired units will have been replaced by zero-emission units. The analysis assumed new buildings will be built up gradually, and thus also assumed a linear phased-in process of rule implementation over the full useful life of equipment for the new buildings. In addition, PAR 1146.2 provides an implementation grace period for existing buildings, that is, the first year of implementation is allowed to occur three or four years later than what is required for new buildings. Equipment replacement occurring in existing buildings may involve an electric panel upgrade cost, while installing zero-emission units in new buildings has no such upgrade cost.

Water Heaters

Type 1 Water Heater Replaced by Heat Pump

Type 1 water heaters are gas-fired units with a heat input capacity rated less than or equal to 400,000 Btu/hr, which are expected to be replaced with zero-emission heat pump water heaters. Based on estimates in the May 2006 Final Staff Report for Rule 1146.2, on average, the purchase price of a gas-fired Type 1 water heater was approximately \$7,000 in 2023 US dollars.^{4 5} For a comparable zero-emission heat pump water heater, this analysis assumed a purchase price of \$13,200 and a panel upgrade cost of \$2,500 based on manufacturer quotes, which yields an incremental cost of \$8,700 to upgrade a Type 1 water heater in an existing building. Since no panel upgrade costs will be required in new buildings, the installation of Type 1 heat pump water heaters as part of new construction will have a lower incremental cost at \$6,200. Based on the U.S. Department of Energy (DOE) estimates and the parameters previously relied upon in Socioeconomic Impact Assessment for the 2022 AQMP, a useful life of 15 years is assumed for the heat pump water heater. The first compliance dates for new and existing buildings are January 1, 2026 and January 1, 2029, respectively.

Type 2 Water Heater Replaced with Two Split System Heat Pumps

Type 2 water heaters have a higher heat input capacity, rated between 400,000 and 2,000,000 Btu/hr. Per a manufacturer's recommendation, a 500,000 Btu/hr Type 2 natural gas water heater will be replaced by two split system heat pump water heaters with a 400-gallon tank and an estimated useful life of 25 years. Based on the May 2006 Final Staff Report for Rule 1146.2, the purchase price for a comparable high-efficiency natural gas-fired commercial tank-type unit was

⁴ Unless specified otherwise, all of the dollar amounts presented in this report will be in 2023 US dollars.

⁵ South Coast Air Quality Management District, 2006 Final Staff Report for Proposed Rule 1146.2, <http://www3.aqmd.gov/hb/2006/May/060535a.html>

approximately \$14,000 in 2023 dollars. In contrast, the anticipated capital cost for the two split system heat pumps is approximately \$84,000 with a panel upgrade cost of \$4,200, according to manufacturer quotes. Thus, the incremental capital cost per unit for this replacement is \$74,200 for existing buildings. Because no panel upgrade will be needed, the installation of Type 2 two split heat pump water heater has a lower incremental cost of \$70,000. The compliance dates for new and existing buildings are January 1, 2028 and January 1, 2031, respectively.

High Temperature Units

Type 1 High Temperature Unit Replaced by Heat Pump

Type 1 and Type 2 high temperature units are defined by the same heat input capacity criteria as the preceding Type 1 and Type 2 water heaters but are designed specifically for higher temperature applications. The incremental capital cost for Type 1 high temperature unit replacement estimate was based on a manufacturers' quotes of \$24,000 for a 399,000 Btu/hr natural gas-fired Type 1 high temperature unit, and \$222,000 for a comparable 365,000 Btu/hr heat pump unit with a \$4,200 panel upgrade cost, which yields a per-unit incremental capital cost of \$202,200 for existing buildings. Because no panel upgrade will be needed, the installation of a Type 1 heat pump high temperature unit in new buildings has a lower incremental cost of \$198,000. In addition, based on information provided by manufacturers, the analysis assumed a useful life of 25 years for the Type 1 heat pump unit. The compliance dates for new and existing buildings are January 1, 2029 and January 1, 2033, respectively.

Type 2 High Temperature Unit Replaced by Heat Pump

Manufacturer quotes were provided for a Type 2 natural gas fired high temperature unit and a comparable Type 2 heat pump unit at \$32,500 and \$336,000, respectively. The estimated panel upgrade cost for the heat pump unit is \$4,200, yielding a per-unit incremental capital cost of \$307,700 for existing buildings. Because no panel upgrade will be needed, the installation of Type 2 heat pump high temperature unit has a lower incremental cost at \$303,500 for new buildings. Again, the analysis assumed a useful life of 25 years for the Type 2 high-temperature heat pump unit. The compliance dates for new and existing buildings are January 1, 2029 and January 1, 2033, respectively.

Instantaneous Water Heater and Pool Heater Replaced with Heat Pump

Instantaneous Water Heater Replaced with Heat Pump

Instantaneous water heaters are tankless units. Based on the estimated universe of 300,000 natural gas fired instantaneous water heaters that would need to be replaced by zero-emission heat pump tank-type units, the analysis considered the replacement of a typical 150,000 Btu/hr gas-fired tankless water heater with a 65-gallon tank-type heat pump for residential applications. According to an Energy and Environmental Economics (E3) study, a 150,000 Btu/hr tankless water heater costs approximately \$2,775, while a comparable tank-type heat pump costs approximately \$2,400

based on internet quotes, resulting in potential cost savings in the purchase price.^{6, 7} However, after including the estimated panel upgrade cost of \$1,050, the per-unit incremental capital cost will be \$675 for existing buildings. In new buildings without panel upgrades, the installation of instantaneous heat pump water heater is expected to yield a per-unit cost saving at \$375 for new buildings. The analysis assumes the heat pump tank-type units have a useful life of 25 years. The compliance dates for new and existing buildings are January 1, 2026 and January 1, 2029, respectively.

Type 1 Pool Heater Replaced with Heat Pump

The last category of natural gas fired units subject to PAR 1146.2 are Type 1 pool heaters, which are specially used for heating the water in swimming pools and usually have a heat input capacity rating of less than or equal to 400,000 Btu/hr. Online quotes for pool heaters indicate that a zero-emission heat pump and a comparable traditional gas-fired heater cost \$4,920 and \$1,800, respectively. With an estimated panel upgrade cost of \$625, the per-unit incremental capital cost will be \$3,745 for existing buildings. Because no panel upgrade will be needed, the installation of a Type 1 heat pump pool heater will have a lower incremental cost at \$3,120 for new buildings. In accordance with DOE estimates, the analysis assumed a useful life of 15 years for heat pump pool heaters⁸. The compliance dates for Type 1 pool heaters are January 1, 2028 and January 1, 2031, respectively, for new and existing old buildings.

Fuel Switching Cost

The only recurring cost incurred by PAR 1146.2 is a fuel switching cost, due to the transition from natural gas fired units to zero-emission electric ones. In general, electricity is more expensive to use than natural gas; however, the higher electricity cost can be offset to some extent by the increased heating efficiency of the heat pump units.

To estimate the fuel switching cost/saving of transition from natural gas to electric water heating, the analysis considered the anticipated energy demand and forecasted prices in the future for both natural gas and electricity. The forecasted energy prices are sourced from the 2023 California Energy Commission (CEC) Integrated Energy Policy Report (IEPR).⁹ Note that CEC has a separate electricity price forecast for both the Los Angeles Department of Water and Power (LADWP) and Southern California Edison (SCE) planning areas. The analysis relied upon an average of the two forecasted prices weighted by population. Specifically, as LADWP serves

⁶ Energy and Environmental Economics, 2019 Residential Building Electrification in California, https://www.ethree.com/wp-content/uploads/2019/04/E3_Residential_Building_Electrification_in_California_April_2019.pdf. (please refer to Figure 2-7, Page 32)

⁷ Energy Star by U.S. EPA provided information on a 64-gallon storage volume heat pump with a Uniform Energy Factor of 3.64, which has a capital cost of around \$2,000 from internet search. Energy Star provides 178 therms per year for instantaneous and 1,233 kwh for an equivalent heat pump. Adding an additional 20% to the zero-emission unit cost to address installation cost results in \$2,400 for the zero-emission unit.

⁸ Energy Saver, 2024 Heat Pump Swimming Pool Heaters, <https://www.energy.gov/energysaver/heat-pump-swimming-pool-heaters>.

⁹ California Energy Commission, 2022 Integrated Energy Policy Update, Docket 22-IEPR-03 – Electricity Forecast, CEDU Baseline Forecast – LADWP, <https://efiling.energy.ca.gov/GetDocument.aspx?tn=248381&DocumentContentId=82804>, accessed February 27, 2024.

roughly 23% of the population in the region, it is assigned a weight of 0.23, while the weight of SCE is specified as 0.77. For natural gas, the analysis solely relied on Southern California Gas (SCG) company forecast, since it is the primary gas utility in the South Coast AQMD region. For Type 1 pool heaters and instantaneous water heaters, residential utility rates are used, while commercial utility rates are used for all the other categories of units. For each category of units, the steps used to estimate the recurring fuel switching cost/saving due to the transition to zero-emission units are summarized as follows:

1. Estimate daily electricity demand from the electric heat pump units;
2. Estimate daily natural gas demand of the to-be-replaced natural gas fired units;
3. Estimate annual demand of natural gas and electricity via multiplying respective daily demand by the number of operating days in a year;
4. Calculate the average price forecast for natural gas and electricity over the period 2024-2035, which is CEC forecast period;
5. Estimate annual cost of natural gas and electricity via multiplying respective annual demand by the average price forecast;
6. For each category of units, calculate annual cost difference in Step 5.

Table 2 presents annual demand and price forecast of natural gas/electricity, and calculated annual fuel switching cost/saving for each category. For a detailed description of the methods used to estimate energy inputs, please refer to Chapter 2 of the PAR 1146.2 ~~Final~~^{Draft} Staff Report.

Table 2
Annual Per-Unit Fuel Switching Cost or Saving

Equipment Type	Annual Natural Gas Demand (therms)	Annual Electricity Demand (kWh)	Forecasted Natural Gas Price (\$/therm)	Forecasted Electricity Rate (\$/kWh)	Annual Fuel Switching Cost (+) or Savings (-)
Type 1 Water Heater Replaced by Heat Pump	1,431.72	9,488.63	\$1.78	\$0.26	-\$97.82
Type 1 High Temperature Unit Replaced by Heat Pump	7,516.56	33,211	\$1.78	\$0.26	-\$4,795.66
Type 2 Water Heater Replaced by Two Split Heat Pumps	9,419.25	59,860	\$1.78	\$0.26	-\$1,305.18
Type 2 High Temperature Unit Replaced by Heat Pump	18,838	88,877	\$1.78	\$0.26	-\$10,563.47
Type 1 Pool Heater Replaced by Heat Pump	262.8	1135.15	\$2.40	\$0.31	-\$278.81
Instantaneous Water Heater Replaced by Heat Pump	177	1,646	\$2.40	\$0.31	\$85.71

It is important to note that forecasted energy prices listed in Table 2 will differ from actual observed prices. The latter are determined by many factors, including geopolitical factors, supply and demand shocks, and other unforeseeable events. In comparison, the CEC forecast is based on a rigorous modeling process that takes into account factors specific to the California utility market and reflects best available expectation of energy prices in the future.

Total Compliance Cost of PAR 1146.2

The compliance cost analysis covers the period 2026-2057. Staff first amortized one-time capital cost over the period, and then added the amortized capital cost to the recurring cost in each year to estimate annual compliance cost of PAR 1146.2. As presented in Table 3, the total present value of all the annual compliance costs is estimated at \$2,445.94 million and \$1,260.37 million, respectively, depending on the discount rate assumed (1% and 4%).¹⁰ The average annual compliance costs of PAR 1146.2 from 2026-2057 are estimated to range from \$48.99 million to

¹⁰ In 1987, South Coast AQMD staff began to calculate cost-effectiveness of control measures and rules using the Discounted Cash Flow method with a discount rate of 4%. Although not formally documented, the discount rate is based on the 1987 real interest rate on 10-year Treasury Notes and Bonds, which was 3.8%. The maturity of 10 years was chosen because a typical control equipment life is 10 years; however, a longer equipment life would not have corresponded to a much higher rate-- the 1987 real interest rate on 30-year Treasury Notes and Bonds was 4.4%. Since 1987, the 4% discount rate has been used by South Coast AQMD staff for all cost-effectiveness calculations, including BACT analysis, for the purpose of consistency.

\$96.77 million, depending on specific real interest rate assumed (1% to 4%). Except for instantaneous water heaters replaced by heat pumps, all the other equipment categories have recurring cost saving in the transition from natural-gas fired to zero-emission units.

Table 3
Total Present Worth and Average Annual Estimated Costs of PAR 1146.2

Cost Categories	Present Worth Value (2024)		Annual Average (2026-2057)	
	1% Discount Rate	4% Discount Rate	1% Real Interest Rate	4% Real Interest Rate
One-Time Cost				
Type 1 Water Heater replaced by heat pump	\$505,536,016	\$271,721,985	\$16,289,888	\$19,728,126
Type 1 High Temperature Unit replaced by heat pump	\$283,372,800	\$142,137,215	\$8,260,714	\$11,309,575
Type 2 Water Heater - Scenario with replacement by two split heat pumps	\$1,115,954,641	\$570,642,859	\$32,344,304	\$44,281,929
Type 2 High Temperature Unit replaced by heat pump	\$215,934,464	\$108,337,694	\$6,294,343	\$8,617,457
Type 1 Pool Heater replaced by heat pump	\$3,730,214,053	\$1,944,962,454	\$121,291,936	\$146,892,519
Instantaneous Water Heater replaced by heat pump	\$131,332,077	\$64,443,857	\$3,847,000	\$5,266,850

Table 3 (continued)
Total Present Worth and Average Annual Estimated Costs of PAR 1146.2

Cost Categories	Present Worth Value (2024)		Annual Average (2026-2057)	
	1% Discount Rate	4% Discount Rate	1% Real Interest Rate	4% Real Interest Rate
Recurring Costs/<i>Savings</i>				
Type 1 Water Heater replaced by heat pump	(\$68,584,256)	(\$37,093,924)	(\$2,671,829)	(\$2,671,829)
Type 1 High Temperature Unit replaced by heat pump	(\$109,668,789)	(\$55,048,647)	(\$4,376,038)	(\$4,376,038)
Type 2 Water Heater - Scenario with replacement by two split heat pumps	(\$322,404,166)	(\$165,155,913)	(\$12,786,700)	(\$12,786,700)
Type 2 High Temperature Unit replaced by heat pump	(\$120,784,537)	(\$60,628,237)	(\$4,819,582)	(\$4,819,582)
Type 1 Pool Heater replaced by heat pump	(\$3,292,841,837)	(\$1,723,007,745)	(\$129,540,284)	(\$129,540,284)
Instantaneous Water Heater replaced by heat pump	\$377,878,553	\$199,053,588	\$14,865,970	\$14,865,970
Total	\$2,445,939,019	\$1,260,365,184	\$48,999,721	\$96,767,993

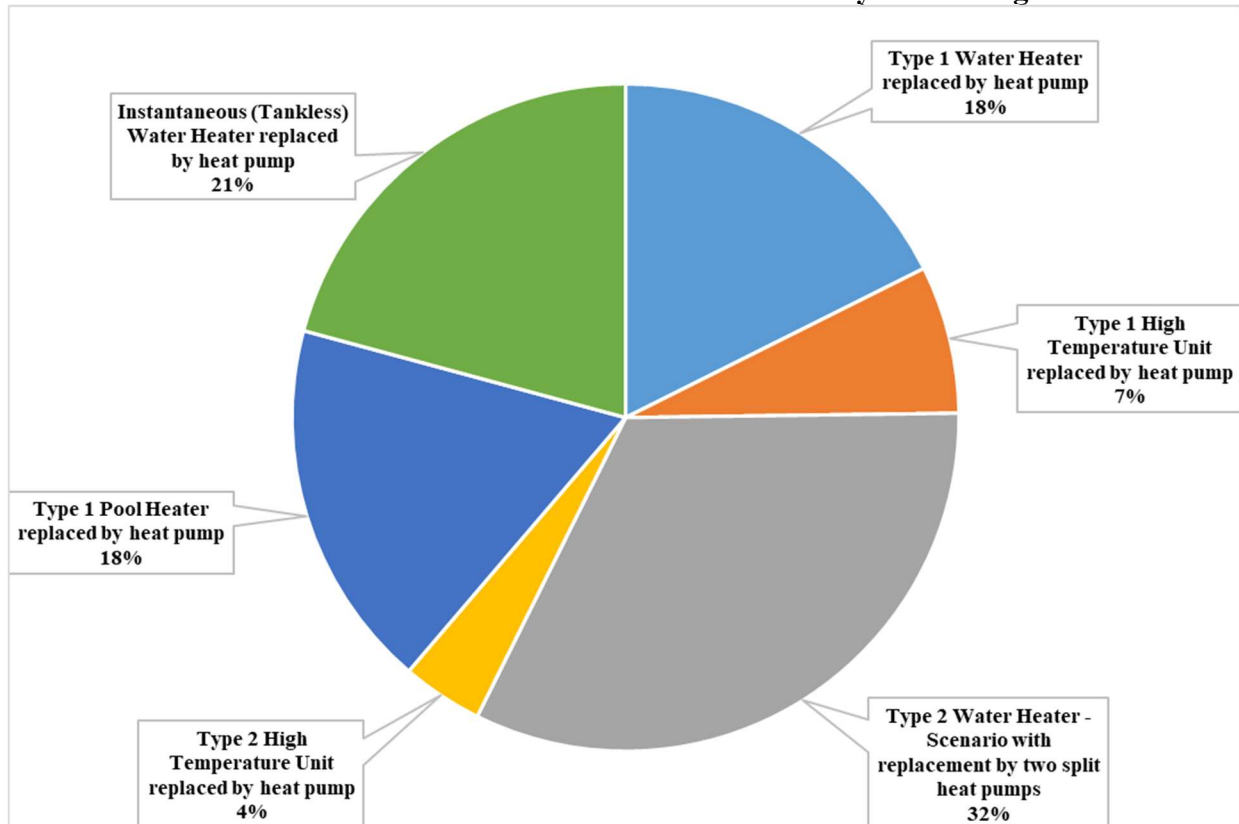
Table 4 presents estimated annual compliance costs for existing and new buildings, separately. Compared with existing buildings, new buildings incur lower compliance costs as only 10% of the universe of units will be installed in the new buildings. New buildings will incur the cost earlier because of earlier compliance dates. Annual costs will also be lower for new construction due to the lack of panel upgrade costs. For example, although existing buildings incur positive annual costs for the replacement of Type 1 pool heaters, new buildings can enjoy annual cost saving due to the lack of panel upgrade cost in the installation.

Table 4
Annual and Average Annual Costs for Different Building/Unit Categories

Categories of Units	Building Type	2026	2031	2036	2057	Annual Average (2026-2057)
Type 1 Water Heater replaced by heat pump	<i>Existing</i>	\$0	\$4,477,242	\$11,939,311	\$22,386,208	\$15,390,518
Type 1 High Temperature Unit replaced by heat pump	<i>Existing</i>	\$0	\$0	\$2,203,127	\$13,769,541	\$5,593,876
Type 2 Water Heater - Scenario with replacement by two split heat pumps	<i>Existing</i>	\$0	\$2,231,089	\$13,386,533	\$55,777,222	\$26,145,573
Type 2 High Temperature Unit replaced by heat pump	<i>Existing</i>	\$0	\$0	\$1,206,066	\$7,537,912	\$3,062,277
Type 1 Pool Heater replaced by heat pump	<i>Existing</i>	\$0	\$1,914,503	\$11,487,019	\$28,717,548	\$17,948,468
Instantaneous Water Heater replaced by heat pump	<i>Existing</i>	\$0	\$4,123,222	\$10,995,258	\$34,360,180	\$18,253,846
Type 1 Water Heater replaced by heat pump	<i>New</i>	\$1,665,779	\$1,665,779	\$1,665,779	\$1,665,779	\$1,665,779
Type 1 High Temperature Unit replaced by heat pump	<i>New</i>	\$0	\$1,478,247	\$1,478,247	\$1,478,247	\$1,339,661
Type 2 Water Heater - Scenario with replacement by two split heat pumps	<i>New</i>	\$0	\$5,706,300	\$5,706,300	\$5,706,300	\$5,349,657
Type 2 High Temperature Unit replaced by heat pump	<i>New</i>	\$0	\$811,695	\$811,695	\$811,695	\$735,598
Type 1 Pool Heater replaced by heat pump	<i>New</i>	\$0	(\$635,982)	(\$635,982)	(\$635,982)	(\$596,233)
Instantaneous Water Heater replaced by heat pump	<i>New</i>	\$1,878,974	\$1,878,974	\$1,878,974	\$1,878,974	\$1,878,974
Total		\$3,544,753	\$23,651,068	\$62,122,327	\$173,453,624	\$96,767,993

Figure 1 presents the estimated annual compliance costs of the PAR 1146.2 by unit category. For each category, the figure presents the sum of the total amortized capital costs and recurring cost or savings during the period 2026-2057, for both existing and new buildings. As shown in Figure 1, Type 2 water heater replacement with two split heat pumps will incur the biggest share of average annual compliance costs (32%), followed by instantaneous water heaters (21%), Type 1 water heaters, and pool heaters (18% for each). Type 2 High Temperature Unit replaced by heat pump (4%) and Type 1 High Temperature Unit replaced by heat pump (7%) are the smallest categories.

Figure 1
Annual Estimated Costs of the PAR 1146.2 Series by Unit Categories



MACROECONOMIC IMPACTS ON THE REGIONAL ECONOMY

The Regional Economic Model (REMI, PI+ v3) was used to assess the total socioeconomic impacts of the anticipated policy change (i.e., the proposed rule).^{11, 12} The model links the economic activities in the counties of Los Angeles, Orange, Riverside, and San Bernardino, and for each county, it is comprised of five interrelated blocks: 1) output and demand; 2) labor and capital; 3) population and labor force; 4) wages, prices and costs; and 5) market shares.¹³

It should be noted that the REMI model is not designed to assess impacts on individual operations. The model was used to assess the impacts of the proposed project on various industries that make up the local economy. Cost impacts on individual operations were assessed outside of the REMI model and used as inputs into the REMI model.

Impact of Proposed Amendments

The assessment herein is performed relative to a baseline (“business as usual”) forecast where the proposed amendments would not be implemented. It is assumed that affected facilities/households would finance the capital and installation costs of control equipment, or more specifically, these one-time costs are assumed to be amortized and incurred over the equipment life. The proposed project is assumed to be the implementation of PAR 1146.2, which would create a policy scenario under which the affected facilities/households would incur an average annual compliance cost of approximately \$96.77 million when costs are annualized using a 4% real interest rate, or \$48.99 million when evaluated using a 1% real interest rate from the year 2026 onwards when all controls are assumed to have been installed.

Direct effects of the proposed project are used as inputs to the REMI model in order for the model to assess secondary and induced impacts for all the industries in the four-county economy on an annual basis and across a user-defined horizon: 2026 (the first year when the affected facilities/households are assumed to incur compliance costs due to PAR 1146.2 implementation) to 2057 (the final year in which new equipment is fully amortized). Direct effects of PAR 1146.2 include:

- 1) Additional costs that facilities would incur by installing and operating zero-emission water heaters: Because the implementation of PAR 1146.2 will affect nearly all the industries in the four-county region, all the replacement/installation and recurring costs were allocated across different industries by their value of real estate usage.¹⁴ The costs are also allocated across the

¹¹ Regional Economic Modeling Inc. (REMI). Policy Insight® for the South Coast Area (70-sector model). Version 3. 2023.

¹² REMI v3 has been updated based on The U.S. Economic Outlook for 2022-2024 from the University of Michigan's Research Seminar in Quantitative Economics (RSQE) release on May 19, 2023, The Long-Term Economic Projections from CBO (supplementing CBO's March 2023 report, The 2023 Long-Term Budget Outlook).

¹³ Within each county, producers are made up of 156 private non-farm industries and sectors, three government sectors, and a farm sector. Trade flows are captured between sectors as well as across the four counties and the rest of U.S. Market shares of industries are dependent upon their product prices, access to production inputs, and local infrastructure. The demographic/migration component has 160 ages/gender/race/ethnicity cohorts and captures population changes in births, deaths, and migration. (For details, please refer to REMI online documentation at <http://www.remi.com/products/pi>.)

¹⁴ Specifically, the value of real estate usage for each industry is estimated by the output value of the industry in the 4-county region multiplied by its value of real estate usage as a proportion of output in Table 1.

four counties by their value of total real estate usage.

- 2) Incremental costs related to replacement/installation of residential pool heaters and instantaneous water heaters which will translate into the decrease of households' disposable income: An income decrease will then have negative impact upon the local economy. This cost is allocated across the four counties by their population.
- 3) Extra demand for zero-emission water heater manufacturers and distributors, induced by the expenditure on installation and panel upgrade: In accordance with recommendations provided by representatives of REMI Inc., the induced demand is allocated to sectors of Machinery Manufacturing (NAICS 333, 40%), Fabricated Metal Product Manufacturing (NAICS 332, 20%), Miscellaneous Manufacturing (NAICS 339, 20%), Wholesale Trade (NAICS 42, 12%) and Retail Trade (NAICS 44-45, 8%).
- 4) Recurring fuel-switching cost savings, which will reduce the revenue for utility services in South Coast AQMD region.

Finally, the net increase in demand is distributed across the four counties based on their population. Table 5 summarizes the preceding setup for the REMI simulation.

Table 5
Compliance Costs and Induced Demand (Benefits) Across Industries in REMI Model

	Affected Sectors	Distribution Across Industries
Compliance Costs	All Industries	Distributed by the Value of Industries' Real Estate Usage
	Private Households	N/A
Demand Induced by:		
One-time Capital Cost	Machinery Manufacturing (NAICS 333)	40%
	Fabricated Metal Product Manufacturing (NAICS 332)	20%
	Miscellaneous Manufacturing (NAICS 339)	20%
	Wholesale Trade (NAICS 42)	12%
	Retail Trade (NAICS 44-45)	8%
Recurring Cost*	Utilities (NAICS 22)	N/A

*Recurring cost savings for PAR 1146.2.

To summarize, the direct effects of implementing PAR 1146.2 that will benefit local economy include: 1) induced demand for control equipment manufacturers and distributors; and 2) recurring cost saving of affected facilities. The direct effects that are detrimental to local economy include: 1) increased production costs of affected facilities due to installation of control equipment; 2) decreased consumption by private households; and 3) decreased demand for the Utilities sector

(NAICS 22). After that, a series of indirect or ripple effects will happen in the local economy, all of which collaboratively affect job market and competitiveness in the South Coast AQMD region, as described in the following section.

Regional Job Impacts

When the compliance cost is annualized using a 4% real interest rate, an annual average of 1,074 net jobs foregone is projected to occur from 2026 to 2057. The 1,074 annual jobs foregone represents approximately 0.0084% of total annual jobs in the four-county area.

The implementation of PAR 1146.2 is expected to have both positive and negative job impacts on the regional economy over time. In 2031, about 600 additional jobs are expected to be added to the economy due to compliance expenditures and additional spending associated with the installation of zero-emission water heaters. These additional jobs are expected to come from sectors such as retail, fabricated metal product manufacturing, and wholesale trade.

However, as affected facilities continue to bear the costs of capital expenditures, including the subsequent installation of zero-emission water heaters, the accelerated job growth due to the initial effects of equipment installation is projected to slow down, eventually leading to jobs foregone. The construction sector (NAICS 23) is anticipated to bear the largest share of average annual jobs foregone, with an estimated 173 jobs foregone. This sector is among the sectors that are expected to incur the majority of the compliance costs associated with PAR 1146.2.

The reduction in disposable income resulting from the overall jobs foregone is expected to dampen the demand for goods and services in the local economy. This, in turn, would contribute to jobs foregone in sectors such as food services and drinking places, retail trade, and ambulatory health care services. While the negative job impacts are projected to be relatively minor, several major sectors of the regional economy could experience these effects from the secondary and induced consequences of PAR 1146.2 implementation.

It is important to note that these job impact projections are based on assumptions and analysis using the REMI model. The actual job impacts may vary depending on various factors and uncertainties in the economy and industry dynamics. As presented in Table 6, many major sectors of the regional economy would experience negative job impacts in later years from the secondary and induced effects of PAR 1146.2 implementation.

Table 6
Projected Job Impacts of PAR 1146.2 for Select Industries by Year

Industry Name	2026	2031	2038	2044	2050	2057	Average Annual (2026-2057)	Baseline Average Annual (2026-2057)	Change from Baseline
Construction (23)	1	-4	-207	-282	-240	-171	-173	574,284	-0.0301%
Professional, scientific, and technical services (54)	0	19	-68	-145	-200	-216	-108	1,011,432	-0.0107%
Ambulatory health care services (621)	-3	13	-74	-127	-157	-176	-95	773,424	-0.0123%
State and Local Government (92)	0	15	-40	-117	-185	-202	-91	1,037,144	-0.0087%
Utilities (22)	2	-23	-82	-121	-119	-108	-82	19,936	-0.4127%
Food services and drinking places (722)	-1	10	-45	-99	-144	-166	-78	815,289	-0.0096%
Administrative and support services (561)	0	33	-43	-97	-132	-140	-70	897,913	-0.0078%
Real estate (531)	-1	20	-35	-78	-113	-129	-60	658,534	-0.0092%
Retail trade (44-45)	-1	125	8	-78	-150	-161	-51	918,930	-0.0056%
Apparel manufacturing; Leather and allied product manufacturing (315-316)	0	0	-2	-1	1	1	0	33,715	-0.0009%
Petroleum and coal products manufacturing (324)	0	0	0	-1	-1	-1	0	5,316	-0.0064%
Wholesale trade (42)	0	71	33	-2	-41	-52	0	437,427	0.0000%
Primary metal manufacturing (331)	0	7	6	4	0	-1	3	11,859	0.0247%
Machinery manufacturing (333)	0	48	44	32	7	-3	22	21,617	0.1041%

Table 6 (continued)
Projected Job Impacts of PAR 1146.2 for Select Industries by Year

Industry Name	2026	2031	2038	2044	2050	2057	Average Annual (2026-2057)	Baseline Average Annual (2026-2057)	Change from Baseline
Miscellaneous manufacturing (339)	0	59	53	40	9	-3	28	67,318	0.0410%
Fabricated metal product manufacturing (332)	0	111	101	75	16	-5	52	75,941	0.0687%
All Industries	-11	600	-611	-1,494	-2,093	-2,245	-1,074	12,757,201	-0.0084%

Figure 2 presents a projected time series of job impacts over the 2026 - 2057 period. Based on Abt Associate's 2014 recommendation to enhance socioeconomic analysis by conducting scenario analysis on major assumptions, staff has analyzed an alternative scenario (worst case) where the affected facilities would not purchase any control equipment or services from providers within the South Coast AQMD jurisdiction.¹⁵ This is a hypothetical scenario in order to test the sensitivity of the previously discussed scenarios where the analyses rely on REMI's embedded assumptions about how the capital and O&M spending would be distributed inside and outside the region. In reality, increased manufacturing jobs related to zero-emission water heater production are likely to be offered by local equipment manufacturers.

This worst-case scenario would result in an annual average of approximately 1,602 jobs foregone. The 1,602 jobs foregone represents roughly 0.013% of total jobs in the South Coast AQMD region.

¹⁵ Abt Associates, Inc., 2014 Review of the SCAQMD Socioeconomic Assessments. Prepared for South Coast Air Quality Management District, <http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgtplan/socioeconomic-analysis>.

Figure 2
Projected Regional Job Impact, 2026-2057



Competitiveness

The additional cost brought on by PAR 1146.2 would increase the cost of services rendered by the affected industries in the region. The magnitude of the impact depends on the size, diversification, and infrastructure in a local economy as well as interactions among industries. A large, diversified, and resourceful economy would absorb the impact described above with relative ease.

Changes in production/service costs would affect prices of goods produced locally. The relative delivered price of a good is based on its production cost and the transportation cost of delivering the good to where it is consumed or used. The average price of a good at the place of use reflects prices of the good produced locally and imported elsewhere.

The overall impacts of PAR 1146.2 on the production costs and delivered prices in the South Coast AQMD region are not expected to be significant. According to the REMI Model, PAR 1146.2 is projected to increase the cost of production of all industries in the South Coast AQMD region by 0.002% and increase the relative delivered price of goods provided by those industries by 0.002% in 2032.

REFERENCES

Abt Associates, Inc., 2014 Review of the SCAQMD Socioeconomic Assessments. Prepared for South Coast Air Quality Management District, <http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgtplan/socioeconomic-analysis>.

California Energy Commission, 2022 Integrated Energy Policy Update, Docket 22-IEPR-03 – Electricity Forecast, CEDU Baseline Forecast – LADWP, <https://efiling.energy.ca.gov/GetDocument.aspx?tn=248381&DocumentContentId=82804>, accessed February 27, 2024.

Energy and Environmental Economics. Residential Building Electrification in California, https://www.ethree.com/wp-content/uploads/2019/04/E3_Residential_Building_Electrification_in_California_April_2019.pdf. 2019.

Energy Saver. Heat Pump Swimming Pool Heaters, <https://www.energy.gov/energysaver/heat-pump-swimming-pool-heaters>. 2024.

Regional Economic Modeling Inc. (REMI). Policy Insight® for the South Coast Area (70-sector model). Version 3, 2024.

South Coast Air Quality Management District. Final Staff Report for Proposed Rule 1146.2. 2006.

South Coast Air Quality Management District. Final~~Draft~~ Staff Report for Proposed Amended Rule 1146.2. 2024.

U.S. Energy Information Administration. Residential Energy Consumption Survey Data, <https://www.eia.gov/consumption/residential/data/2020/>. 2020.



Proposed Amended Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters

Governing Board Meeting
June 7, 2024

Attachment H

Background

- PAR 1146.2 establishes zero-emission NOx standards for large residential water heaters and small commercial/industrial water heaters and boilers*
- Broad applicability
 - New and existing buildings
 - Wide range of industrial sectors and multi-family dwellings
 - Applies to approximately 1,070,000 units
- Represent almost 10 percent of stationary/area source NOx emissions regulated by South Coast AQMD

* Units less than 2 Million Btu/hour

Need for PAR 1146.2

NOx reductions needed to meet federal ozone air quality standards

Zero-emission technology is critical element of 2022 AQMP

PAR 1146.2 Implements C-CMB-01 – Commercial Water Heating in the 2022 AQMP



PAR 1146.2 Will Achieve Significant NO_x and Concurrent CO₂ Emission Reductions

~5.6 tons of NO_x emission reductions per day

- Second largest NO_x reductions (petroleum refinery rule largest)
- Reduces almost 10 percent of stationary/area source NO_x emissions regulated by South Coast AQMD
- Harmonizes with local, state, and federal decarbonization goals
 - CO₂ emission reductions equivalent to ~1.2 million vehicles

Three General Implementation Categories



**New Buildings
(Industrial, Commercial,
and Residential)**

Effective date aligned
with state building code



**Existing Commercial and
Industrial Buildings**

Longer implementation
timelines



**All Other Units (Existing
Residential Buildings)**

Replacement at natural
turnover

How Will the Rule Achieve NOx Reductions?

Earlier implementation dates for units widely commercially available and installations in new construction

Long implementation period for more challenging applications

Nine years before high temperature units **begin to transition to zero-emission**

Units transition to zero-emission if **naturally replaced** or **reach unit age**

Full transition will not occur until **2058**

Implementation Schedule for New Buildings

Earlier implementation dates for new buildings



Smaller Units: January 2026



Larger Units and Pool Heaters: January 2028

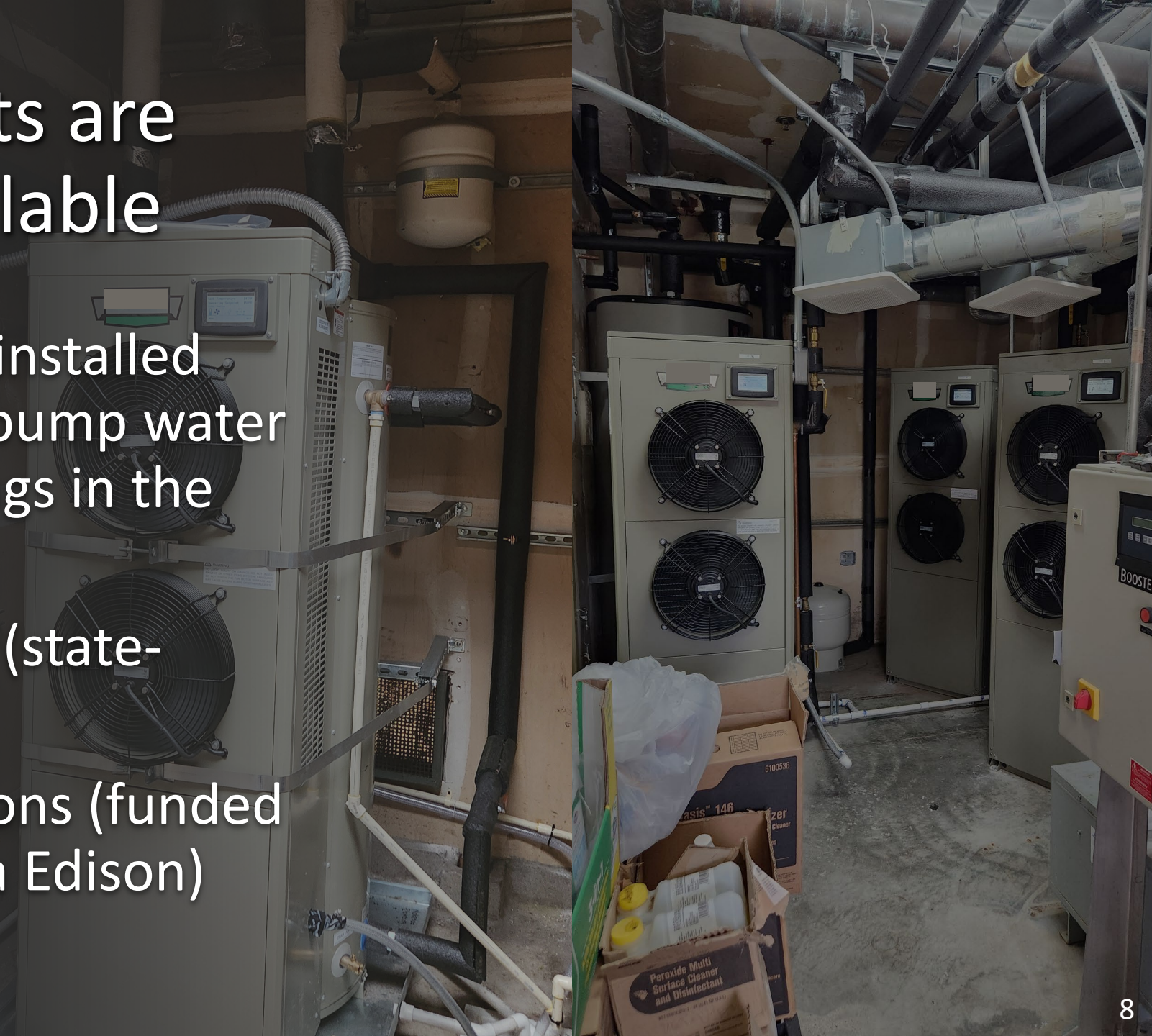


High Temperature Units: January 2029

Zero-emission Units are Commercially Available

Incentive programs have installed ~1,000 commercial heat pump water heaters in existing buildings in the region

- TECH Clean California (state-funded)
- Willdan Energy Solutions (funded by Southern California Edison)



Implementation Schedule for Existing Buildings

Longer implementation dates for existing buildings



Smaller Units:
Begins 2029 (15-year implementation)



Larger Units and Pool Heaters:
Begins 2031 (25-year implementation)



High Temperature Units:
January 2033 (25-year implementation)

Additional Compliance Options

Additional time/considerations are provided for situations where:

✓ Utility needs time to complete upgrades

✓ Facilities have five or more units required to be replaced in two consecutive years

✓ Emergency replacement requires electrical upgrade

✓ Mobile home is replacing instantaneous water heater

✓ Unit is low-use or low-emitting

✓ Small businesses are replacing units

✓ Property under lease is relying on landlord for electrical upgrade

✓ Construction is required to expand installation space or relocate unit

Considerations for Small Businesses

- ✓ Allow units to transition to zero-emission at natural replacement, regardless of unit age
- ✓ Several alternative compliance options allow for additional implementation time
 - ✓ Utility upgrades
 - ✓ Construction or relocation of a unit
 - ✓ Properties under lease
- ✓ Low-use units allowed to continue to operate
- ✓ Numerous incentive programs available including upcoming South Coast AQMD program

Establishing future
effective zero-
emission limits sends
strong market signal
to manufacturers
and encourages
manufacturers to
expand product
offerings



Technology Check-in Ensures Market Readiness

Technology check-in and report to Stationary Source Committee by June 1, 2027

- Latest utility and equipment costs
- Updated future forecasted costs
- Check in with manufacturers on technology progress
- Product availability for various applications
- Consider input from future site visits
- Challenges and successes

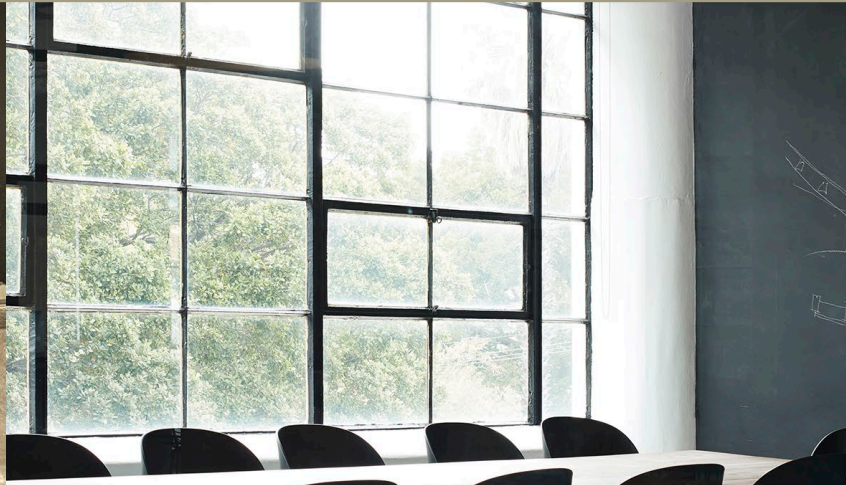


Future Outreach May Focus On:



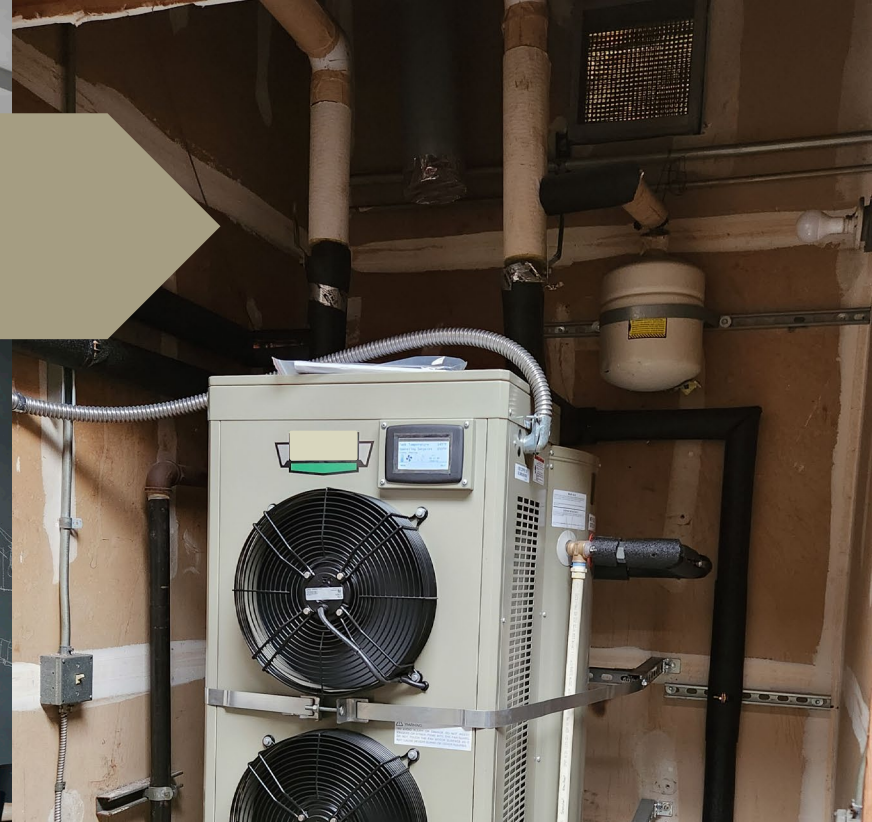
Site Visits

Continue to conduct site visits to inform future technology check-in



Outreach

Continue outreach to local businesses and trade groups as deadlines approach, including information on rebate programs



Technology Demonstration

Seek to fund a technology demonstration project focused on high temperature units prior to compliance dates



CEQA and Socioeconomic Impacts

California Environmental Quality Act (CEQA)

- Relies on the CEQA analysis previously conducted for the 2022 AQMP which adequately describes the activities and impacts

Cost Analysis for 2026 to 2057

- Total average annual cost – \$49 to \$97 million (depending on assumptions)
- Average annual job impact – 1,000 jobs foregone (less job growth forecasted)

Cost of Implementation

~5.6 tons of
NO_x reduced
per day

Overall rule implementation is cost-effective

Costs are mitigated:

- Transition at end of unit age
- Lifetime fuel switching cost savings
- Long compliance schedule
- Alternative compliance options

Substantial funds available from federal, state, and local programs

Staff Recommendations

Adopt the Resolution:

Determining that Proposed Amended Rule 1146.2 is a later activity within scope of the Final Program Environmental Impact Report for the 2022 AQMP such that no new environmental document will be required; and

Amending Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters, Small Boilers and Process Heaters

BOARD MEETING DATE: June 7, 2024

AGENDA NO. 27

PROPOSAL: Determine That South Coast Air Basin Attainment Plan for 2012 Annual PM_{2.5} Standard Does Not Require a New Environmental Document; and Adopt South Coast Air Basin Attainment Plan for 2012 Annual PM_{2.5} Standard

SYNOPSIS: The South Coast Air Basin is in “serious” nonattainment for the 2012 annual PM_{2.5} National Ambient Air Quality Standard. A plan to attain this standard was originally submitted to U.S. EPA in 2017 but U.S. EPA delayed acting on the plan. In the meantime, near-road air quality monitoring data became eligible for inclusion in State Implementation Plan (SIP) attainment demonstrations, and the plan was withdrawn in 2023 to account for this new data and to satisfy other SIP requirements. A Draft PM 2.5 Plan was developed that demonstrates attainment of the 2012 annual PM_{2.5} standard by 2030 in the South Coast Air Basin. This plan also includes limited additional controls for PM_{2.5} and its precursors to satisfy Clean Air Act Section 188(e) requirements.

COMMITTEE: Mobile Source, October 20, 2023 and March 15, 2024, Reviewed

RECOMMENDED ACTION:

Adopt the attached Resolution:

1. Determining that the Draft South Coast Air Basin Attainment Plan for the 2012 Annual PM_{2.5} Standard (Draft PM_{2.5} Plan) is a later activity within the scope of the Final Program Environmental Impact Report (EIR) for the 2022 AQMP and the Final Program EIR for the 2016 AQMP such that no new environmental document will be required; and
2. Adopting the Draft South Coast Air Basin Attainment Plan for the 2012 Annual PM_{2.5} Standard and directing staff to forward the Draft PM_{2.5} Plan to CARB for approval and submission to U.S. EPA for inclusion in the SIP.

Wayne Nastri
Executive Officer

Background

The South Coast Air Basin (Basin) has some of the highest levels of PM_{2.5} in the nation. PM_{2.5} is either directly emitted into the atmosphere (primary particles) or formed in the atmosphere through chemical reactions (secondary particles). Primary PM_{2.5} includes road dust, diesel soot, combustion products, and other sources of fine particles. Secondary PM_{2.5} is formed from reactions with SO_x, NO_x, VOCs, and ammonia in the atmosphere.

Effective April 15, 2015, U.S. EPA designated the Basin as a “moderate” nonattainment area for the 2012 annual PM_{2.5} NAAQS with an attainment date of December 31, 2021. The 2016 AQMP concluded that attainment by 2021 was impractical and requested reclassification of the Basin to “serious” nonattainment as allowed by the Clean Air Act (CAA), which has an attainment date of December 31, 2025. Accordingly, South Coast AQMD included a serious area attainment plan in the 2016 AQMP that demonstrated attainment by 2025.

The 2016 AQMP was adopted by the Board on March 3, 2017, and staff submitted the 2016 AQMP to CARB and U.S. EPA for approval on April 27, 2017. Despite a requirement in the CAA that U.S. EPA must act on a SIP submittal within 18 months of receipt, U.S. EPA did not act on the portion of the 2016 AQMP that addresses the requirements for the 2012 PM_{2.5} NAAQS “serious” nonattainment area for several years. On December 9, 2020, U.S. EPA approved South Coast AQMD’s request to reclassify the Basin from moderate to serious nonattainment for the 2012 annual PM_{2.5} NAAQS.

Since the adoption of the 2016 AQMP, two near-road monitors established along the Interstate 710 (I-710) in Long Beach and the California State Route 60 (CA-60) in Ontario accumulated sufficient data to be considered in SIP attainment demonstrations. Based on 2020–2022 monitoring data, the CA-60 near-road monitoring site had the highest PM_{2.5} level in the Basin at 13.7 µg/m³. Subsequently, U.S. EPA indicated that it could not approve the submitted “serious” area plan which did not address attainment of a site showing the highest level of PM_{2.5} in the Basin.

In January 2023, U.S. EPA was legally challenged over its failure to act timely on the PM_{2.5} plan addressing “serious” nonattainment area requirements for the 2012 NAAQS. On March 29, 2023, given the concerns regarding approvability of the plan for the 2012 annual PM_{2.5} NAAQS, South Coast AQMD withdrew the plan via CARB. As a consequence of withdrawal, U.S. EPA issued failures to submit the required SIP elements, which triggered sanction clocks. South Coast AQMD is required to develop a new plan to address SIP requirements for the 2012 annual PM_{2.5} NAAQS and submit to U.S. EPA no later than December 26, 2024 to avoid sanctions.

Proposal

A Draft PM2.5 Plan has been developed to demonstrate how the Basin will attain the 2012 annual PM2.5 NAAQS and address federal CAA SIP requirements. Air quality modeling demonstrates that attainment by December 31, 2025 would be impractical and the Draft PM2.5 Plan therefore requests a five-year extension of the attainment date to December 31, 2030, as allowed by CAA Section 188(e). The Basin is expected to attain the 2012 annual PM2.5 NAAQS by 2030 by continuing to implement the 2022 AQMP NOx strategy, along with limited additional controls on direct PM2.5 and precursor emissions to satisfy U.S. EPA's stringency requirements. Overall, NOx and PM2.5 emissions are expected to decline by 54 and 6 percent, respectively, between 2018 and 2030, which will be sufficient to lead the Basin into attainment of the 2012 annual PM2.5 NAAQS.

The Draft PM2.5 Plan seeks to comply with all CAA requirements, including the requirements under CAA Section 188(e) for a five-year extension of the attainment date. Among those is a requirement to demonstrate the implementation of Most Stringent Measures (MSM), which is defined as the maximum degree of emission reduction that has been required or achieved from a source or source category in any other attainment plans or in practice in any other states. In addition to the 2022 AQMP NOx control measures, the Draft PM2.5 Plan includes South Coast AQMD's commitment to adopt and implement four control measures to satisfy MSM requirements. These measures include lowering the applicability thresholds for dairies and poultry farms to acquire permits and to reduce ammonia emissions (BCM-08), requiring composting of chipped and ground greenwaste prior to land application (BCM-10), lowering the applicability threshold for chain-driven charbroilers to install and operate catalytic oxidizer (BCM-12), and removing the low-income exemption in residential wood-burning curtailment program (BCM-18).

Public Process

Staff convened the AQMP and Scientific, Technical, and Modeling Peer Review (STMPR) Advisory Groups during development of the Draft PM2.5 Plan. The Draft PM2.5 Plan was released on March 22, 2024 and four regional public hearings were held on April 23, 24, and 25, and May 1, 2024. Overall, two written comments were received on the Draft PM2.5 Plan and responses are included in Chapter 8 of the PM2.5 Plan.

Resource Impacts

The PM2.5 Plan will have nominal impacts on South Coast AQMD resources. This is because the NOx control strategy developed for the 2022 AQMP will be sufficient to lead the Basin into attainment of the 2012 annual PM2.5 NAAQS by 2030.

California Environmental Quality Act (CEQA)

Pursuant to the CEQA, South Coast AQMD, as lead agency, reviewed the proposed project (PM2.5 Plan) and determined that: 1) the PM2.5 Plan implements a selected

suite of control measures that were previously adopted in the 2022 AQMP and the 2016 AQMP; 2) the Final Program Environmental Impact Report (EIR) for the 2022 AQMP and the Final Program EIR for the 2016 AQMP evaluated the control measures which are being relied upon for the PM2.5 Plan, and analyzed their potential environmental impacts; 3) no subsequent EIR would be required per CEQA Guidelines Section 15168 (c)(2) because there are no new or modified physical changes that would result from implementing the PM2.5 Plan which were not previously analyzed in the Final Program EIR for the 2022 AQMP and the Final Program EIR for the 2016 AQMP; and 4) the Final Program EIR for the 2022 AQMP and the Final Program EIR for the 2016 AQMP can be relied on for CEQA compliance. Thus, the PM2.5 Plan is a later activity within the scope of the program approved earlier in the 2022 AQMP and the 2016 AQMP per CEQA Guidelines 15168 (c), and the Final Program EIR for the 2022 AQMP and the Final Program EIR for the 2016 AQMP adequately describe and analyze the activities associated with implementing the PM2.5 Plan for the purposes of CEQA such that no new environmental document will be required. The analysis supporting this conclusion can be found in Appendix VIII of the PM2.5 Plan.

Socioeconomic Impact Assessment

The control measures upon which the Draft PM2.5 Plan relies were previously adopted in either the 2022 AQMP or the 2016 AQMP and there is no material change to the estimated costs previously analyzed in the respective Socioeconomic Impact Assessments. However, the health benefits for attainment year 2030 were not previously quantified. The analysis of implementing the Draft PM2.5 Plan control strategies in the 2030 attainment year indicates an additional reduction in risks from premature deaths and numerous other health effects associated with air pollution among residents in the South Coast Air Basin. The details of the Socioeconomic Impact Assessment can be found in Appendix VII of the PM2.5 Plan.

AQMP and Legal Mandates

The PM2.5 Plan is consistent with the federal CAA and the U.S. EPA's guidelines and is required as part of the SIP revision to address the federal CAA requirements for "serious" nonattainment areas.

Attachments

- A. Resolution
- B. Draft Final South Coast Air Basin Attainment Plan for the 2012 Annual PM2.5 Standard
- C. Transcripts of the Regional Public Hearings
- D. Board Presentation

ATTACHMENT A

RESOLUTION NO. 24-_____

A Resolution of the South Coast Air Quality Management District (South Coast AQMD) Governing Board determining that the South Coast Air Basin Attainment Plan for the 2012 Annual PM2.5 Standard (PM2.5 Plan) qualifies as a later activity within the scope of the program approved earlier for the 2022 Air Quality Management Plan (AQMP) and the 2016 AQMP per California Environmental Quality Act (CEQA) Guidelines Section 15168 (c), and the Final Program Environmental Impact Report (EIR) for the 2022 AQMP adequately describes the activity for the purposes of CEQA such that no new environmental document is required.

A Resolution of the South Coast AQMD approving the PM2.5 Plan and directing staff to forward South Coast AQMD's PM2.5 Plan to the California Air Resources Board (CARB) for approval and submission to the United States Environmental Protection Agency (U.S. EPA) for inclusion in the State Implementation Plan (SIP).

WHEREAS, the South Coast AQMD Governing Board finds and determines that the PM2.5 Plan is considered a "project" as defined by the California Environmental Quality Act (CEQA); and

WHEREAS, the South Coast AQMD Governing Board finds and determines that: 1) the PM2.5 Plan implements a selected suite of control measures that were previously adopted in the 2022 AQMP and the 2016 AQMP; 2) the Final Program EIR for the 2022 AQMP and the Final Program EIR for the 2016 AQMP evaluated the control measures which are being relied upon for the PM2.5 Plan, and analyzed their potential environmental impacts; 3) no subsequent EIR would be required per CEQA Guidelines Section 15168 (c)(2) because there are no new or modified physical changes that would result from implementing the PM2.5 Plan which were not previously analyzed in the Final Program EIR for the 2022 AQMP and the Final Program EIR for the 2016 AQMP; and 4) the Final Program EIR for the 2022 AQMP and the Final Program EIR for the 2016 AQMP can be relied on for CEQA compliance; and

WHEREAS, the South Coast AQMD Governing Board finds and determines that the PM2.5 Plan is a later activity within the scope of the program approved earlier in the 2022 AQMP and the 2016 AQMP per CEQA Guidelines Section 15168 (c)(2), and the Final Program EIR for the 2022 AQMP and the Final Program EIR for the 2016 AQMP adequately describe the activity associated with implementing the PM2.5 Plan for the purposes of CEQA such that no new environmental document will be required; and

WHEREAS, the South Coast AQMD Governing Board finds and determines that based on substantial evidence in the record and in accordance with the noticing requirements in CEQA Guidelines Section 15168 (e), the PM2.5 Plan qualifies as a later activity within the scope of the program approved earlier for the 2022 AQMP and 2016 AQMP, and the Final Program EIR for the 2022 AQMP and the Final Program EIR for the 2016 AQMP adequately describe the activity for the purposes of CEQA; and

WHEREAS, the South Coast Air Basin is a “serious” nonattainment area for the 2012 annual PM2.5 standard with an attainment date of December 31, 2025; and

WHEREAS, a plan to attain the 2012 annual PM2.5 standard by 2025 was submitted to the U.S. EPA in 2017. However, that plan was withdrawn in 2023 due to U.S. EPA’s delay in considering the plan and subsequent availability of new near-road air quality monitoring data, triggering the need to develop a revised plan; and

WHEREAS, the PM2.5 Plan seeks a five-year extension of the attainment date to 2030, as allowed by Clean Air Act Section 188(e), to address challenges associated with near-road air quality monitors; and

WHEREAS, the South Coast Air Basin is expected to attain the 2012 annual PM2.5 standard in 2030 with the implementation of the 2022 AQMP strategy and limited additional controls to reduce PM2.5 and its precursor emissions as identified in this PM2.5 Plan; and

WHEREAS, the PM2.5 Plan includes an expeditious adoption and implementation schedule of control measures in a cost-effective, feasible, and targeted fashion; and

WHEREAS, the PM2.5 Plan addresses applicable federal CAA requirements, including the implementation of Best Available Control Measures (BACM), Most Stringent Measures (MSM), a Reasonable Further Progress (RFP) demonstration, a comprehensive emissions inventory, a control strategy, an attainment demonstration, contingency measures, quantitative milestones, a transportation conformity budget, and other “serious” nonattainment area SIP requirements; and

WHEREAS, the South Coast AQMD held three AQMP Advisory Group meetings and two Scientific, Technical, and Modeling Peer Review Advisory Group meetings; and

WHEREAS, the Draft PM2.5 Plan was released for public review and comment on March 22, 2024 with a 46-day comment period from March 22, 2024 to May 7, 2024; and

WHEREAS, four regional public hearings were held on April 23, 24, 25, and May 1, 2024 to discuss the Draft PM2.5 Plan. Notice was given of these hearings pursuant to the requirements under the Health and Safety Code Section 40466; and

WHEREAS, the Draft Socioeconomic Impact Assessment for the PM2.5 Plan, provided in Appendix VII of the PM2.5 Plan, was prepared and released for public review and comment on May 2, 2024; and

WHEREAS, the South Coast AQMD Governing Board has considered the Socioeconomic Impact Assessment for the PM2.5 Plan and has made a good faith effort to minimize any adverse impacts; and

WHEREAS, the public hearing has been properly noticed in accordance with all provisions of Health and Safety Code Section 40466 and Code of Federal Regulations Title 40, Part 51, Section 51.102; and

WHEREAS, the South Coast AQMD Governing Board has held a public hearing in accordance with all provisions of law; and

WHEREAS, the South Coast AQMD specifies the Planning and Rules Manager of the PM2.5 Plan as the custodian of the documents or other materials which constitute the record of proceedings upon which the adoption of the PM2.5 Plan is based, which are located at the South Coast AQMD, 21865 Copley Drive, Diamond Bar, California; and

NOW, THEREFORE BE IT RESOLVED, that the South Coast AQMD Governing Board does hereby determine, pursuant to the authority granted by law, that the PM2.5 Plan qualifies as a later activity within the scope of the program approved earlier for the 2022 AQMP and the 2016 AQMP per CEQA Guidelines 15168 (c), and the Final Program EIR for the 2022 AQMP and the Final Program EIR for the 2016 AQMP adequately describe the activity for the purposes of CEQA such that no new environmental document will be required. This information was presented to the South Coast AQMD Governing Board, whose members exercised their independent judgement and reviewed, considered, and approved the information therein prior to acting on the proposed project; and

BE IT FURTHER RESOLVED, that the South Coast AQMD will develop, adopt, submit, and implement applicable control measures in Tables 4-2 and 4-3 of Chapter 4 in the PM2.5 Plan as expeditiously as possible in order to meet or exceed the commitments identified in Table 4-12 of the PM2.5 Plan to attain the 2012 annual PM2.5 standard, and to substitute any other measures as necessary to make up any emission reduction shortfall; and

BE IT FURTHER RESOLVED, that the proposed commitment for emission reductions is for total aggregate emissions reductions that may be achieved through the measures identified in the PM2.5 Plan, alternative measures, incentive programs, and actual emission decreases; and

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board, whose members reviewed, considered and approved the information contained in the documents listed herein, adopts the PM2.5 Plan dated June 7, 2024 consisting of the document entitled South Coast Air Basin Attainment Plan for the 2012 Annual PM2.5 Standard as amended by the final changes, if applicable, set forth by the South Coast AQMD Governing Board; and

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board directs the Executive Officer to work with CARB and the U.S. EPA and take appropriate action to resolve any completeness or approvability issues that may arise regarding the SIP submission; and

BE IT FURTHER RESOLVED, that the Executive Officer is hereby directed to forward a copy of this Resolution and the PM2.5 Plan to CARB for approval and subsequent submittal to the U.S. EPA for inclusion in the SIP.

DATE: _____

CLERK OF THE BOARDS



DRAFT FINAL SOUTH COAST AIR BASIN ATTAINMENT PLAN

for the 2012
Annual PM_{2.5}
Standard



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
GOVERNING BOARD

Chair: VANESSA DELGADO
Senator (Ret.)
Senate Rules Committee Appointee

Vice Chair: MICHAEL A. CACCIOTTI
Councilmember, South Pasadena
Cities of Los Angeles County/Eastern Region

MEMBERS:

ANDREW DO
Supervisor, First District
County of Orange

CURT HAGMAN
Supervisor, Fourth District
County of San Bernardino

GIDEON KRACOV
Governor's Appointee

PATRICIA LOCK DAWSON
Mayor, Riverside
Cities of Riverside County Representative

LARRY MCCALLON
Mayor Pro Tem, Highland
Cities of San Bernardino County

HOLLY J. MITCHELL
Supervisor, Second District
County of Los Angeles

VERONICA PADILLA-CAMPOS
Speaker of the Assembly Appointee

V. MANUEL PEREZ
Supervisor, Fourth District
County of Riverside

NITHYA RAMAN
Councilmember, Fourth District
City of Los Angeles Representative

CARLOS RODRIGUEZ
Councilmember, Yorba Linda
Cities of Orange County

JOSÉ LUIS SOLACHE
Mayor, Lynwood
Cities of Los Angeles County/Western Region

EXECUTIVE OFFICER:
WAYNE NASTRI

CONTRIBUTORS

South Coast Air Quality Management District (South Coast AQMD)

Wayne Nastri
Executive Officer

Susan Nakamura
Chief Operating Officer

Sarah L. Rees, Ph.D.
Deputy Executive Officer
Planning, Rule Development, and Implementation

Ian MacMillan
Assistant Deputy Executive Officer
Planning, Rule Development, and
Implementation

Michael Krause
Assistant Deputy Executive Officer
Planning, Rule Development, and
Implementation

Sang-Mi Lee, Ph.D.
Planning and Rules Manager
Planning, Rule Development, and
Implementation

Authors

Eric Praske, Ph.D. – Program Supervisor
Jong Hoon Lee, Ph.D. – Air Quality Specialist
Kayla Jordan – Air Quality Specialist
Marc Carreras Sospedra, Ph.D. – Program Supervisor
Rui Zhang, Ph.D. – Senior Staff Specialist
Elham Baranizadeh, Ph.D. – Air Quality Specialist
Cui Ge, Ph.D. – Air Quality Specialist
Jonathan Zhong Liu, Ph.D. – Air Quality Specialist
Li (Alex) Zhang, Ph.D. – Air Quality Specialist (resigned)
Scott Epstein, Ph.D. – Planning and Rules Manager
Ranil Dhammapala, Ph.D. – Senior Meteorologist
Nico Shulte, Ph.D. – Air Quality Specialist
Qijing (Emily) Bian, Ph.D. – Air Quality Specialist
Melissa Maestas, Ph.D. – Air Quality Specialist
Sarady Ka – Program Supervisor
Sergio Torres Callejas – Assistant Air Quality Specialist
Michael Laybourn – Program Supervisor
Yunnie Osias – Air Quality Specialist
Henry Pourzand – Program Supervisor
Tony Tian, Ph.D. – Program Supervisor

Isabelle Shine – Program Supervisor
Joshua Ewell – Assistant Air Quality Specialist
Charlene Nguyen, Ph.D. – Program Supervisor
Yanrong Zhu – Program Supervisor
Emily Yen – Assistant Air Quality Specialist
Brian Choe – Program Supervisor
Ricky Lai – Air Quality Specialist
Jeff Inabinet – Senior Staff Specialist
Lane Garcia – Program Supervisor
Laurence Brown – Air Quality Specialist
Shawn Wang – Program Supervisor
Lizabeth Gomez – Supervising Air Quality Engineer
Rodolfo Chacon – Program Supervisor
James McCreary – Air Quality Specialist
Melissa Gamoning – Air Quality Specialist
Nicole Silva – Program Supervisor
Kevin Ni – Program Supervisor
David Lam – Air Quality Specialist
Jivar Afshar – Air Quality Specialist
Dan Penoyer – Air Quality Specialist
Tony Tian – Air Quality Specialist

Contributors

Eugene Kang – Planning and Rules Manager
Elaine Shen, Ph.D. – Planning and Rules Manager
Heather Farr – Planning and Rules Manager
Barbara Radlein – Planning and Rules Manager
Ariel Fideldy – Manager (CARB)
Scott King, Ph.D. – Air Pollution Specialist (CARB)

Michael Morris – Planning and Rules Manager
Kalam Cheung, Ph.D. – Planning and Rules Manager
Vicki White – Planning and Rules Manager
Sylvia Vanderspek – Branch Chief (CARB)
Rongsheng Luo – Program Manager II (SCAG)

Reviewers

Barbara Baird, J.D. – Chief Deputy Counsel

Daphne Hsu, J.D. – Principal Deputy District Counsel

Kathryn Roberts, J.D. – Senior Deputy District Counsel

Production

Sally Egan – Graphic Arts Illustrator II

Jack Chin – Supervising Graphic Arts Illustrator

South Coast AQMD Print Shop

Table of Contents

Executive Summary

Overview	ES-1
Challenges and Need for a New PM2.5 Plan	ES-21
Control Measures and Attainment Strategy	ES-3
Attainment Demonstration	ES-4
Health Benefits	ES-54
Collaboration, Public Process, and Outreach	ES-5
Implications of a New PM2.5 Standard for the Basin	ES-5

1. Introduction

Purpose	1-1
Federal 2012 Annual PM2.5 Standard	1-1
California Annual PM2.5 Standard	1-2
2016 AQMP	1-2
U.S. EPA's Concerns with the Annual PM2.5 Plan in the 2016 AQMP	1-3
Need for a New PM2.5 Plan	1-3
Format of This Document	1-4

2. Air Quality

Introduction	2-1
Factors that Influence PM2.5 Concentrations	2-3
Ambient Air Quality Standards	2-6
Historical Trends in Air Quality	2-14
Summary	2-24
References	2-25

3. Emissions Inventory

Introduction	3-1
Emission Inventory	3-3
Base Year Emissions	3-130
Future Emissions	3-196
Impact of Growth	3-274
Top Ten Source Categories in 2018 and 2030	3-296
Condensable and Filterable Portions of PM2.5 Emissions	3-363

4. Control Strategy

Introduction	4-1
Overall Strategy	4-1
South Coast AQMD Proposed Annual PM2.5 Strategy	4-2
Proposed CARB Commitment for the South Coast	4-25
CARB's Mobile Source Measures	4-37
U.S. EPA's Clean Trucks Rule	4-41
SCAG's Regional Transportation Plan/Sustainable Communities Strategy and Transportation Control Measures	4-41
SIP Emission Reduction Commitment	4-42
Overall Emission Reductions	4-45

5. Future Air Quality

Introduction	5-1
Base Design Value	5-1
Annual PM2.5 Modeling Approach	5-7
Model Performance Evaluation	5-9
Future PM2.5 Air Quality	5-15
Attainment Demonstration for the Near-Road Monitor	5-18
Spatial Projections of Annual PM2.5 Design Values	5-24
Summary and Conclusions	5-27

6. Federal Clean Air Act Requirements

Other Federal Clean Air Act Requirements	6-1
Reasonable Further Progress and Quantitative Milestones	6-110
Quantitative Milestones for South Coast AQMD Stationary Source Regulations	6-231
Transportation Conformity	6-253
Fulfillment of New Source Review Requirements	6-3129
Contingency Measures	6-331
Conclusion	6-353

7. Environmental Justice

Introduction	7-1
Environmental Justice Communities	7-4
Summary	7-14

8. Public Process

Introduction	8-1
Outreach Program	8-1
Written Comments and Responses to Comments	8-5

Glossary

Appendix I – Base and Future Year Emission Inventory

Appendix II – Modeling and Attainment Demonstration

Appendix III – Stationary and Mobile Source BACM/MSM

Appendix IV-A – South Coast AQMD’s Stationary and Mobile Source Measures

Appendix IV-B – SCAG’s Regional Transportation Strategy and Control Measures

Appendix V – Contingency Measures Infeasibility Justification

Appendix VI – Precursor Demonstration

Appendix VII – Socioeconomic Impact Assessment

Appendix VIII – California Environmental Quality Act



EXECUTIVE SUMMARY

- Despite great strides in cleaning the air over the past several decades, the Los Angeles area still has among the highest levels of fine particulate matter (PM2.5) pollution in the nation.
- The South Coast Air Basin fails to meet the 2012 annual PM2.5 national ambient air quality standard and is classified as a “serious” nonattainment area.
- South Coast AQMD submitted a plan to attain the 2012 annual PM2.5 standard by 2025 in 2017; however, the U.S. EPA failed to take timely action on that plan. Due to unforeseen challenges, that plan would no longer provide a path to attaining the standard.
- South Coast AQMD developed a new plan to meet the 2012 annual PM2.5 standard. To address the unforeseen challenges, this plan seeks an extension of the attainment date to 2030 as allowed by the Clean Air Act.
- The new plan requires accelerated implementation of control measures from the 2022 AQMP as well as limited additional measures to reduce ammonia and direct PM2.5 emissions.
- With the emission reductions expected from the strategy listed above, the South Coast Air Basin is expected to meet the 2012 annual PM2.5 standard by 2030.

Overview

The 17 million residents of the greater Los Angeles area have suffered from some of the worst air quality in the nation. While air quality has improved greatly over the past decade, more needs to be done. The region has the worst levels of ground-level ozone (smog) and among the highest levels of fine particulate matter (PM2.5). PM2.5 is an air pollutant that is either directly emitted into the atmosphere (primary particles) or formed in the atmosphere through chemical reactions (secondary particles). Primary PM2.5 includes road dust, diesel soot, combustion products, and other sources of fine particles. Secondary PM2.5 products, such as sulfates, nitrates, and complex organic compounds, are formed from reactions with oxides of sulfur (SOx), oxides of nitrogen (NOx), volatile organic compounds (VOCs), and ammonia.

The PM2.5 air pollution levels in the region exceed both National and California Ambient Air Quality Standards. High levels of air pollution cause respiratory and cardiovascular disease, exacerbate asthma, and can lead to premature death. We also know that our Environmental Justice (EJ) communities experience the brunt of adverse health effects from air pollution. Approximately 42 percent of the South Coast Air Basin (Basin) residents live in EJ communities.

The United States Environmental Protection Agency (U.S. EPA) requires areas that do not meet a National Ambient Air Quality Standard (NAAQS or standard) to develop and implement strategies to reduce emissions so that healthy levels of air quality can be achieved in a timely manner. The strategy, along with other supporting elements, must be submitted to U.S. EPA for its review and approval into the State Implementation Plan (SIP). Regions must develop SIPs to attain NAAQS by specific dates or face the possibility of sanctions by the federal government and other consequences under the Clean Air Act (CAA). This can result in increased permitting fees, stricter restrictions for permitting new projects, and the loss of federal highway funds.

This document addresses the planning requirements for the 2012 annual PM2.5 NAAQS. The Basin fails to meet ~~this NAAQS for the 2012 annual PM2.5~~ standard and is currently classified as a “serious” nonattainment area. As such, the South Coast AQMD is required by the Clean Air Act to develop a plan to meet the NAAQS. This document is the plan that provides the strategy and the underlying technical analysis for how the Basin will meet the 2012 annual PM2.5 NAAQS as expeditiously as practicable, but no later than December 31, 2030. This Plan does not address the Coachella Valley as that area already attains the 2012 annual PM2.5 NAAQS.

Challenges and Need for a New PM_{2.5} Plan

Effective April 15, 2015, the U.S. EPA designated the Basin as a “moderate” nonattainment area for the 2012 annual PM_{2.5} NAAQS.¹ The 2016 Air Quality Management Plan (AQMP) contained the original plan to meet the 2012 annual PM_{2.5} NAAQS. In that plan, staff concluded that attainment by the “moderate” area deadline of December 31, 2021 was not achievable. As provided for under the Clean Air Act, staff requested that the U.S. EPA reclassify the Basin to “serious” nonattainment, which provided for additional time to attain the standard. Accordingly, a “serious” area attainment plan, demonstrating attainment by December 31, 2025, was also included in the 2016 AQMP.

Despite the 2016 AQMP submittal, U.S. EPA did not act on the PM_{2.5} “serious” area plan for several years. On December 9, 2020, U.S. EPA reclassified the Basin from “moderate” to “serious” nonattainment for the 2012 annual PM_{2.5} NAAQS with an attainment deadline by December 31, 2025.² U.S. EPA simultaneously raised concerns regarding data from near-road monitors which were established in 2015. These monitors are located along the Interstate 710 (I-710) in Long Beach and the California State Route 60 (CA-60) in Ontario. At the time of 2016 AQMP adoption, neither of these monitors had collected enough data to be considered in plans. By January 1, 2020, however, these monitors had accumulated sufficient data to be considered in SIP attainment demonstrations. Based on 2020–2022 monitoring data, the CA-60 near-road monitoring site had the highest PM_{2.5} level in the Basin at 13.7 µg/m³. U.S. EPA indicated that it could not approve the “serious” area plan included in the 2016 AQMP since, at the time the reclassification request was approved, the near-road monitors were now eligible to be considered in attainment demonstrations. U.S. EPA subsequently requested a supplemental attainment demonstration for the near-road monitors.

On January 12, 2023, U.S. EPA was sued over its failure to take timely action on the “serious” area plan in the 2016 AQMP. To avoid potential disapproval of the plan by U.S. EPA, which would have triggered sanction clocks, South Coast AQMD withdrew the “serious” area plan. As a consequence of withdrawal, South Coast AQMD is required to develop a new plan to address attainment of the 2012 annual PM_{2.5} NAAQS.

While the 2016 AQMP had predicted attainment of the 2012 annual PM_{2.5} NAAQS by 2025, this PM_{2.5} Plan requests an attainment date extension to December 31, 2030 as allowed under CAA Section 188(e). There are multiple factors contributing to the extension of the attainment date. The addition of the near-road monitors, which were not considered in the 2016 AQMP, is one of the primary reasons for the longer timeframe needed for attainment. In addition, due to a lack of action at the federal level, sources such as interstate trucks, ships, locomotives, and aircraft have not been controlled sufficiently, which has resulted

¹ Air Quality Designations for the 2012 Primary Annual Fine Particle (PM_{2.5}) National Ambient Air Quality Standards (NAAQS), 80 Fed. Reg. 2206 (Jan. 15, 2015)

² Approval and Promulgation of Implementation Plans; Designation of Areas for Air Quality Planning Purposes; California; South Coast Moderate Area Plan and Reclassification as Serious Nonattainment for the 2012 PM_{2.5} NAAQS, 85 Fed. Reg. 71264 (Nov. 9, 2020)

in emission reduction shortfalls for attainment of ozone standards. Other unforeseen challenges that have complicated attainment include unfavorable meteorology, wildfires, and increases in emissions in the goods movement sector during the COVID-19 pandemic.

Control Measures and Attainment Strategy

U.S. EPA requires PM2.5 plans to address directly-emitted PM2.5 and the gases that form PM2.5 in the atmosphere. These gases are known as precursors, and they include SOx, NOx, VOCs, and ammonia. While the main sources of NOx are on-road and off-road mobile sources, direct PM2.5 emissions are driven by stationary area sources, such as cooking and resuspended particles from paved roads. Ammonia emissions are driven by both area and mobile sources. Control measures for VOCs and SOx are not included in the attainment strategy as these precursors have an insignificant contribution to PM2.5 in the Basin.

The reductions needed to meet the 2012 annual PM2.5 NAAQS will come from three categories.

- 1) **Already adopted rules and programs.** Rules and programs that have already been adopted by the South Coast AQMD will continue to bring emission reductions of PM2.5 and its precursors. These reductions are already reflected in the baseline (i.e., Business-As-Usual) emissions. Under baseline conditions, NOx and direct PM2.5 emissions are expected to decline by 45 percent and 4 percent from 2018 to 2030, respectively.
- 2) **Actions from the 2022 AQMP.** The NOx strategy committed in the 2022 AQMP to attain the 2015 8-hour ozone NAAQS by 2037 is expected to reduce both NOx and direct PM2.5 emissions by 2030. Among the control measures included in the 2022 AQMP, those that can be implemented by 2030 were identified and included in this Plan. Both NOx emission reductions and concurrent PM2.5 reductions from 2022 AQMP NOx control measures were quantified in this PM2.5 Plan.
- 3) **Limited additional reductions of ammonia and direct PM2.5.** These additional reductions will be pursued to satisfy U.S. EPA's stringency requirements. This PM2.5 Plan is required to satisfy U.S. EPA's requirements including Best Available Control Measures (BACM) and Most Stringent Measures (MSM). Demonstrating BACM and MSM is independent of attainment and therefore some control measures, which are surplus to the attainment strategy, are included. For details on the BACM and MSM requirements and analysis, refer to Appendix III.

South Coast AQMD proposes a total of 38 control measures for the PM2.5 Plan. Out of the 38 proposed control measures, 23 measures target reductions from stationary sources and the remaining 15 measures target reductions from mobile sources. The stationary source measures are grouped into the following categories: NOx measures, direct PM2.5 measures, ammonia measures, co-benefits from energy and climate change programs, and other measures. Meanwhile, the mobile source measures are grouped into the following categories: emission growth management measures, facility-based mobile source measures, on-road and off-road measures, incentive-based measures, and other measures. Overall, emissions of

NOx and PM2.5 will reduce by 207.7 tons per day and 3.4 tons per day, respectively, between 2018 and 2030.

Attainment Demonstration

Air quality modeling is used to demonstrate future attainment of the PM2.5 standard and is an integral part of the planning process. Modeling shows the connection between emission reductions and a path to attainment. It reflects updated emissions estimates, new technical information, enhanced air quality modeling techniques, updated attainment demonstration methodology, and the control strategy.

The modeling platform consists of a suite of modeling tools that calculate air pollutant emissions, meteorological conditions that drive the transport of pollutants, and chemical transformation of pollutants to predict the concentrations of PM2.5 and its precursors. The modeling setup is an upgrade from the modeling platform used in the 2022 AQMP and incorporates new versions of the Weather Research Forecast (WRF) meteorological model and the Community Multiscale Air Quality (CMAQ) model. Emissions modeling incorporates detailed information from satellite observations, vehicle traffic sensor data, and communication platforms for aircraft and ocean-going vessels, to refine emissions spatial and temporal distribution.

For the first time in a South Coast Air Basin PM2.5 plan, the design site for the annual PM2.5 standard is a near-road monitor. That site is the near-road monitor that is located by the CA-60 freeway in Ontario. Modeling the air quality in this site presents challenges to regional air quality models commonly used in attainment demonstrations. The U.S. EPA modeling guidance for attainment demonstrations³ recognizes the limitations of regional models to represent the steep gradients in PM2.5 around near-road sites and acknowledges that demonstrating attainment at near-road sites may require different treatment compared to other monitors. This PM2.5 plan employs a hybrid approach that combines traditional regional modeling with dispersion modeling around the near-road site. The hybrid modeling helps characterize the contribution of near-road sources to measured PM2.5 at the near-road monitor to better quantify the benefits of emission controls on on-road sources. Other than the near-road monitor at Ontario CA-60, the traditional regional modeling approach was employed to demonstrate attainment at all stations in the Basin.

With the proposed control measures and emissions reductions, the attainment strategy in this Plan will result in meeting the 2012 annual PM2.5 standard by 2030 at all the stations in the Basin.

³ Modeling Guidance for Demonstrating Attainment of Air Quality Goals for Ozone, PM2.5, and Regional Haze, U.S. EPA, Office of Air Quality Planning and Standards. Available at: https://www.epa.gov/sites/default/files/2020-10/documents/o3-pm-rh-modeling_guidance-2018.pdf

Health Benefits

A Socioeconomic Impact Assessment, which includes quantification of public health benefits, is being prepared and will be released for public review at least 30 days prior to the Public Hearing.

Collaboration, Public Process, and Outreach

The development of the PM_{2.5} Plan has been a regional, multi-agency effort that includes South Coast AQMD, CARB, the Southern California Association of Governments, and the U.S. EPA. The PM_{2.5} Plan also incorporates collaborative efforts by a wide range of stakeholders such as businesses, environmental and health organizations, community groups, and academia. As shown in Figure ES-1, development of the PM_{2.5} Plan involved numerous types of public meetings to promote collaboration and public participation. Meeting materials for the regional public hearings ~~will be~~were translated to Spanish and ~~will all hearings featured~~were provided with—live Spanish translation. Agendas and presentations for each meeting will be forthcoming.

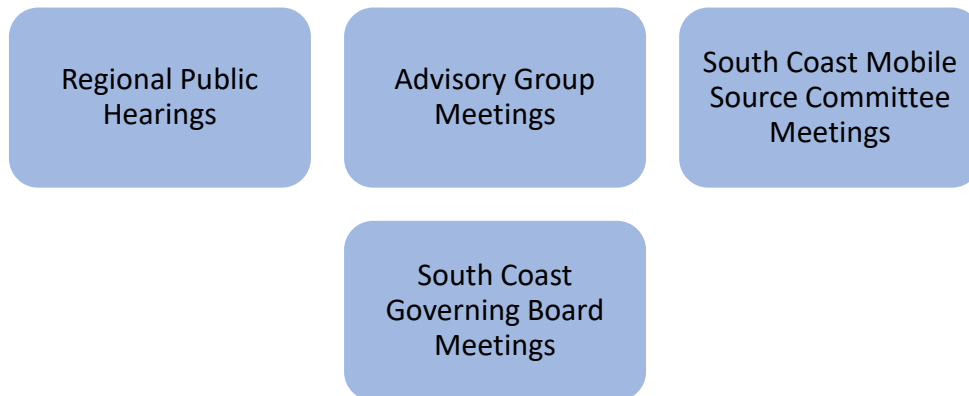


FIGURE ES-1
VENUES ACCOMMODATING STAKEHOLDER PARTICIPATION

Implications of a New PM_{2.5} Standard for the Basin

U.S. EPA recently revised the annual PM_{2.5} standard from its current level of 12 µg/m³ to 9.0 µg/m³.⁴ The new standard is the result of an extensive scientific review conducted by U.S. EPA's Clean Air Scientific

⁴ Reconsideration of the National Ambient Air Quality Standards for Particulate Matter, 89 Fed. Reg. 16202 (Mar. 6, 2024)

Advisory Committee (CASAC), which found that the 12 $\mu\text{g}/\text{m}^3$ standard does not sufficiently protect public health.

This PM_{2.5} Plan, together with the 2022 AQMP, serves as a steppingstone for attaining the 2024 PM_{2.5} NAAQS. However, even after implementing the control strategy of this Plan, air quality modeling predicts that the 2030 design value will be 11.7 $\mu\text{g}/\text{m}^3$, significantly higher than the new 9.0 $\mu\text{g}/\text{m}^3$ standard. Preliminary results suggest that even implementation of the 2022 AQMP strategy, which targets attainment of the 2015 8-hour ozone NAAQS by 2037, will be insufficient to lower the design value to 9.0 $\mu\text{g}/\text{m}^3$. Substantial emission reductions especially of direct PM_{2.5} will therefore be required to meet the new standard. South Coast AQMD commits to develop the optimal attainment strategy that considers stakeholder feedback while ensuring expeditious attainment of the 2024 PM_{2.5} standard.

CHAPTER 1

Introduction

- PM2.5 levels have improved dramatically in the South Coast Air Basin (Basin) over the past several decades, yet the region still experiences among the highest PM2.5 levels in the nation, leading to significant health issues.
- The Basin is in “serious” nonattainment of the 2012 annual PM2.5 standard and the Clean Air Act requires South Coast AQMD to develop and implement an emission reduction strategy to meet the standard.
- This document is the plan to meet the 2012 annual PM2.5 standard in the Basin by December 31, 2030.
- The emission reductions to be achieved through implementing this plan will assist the Basin in meeting the 2024 annual PM2.5 standard.



Purpose

The greater Los Angeles area experiences some of the worst air pollution in the nation. While tremendous progress has been made in reducing levels of air pollution over that past several decades, the region still has the highest levels of ozone, and among the highest levels of fine particulate matter (PM_{2.5}) in the country. These air pollutants cause substantial health impacts, including respiratory and cardiovascular disease, worsening asthma symptoms, and premature death.

The federal Clean Air Act (CAA or Act) requires areas that do not meet the health-based National Ambient Air Quality Standards (NAAQS or standards) to develop and implement an emission reduction strategy to attain healthy levels of air quality in a timely manner. The South Coast Air Basin (Basin) fails to meet the 2012 annual PM_{2.5} NAAQS and is currently classified as a “serious” nonattainment area for that standard. The South Coast Air Basin Attainment Plan for the 2012 Annual PM_{2.5} Standard (PM_{2.5} Plan or Plan) provides the strategy and the underlying technical analysis for how the region will meet the 2012 annual PM_{2.5} NAAQS in the Basin as expeditiously as practicable, but no later than December 31, 2030. This Plan does not address the Coachella Valley as that area already meets the 2012 annual PM_{2.5} NAAQS. It also does not address attainment of other NAAQS as those are addressed in the 2016 and 2022 Air Quality Management Plans (AQMPs).^{1,2}

Federal 2012 Annual PM_{2.5} Standard

On December 14, 2012, the U.S. EPA strengthened the primary annual NAAQS for PM_{2.5} to 12 micrograms per cubic meter (µg/m³).³ Under the CAA, there are two tiers of nonattainment for areas that fail to meet PM_{2.5} standards; “moderate” and “serious.” Nonattainment areas are classified by the U.S. EPA into one of these two tiers based on the levels of PM_{2.5} in the region. Effective April 15, 2015, the U.S. EPA designated the South Coast Air Basin (Basin) as a “moderate” nonattainment area for the 2012 annual PM_{2.5} NAAQS.⁴ Pursuant to Clean Air Act (CAA) Section 189(a)(2)(B), “moderate” nonattainment areas must submit a plan showing how the region will meet the standard by the date required by the CAA, no later than 18 months from the date of designation. “Moderate” nonattainment areas are required to meet the 2012 annual PM_{2.5} standard as expeditiously as practicable, but no later than the end of the sixth calendar year after the designation (i.e., December 31, 2021) and “serious” nonattainment areas are required to attain the standard as expeditiously as practicable, but no later than the end of the tenth calendar year after the designation (i.e., December 31, 2025). Under CAA Section 188(e), “serious”

¹ Final 2016 Air Quality Management Plan, <https://www.aqmd.gov/home/air-quality/clean-air-plans/final-2016-aqmp>

² 2022 Air Quality Management Plan, <https://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan>

³ National Ambient Air Quality Standards for Particulate Matter, 78 Fed. Reg. 3086 (January 15, 2013)

⁴ Air Quality Designations for the 2012 Primary Annual Fine Particle (PM_{2.5}) National Ambient Air Quality Standards (NAAQS), 80 Fed. Reg. 2206 (Jan. 15, 2015)

nonattainment areas may request an attainment date extension to no later than the end of the fifteenth calendar year after the designation (i.e., December 31, 2030).

California Annual PM_{2.5} Standard

The California Clean Air Act (CCAA),⁵ enacted in 1988, provides a framework for air quality planning and established a legal mandate for CARB to achieve health-based state air quality standards for ozone, carbon monoxide, sulfur dioxide, and nitrogen dioxide at the earliest practicable date. Although not required by the CCAA, state standards for particulate matter are contained in Title 17 of the California Code of Regulations (CCR).⁶ In June 2002, CARB promulgated the state annual average PM_{2.5} standard of 12 µg/m³ for which the Basin is designated nonattainment. The CCAA specifies multiple requirements for ozone plans, such as requiring plans to be reviewed every three years, demonstrating plan effectiveness, implementing all feasible measures, reducing population exposure, and ranking control measures by cost-effectiveness.⁷ However, these CCAA requirements do not directly apply to PM_{2.5} plans and no requirements were specified for PM_{2.5}.

2016 AQMP

The South Coast AQMD developed the 2016 AQMP as the comprehensive blueprint for how the region will attain five NAAQS – three ozone standards (1979 1-hour, 1997 8-hour and 2008 8-hour), the 2006 24-hour PM_{2.5} standard and the 2012 annual PM_{2.5} standard. The 2016 AQMP concluded that attainment by the “moderate” area deadline of December 31, 2021, was impractical and requested reclassification of the Basin to “serious” nonattainment for the 2012 annual PM_{2.5} standard as provided in the CAA. Accordingly, South Coast AQMD included a “serious” area attainment plan in the 2016 AQMP that demonstrated attainment by December 31, 2025. The 2016 AQMP was adopted by the South Coast AQMD Governing Board on March 3, 2017, and submitted to U.S. EPA for approval on April 27, 2017, via the California Air Resources Board (CARB).

The CAA requires U.S. EPA to determine the completeness of any State Implementation Plan (SIP) submittal within 6 months of receipt and take final action on the submitted SIP by approving or disapproving, either in full or in part, within 12 months of the date the submittal has been deemed complete.⁸ Despite the SIP being deemed complete by operation of law on October 27, 2017, U.S. EPA did not act on the PM_{2.5} “serious” area plan for several years. On December 9, 2020, U.S. EPA reclassified the Basin from “moderate” to “serious” nonattainment for the 2012 annual PM_{2.5} NAAQS per South Coast

⁵ Health and Safety Code Sections 40910 et seq.

⁶ CCR Title 17, § 70200

⁷ Health and Safety Code Sections 40913, 40914, 40920, 40922, and 40925

⁸ 42 U.S.C. § 7410(k)(1)–(4)

AQMD's previous request, establishing an attainment deadline of December 31, 2025.⁹ U.S. EPA committed to evaluate and act on the PM_{2.5} "serious" area plan through subsequent rulemakings.

U.S. EPA's Concerns with the Annual PM_{2.5} Plan in the 2016 AQMP

Since the adoption of the 2016 AQMP, new challenges emerged that were not considered in the "serious" area plan. In 2015, two near-road monitors were established in the Basin, along the Interstate 710 (I-710) in Long Beach and the California State Route 60 (CA-60) in Ontario. When the U.S. EPA strengthened the annual PM_{2.5} NAAQS to 12 µg/m³ on December 14, 2012, it added a requirement to monitor near the most heavily trafficked roadways in large urban areas. Particle pollution is expected to be higher along these roadways as a result of direct emissions from cars and heavy-duty diesel trucks and buses. The South Coast AQMD installed the two required PM_{2.5} monitors before January 1, 2015. The locations are I-710, located at Long Beach Blvd. in Los Angeles County near Compton and Long Beach; and CA-Route 60, located west of Vineyard Avenue near Ontario, Mira Loma and Upland. —At the time of 2016 AQMP adoption, these monitors had not collected sufficient data to establish valid design values, which requires three years of valid data. As a result, the data from the near-road monitors were excluded from the attainment demonstration. By January 1, 2020, these monitors had accumulated sufficient data to establish design values, allowing them to be considered in SIP attainment demonstrations.

Based on 2020–2022 monitoring data, the CA-60 near-road monitoring site had the highest PM_{2.5} level in the Basin at 13.7 µg/m³. This is above the 2012 annual standard of 12 µg/m³. U.S. EPA indicated that it could not approve the "serious" area attainment demonstration included in the 2016 AQMP since, at the time the reclassification request was approved, the near-road monitors were eligible to be considered in attainment demonstrations. U.S. EPA subsequently requested a supplemental attainment demonstration that included data from the near-road monitors.

Need for a New PM_{2.5} Plan

On January 12, 2023, the Center for Biological Diversity sued U.S. EPA over its failure to act on the "serious" area plan in the 2016 AQMP by the statutory due date. As U.S. EPA indicated that the 2016 plan was no longer approvable, South Coast AQMD submitted a request via CARB on March 29, 2023, to withdraw the 2016 AQMP "serious" area plan for the 2012 annual PM_{2.5} NAAQS. As a consequence of withdrawal, South Coast AQMD is required to develop a new plan to address attainment of the 2012 annual PM_{2.5} NAAQS.

⁹ Approval and Promulgation of Implementation Plans; Designation of Areas for Air Quality Planning Purposes; California; South Coast Moderate Area Plan and Reclassification as Serious Nonattainment for the 2012 PM_{2.5} NAAQS, 85 Fed. Reg. 71264 (November 9, 2020)

While the 2016 AQMP had predicted attainment of the 2012 annual PM_{2.5} NAAQS by 2025, this PM_{2.5} Plan requests an attainment date extension to December 31, 2030, as allowed under CAA Section 188(e). There are multiple factors contributing to the extension of the attainment date. The addition of the near-road monitors, which were not considered in the 2016 AQMP, is one of the primary reasons for the longer timeframe needed for attainment due to the high levels of PM_{2.5} at those monitors. In addition, the attainment strategy in the 2016 AQMP relied on co-benefits from measures to attain the 1997 8-hour ozone standard by 2023 and the 2008 8-hour ozone standard by 2031. Since the submittal of the 2016 AQMP, South Coast AQMD has implemented control measures and achieved emission reductions reflected in the 2016 AQMP attainment demonstration. However, a transition to low emission technologies did not occur across all sources, primarily due to a lack of action at the federal level to address emissions from aircraft, ships, trains, portions of heavy-duty trucks, and off-road equipment. These heavy-duty mobile sources contribute most of the pollution in the region and are subject to federal regulatory authority with limited ability for local regulation. Additional challenges that were not foreseen at the time of 2016 AQMP adoption include unfavorable meteorology, wildfires, increases in emissions in the goods movement sector during the COVID-19 pandemic, and the addition of the near-road monitors.

This PM_{2.5} Plan reviews the current status of PM_{2.5} air quality from all monitors in the region, develops a new strategy to attain the 2012 annual PM_{2.5} NAAQS as expeditiously as practicable, but no later than December 31, 2030, and satisfies all applicable “serious” area requirements.

Format of This Document

This document is organized into seven chapters, each addressing a specific topic. Each of the chapters is summarized here.

Chapter 1, “Introduction,” includes background on the annual PM_{2.5} standard, 2016 AQMP, U.S. EPA’s concerns with the annual PM_{2.5} plan in the 2016 AQMP, and the need for a new plan to address the standard.

Chapter 2, “Air Quality,” discusses the Basin’s current PM_{2.5} air quality in comparison with federal and State health-based air pollution standards and exceptional events.

Chapter 3, “Emissions Inventory,” summarizes the emissions inventory, estimates current emissions by source, and projects future emissions.

Chapter 4, “Control Strategy,” presents the control strategy, specific control measures for stationary and mobile sources, and implementation schedules to attain the 2012 annual PM_{2.5} standard by the specified attainment date.

Chapter 5, “Attainment Demonstration,” describes the air quality modeling approach used in the PM_{2.5} Plan.

Chapter 6, “Federal Clean Air Act Requirements,” discusses requirements associated with the request to extend the attainment date, the motor vehicle emissions budget, Reasonable Further Progress, quantitative milestones, and contingency measures.

Chapter 7, “Environmental Justice Communities,” describes air quality impacts experienced in environmental justice communities and outlines some of the steps South Coast AQMD is taking to address localized impacts.

Chapter 8, “Public Process and Participation,” describes South Coast AQMD’s public outreach effort associated with development of the PM2.5 Plan.



CHAPTER 2

Air Quality

- PM2.5 concentrations were measured at 22 sites throughout the South Coast Air Basin in 2022 and have decreased significantly over the past two decades.
- PM2.5 levels are strongly influenced by meteorology, emissions of primary PM2.5 as well as the emissions of secondary PM2.5 precursors.
- While the 2022 annual PM2.5 design value exceeded the 2012 PM2.5 federal standard, the South Coast Air Basin reported the lowest annual average PM2.5 concentration in 2022 since PM2.5 monitoring began.

Introduction

In this chapter, ambient fine particulate matter (PM2.5) as monitored by South Coast AQMD is summarized for the year 2022 and prior year trends in the South Coast Air Basin (Basin). The factors influencing PM2.5 concentrations are also discussed. South Coast AQMD's recent air quality is compared to the NAAQS and to the California Ambient Air Quality Standards (CAAQS or State standards). Data presented indicate the current attainment or nonattainment status for the various NAAQS and CAAQS PM2.5 standards, showing the progress made to date and assisting the South Coast AQMD in planning for future attainment.

The South Coast AQMD began regular monitoring of PM2.5 in 1999 following the U.S. EPA's adoption of the national PM2.5 standards in 1997. In 2022, ambient PM2.5 concentrations were monitored at 22 locations throughout the South Coast Air Basin, including two near-road sites. Two types of PM2.5 sampling methods are used in the region. Federal Reference Method (FRM) samplers pull ambient air through a filter over a 24-hour period. The filter is then removed and weighed to determine ambient PM2.5 concentrations during the sampling period. The PM2.5 NAAQS are defined based on FRM measurements. The Federal Equivalent Method (FEM) samplers used by South Coast AQMD are Beta Attenuation monitors that report hourly PM2.5 concentrations continuously, which are averaged over a 24-hour period to determine daily averages. Because FRM data is the reference data for NAAQS purposes, FEM monitors undergo annual assessments by the U.S. EPA to determine their eligibility for NAAQS comparison.¹ While measurements from these two techniques produce similar concentrations, there still is some variation, with FEM samplers typically reading higher than collocated FRM samplers. ~~The PM2.5 NAAQS are defined based on FRM measurements.~~

Of the 22 monitoring stations in our region, ~~f~~Filter-based FRM PM2.5 sampling was employed at 14 of these stations. Seven of the FRM measurement stations, including the two near-road sites, were sampled daily to improve temporal coverage beyond the required 1-in-3-day sampling schedule. Eighteen stations, including two near-road sites, employed continuous PM2.5 monitors and ten of these were collocated with FRM measurements. Among the 18 stations with continuous PM2.5 monitors, seven stations utilize FEM monitors, while three stations use special purpose monitors (SPM) for continuous PM2.5 measurement. ~~FEM monitors undergo annual assessments by the U.S. EPA to determine their eligibility for NAAQS—~~ In 2021,² all FEM monitors, except for the one at the Los Angeles-North Main Street station, successfully passed the comparability assessment. Therefore, the daily averages from these monitors can be used to supplement FRM measurements on days with missing data. The SPM monitors are newly established FEM monitors that have not collected three years of data required for the NAAQS-

¹ The continuous PM2.5 monitors deployed by South Coast AQMD are FEM-designated Beta Attenuation Monitor (BAM) instruments. The U.S. EPA waiver from NAAQS compliance for the continuous samplers is re-evaluated annually as part of the South Coast AQMD Annual Air Quality Monitoring Network Plan [<http://www.aqmd.gov/home/air-quality/clean-air-plans/monitoring-network-plan>]

² At the time when this plan was drafted, the latest PM2.5 continuous monitor comparability assessment waiver approved by the U.S. EPA was for the design value period of 2019-2021

comparability assessment. They are eligible for comparison to NAAQS after they have been operated for more than 24 months unless a waiver has been granted by U.S. EPA. The continuous data is used for forecasting, real-time air quality alerts, predictive air quality advisories, and for evaluating hour-by-hour variations. Figure 2-1 provides the location of all regulatory PM_{2.5} monitors within the Basin.

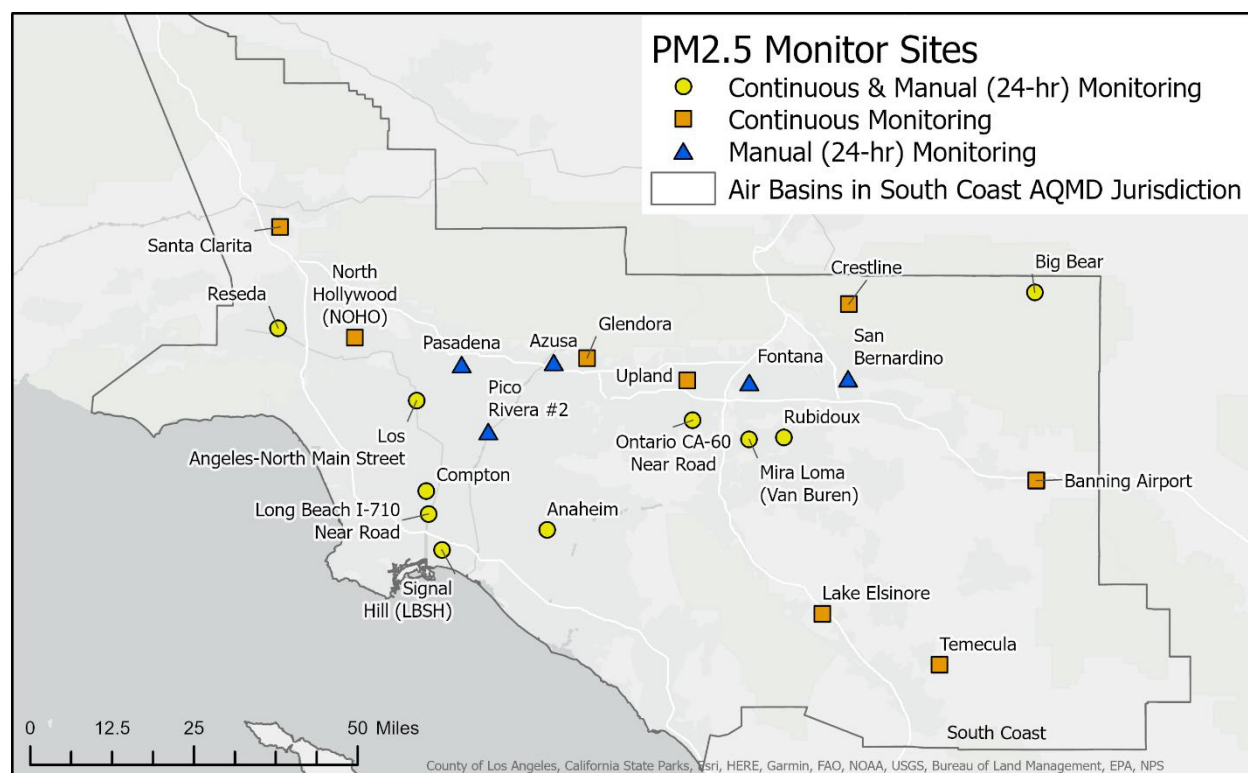


FIGURE 2-1
LOCATION OF ALL REGULATORY MONITORS IN THE SOUTH COAST AIR BASIN

Inhalation of fine particulate matter has been associated with a wide variety of health effects, including premature death. Other health impacts include exacerbation of symptoms in patients with respiratory or cardiovascular disease, decline in pulmonary function in children, increased risk of lung cancer, and potentially may be linked to adverse reproductive and cognitive effects. Some of the impacts of these health effects may be seen in increased asthma-related hospital admissions, increased school absences and lost workdays. Elevated PM_{2.5} concentrations also impair visibility. Detailed health effects information

can be found in Appendix I: Health Effects in the 2022 AQMP³ or in the U.S. EPA NAAQS documentation at <https://www.epa.gov/naaqs>.

Factors that Influence PM_{2.5} Concentrations

The South Coast Air Basin's air pollution problems are a consequence of the combination of emissions from the nation's second largest urban area, meteorological conditions that limit adverse to the dispersion of those emissions, and mountainous terrain surrounding the Basin that traps pollutants as they are pushed inland with the sea breeze. PM_{2.5} is a suspension of solid or liquid particles that are less than 2.5 micron in diameter. There are two forms of PM_{2.5} - primary and secondary. Primary PM_{2.5} particles are directly emitted by combustion sources such as vehicles, industrial processes, cooking, or fires. Secondary PM_{2.5} is formed in the atmosphere through a series of complex chemical reactions of PM_{2.5} precursors such as volatile organic compounds (VOCs), oxides of nitrogen (NO_x), and ammonia (NH₃) (Figure 2-2). The precursors that form PM_{2.5} are from mobile, point and area sources, with the largest portion resulting from fuel combustion. Both directly emitted PM_{2.5} and secondary PM_{2.5} that is formed in the atmosphere contribute to measured PM_{2.5} concentrations, but in the South Coast Air Basin, secondary PM_{2.5} formation is responsible for approximately two thirds of the total PM_{2.5} mass (Figure 2-3). Because secondary PM_{2.5} is a substantial portion of overall PM_{2.5} levels in the region, control strategies to reduce PM must address both sources of direct emissions as well as the PM_{2.5} precursors.

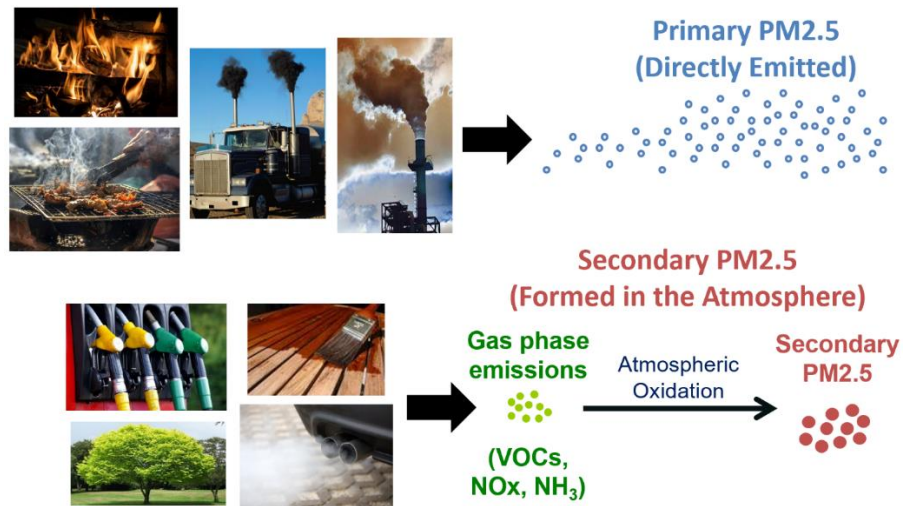


FIGURE 2-2

³ Available at www.aqmd.gov/2022aqmp

PM2.5 FORMATION MECHANISMS

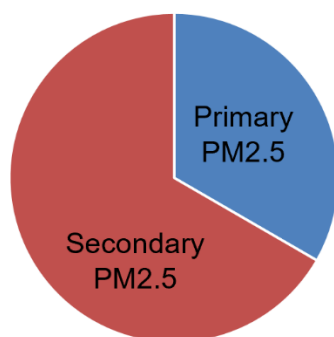


FIGURE 2-3
APPROXIMATE CONTRIBUTION OF SECONDARY AND PRIMARY PM2.5 IN THE SOUTH COAST AIR BASIN⁴

Most sources of PM2.5 and PM2.5 precursors have regular patterns of emissions that may vary by time of day, day of the week or by season. However, episodes of elevated PM2.5 can be caused by emission sources that occur infrequently such as wildfires, fireworks, or residential wood combustion. Wildfires are an important source of PM2.5 and PM2.5 precursors and can lead to multiple days of high PM2.5 levels, especially during the summer and fall months when fire activity is likely. Fireworks, either from commercial displays or personal use, are a significant source of PM2.5 on July 4th and 5th each year; concentrations recorded on these days are typically the highest measured in the entire year. Residential wood combustion is also an important source of PM2.5 and PM2.5 precursors, predominantly during the months of November through February. Residents are more likely to burn wood on cool nights, on the weekends, and during holiday periods. The spatial heterogeneity in PM2.5 emissions and micro meteorology lead to significant differences in PM2.5 measurements throughout the Basin.

While long term trends in PM2.5 concentrations are largely driven by changes in emissions, the observed day to day variations in PM2.5 concentrations are primarily the result of meteorological changes except on days with elevated atypical emissions such as fireworks, wildfires, or residential wood combustion. Elevated PM2.5 concentrations can occur in the Basin throughout the year but occur most frequently in

⁴ Fractions of primary and secondary PM were estimated using the PM2.5 speciation data measured at the Los Angeles-North Main street from June 2012 to July 2018. The total mass of the elemental carbon and metals was assigned as primary PM2.5. The total mass of inorganic ions was assigned as secondary PM2.5. For organic aerosols, we referred to Figure V-6-20 in the Appendix V of the South Coast AQMD's 2016 Air Quality Management Plan (AQMP) and assigned 30 percent of the organic aerosol as primary PM2.5 and 70% to the secondary PM2.5 fraction. Appendix V of the 2016 AQMP is available at <https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/appendix-v.pdf?sfvrsn=10>

fall and winter. This is mainly due to the unfavorable meteorological conditions that are more common in those months. Figure 2-4 summarizes the meteorological factors that influence PM_{2.5} concentrations.



FIGURE 2-4
IMPORTANT FACTORS THAT INFLUENCE PM_{2.5} CONCENTRATIONS

The average wind speed for Los Angeles is the lowest of the nation's 10 largest urban areas, resulting in reduced dispersion throughout the region. In addition, the summertime daily maximum mixing heights⁵ in Southern California are the lowest, on average, due to strong temperature inversions in the lower atmosphere that effectively trap pollutants—both primary PM_{2.5} and the PM_{2.5} precursors—near the surface. Southern California also has abundant sunshine, which drives the photochemical reactions that form secondary PM_{2.5}. Periods of fog or high humidity can also lead to elevated PM_{2.5} concentrations as chemistry in fog droplets can increase fine particle mass.

Weather disturbances and rainstorms, which predominantly occur during the winter months, are effective in reducing ambient PM_{2.5} concentrations. Enhanced ventilation and the breakup of elevated inversion layers facilitate atmospheric mixing. Rainfall is extremely effective in reducing PM_{2.5} concentrations in the atmosphere. The frequency of these disturbances can strongly influence both the 98th percentile highest daily average concentrations and the annual average concentrations, which are the key parameters to determine attainment of the 24-hour PM_{2.5} standard and the annual PM_{2.5} standard, respectively.

⁵ The maximum mixing height is an index of how well pollutants can be dispersed vertically in the atmosphere. The greater the mixing height, the greater the ventilation, and the more that pollutants are dispersed

Ambient Air Quality Standards

Federal and State Standards

Ambient air quality standards have been set by both the federal government and the State of California for fine particulate matter. In this chapter, statistics capturing the number of days exceeding federal standards are presented along with concentration trends and design values calculated from measurement data. Exceedance metrics are instructive regarding trends and control strategy effectiveness. However, it should be noted that an exceedance of the concentration level of a federal standard does not necessarily mean that the NAAQS was violated or that it would cause nonattainment. The form of the standard must also be considered. For example, for 24-hour PM_{2.5}, the form of the standard is the annual 98th percentile measurement of all the 24-hour PM_{2.5} daily samples at each station. At a station with daily measurements, this corresponds to the 8th highest daily PM_{2.5} measurement.

For PM_{2.5} NAAQS attainment/nonattainment decisions, the most recent three years of data are considered along with the form of the standard, to calculate a *design value* for each station.⁶ Design values are the statistical metrics used to compare with the NAAQS to determine attainment. The overall design value for an air basin is the highest design value of all the stations in that basin. The California State air quality standards are values not to be exceeded, typically evaluated over a three-year period, and the data is evaluated in terms of a *State Designation Value*, which allows for some statistical data outliers and exceptional events. Attainment deadlines for the State standards are ‘as soon as practicable.’

⁶ Note that for modeling attainment demonstrations, the U.S. EPA modeling guidance recommends a 5-year weighted average for the design value instead of the 3-year

**TABLE 2-1
NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS) AND DESIGN VALUE REQUIREMENTS
FOR FINE PARTICULATE MATTER**

Averaging Time **	NAAQS Level	Design Value Form of NAAQS*
24-Hour (2006)	35 µg/m³	Three-year average of the annual 98th percentile of daily 24-hour concentration
24-Hour (1997) ***	65 µg/m ³	
Annual (2012)	12.0 µg/m³	Annual average concentration, averaged over three years <i>(annual averages based on average of 4 quarters)</i>
Annual (1997) ***	15.0 µg/m ³	
Annual (2024)****	9.0 µg/m ³	

Bold text denotes the current and most stringent NAAQS.

* The NAAQS is attained when the design value (form of concentration listed) is equal to or less than the level of the NAAQS.

** Year of U.S. EPA NAAQS update review shown in parenthesis and revoked or revised status in brackets; for revoked or revised NAAQS, areas may have continuing obligations until that standard is attained.

*** On July 25, 2016 U.S. EPA finalized a determination that the Basin attained the 1997 annual (15.0 µg/m³) and 24-hour PM_{2.5} (65 µg/m³) NAAQS, effective August 24, 2016.

**** On March 6, 2024, U.S. EPA strengthened the annual PM_{2.5} NAAQS, effective May 6, 2024.

**TABLE 2-2
CALIFORNIA AMBIENT AIR QUALITY STANDARDS (CAAQS) AND DESIGNATION VALUE
REQUIREMENTS FOR FINE PARTICULATE MATTER**

Averaging Time **	CAAQS Level	Designation Value Form of CAAQS*
Annual (2012)	12.0 µg/m ³	Annual average of the daily 24-hour concentrations. Maximum value in a three-year

* The CAAQS is attained when the designation value (form of concentration listed) is equal to or less than the level of the CAAQS.

Under the Exceptional Events Rule,⁷ U.S. EPA allows certain air quality data to not be considered for NAAQS attainment status when that data is influenced by exceptional events that meet strict evidence requirements, such as high winds, wildfires, volcanoes, or some cultural events (such as Independence Day or New Year's fireworks). An exceptional event meets the following criteria:

- The event affected air quality in such a way that there exists a clear causal relationship between the specific event and the monitored exceedance or violation;
- The event was not reasonably controllable or preventable; and
- The event was caused by human activity that is unlikely to recur at a particular location or was a natural event.

For a few PM measurements in the Basin between 2016 and 2022, the South Coast AQMD applied the U.S. EPA Exceptional Events Rule to flag these PM_{2.5} data due to wildfires and fireworks on Independence Day. All of the PM exceptional event flags through 2022 have been submitted with the affected data to U.S. EPA's Air Quality System (AQS) database. PM_{2.5} attainment designation for the South Coast Air Basin will likely depend upon U.S. EPA's concurrence with the exceptional event flags and the analysis demonstrating that exceedances were caused by wildfire smoke and/or Independence Day fireworks.

Attainment Status of the Annual PM_{2.5} Standard

The 2022 PM_{2.5} annual federal design values are summarized in Table 2-3. Data likely to be approved as exceptional events by U.S. EPA are removed from this analysis. The highest 2022 PM_{2.5} federal annual design value of 13.7 µg/m³ was measured in the Ontario CA-60 Near Road air monitoring station. The next highest 2022 PM_{2.5} federal annual design value was 13.4 µg/m³, measured in the Metropolitan Riverside County area at the Mira Loma air monitoring station.

TABLE 2-3
2020–2022 ANNUAL FEDERAL DESIGN VALUES BY COUNTY*

County	2020–2022 PM _{2.5} Annual Design Value (µg/m ³)	Percent of Current (2012) PM _{2.5} NAAQS (12.0 µg/m ³)	Area of Design Value Max
Los Angeles	13.1	109	South San Gabriel Valley
Orange	10.9**	91	Central Orange County
Riverside	13.4	112	Metropolitan Riverside County
San Bernardino	13.7	114	Ontario CA-60 Near Road

* Data likely to be approved as exceptional events by U.S. EPA removed from analysis.

** Mission Viejo in the Saddleback Valley does not have a valid design value because measurements do not meet data completeness requirements.

⁷ The Final 2016 U.S. EPA Exceptional Events Rule is available at <https://www.epa.gov/air-quality-analysis/final-2016-exceptional-events-rule-supporting-guidance-documents-updated-faqs>

The 2022 PM_{2.5} annual state designation values are summarized in Table 2-4. The 2022 PM_{2.5} annual state designation values measured in Los Angeles, Riverside, and San Bernardino Counties exceed the state standard of 12 µg/m³. The highest 2022 PM_{2.5} state annual designation value of 18 µg/m³ was measured at the Ontario CA-60 Near Road air monitoring station. State Designation Values are based on the maximum annual average recorded in the most recent three-year period, and therefore, they are less responsive to year-to-year changes in concentrations. Exceptional events were not removed when calculating these state designation values.

TABLE 2-4
2020–2022 ANNUAL STATE DESIGNATION VALUES BY COUNTY

County	2020–2022 PM _{2.5} Annual State Designation Value (µg/m ³)	Percent of Current PM _{2.5} CAAQS (12 µg/m ³)	Area of Designation Value Max
Los Angeles	16	142	East San Fernando Valley
Orange	12	100	Central Orange County
Riverside	16	142	Metropolitan Riverside County
San Bernardino	18	133	Ontario CA-60 Near Road

Figure 2-5 illustrates the spatial trend of the 2022 PM_{2.5} annual design values at all FRM PM_{2.5} stations in the South Coast Air Basin.⁸ Data likely to be approved as exceptional events by U.S. EPA are removed from Figures 2-5 and 2-6. The highest PM_{2.5} annual averages are in the inland valley areas of Riverside and San Bernardino Counties and the southern portion of Los Angeles County.

⁸ FEM PM_{2.5} data measured at Anaheim, Long Beach I-710 Near Road, Mira Loma, Ontario CA-60 Near Road, and Rubidoux stations were used to supplement missing FRM measurements

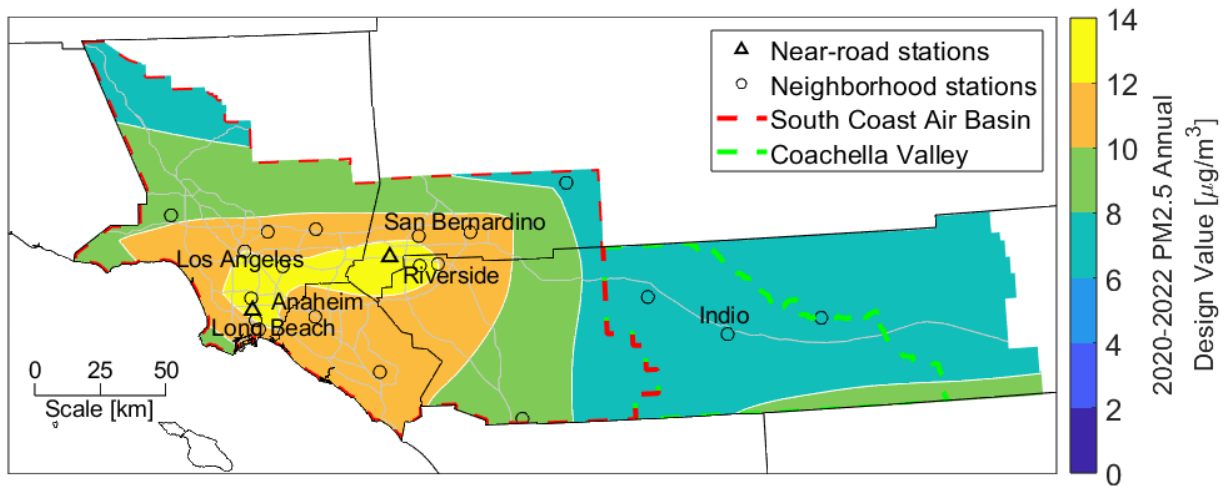


FIGURE 2-5
ALL FRM PM_{2.5} STATIONS IN THE SOUTH COAST AIR BASIN.
NEAR-ROAD STATIONS ARE SHOWN AS TRIANGLES, WHILE OTHER STATIONS ARE SHOWN
AS CIRCLES. THE COLORS REPRESENT THE 2020-2022 ANNUAL PM_{2.5} DESIGN VALUE

2022 PM_{2.5} annual design values measured at all stations with regulatory PM_{2.5} data that meet U.S. EPA completeness criteria in the South Coast Air Basin are presented in Figure 2-6. As shown in the Figure, the 2022 PM_{2.5} annual design value exceeded the federal standard at six stations: Ontario CA-60 Near Road, Mira Loma, Compton, Long Beach I-710 Near Road, Pico Rivera, and Los Angeles-North Main St., with design values of 13.7 µg/m³, 13.4 µg/m³, 13.1 µg/m³, 12.7 µg/m³, 12.5 µg/m³, and 12.1 µg/m³, respectively. These correspond to 114, 112, 109, 106, 104, and 101 percent of the annual NAAQS, respectively.

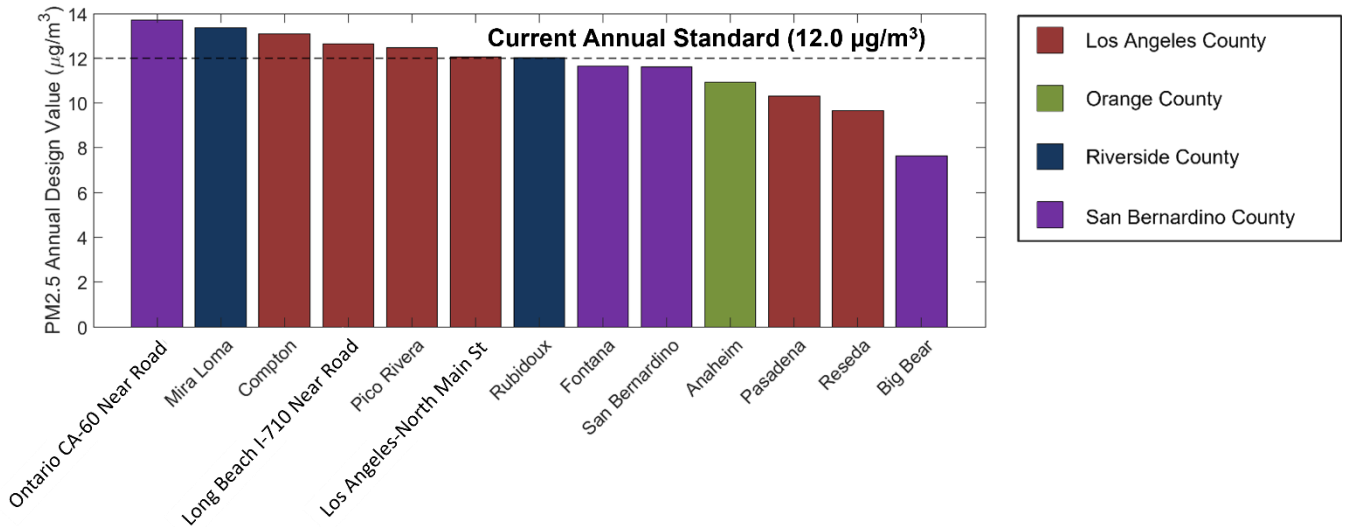


FIGURE 2-6
2020-2022 ANNUAL PM_{2.5} DESIGN VALUES MEASURED AT ALL STATIONS WITH COMPLETE DATA IN THE SOUTH COAST AIR BASIN. DATA LIKELY TO BE APPROVED AS EXCEPTIONAL EVENTS BY U.S. EPA REMOVED FROM ANALYSIS⁹

In summary, in 2022, the South Coast Air Basin ~~failed to~~ does not attain both the annual PM_{2.5} NAAQS and CAAQS. The highest PM_{2.5} annual design values for both NAAQS and CAAQS were measured at the Ontario CA-60 Near Road air monitoring station. In general, the PM_{2.5} annual averages measured in the inland valley areas of Riverside and San Bernardino Counties and the southern portion of Los Angeles County are higher than other parts of the South Coast Air Basin.

Attainment Status of the 24-hour PM_{2.5} Standard

The 2022 PM_{2.5} 24-hour design values are summarized in Table 2-2. Data likely to be approved as exceptional events by U.S. EPA are removed from this analysis. The highest 2022 PM_{2.5} 24-hour design value of 35 µg/m³ was measured in the South Central LA County area at the Compton air monitoring station and the Ontario CA-60 Near Road station. The next highest 2022 PM_{2.5} 24-hour design value was 34 µg/m³, measured in the Metropolitan Riverside County area at the Mira Loma air monitoring station. All 2022 PM_{2.5} 24-hour design values were equal or below the 24-hour NAAQS (35 µg/m³).

⁹ Long Beach (North), Long Beach (South), Azusa, and Mission Viejo stations do not have complete data in 2022 due to site closure or modification

TABLE 2-5
2020–2022 24-HOUR PM2.5 DESIGN VALUES BY COUNTY*

County	2020–2022 PM2.5 24-Hour Design Value ($\mu\text{g}/\text{m}^3$)	Percent of Current (2006) PM2.5 NAAQS ($35 \mu\text{g}/\text{m}^3$)	Area of Design Value Max
Los Angeles	35**	100	South Central LA County
Orange	30***	86	Central Orange County
Riverside	34	97	Metropolitan Riverside County
San Bernardino	35	100	Ontario CA-60 Near Road

* Data likely to be approved as exceptional events by U.S. EPA removed from analysis.

** Subject to U.S. EPA approval of a waiver to only consider more accurate filter-based measurements at Compton by excluding measurements from a continuous instrument that does not meet performance goals. In the unlikely event that U.S. EPA does not approve the waiver, the 2022 value at Compton is $37 \mu\text{g}/\text{m}^3$.

*** Mission Viejo in the Saddleback Valley area does not have a valid design value because measurements do not meet data completeness requirements.

2022 PM2.5 24-hour design values measured at all stations in the South Coast Air Basin are presented in Figure 2-7. ~~There is no state 24-hour PM2.5 standard.~~ After removing data likely to be approved as exceptional events by U.S. EPA, all stations in the South Coast Air Basin met the 24-hour federal standard by 2022. The design value at Compton is subject to U.S. EPA approval of a waiver to only consider more-accurate filter-based measurements at Compton by excluding measurements from a continuous instrument that does not meet performance goals. In the unlikely event that U.S. EPA does not approve the waiver, the 2022 design value at Compton is $37 \mu\text{g}/\text{m}^3$.

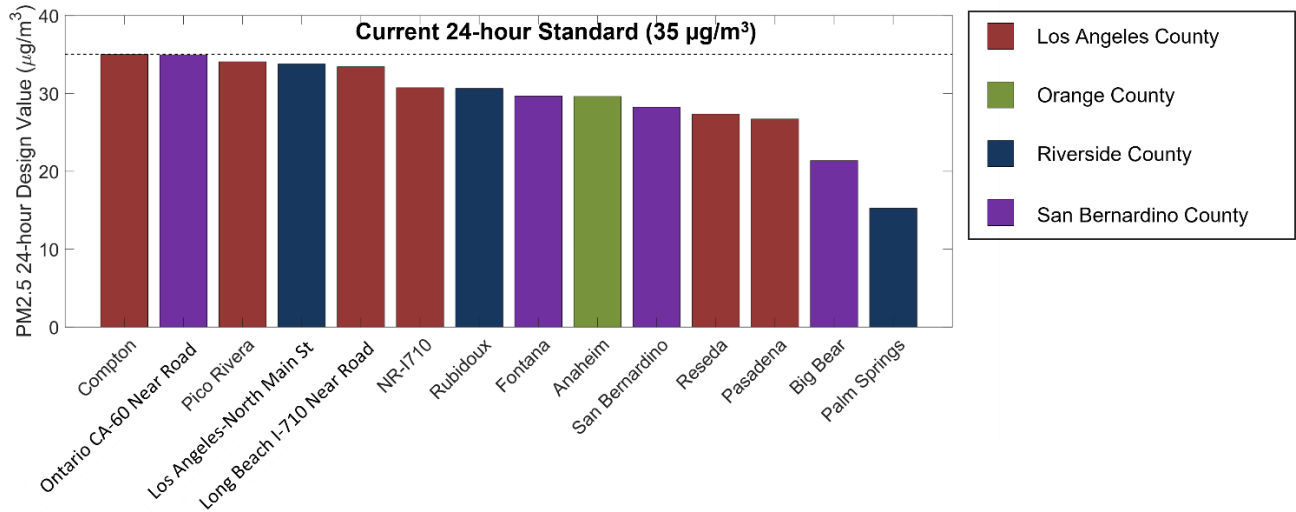


FIGURE 2-7
2020-2022 24-HOUR PM_{2.5} DESIGN VALUE MEASURED AT ALL STATIONS IN THE SOUTH COAST AIR BASIN. DATA LIKELY TO BE APPROVED AS EXCEPTIONAL EVENTS BY U.S. EPA REMOVED FROM ANALYSIS¹⁰

Figure 2-8 presents the number of days when the 24-hour PM_{2.5} exceed the 24-hour federal PM_{2.5} standard (35 µg/m³)¹¹ in each month of 2022 at each FRM PM_{2.5} station in the South Coast Air Basin. As shown in the Figure, with the exception of exceedances recorded on the fourth and fifth of July due to Independence Day fireworks, all exceedances in 2022 occur in the months of October through January. Exceedances in the winter months are predominantly caused by cold and humid weather conditions that favor the formation of secondary PM_{2.5} and emissions of residential wood smoke. Limited ventilation in the atmosphere during winter months contributes to the elevated levels of PM_{2.5} as well. Year 2022 has less PM_{2.5} 24-hour NAAQS exceedance days during the winter months (November-February) than past winter months.

¹⁰ Long Beach (North). Long Beach (South), Azusa, and Mission Viejo stations do not have complete data in 2022 due to site closure or modification

¹¹ Due to rounding conventions, the threshold to meet the 24-hour PM_{2.5} NAAQS is 35.4 µg/m³

Fairly clean period compared to past winter months.

July 4th and 5th Fireworks

Fairly clean period compared to past winter months.

2022	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Compton	2	0	0	0	0	0	1	0	0	0	1	2
Pico Rivera #2	0	0	0	0	0	0	1	0	0	0	0	0
Ontario CA-60 Near Road	0	0	0	0	0	0	1	0	0	0	0	0
Rubidoux	0	0	0	0	0	0	1	0	0	0	0	0
San Bernardino	1	0	0	0	0	0	0	0	0	1	0	0
Long Beach I-710 Near Road	0	0	0	0	0	0	0	0	0	0	0	1
Fontana	0	0	0	0	0	0	0	0	0	1	0	0
Los Angeles-North Main Street	0	0	0	0	0	0	0	0	0	0	0	0
Reseda	0	0	0	0	0	0	0	0	0	0	0	0
Pasadena	0	0	0	0	0	0	0	0	0	0	0	0
Anaheim	0	0	0	0	0	0	0	0	0	0	0	0
Palm Springs	0	0	0	0	0	0	0	0	0	0	0	0
Mira Loma (Van Buren)	0	0	0	0	0	0	0	0	0	0	0	0
Big Bear	0	0	0	0	0	0	0	0	0	0	0	0

FIGURE 2-8

THE NUMBER OF DAYS WHEN THE 24-HOUR PM_{2.5} EXCEEDED THE 24-HOUR FEDERAL PM_{2.5} STANDARD (35 MG/M³) IN EACH MONTH AT EACH FRM PM_{2.5} STATION IN THE SOUTH COAST AIR BASIN IN 2022. THE RED BOXES ARE EXCEPTIONAL EVENTS THAT ARE LIKELY TO BE APPROVED BY U.S. EPA

Historical Trends in Air Quality

Annual Standard

The historical trend of the annual average PM_{2.5} concentration measured in the South Coast Air Basin is presented in Figure 2-9. This parameter is an important metric for tracking progress towards clean air goals as the three-year average of the single year averages at each station represents the design value. As shown in the figure, the basin-maximum annual average PM_{2.5} has decreased significantly over the past two decades. The annual average recorded in 2022, which is the lowest on record, has decreased 60 percent compared with the value recorded in 2000, from 30.2 µg/m³ to 12.2 µg/m³. Between 2010 and 2015, the highest annual average PM_{2.5} concentration was recorded in Mira Loma. However, annual averages recorded at the Ontario CA-60 Near Road station exceed averages in Mira Loma since that monitor was established.

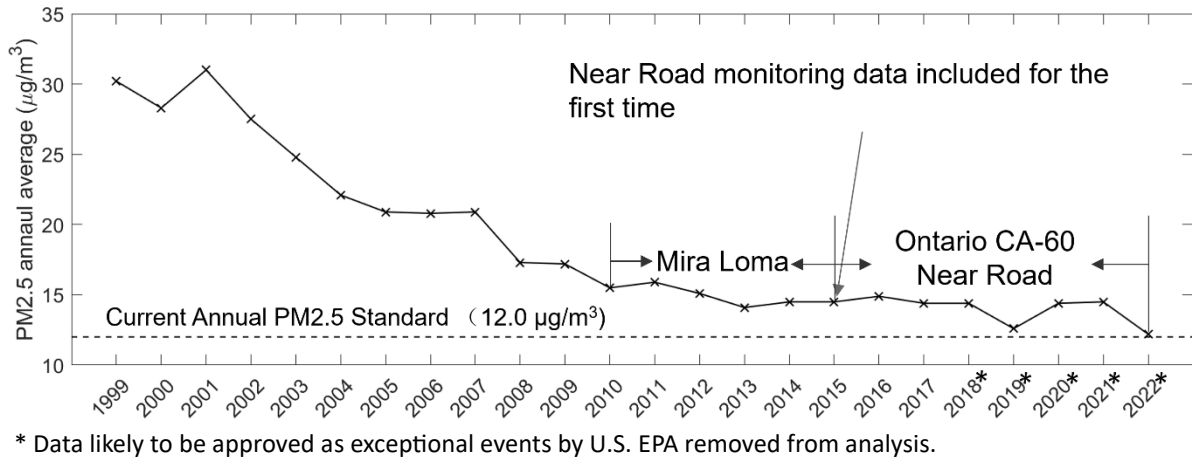


FIGURE 2-9
BASIN-MAXIMUM ANNUAL AVERAGE PM_{2.5} CONCENTRATIONS MEASURED IN THE SOUTH COAST AIR BASIN FROM 1999-2022

Historical trends in the annual PM_{2.5} design values measured in the South Coast Air Basin are shown in Figure 2-10. The annual PM_{2.5} design value has decreased significantly over the past two decades. Compared with the design value in 2001, the annual PM_{2.5} design value in 2022 decreased by 54 percent, from $29.8 \mu\text{g}/\text{m}^3$ to $13.7 \mu\text{g}/\text{m}^3$. The Ontario CA-60 Near Road station currently has the highest annual design value. By the end of 2022, the annual PM_{2.5} design value in the South Coast Air Basin is $1.7 \mu\text{g}/\text{m}^3$ higher than the 2012 annual PM_{2.5} federal standard. However, the 2022 design value is the lowest on record.

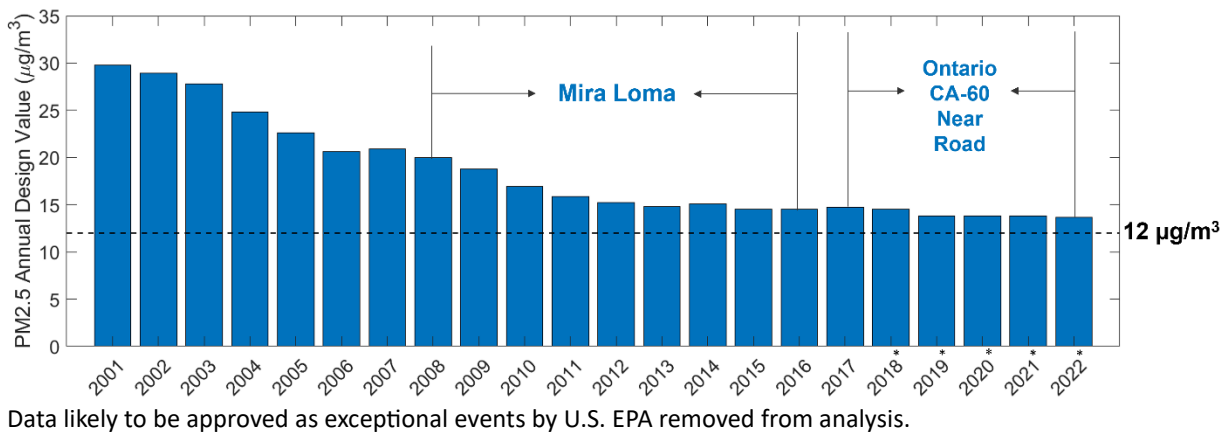


FIGURE 2-10
ANNUAL AVERAGE PM_{2.5} DESIGN VALUE IN THE SOUTH COAST AIR BASIN FROM 2000-2022

24-hour Standard

Over the past two decades, the number of 24-hour PM_{2.5} exceedance days have decreased significantly. The number of days when the basin-maximum 24-hour PM_{2.5} exceeded the 24-hour NAAQS in each month from 2000 to 2022 are shown in Figure 2-11. Among all past years on record, 2022 has the lowest number of 24-hour PM_{2.5} exceedance days. Compared with data collected in 2000, the number of days exceeding the standard in 2022 decreased by 92 percent, from 109 days to 9 days. In the early 2000s, exceedance days were recorded in every month. However, in recent years, the 24-hour standard is exceeded typically only in the colder months, from November to February, with the exception of exceedances resulting from Independence Day fireworks or wildfires.

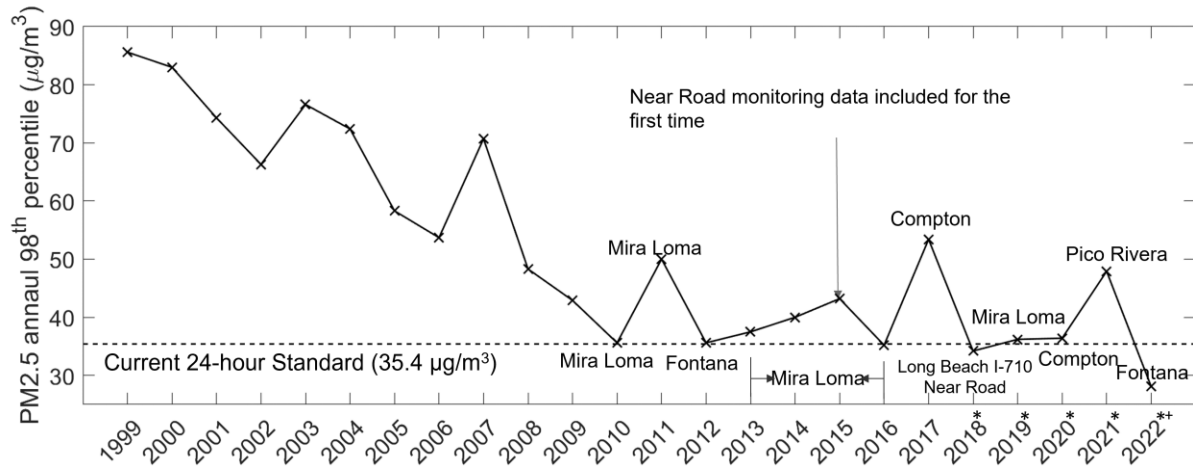
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2000	16	5	8	10	13	4	6	2	9	12	9	15	109
2001	12	1	15	8	21	7	7	7	12	19	18	11	138
2002	12	9	2	8	6	6	7	10	7	22	11	13	113
2003	13	2	7	0	12	12	4	0	14	18	4	8	94
2004	14	3	14	4	0	11	2	1	4	10	6	4	73
2005	4	0	5	1	2	2	3	1	3	8	8	13	50
2006	4	9	0	2	11	2	2	0	0	5	8	3	46
2007	1	4	5	5	6	1	2	0	0	5	16	2	47
2008	4	1	2	0	1	0	2	0	2	2	8	4	26
2009	4	2	3	0	4	0	1	4	1	0	6	5	30
2010	1	4	0	1	0	0	1	0	0	2	1	2	12
2011	0	1	0	0	0	0	1	0	0	5	3	5	15
2012	2	0	0	0	0	0	1	0	0	1	7	6	17
2013	1	3	1	0	0	0	0	0	0	4	2	1	12
2014	8	0	0	0	1	0	0	0	0	0	0	2	11
2015	13	10	3	3	0	0	1	0	0	0	0	0	30
2016	3	1	1	0	0	0	1	0	0	1	0	3	10
2017	1	0	1	0	1	0	2	0	0	1	5	8	19
2018	6	0	0	0	0	0	2	0	0	2	5	4	19
2019	2	0	0	0	0	0	2	0	0	0	7	1	12
2020	4	1	0	0	0	0	2	1	6	7	3	4	28
2021	2	1	0	0	0	0	2	0	1	0	9	8	23
2022	3	0	0	0	0	0	2	0	0	1	1	2	9

FIGURE 2-11

THE NUMBER OF DAYS WHEN THE BASIN-MAXIMUM 24-HOUR PM_{2.5} CONCENTRATIONS EXCEEDED THE 24-HOUR PM_{2.5} STANDARD (35 MG/M³) IN EACH MONTH FROM 2000 TO JUNE 2022 IN THE SOUTH COAST AIR BASIN

The historical trend of the basin-maximum 98th percentile 24-hour PM_{2.5} measured in the South Coast Air Basin is presented in Figure 2-12. This parameter is an important metric for tracking progress towards clean air goals as the three-year average of the 98th percentile concentration at each station represents the design value. In addition, the annual 98th percentile concentrations better capture year-to-year variations in PM_{2.5} levels. As shown in the figure, the basin maximum 98th percentile 24-hour PM_{2.5} values have declined significantly over the past two decades. The value recorded in 2019 has decreased

by 67 percent compared with the value recorded in 2000, from 85.6 $\mu\text{g}/\text{m}^3$ to 28.1 $\mu\text{g}/\text{m}^3$. With the exception of 2012, Mira Loma has had the highest 98th percentile value at all years pre-2017. Compton had the highest 98th percentile value in 2017 due to three anomalous measurements. The highest 98th percentile in the Basin in 2021 and 2022 was recorded at Pico Rivera and Fontana, respectively. However, the basin-maximum 98th percentile 24-hour PM_{2.5} measured in 2022 is the lowest on record.



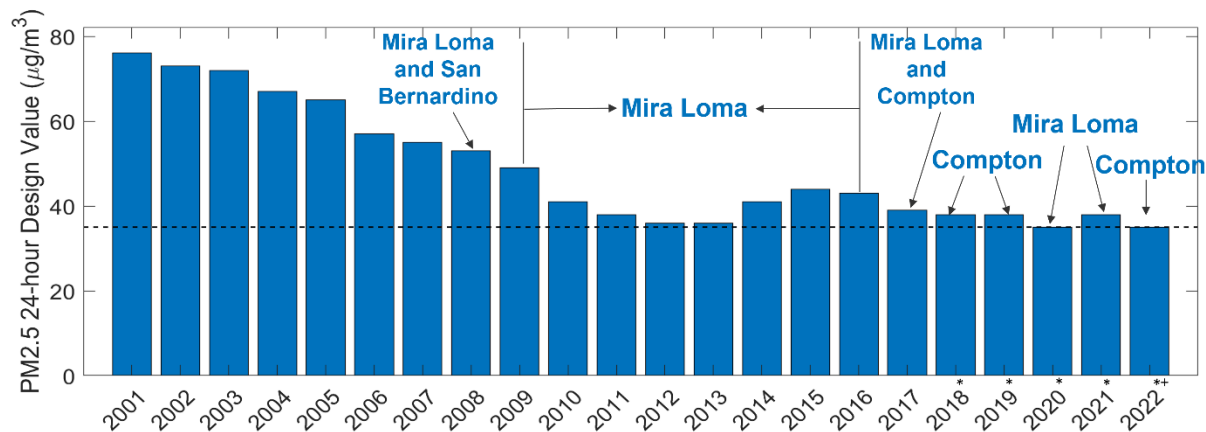
* Data likely to be approved as exceptional events by U.S. EPA removed from analysis.

* Subject to U.S. EPA approval of a waiver to only consider more accurate filter-based measurements at Compton by excluding measurements from a continuous instrument that does not meet performance goals. In the unlikely event that U.S. EPA does not approve the waiver, the 2022 value is 37 $\mu\text{g}/\text{m}^3$ measured at Compton.

FIGURE 2-12
BASIN-MAXIMUM 98TH PERCENTILE 24-HOUR PM_{2.5} CONCENTRATIONS MEASURED IN THE SOUTH COAST AIR BASIN FROM 1999-2022

The historical trend of the 24-hour basin-maximum PM_{2.5} design value measured in the South Coast Air Basin is shown in Figure 2-13. After removing exceptional events occurring in 2020, the 24-hour PM_{2.5} design meets the 24-hour PM_{2.5} federal standard (35 $\mu\text{g}/\text{m}^3$) subject to U.S. EPA approval of a waiver to only consider more accurate filter-based measurements at Compton by excluding measurements from a continuous instrument that does not meet performance goals. Compared with the design value in 2001, the 24-hour PM_{2.5} design value has declined by 54 percent, from 76 $\mu\text{g}/\text{m}^3$ in 2001 to 35 $\mu\text{g}/\text{m}^3$ in 2022. From 2009 to 2016, the highest design value was recorded in Mira Loma. However, since 2018, except 2020 and 2021, Compton has replaced Mira Loma as the station with highest 24-hour PM_{2.5} design value. The elevated 24-hour PM_{2.5} design values in 2014 are due in large part to extreme drought conditions

experienced in Southern California and the associated lack of periodic storm events in the winter months that facilitate dispersion and washout of pollutants.¹²



* Data likely to be approved as exceptional events by U.S. EPA removed from analysis.

+ Subject to U.S. EPA approval of a waiver to only consider more accurate filter-based measurements at Compton by excluding measurements from a continuous instrument that does not meet performance goals. In the unlikely event that U.S. EPA does not approve the waiver, the 2022 value is 37 µg/m³ measured at Compton.

FIGURE 2-13
24-HOUR PM_{2.5} DESIGN VALUE IN THE SOUTH COAST AIR BASIN FROM 2001-2022

PM_{2.5} Speciation

Analysis of major chemical components of PM_{2.5} provides insight into the composition and sources of fine particulate matter in the Basin. These chemical components are measured through PM_{2.5} speciation samplers. Currently, PM_{2.5} speciation samplers are deployed at four representative locations in each of the Basin's counties. They are Anaheim, Fontana, Los Angeles, and Rubidoux stations. Integrated 24-hour filter samples are collected every six days and analyzed at the South Coast AQMD Laboratory. The speciation analysis presented in this chapter uses a different approach than the speciation analysis for the modeling attainment demonstration and therefore, should not be used for future projection of PM_{2.5} design values. FRM measurements that the NAAQS are based upon do not retain all the PM_{2.5} that is measured by chemical speciation samplers. Therefore, for the modeling attainment demonstration, an adjustment technique is used to estimate the species composition as measured on FRM filters to allow for

¹² 2016 South Coast AQMD Air Quality Management Plan. Available at <https://www.aqmd.gov/home/air-quality/clean-air-plans/final-2016-aqmp>

the projection of base year measurements into the future.¹³ However, the speciation analysis in this chapter uses established techniques for analyzing measured PM_{2.5} speciation data and provides valuable insight on current and past PM_{2.5} species fractions.

Figure 2-14 shows trends in average annual concentrations of six PM_{2.5} component species: elemental carbon (EC), organic matter, sulfate, nitrate, ammonium ion, and crustal material from 2010-2022. Note that data from 2020 were not included due to a 3-month hiatus in PM_{2.5} speciation sampling at the beginning of the COVID-19 pandemic. EC, sulfate, nitrate, and ammonium ion were measured directly, while organic and crustal components were calculated from measurements of organic carbon (OC) and metal concentrations, respectively, according to guidance for the U.S. EPA Chemical Speciation Network (CSN).¹⁴

Organic Matter = $1.4 \times \text{Organic Carbon}$

Crustal Material = $2.2 \times \text{Aluminum} + 2.49 \times \text{Silicon} + 1.63 \times \text{Calcium} + 2.42 \times \text{Iron} + 1.94 \times \text{Titanium}$

Annual median field blank organic carbon concentrations across the four sites were subtracted from OC measurement data to account for the well-documented positive sampling artifact caused by absorption of gas-phase OC onto filters. This correction method is similar to the current OC artifact correction method used by the Interagency Monitoring of Protected Visual Environments (IMPROVE) network and CSN, except annual field blank median concentrations were used instead of monthly medians to increase the pool of available field blank data. Furthermore, it is important to note that there is considerable uncertainty in the conversion factor between measured organic carbon and organic matter, which can range from just above 1 for organic matter with a composition close to pure carbon to greater than 2 for highly oxidized organic matter. Thus, the trend shown in Figure 2-14 is an approximation assuming the average composition of organic matter in the Basin is relatively constant.

Reported concentrations below analytical detection limits also add some uncertainty to annual average concentrations, as the true concentration for a measurement below the detection limit may range from zero to the detection limit. To account for uncertainty in non-detect concentrations, annual means for each component were calculated by substituting zero and minimum detection limit concentrations for non-detects to calculate lower and upper limit means, respectively. As shown in Figure 2-14, crustal material was the only component that was significantly affected by non-detect concentration uncertainty.

Annual mean concentrations of most components show a generally decreasing trend over the ten-year period from 2010-2022 with more muted changes from 2015-2022. The largest decrease is observed for the EC component, with average concentrations dropping by more than 50 percent at all sites from 2010 to 2022. This reduction in EC concentrations reflects the continued success of regulatory efforts to control

¹³ See https://www.epa.gov/sites/default/files/2020-10/documents/draft-o3-pm-rh-modeling_guidance-2014.pdf for details

¹⁴ <https://www.epa.gov/amtic/chemical-speciation-network-csn>

diesel emissions and other sources of EC in the Basin. In contrast to other components, average crustal concentrations remained largely similar at all sites throughout this period. Crustal material is primarily derived from windblown soil and anthropogenic sources of dust (fugitive dust, road dust, construction, etc.). These sources are generally more difficult to control and may be exacerbated by drought and other meteorological conditions. The increase of the crustal materials, EC, and organic matter in 2020 was due to the increase of wildfire activities in 2020.

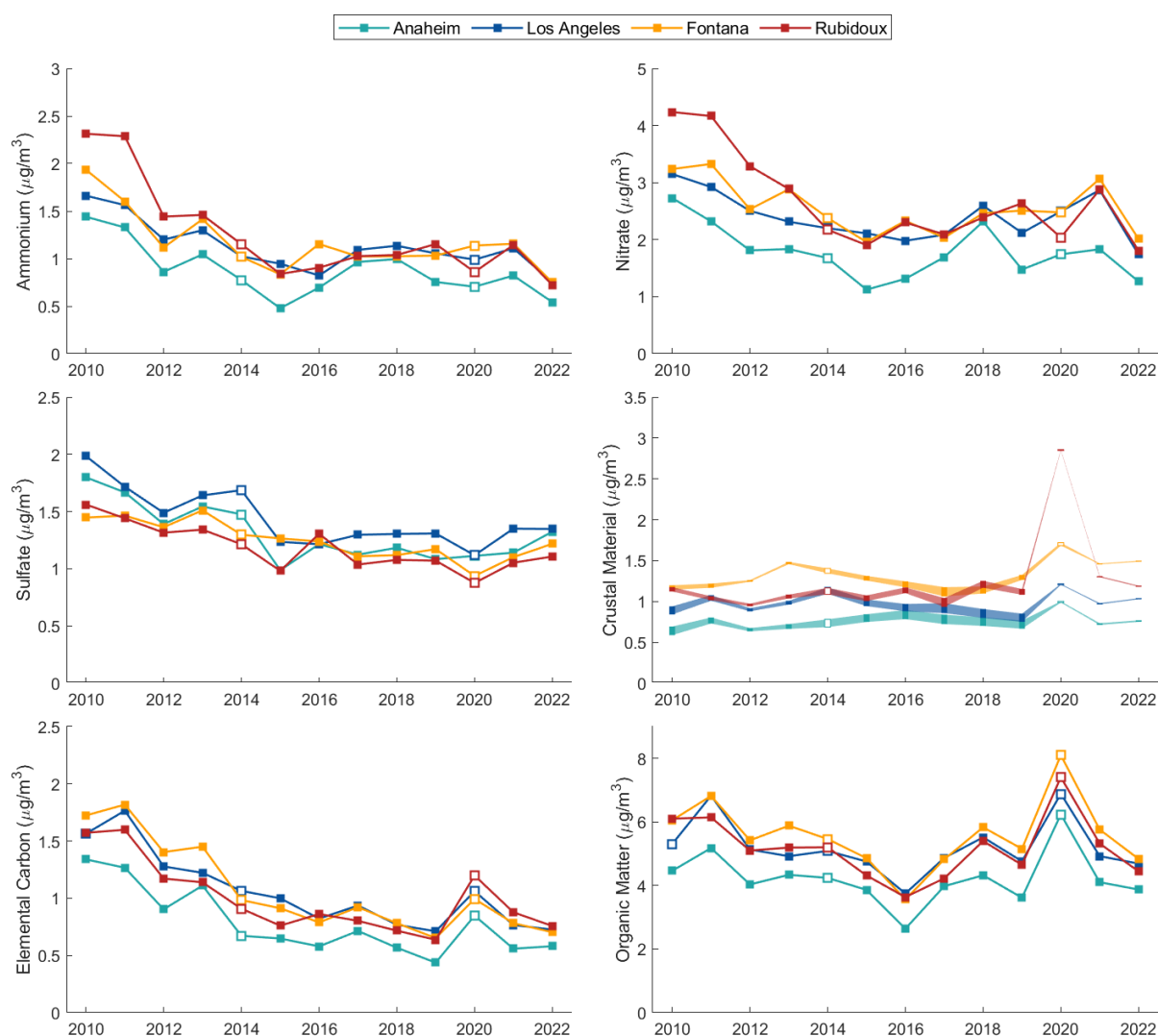


FIGURE 2-14

SOUTH COAST AIR BASIN PM_{2.5} SPECIATION NETWORK ANNUAL AVERAGE CONCENTRATION TRENDS, 2010–2022¹⁵

¹⁵ Open symbols represent years with <75 percent data completeness (67-74 percent). The uncertainty associated with concentrations below analytical detection limits is represented with shading and different sized markers for the crustal component. For all other components, this uncertainty is negligible



FIGURE 2-15
SOUTH COAST AIR BASIN PM_{2.5} SPECIATION NETWORK WEIGHTED ANNUAL AVERAGE
RELATIVE CONTRIBUTION TRENDS OF RELATIVE CONTRIBUTION TO MASS, 2010–2022¹⁶

¹⁶ Open symbols represent years with <75 percent data completeness (67-74 percent). The uncertainty associated with concentrations below analytical detection limits is represented with shading and marker size for the crustal component. For all other components, this uncertainty is negligible.

Figure 2-15 shows the annual mean contribution of each component to measured PM_{2.5} mass, weighted by total mass (i.e., days with higher PM_{2.5} have more influence on annual average). Organic matter was the dominant fraction at all sites from 2010-2022, with estimated contributions ranging from 24-54 percent of total mass. Ammonium ion and nitrate contributions to PM_{2.5} mass have generally increased from 2015-2019 after reaching their lowest levels around 2014-2015. This increasing trend is driven by both slight increases in absolute nitrate and ammonium ion concentrations as well as decreasing contributions from other species such as EC. Sulfate and crustal material contributions to total mass generally show muted changes from 2010-2022, with slight increases in crustal contributions and slight decreases in sulfate contributions observed at some sites. Due to the influence of increased wildfire activities, the fractions of crustal material, EC, and organic matter increased in 2020, while the fraction of ammonia, nitrate, and sulfate decreased compared to previous years. In 2021 and 2022, fractions of all PM_{2.5} species were similar to what was measured between 2016 and 2019.

Average seasonal concentrations of PM_{2.5} components across all sites from 2015-2022 are shown in Figure 2-16. Organic matter was the dominant component in all seasons. Both nitrate and EC concentrations and relative mass contributions peaked in the winter, while sulfate concentration and mass contribution peaked in the summer. These seasonal trends are consistent with meteorological impacts on secondary ion formation and particulate accumulation, as well as changes in seasonal PM_{2.5} emissions (i.e., residential wood burning). Other components showed more complex seasonal patterns, reflecting the competing influences of meteorology, atmospheric chemical processes, and emission patterns.

The ratio of organic carbon to elemental carbon (OC/EC) can provide further insight into the sources of organic matter in the Basin, with lower OC/EC ratios associated with primary combustion sources (e.g., diesel and gasoline combustion) and higher ratios with secondary organic formation and other OC sources. As shown in Figure 2-17, annual median OC/EC ratios show a generally increasing trend from 2010-2022, which is consistent with the steady decline in EC concentrations during this period. This trend suggests that contributions of secondary and other sources of organic matter are becoming increasingly important as diesel emissions decrease.

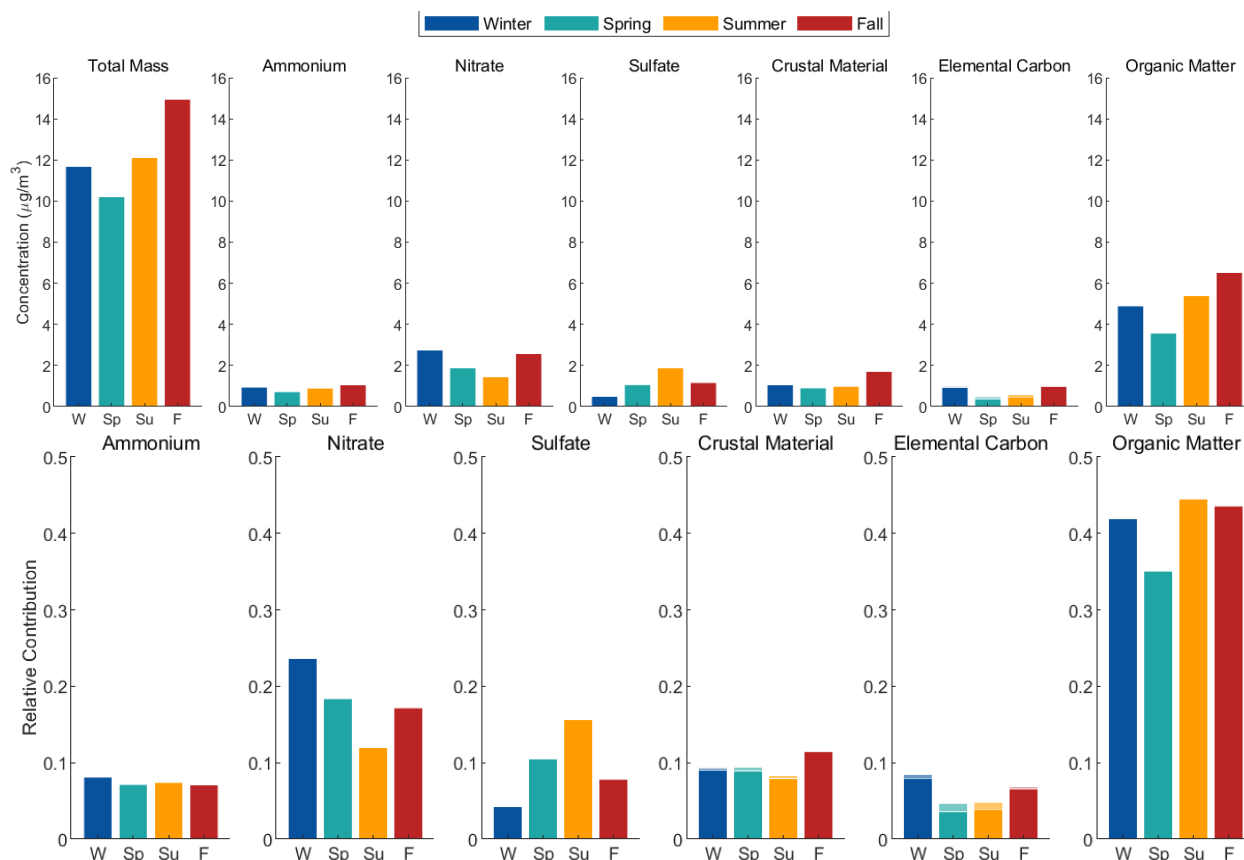


FIGURE 2-16
SEASONAL VARIATION IN CONCENTRATIONS OF PM_{2.5} COMPONENTS (TOP) AND RELATIVE CONTRIBUTION OF PM_{2.5} COMPONENTS TO TOTAL MASS (BOTTOM), 2015-2022¹⁷

¹⁷Winter, spring, summer, and fall are defined as DEC-FEB, MAR-MAY, JUN-AUG, SEP-NOV, respectively. The uncertainty associated with concentrations below analytical detection limits is represented with hatched shading at the top of each bar

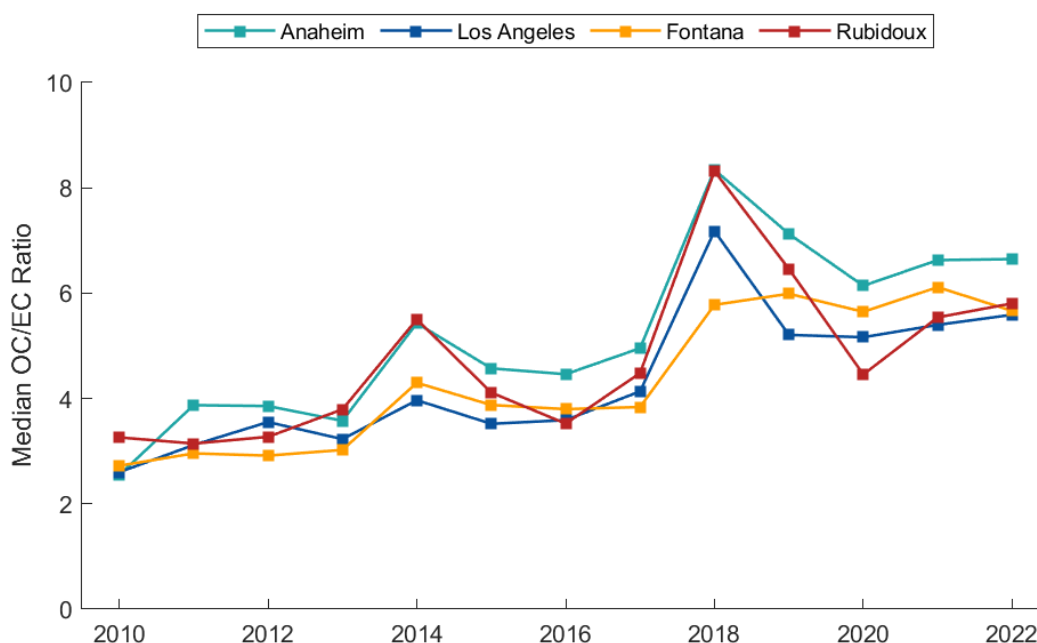


FIGURE 2-17
TRENDS OF SOUTH COAST AIR BASIN PM_{2.5} ORGANIC CARBON (OC) TO ELEMENTAL CARBON (EC) RATIO, 2010–2022¹⁸

Summary

PM_{2.5} concentrations have declined considerably since monitoring began in the early 2000s. PM_{2.5} levels are a strong function of meteorology, emissions of primary PM_{2.5} and emissions of PM_{2.5} precursors. The 2022 24-hour PM_{2.5} design value meets the federal standard subject to removal of likely exceptional events and U.S. EPA approval of a waiver to only consider more accurate filter-based measurements at Compton by excluding measurements from a continuous instrument that does not meet performance goals. In addition, the 98th percentile PM_{2.5} values measured in 2022 were the lowest on record. While the annual PM_{2.5} design values are still above the annual standard, 2022 saw the cleanest maximum annual average PM_{2.5} level ever recorded in the South Coast Air Basin.

¹⁸ Annual median blank-corrected organic carbon to elemental carbon ratio at each site. Note that median ratios were calculated to limit effect of outliers associated with very low EC concentrations

References

South Coast Air Quality Management District. (2016). *2016 Air Quality Management Plan (AQMP)*.

South Coast Air Quality Management District. (2022). *2022 Air Quality Management Plan (AQMP)*.



CHAPTER 3

Emissions Inventory

- With currently adopted regulations in place, direct PM_{2.5} emissions are projected to decline 4 percent from 2018 to 2030 in the South Coast Air Basin.
- Emissions of NO_x, a PM_{2.5} precursor, are projected to decline by 45 percent, while ammonia emissions are expected to rise by 6 percent from 2018 to 2030.
- Top sources of directly emitted PM_{2.5} are from area sources and include commercial cooking, paved road dust and residential fuel combustion.
- Mobile sources continue to be the largest contributor to NO_x emissions in both 2018 and 2030.
- Ammonia emissions are forecasted to increase due to factors such as population growth and widespread use of selective catalytic reduction in heavy-duty vehicles and catalysts in light-duty vehicles.

Introduction

The South Coast Air Basin (Basin) is classified as a “serious” nonattainment area for the 2012 Annual PM2.5 standard and needs to attain the standard no later than 2030. This chapter summarizes criteria pollutant emissions from an emissions inventory in the Basin for the 2018 base year as well as projected emissions for the 2030 attainment year. A more detailed description of emissions and methodologies is presented in Appendix I.

The inventory provided here is derived from the emissions inventory developed for the 2022 Air Quality Management Plan. Major updates were introduced in on-road emissions due to the transition from EMFAC2017 to EMFAC2021, along with a minor adjustment made to construction equipment within the off-road category. This ~~Draft~~ PM2.5 Plan also includes emission estimates for filterable and condensable PM2.5 emissions. The 2018 base year emissions inventory reflects reported emissions from large facilities and estimated emissions for all other sources. The future baseline emissions inventory is based on economic projections and implementation of adopted regulations with both current and future compliance dates. A list of the South Coast Air Quality Management District (South Coast AQMD) rules and regulations that are part of the base year and future year baseline emissions inventories is presented in Appendix I. The South Coast AQMD continues to implement rules that are incorporated into the ~~Draft~~ PM2.5 Plan future baseline emissions inventories.

The emissions inventory is divided into two major source classifications: stationary and mobile sources. Stationary sources include point sources and area sources. The 2018 base year point source emissions are based principally on reported data from facilities subject to the South Coast AQMD’s Annual Emissions Reporting (AER) Program. Area source emissions are estimated jointly by CARB and the South Coast AQMD using established inventory methods. Mobile sources include on-road emissions and off-road emissions. On-road emissions are calculated using CARB’s EMFAC2021 model and travel activity data provided by the Southern California Association of Governments (SCAG) from their adopted 2020 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). CARB provides emissions inventories for off-road sources, which include construction and mining equipment, industrial and commercial equipment, lawn and garden equipment, agricultural equipment, ocean-going vessels (OGV), commercial harbor craft, locomotives, cargo handling equipment, pleasure craft, recreational vehicles, and fuel storage and handling. Aircraft emissions are based on an updated analysis by the South Coast AQMD developed in conjunction with commercial airports in the region.

Future emissions forecasts are primarily based on demographic and economic growth projections provided by SCAG as well as the energy consumption projections by Southern California Gas Company (SoCalGas). In addition, emission reductions resulting from the South Coast AQMD’s regulations amended or adopted by October 2020 and Rule 1109.1 and CARB regulations adopted by December 2021 are included in the future baseline projections. The South Coast AQMD’s Rule 1109.1, Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Operations, was adopted in November 2021. The cutoff

dates for regulations included in the baseline emissions are the same as in the 2022 AQMP. Heavy-Duty Inspection and Maintenance (HD I/M) and Small Off-Road Engines (SORE) regulations were adopted by CARB in December 2021¹² and are reflected in the baseline emissions as well. South Coast AQMD rules that have been adopted after the cutoff dates and have NOx and PM2.5 emission reductions by 2030 are provided in Table 3-1. While these reductions are not reflected in the baseline, the reductions are included in the attainment demonstration presented in this Plan.

TABLE 3-1
RULES ADOPTED AFTER THE CUT-OFF DATE OF THE DRAFT PM2.5 PLAN FOR NON-RECLAIM
SOURCES AND NOT REFLECTED IN THE BASELINE EMISSIONS

Adoption Date	District Rule	Implementation Schedule		Net SIP Reduction by 2030* (tpd)
		Start Year	End Year	
9/1/2023	Rule 1111 – Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces	2012	2050	-0.07**
5/6/2022	Rule 1147 – NOx Reductions from Miscellaneous Sources	2024	2059	0.28
8/6/2021	Rule 1147.1 - NOx Reductions from Aggregate Dryers	2025	2057	0.01
4/1/2022	Rule 1147.2 – NOx Reductions from Metal Melting and Heating Furnaces	2026	2057	0.06
2/5/2021	Rule 1150.3 – Emissions of Oxides of Nitrogen from Combustion Equipment at Landfills	2021	2031	0.04
8/4/2023	Rule 1153.1 – Emissions of Oxides of Nitrogen from Commercial Food Ovens	2024	2036	0.02
11/4/2022	Rule 1168 - VOC reductions from adhesive and sealant applications	2017	2028	-0.14**

* Net SIP Reduction represents changes in emissions with respect to the baseline inventory presented in the 2022 AQMP. Reductions by 2030 for each rule are calculated with SIP baseline inventory and associated control factors based on rule-specific implementation schedules.

**The amendment allowed more time to comply with the rule requirements, which resulted in less reductions in 2030 than the earlier version. Negative values indicate the changes from the previous version reflected in the 2022 AQMP.

¹ Heavy-Duty Inspection and Maintenance Regulation. Information available at: <https://ww2.arb.ca.gov/rulemaking/2021/hdim2021>

² Small Off-Road Engines regulations. Information available at: <https://ww2.arb.ca.gov/rulemaking/2021/sore2021>

This chapter summarizes the major components of base year and future baseline inventories. More detailed information, such as growth factors, and demographic trends, are presented in Appendix I. In addition, the top source categories contributing to the 2030 emissions inventories are described in this chapter. Understanding the highest emitting source categories assists identifying potentially more effective control strategies for improving air quality in the basin.

Emission Inventory

The inventory presented here represents annual average day emissions for the base year and future milestone years. Detailed information regarding the emissions inventory development for base and future years and emissions by major source category for the base and future milestone years are presented in Appendix I. In an emissions inventory, base year is the year from which the future emissions are projected. Pollutants reported in the inventory include volatile organic compounds (VOCs), nitrogen oxides (NO_x), carbon monoxide (CO), sulfur oxides (SO_x), ammonia (NH₃), total particulate matter (PM) and particulate matter with a diameter equal to or smaller than 2.5 microns (PM_{2.5}). Attachments A and B to Appendix I list annual average and summer planning emissions by major source category for 2018, 2025, 2028, 2030, and 2031. Attachment C to Appendix I lists the top VOC, NO_x, SO_x, NH₃ and PM_{2.5} point source facilities that emitted greater than or equal to 10 tons per year in 2018. Attachment D to Appendix I contains on-road emissions by vehicle class and pollutant. Attachment E to Appendix I shows emissions associated with diesel fuel internal combustion engines for various source categories. Attachment F to Appendix I provides a summary of road construction dust emissions in the South Coast Air Basin. Attachment G to Appendix I includes the contribution of condensable and filterable PM_{2.5} to total PM_{2.5} emissions.

Stationary Sources

Stationary sources are divided into two major subcategories: point sources and area sources. Point sources are permitted facilities with one or more emission sources at an identified location (e.g., power plants, refineries, and industrial processes factories) and subject to AER. These facilities generally have annual emissions of 4 tons or more of either VOCs, NO_x, SO_x, or PM, or annual emissions of over 100 tons of CO. Facilities are required to report their emissions of criteria pollutants and selected air toxics pursuant to Rule 301 to the South Coast AQMD on an annual basis, subject to audit, if any of these thresholds are exceeded. Point sources include emissions from the Regional Clean Air Incentives Market (RECLAIM) program, which mainly include fuel combustion emissions from power plants, oil and gas production, petroleum refining, and large facilities in manufacturing and industrial and service sectors. The 2018 annual reported emissions are used to update the stationary source inventory.

Area sources consist of many small emission sources (e.g., residential water heaters, architectural coatings, consumer products, and permitted sources that are smaller than the above thresholds) which are distributed across the basin and are not required to individually report their emissions. CARB and the South Coast AQMD jointly develop emission estimates for approximately 400 area source categories. Emissions from these sources are estimated using latest activity information and representative emission

factors if available. Activity data are usually obtained from survey data or scientific reports, e.g., U.S. Energy Information Administration (EIA) reports for fuel consumption other than natural gas fuel, natural gas consumption data from Southern California Gas Company (SoCalGas), and solvent, sealant and architectural coatings sales reports required under the South Coast AQMD Rules 314, 1113 and 1168. Some activity data, such as population, housing, and vehicle miles travelled (VMT), as well as a large portion for area sources are from SCAG. Emission factors are based on rule compliance factors, source tests, manufacturer's product or technical specification data, default factors (mostly from AP-42, the U.S. EPA's published emission factor compilation), or weighted emission factors derived from point source facilities' annual emissions reports. Additionally, emissions over a given area may be calculated using socioeconomic data, such as population, number of households, or employment in different industry sectors.

Mobile Sources

Mobile sources consist of two subcategories: on-road sources and off-road sources. On-road vehicle emissions were calculated with CARB's EMFAC2021 model and travel activity data provided by SCAG from their adopted 2020 RTP/SCS. Off-road emissions were calculated using CARB's category-specific inventory models.

On-Road

CARB's EMFAC2021 model has undergone extensive revisions from the previous version (EMFAC2017). With EMFAC2021, CARB has completed the transition from Fortran coding to Python and MySQL with the aim of maximizing user-friendliness and flexibility, allowing incorporation of larger amounts of data demanded by current regulatory and planning processes. For end users, EMFAC2021 includes a new web-based platform that includes all the features of previous EMFAC databases alongside new Project Analysis and Scenario Analysis features.

The U.S. EPA approved the EMFAC2021 emissions model for SIP and conformity purposes in November 2022.³ EMFAC2021 calculates exhaust and evaporative emission rates by vehicle type for different vehicle speeds and environmental conditions. Temperature and humidity profiles are used to produce monthly, annual, and episodic inventories. Emission rate data in EMFAC2021 is collected from various sources, such as individual vehicles in a laboratory setting, tunnel studies, and certification data. The EMFAC2021 model interface and overall design have not significantly changed as compared to EMFAC2017, however, EMFAC2021 includes more state-of-the-art information to better represent the real-world emissions from on-road sources. Major improvements include:

³ <https://www.federalregister.gov/documents/2022/11/15/2022-24790/official-release-of-emfac2021-motor-vehicle-emission-factor-model-for-use-in-the-state-of-california>

- New modules accounting for Plug-in Hybrid Electric Vehicles, vehicle energy consumption;
- Emission factors for NH₃;
- New methodologies for brake and tire wear and evaporative emissions;
- New data and significant methodology changes for motor vehicle emission calculations and revisions to implementation data for control measures;
- Updated emission factors and activity data for cars and trucks, including emission reductions associated with new regulations on heavy-heavy duty diesel trucks and buses. New emission factors were developed based on data from U.S. EPA's In-Use Vehicle Program, CARB's Vehicle and Truck and Bus Surveillance Programs, CARB's Portable Emissions Measurement Systems (PEMS) and Transit Bus testing, dynamometer and Portable Emission Measurement Systems Data;
- Expanded heavy-duty truck categories;
- New approaches to light-duty activity forecasting, using up-to-date modeling approaches from academic and government agencies to assess historic trends in multiple economic indicators to forecast future vehicle activity;
- Additional novel forecasting frameworks for heavy-duty VMT and light duty ZEV sales;
- Updated transit bus emission factors using additional data from CARB transit bus testing, and Integrated Bus Information Systems of West Virginia, and the Federal Transit Administration; and
- Updates to the motor vehicle fleet age, vehicle types, and vehicle population based on 2013-2019 California Department of Motor Vehicle (DMV) data, International Registration Plan (IRP) data, Truck Regulation Upload, Compliance, and Reporting System (TRUCRS) data, Port Vehicle Identification Number (VIN) data, California Highway Patrol School Bus Inspections, and National Transit Database information. Each of these changes affect emission factors for each area in California.

The updates in vehicle population, emission factors, and forecasting parameters included in EMFAC2021 affect the on-road emission estimates for both the 2018 base year and future years. The factors that have the greatest effect on emissions changes from EMFAC2017 to EMFAC2021 are the increase in in-use emission factors for some vehicle classes, the updated vehicle age distribution for medium-heavy duty trucks that estimates an older fleet mix with respect to EMFAC2017, and the update on brake wear emission factors based on updated measurements. More detailed information on the changes incorporated in EMFAC2021 can be found in EMFAC2021's technical documentation.⁴ The EMFAC2021 model incorporates recently adopted regulations, such as Advanced Clean Trucks (ACT),⁵ and Heavy-Duty Low NO_x Omnibus Regulations.⁶ EMFAC2021 does not incorporate Heavy-Duty Inspection and Maintenance (I/M) Regulation, because this regulation was approved after the development of

⁴ EMFAC2021 Volume III Technical Document Version 1.0.1, April 2021. Available at: https://ww2.arb.ca.gov/sites/default/files/2021-08/emfac2021_technical_documentation_april2021.pdf

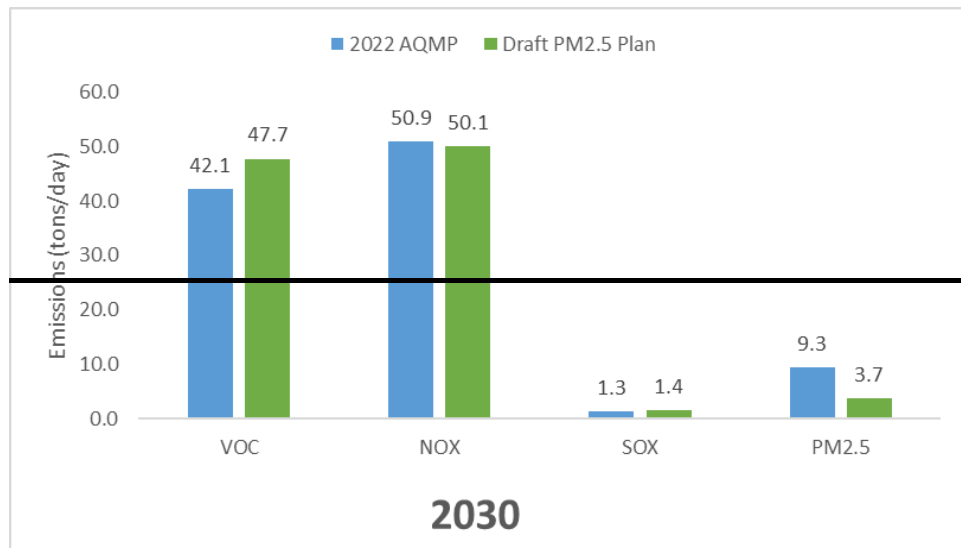
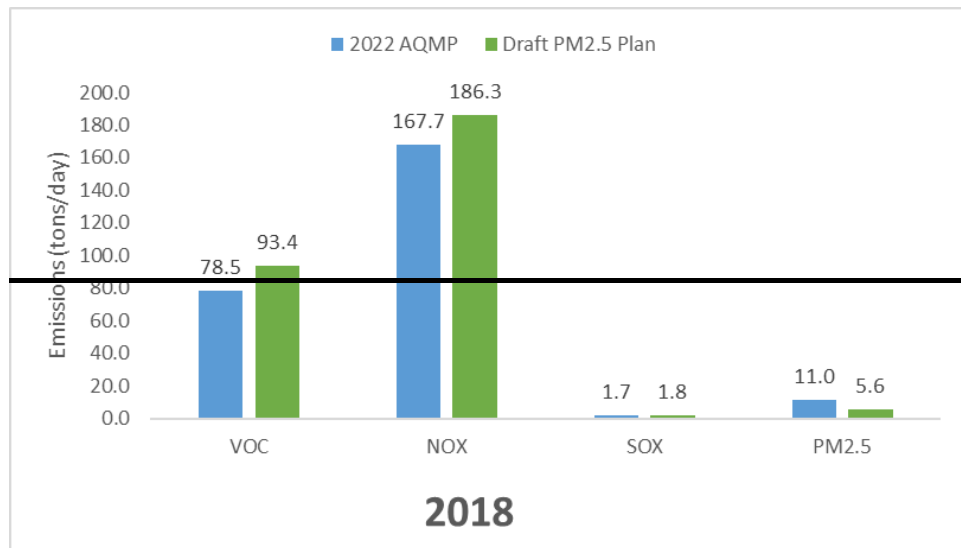
⁵ Advanced Clean Trucks, <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks>.

⁶ Heavy-Duty Low NO_x Omnibus Regulations, Available at: <https://ww2.arb.ca.gov/rulemaking/2020/hdomnibuslownox>.

EMFAC2021. However, the effect of Heavy Duty I/M is incorporated in this plan as an external adjustment to EMFAC2021 emissions.

Figure 3-1 compares 2018 (top) and 2030 (bottom) on-road emissions estimates between the 2022 AQMP calculated using EMFAC2017 (blue) and the ~~Draft-PM2.5 plan~~Plan calculated using EMFAC2021 (green). Both estimates include the same vehicle regulations, either included in either EMFAC version, or applied as an external adjustment. For year 2018, EMFAC2021 estimates notably higher VOC and NOx emissions, and lower emissions of PM2.5 than EMFAC2017. Estimates of NOx and VOC in EMFAC2021 are higher than in EMFAC2017 because newer vehicle test data show that light-duty vehicles have higher exhaust emissions, and updated DMV data for 2018 indicate that medium heavy-duty trucks are older than what was assumed in EMFAC2017. PM2.5 emissions are substantially reduced in EMFAC2021 with respect to EMFAC2017, as a result of updates on emissions and speed correction factors for brake wear obtained from newer emission testing. The differences in VOC and PM2.5 emissions are propagated through 2030, whereas ~~NOx emissions only differ slightly between EMFAC2017 and EMFAC2021~~the differences in NOx emissions reverse in the future, showing NOx emissions estimated by EMFAC2021 slightly lower than the estimates from EMFAC2017. This reverse is because EMFAC2021 estimates higher emissions from heavy-duty vehicles in 2018 that are increasingly targeted by heavy-duty vehicle regulations in future years, resulting in steeper emission reductions by 2030. As a result, EMFAC2021 estimates lower emissions from heavy-duty vehicles compared to the estimates by EMFAC2017.

As shown on Figure 3-1 (bottom), both estimates from the 2022 AQMP using EMFAC2017 and from the PM2.5 Plan using EMFAC2021 project significantly lower emissions in the year 2030, which are attributable to the ongoing implementation of regulations and programs such as CARB's 2010 Truck and Bus rule, Advanced Clean Cars Program, Federal Phase 2 GHG Standards, Advanced Clean Truck (ACT), and Heavy-Duty (HD) Omnibus ~~low NOx requirements. Despite.~~ Accordingly, despite growth in vehicular activities, emissions from on-road mobile sources are expected to decrease in future years. Specifically, vehicle emissions under the ~~Draft-PM2.5 plan~~Plan calculated using EMFAC2021 are projected to decline from 2018 to 2030 by 49, 73, 19, and 34 percent for VOC, NOx, SOx, and PM2.5 emissions, respectively.



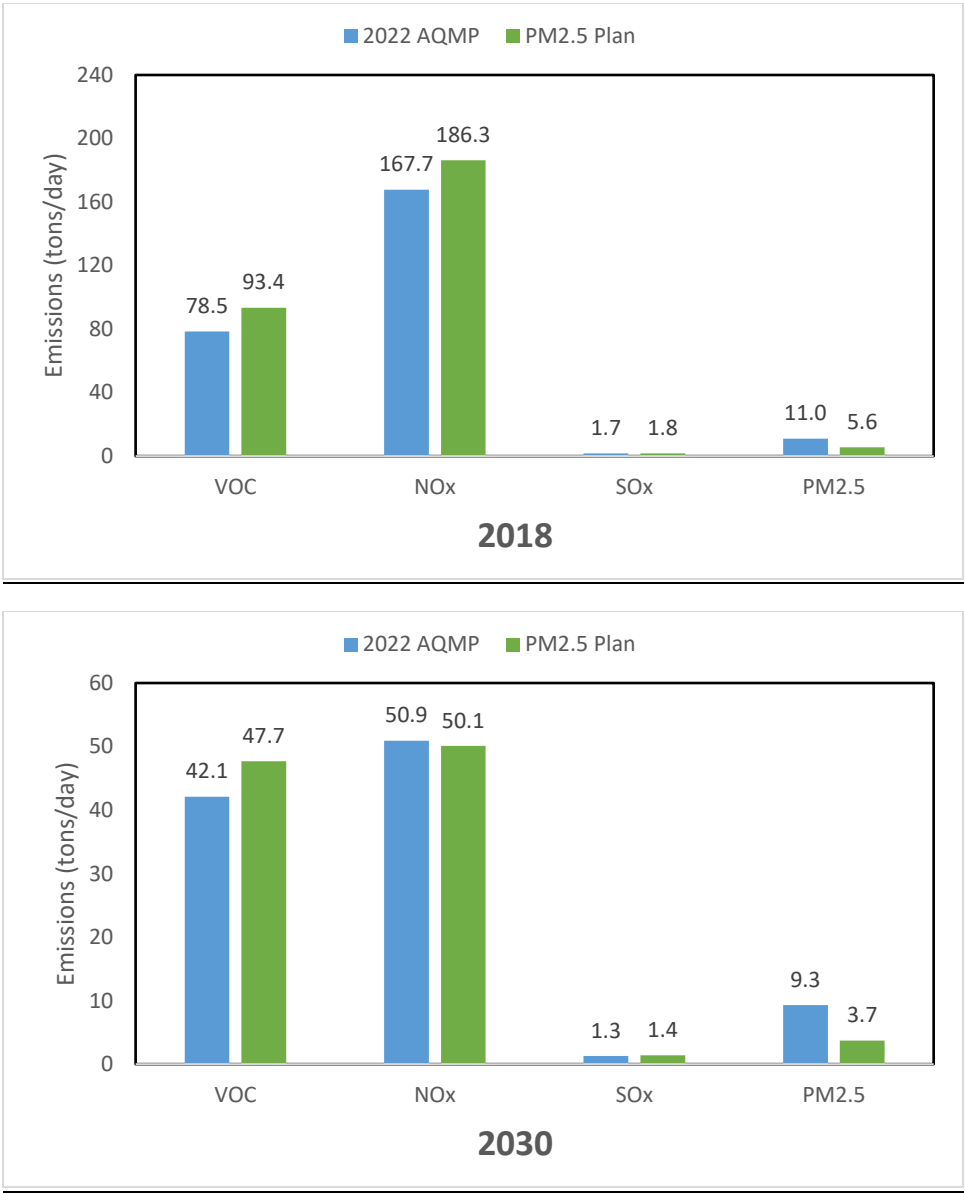
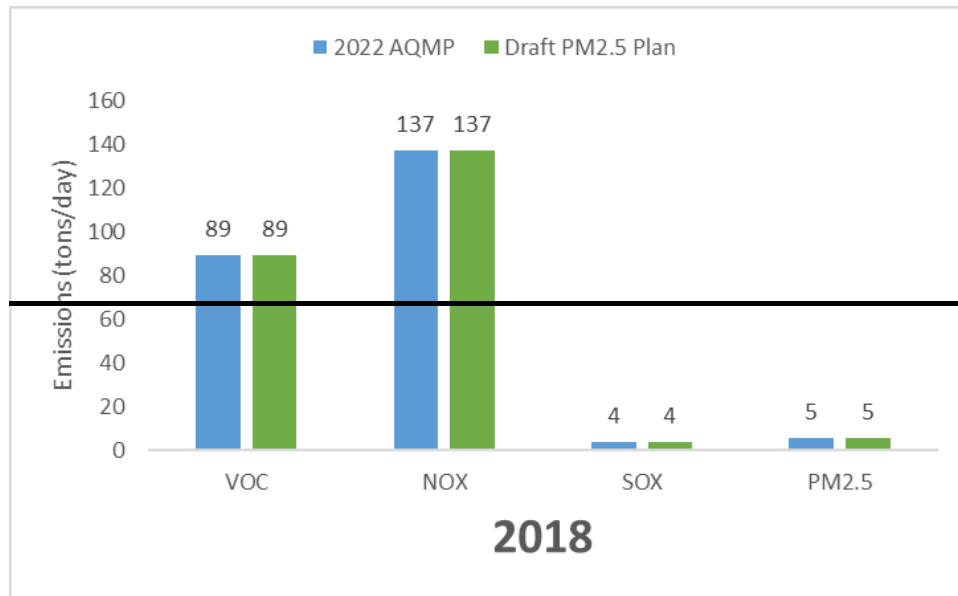


FIGURE 3-1
COMPARISON OF ON-ROAD EMISSIONS INCLUDED IN THE 2022 AQMP AND THE DRAFT PM2.5 PLAN.

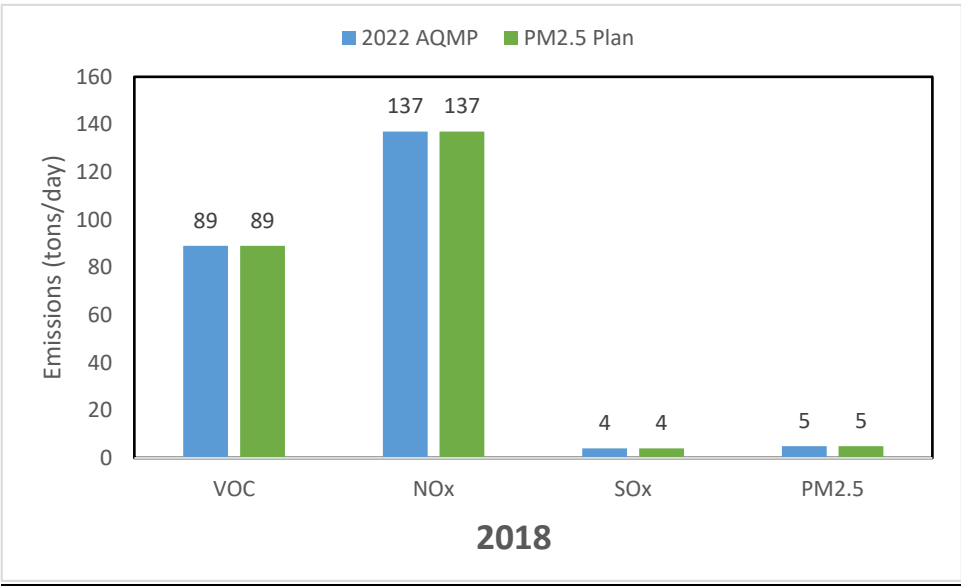
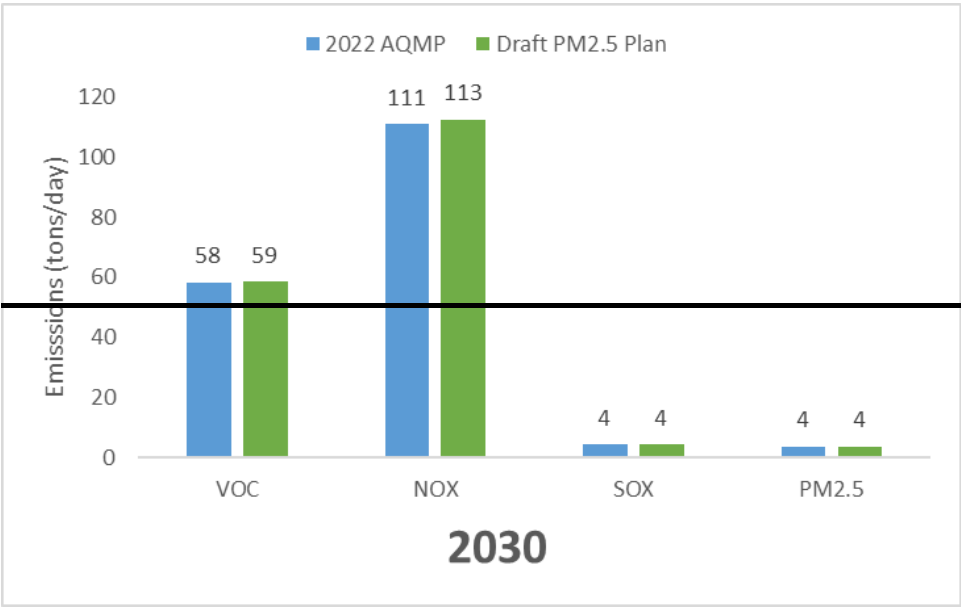
Off-Road

Emissions from off-road vehicle categories are primarily based on estimated activity levels and emission factors using a suite of category-specific models or, where a new model was not available, the OFFROAD2007 model. Separate models have been developed for estimating emissions from different

categories of off-road mobile sources.⁷ The emissions presented here are consistent with the off-road emissions developed for the 2022 AQMP, except for a small change in construction equipment emissions. After the development of the 2022 AQMP, an error was discovered in the emission allocations for in-use emissions from off-road construction equipment in Riverside County. This error only affected future year emissions and is now corrected in this Draft PM_{2.5} Plan. As Figure 3-2 shows emissions from off-road sources in this Draft PM_{2.5} Plan remain unchanged in 2018 with respect to the 2022 AQMP, whereas there is a slight increase in emissions of VOC and NO_x in 2030.



⁷ More information on the models for offroad sources can be found in the following link:
<https://www3.arb.ca.gov/msei/msei.htm>



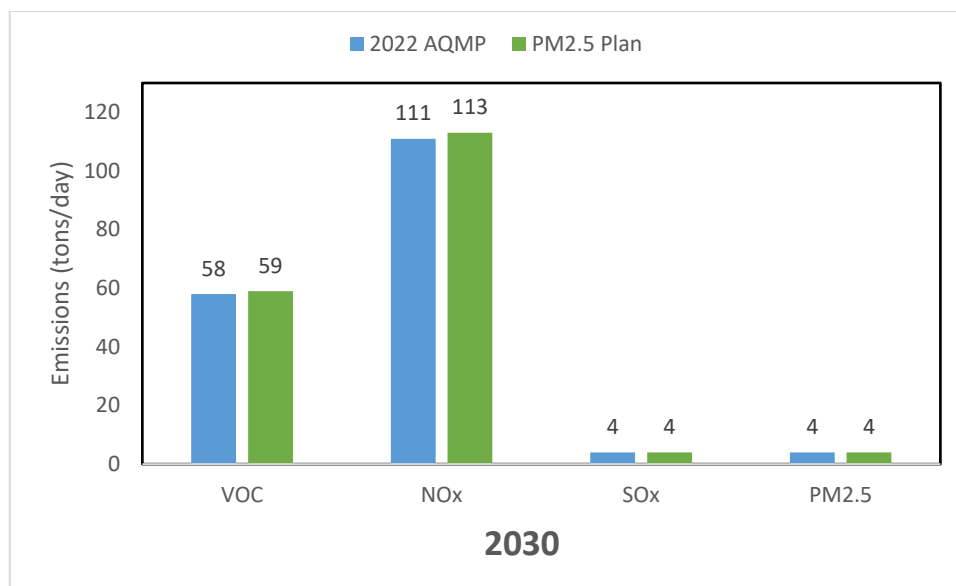


FIGURE 3-2
COMPARISON OF OFF-ROAD EMISSIONS BETWEEN 2022 AQMP AND DRAFT PM_{2.5} PLAN

Uncertainties in the Emissions Inventory

An effective AQMP and SIP development relies on a complete and accurate emissions inventory. Methods for quantifying different emission sources continue to improve, allowing for development of more effective control measures. Increased use of continuous monitoring and source testing has contributed to improved point source inventories. Technical assistance to facilities and auditing of reported emissions have also improved the accuracy of the emissions inventory. Area source inventories that rely on average emission factors and regional activities have inherent uncertainty. Industry-specific surveys and source-specific studies during rule development have provided much-needed refinement to these emissions estimates. Emission factors for many area sources are adapted from the U.S. EPA's AP-42, but some categories have not been updated for extended periods of time, posing additional uncertainties in estimated emissions. Mobile source inventories are also continuously updated and improved. As described earlier, many improvements are included in the on-road mobile source model EMFAC2021, which estimates emissions from trucks, automobiles, and buses. Overall, the ~~Draft~~ PM2.5 Plan is based on the most current data and methodologies, resulting in the most accurate inventory available.

There are many challenges inherent in making accurate projections based on future growth, such as where vehicle trips will occur, the distribution between various modes of transportation (such as trucks and trains), as well as estimates for population growth and the number and type of jobs. Forecasts are made with the best information available; nevertheless, there is uncertainty in emissions projections. AQMP/SIP updates are generally developed every three to four years, thereby allowing for frequent updates and improvements to the inventories.

Gridded Emissions

The air quality modeling domain extends to southern Kern County in the north, the Arizona and Nevada borders to the east, northern Mexico to the south and more than 100 miles offshore to the west. The modeling domain is divided into a grid system comprised of 4 km by 4 km grid cells. Both stationary and mobile source emissions are allocated to individual grid cells within this system. In general, emissions are modeled as total daily emissions. Variations in temperature, hours of operation, speed of motor vehicles, or other factors are considered in developing gridded motor vehicle emissions. The “gridded” emissions data used for the PM2.5 attainment demonstration differ from the annual average day inventory emission data in several ways: (1) the modeling region covers larger geographic areas than the Basin, (2) emissions represent day-specific instead of annual average conditions, and (3) emissions are adjusted with daily meteorological conditions such as temperature and humidity.

Base Year Emissions

2018 Emission Inventory

Table 3-2 compares the annual average emissions in the ~~Draft~~ PM2.5 Plan, and the emissions estimated in the 2022 AQMP for all PM2.5 precursors. As described above, the major differences between the 2022 AQMP and the ~~Draft~~ PM2.5 Plan was caused by the switch from EMFAC2017 to EMFAC2021 for on-road sources. The error in construction equipment category did not affect the base year emissions.

Overall, base year 2018 emissions of VOC, NOx and SOx in the ~~Draft~~ PM2.5 Plan are higher than in the 2022 AQMP by 4 percent, 5 percent and 1 percent, respectively. Conversely, overall PM2.5 emissions in the ~~Draft~~ PM2.5 Plan are 9 percent lower than in the 2022 AQMP.

Table 3-3 shows the 2018 annual average emissions inventory by major source category. Stationary sources are subdivided into point sources (e.g., petroleum production and electric utilities) and area sources (e.g., architectural coatings, residential water heaters, consumer products, and permitted sources smaller than the emission reporting threshold – generally 4 tons per year). Mobile sources consist of on-road (e.g., passenger cars and heavy-duty trucks) and off-road sources (e.g., locomotives and ships).

Figure 3-3 illustrates the relative contribution of each source category to the 2018 inventory. VOC and NH3 emissions are both largely driven by area sources, though specific area sources differ for the two pollutants. For VOC emissions, over half of area sources emissions are from architectural coatings and consumer products. For NH3 emissions, humans and pets contribute to half of all area source emissions. Mobile sources, stationary point source, and stationary area source categories are the top respective contributors to NOx, SOx, and PM2.5 emissions. Overall, total mobile source emissions account for almost 45 percent of VOC emissions and 85 percent of NOx emissions. The on-road mobile category alone contributes over 23 percent and 49 percent of VOC and NOx emissions, respectively. For directly emitted PM2.5, tailpipe and non-tailpipe emissions from mobile sources represent 18 percent of total emissions with an additional 15 percent from vehicle-related entrained dust from paved and unpaved roads. Stationary sources are responsible for most of the SOx emissions in the Basin, with the point source category (larger facilities subject to AER requirements) contributing 49 percent of total SOx emissions. Non-vehicle related area sources, such as commercial cooking and residential fuel combustion are the predominant source of directly emitted PM2.5 emissions, contributing 46 percent of total emissions.

Figure 3-4 shows the fraction of the 2018 inventory by responsible agency. The U.S. EPA, CARB, and South Coast AQMD split regulatory authority over these pollutants, with the U.S. EPA and CARB primarily responsible for mobile sources. Specifically, the U.S. EPA's authority applies to aircraft, locomotives, OGVs, military harbor craft, and other mobile categories, including California international registration plan (CAIRP) and out-of-state (OOS) medium- and heavy-duty trucks and pre-empt off-road equipment with less than 175 horsepower. CARB regulates other mobile sources, consumer products, and portions of area sources related to fuel combustion, and petroleum production and marketing. The South Coast AQMD

has limited authority over mobile sources, which it exercises via fleet rules and facility-based mobile source measurements. On the other hand, it exercises authority over most area sources and all point sources.

Figure 3-4 illustrates agency responsibility as it pertains to VOC, NO_x, SO_x, NH₃, and directly emitted PM_{2.5} emissions. VOC, NO_x, SO_x, NH₃ are PM_{2.5} precursors, forming secondary PM_{2.5} once emitted into the atmosphere. NO_x and VOCs are important precursors to ozone and PM_{2.5} formation. As shown, most NO_x and VOC emissions in the Basin are from sources that fall under the primary jurisdiction of the U.S. EPA or CARB. For example, 84 percent of NO_x and 74 percent of VOC emissions are from sources primarily under CARB and the U.S. EPA control. Conversely, 61 percent of SO_x emissions, 76 percent of NH₃ emissions and 81 percent of directly emitted PM_{2.5} emissions are from sources under the South Coast AQMD control. This illustrates that actions at all levels of regulatory authorities including State, and federal level are necessary to ensure that the region attains the federal ambient air quality standards.

**TABLE 3-2
COMPARISON OF THE 2018 BASE YEAR EMISSIONS
BETWEEN THE 2022 AQMP AND THE ~~DRAFT~~ PM2.5 PLAN (TONS PER DAY)**

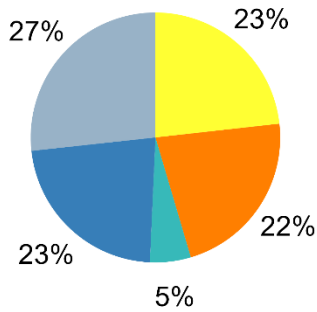
	On-Road Vehicles	Total Emissions
VOC		
2022 AQMP	78.5	387.0
Draft PM2.5 Plan	93.4	401.9
% Change	19	4
NOx		
2022 AQMP	167.7	364.7
Draft PM2.5 Plan	186.3	383.2
% Change	11	5
SOx		
2022 AQMP	1.7	14.3
Draft PM2.5 Plan	1.8	14.4
% Change	6	1
PM2.5		
2022 AQMP	11	61.5
Draft PM2.5 Plan	5.6	56.0
% Change	-49	-9
NH3		
2022 AQMP	16.3	74.5
Draft PM2.5 Plan	16.4	74.6
% Change	1	0

TABLE 3-3
SUMMARY OF EMISSIONS BY MAJOR SOURCE CATEGORY: 2018 BASE YEAR IN DRAFT PM2.5
PLAN (TONS PER DAY¹)

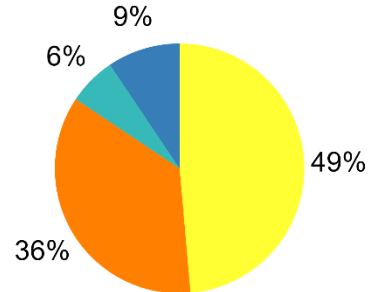
Source Category	PM2.5 PLAN				
	VOC	NOx	SOx	PM2.5	NH3
Fuel Combustion	5.4	21.1	2.1	5.3	7.8
Waste Disposal	14.7	1.4	0.4	0.3	5.7
Cleaning and Surface Coatings	36.9	0.0	0.0	1.4	0.1
Petroleum Production and Marketing	19.6	0.3	0.3	0.9	0.1
Industrial Processes	10.2	0.1	0.1	4.7	8.7
Misc. Processes					
Residential fuel combustion	8.9	19.1	0.3	6.8	0.1
Cooking	1.1	0.0	0.0	11.4	0.0
Paved & Unpaved Road Dust	0.0	0.0	0.0	10.3	0.0
Others	2.6	0.2	0.1	4.1	34.3
Solvent Evaporation	120.0	0.0	0.0	0.0	1.2
RECLAIM Sources		17.8	5.5		
Total Stationary Sources	219.4	59.9	8.8	45.2	58.0
On-Road Vehicles	93.4	186.3	1.8	5.6	16.4
Off-Road Vehicles	89.2	137.1	3.8	5.2	0.2
Total Mobile Sources	182.6	323.3	5.6	10.8	16.5
TOTAL	401.9	383.3	14.4	56.0	74.6

¹Values may not sum due to rounding

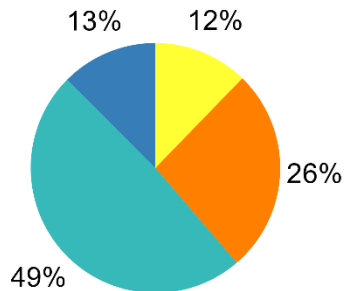
VOC Emissions: 402 tons/day



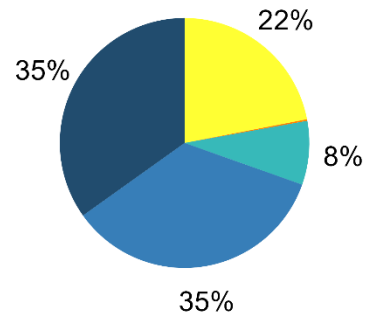
NOx Emissions: 383 tons/day



SOx Emissions: 14 tons/day



NH3 Emissions: 75 tons/day



PM2.5 Emissions: 56 tons/day

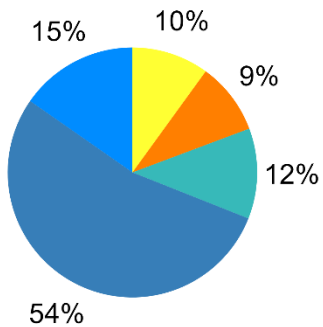
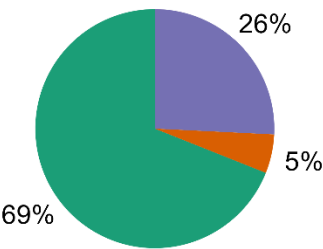
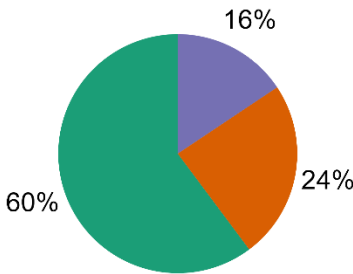


FIGURE 3-3
RELATIVE CONTRIBUTION BY MAJOR SOURCE CATEGORY TO 2018 EMISSIONS INVENTORY
(ANNUAL AVERAGE, VALUES ARE ROUNDED AND MAY NOT SUM DUE TO ROUNDING)

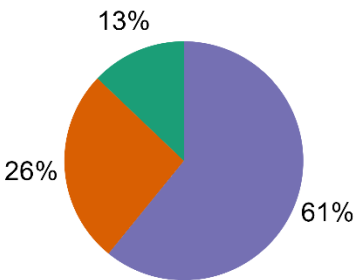
VOC Emissions: 402 tons/day



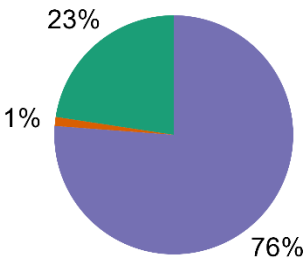
NOx Emissions: 383 tons/day



SOx Emissions: 14 tons/day



NH3 Emissions: 75 tons/day



PM2.5 Emissions: 56 tons/day

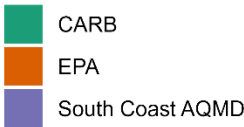
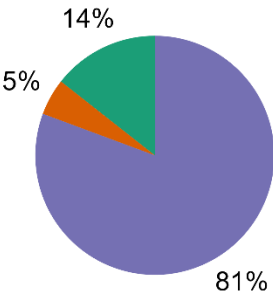


FIGURE 3-4
2018 EMISSION INVENTORY AGENCY PRIMARY RESPONSIBILITY
(ANNUAL AVERAGE, VALUES ARE ROUNDED TO NEAREST INTEGER AND MAY NOT SUM DUE TO ROUNDING)

Future Emissions

Inventory Development

Inventories were developed for 2018, the base year, 2030, the attainment year for the 2012 annual PM_{2.5} standard of 12 µg/m³, and milestone years – 2025 and 2028– to demonstrate Reasonable Further Progress (RFP) and post attainment year, 2031. Detailed emissions inventories for all the milestone years are provided in Appendix I.

Future-year emissions were derived using: (1) emissions from the 2018 base year, (2) expected controls after implementation of the South Coast AQMD rules adopted by October 2020 and Rule 1109.1 and CARB regulations adopted by December 2021, and (3) activity growth in various source categories between the base and future years. CARB's H/D I & M was reflected in the baseline emissions as off-model adjustments as well.

Since the development of the 2022 AQMP, additional regulations pertaining to stationary sources have been implemented. These regulations affecting non-RECLAIM sources are detailed in Table 3-1, while those affecting RECLAIM sources are outlined in Table 3-4. Some regulations apply to both RECLAIM and non-RECLAIM sources, and thus, are listed in both tables. Notably, the regulations listed in Table 3-4 include those adopted prior to the October 2020 cutoff date for the 2022 AQMP. The reductions attributed to the non-shave portion of Rule 1109.1, which amount to 3.94 and 4.65 tons per day by 2030 and 2037, respectively, are already reflected in the baseline emissions (and not included in Table 3-4).

In accordance with the CMB-05 of the 2016 AQMP, multiple regulations targeting NO_x emissions were enacted to transition the RECLAIM program into a traditional command-and-control regulatory framework. A portion of the emission reductions resulting from these regulations overlapped with the RECLAIM shave, reducing the allocation cap as stipulated in Rule 2002, which was adopted in December 2015. However, the 2022 AQMP did not incorporate the reductions from the landing rules, which were intended to phase out the RECLAIM program in favor of a command-and-control structure. At the time of the 2022 AQMP development, many of these rules were still in progress, and it was uncertain whether the reductions would be considered part of the RECLAIM shave. To prevent double counting, the reductions from the landing rules were assumed to be included in the RECLAIM shave in the 2022 AQMP. Subsequently, the majority of the landing rules have been adopted, and they are expected to achieve reductions exceeding the requirements of the RECLAIM shave over a longer timeframe. As of September 2023, 11 rules have been adopted, as listed in Table 3-4, and they are anticipated to reduce NO_x emissions by 0.61 and 3.47 tons per day by 2022 and 2030, respectively. The 2022 reductions include only the rules adopted and implemented prior to 2022.

Given the maturity of the RECLAIM shave in 2022, any reductions in excess of the 2022 reductions are considered new reductions. Consequently, the net NO_x reductions from landing rules beyond the shave are projected to be 2.86 and 3.01 tons per day by 2030 and 2037, respectively. The reductions from non-

RECLAIM rules listed in Table 3-1 are 0.34 and 1.14 tons per day by 2030 and 2037, respectively. While these additional reductions are not reflected in the baseline emissions, they have been factored into the attainment and Reasonable Further Progress (RFP) demonstrations.

Furthermore, adjustments have been made to the sunset timeline for RECLAIM emissions. In the 2022 AQMP, it was assumed that 2025 and 2026 would mark the initial years without RECLAIM programs for NO_x and SO_x, respectively, based on the best available information at the time of plan development. However, during the development of the landing rules, the sunset timeline was revised, delaying the sunset of the NO_x RECLAIM program by one year and placing the sunset of the SO_x RECLAIM program on hold to accommodate operational requirements and stakeholder feedback. Consequently, for this PM_{2.5} plan, 2026 is considered the first year without the NO_x RECLAIM program, while the SO_x RECLAIM program remains in effect. To maintain transparency and consistency with emissions included in previous AQMPs and SIPs, NO_x emissions from former RECLAIM sources are provided as line-item information under “former-RECLAIM” for post-RECLAIM years.

Activity growth factors for future years are the same as the ones adopted for the 2022 AQMP. Future growth projections were based on demographic growth forecasts for various socioeconomic categories (e.g., population, housing, employment by industry) developed by SCAG for their 2020 RTP/SCS. Industry growth factors for 2030 were also provided by SCAG. Table 3-5 summarizes key socioeconomic parameters used in the Draft PM_{2.5} Plan emissions inventory development. Appendix I provides further detail on growth surrogates for different source sectors.

TABLE 3-4
RECLAIM LANDING RULES ADOPTED IN 2017 AND AFTERWARDS BUT NOT REFLECTED IN THE
BASELINE EMISSIONS OF THE DRAFT PM_{2.5} PLAN

Adopted/ Amended Date	District Rule	Implementation Schedule		Total Reductions from RECLAIM Sources in 2030 (tpd)	2030 Reduction in excess of 2022 reductions (tpd)
		Start Year	End Year		
11/1/2019	Rule 1110.2 – Control of Emissions from Gaseous- and Liquid-fueled Engines	2020	2029	0.25	0.21
1/4/2019	Rule 1118.1 – Control of Emissions from Non-Refinery Flares	2022	2025	0.03	0.03
4/5/2019	Rule 1134 – Emissions of Oxides of Nitrogen from Stationary Gas Turbines	2024	2027	1.66	1.66
11/2/2018	Rule 1135 – Electricity Generating Facilities	2020	2025	0.30	0.18
12/7/2018	Rule 1146 & 1146.1 – Emissions of Oxides of Nitrogen from Industrial, Institutional, Commercial Boilers, Steam Generators, and Process Heaters	2019	2033	0.36	0.08
12/7/2018	Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Heaters and Small Boilers and Process Heaters	2022	2023	0.002	0.002
5/6/2022	Rule 1147 – NO _x Reductions from Miscellaneous Sources	2024	2059	0.40	0.40
8/6/2021	Rule 1147.1 – NO _x Reductions from Aggregate Dryers	2025	2057	0.01	0.01
4/1/2022	Rule 1147.2 – NO _x Reductions from Metal Melting and Heating Furnaces	2026	2057	0.49	0.36
8/4/2023	Rule 1153.1 – Emissions of Oxides of Nitrogen from Commercial Food Ovens	2024	2036	0.02	0.02
Cumulative reductions from the landing rules listed above*				3.47	2.86

* Reductions are calculated for each rule individually. Because some sources are affected by more than one rule, the compounded emission reductions are slightly lower than the sum of reductions from individual rules.

**TABLE 3-5
BASELINE DEMOGRAPHIC FORECASTS FOR THE SOUTH COAST AIR BASIN EMPLOYED IN THE
DRAFT-PM2.5 PLAN**

Category	2018	2030	% Growth from 2018 to 2030
Population (Millions)	16.7	18.0	7.9
Housing Units (Millions)	5.3	6.0	11.7
Total Employment (Millions)	7.7	8.3	7.3
Daily VMT (Millions)	388	395	1.8

Current forecasts indicate that this region will experience population growth of 7.9 percent between 2018 and 2030, with a 1.8 percent increase in VMT. Housing units show the largest change of the socioeconomic indicators with a projected 11.7 percent increase from 2018 to 2030.

Summary of Future Baseline Emissions

To illustrate trends in future baseline annual average inventories, emissions by source category and by pollutant for 2030 are presented in Table 3-6. Baseline inventories are projected future emissions that reflect already adopted regulations and programs but do not incorporate additional controls proposed in this Draft-PM2.5 Plan. The 2018 base year emission inventory, which captures actual 2018 emissions, is used as the basis for future projections.

Even without any additional control measures, VOC and NO_x emissions are expected to decrease due to existing South Coast AQMD and CARB regulations and programs, such as controls for on- and off-road equipment, new vehicle standards, and Rule 1109.1 for refinery emissions. For VOC and NO_x, these updated regulations result in 15 and 46 percent lower emissions in 2030 than 2018. These decreases are not uniform across sources; per Figures 3-3 and 3-5, mobile source contributions to VOC emissions decline by 45 percent but area sources, including consumer products, continue to be a significant source of VOC emissions. For NO_x emissions, amidst an overall decrease in emissions from 2018 to 2030, relative contributions change dramatically, where on-road contributions decrease from 49 to 24 percent while contributions from off-road sources increase from 36 to 54 percent. On-going implementation of adopted regulations contributes to the changes. For example, controls on heavy-duty vehicles are expected to reduce NO_x emissions significantly but could lead to increased NH₃ emissions due to ammonia slip. The contribution of on-road vehicle emissions to NH₃ increases from 22% in 2018 to 27% in 2030.

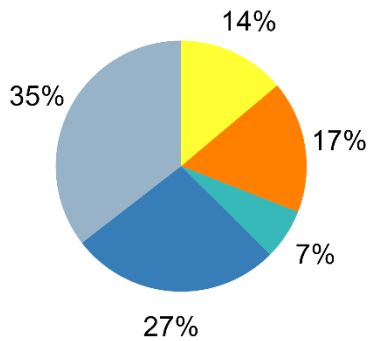
Similarly, projected economic growth results in a corresponding 3 percent projected increase in SO_x emissions. Stationary sources are projected to remain the predominant source of SO_x, with point sources

contributing almost half of total SO_x emissions in 2030. However, OGVs are significant source of SO_x emissions in the Basin, and growing shipping and OGV activity in future years is expected to increase SO_x emissions at a faster rate than growth in point source emissions, driving the 3 percent increase. The highest-ranking source categories in the 2018 and 2030 inventories are discussed in a later section.

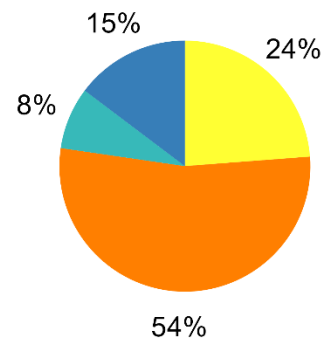
For directly emitted PM_{2.5}, mobile sources account for 14 percent of total emissions in the 2030 inventory, a 4 percent decrease from the total mobile source contribution in 2018. This estimate excludes entrained paved/unpaved road dust sources, which shows a modest increase from 15 percent in the 2018 inventory to 17 percent in the 2030 inventory. Area sources excluding entrained paved/unpaved road dust sources are projected to remain the predominant source of directly emitted PM_{2.5}, contributing 54 percent of emissions in 2018 and 57 percent in 2030. This is mainly due to the increases in population, VMT and economic activities.

Figure 3-6 shows the fraction of the 2030 inventory by responsible agency for VOC, NO_x, SO_x, NH₃ and directly emitted PM_{2.5} emissions. In 2030, slightly larger fractions of NO_x and VOC emissions will fall under the South Coast AQMD control (31 percent for VOC and 23 percent for NO_x) due to different relative rates of emission reductions among sources controlled by the three agencies. Despite changes, the majority of VOC and NO_x emissions will remain primarily under CARB and U.S. EPA jurisdiction. NO_x sources under federal control, such as OGVs (33 tons per day), locomotives (18 tons per day), aircraft (24 tons per day), out-of-state and international heavy-duty trucks (4 tons per day), military portion of commercial harbor craft (1 ton per day), and pre-empted off-road equipment (4 tons per day) contribute ~~36~~40 percent of total NO_x emissions in the Basin in 2030, compared to ~~25~~24 percent in 2018, indicating growing disparity between regulations on federal sources and sources under State and local control. VOC emissions from consumer products, which are regulated by CARB, are projected to reach 122 tons per day in 2030, representing 39 percent of total VOC emissions in the Basin. This increase in emissions, which mostly originate from the use of personal care, hygiene, and cleaning products, reflects projected population growth in the region. The fraction of SO_x emissions that falls under the South Coast AQMD regulatory authority will remain largely unchanged from the 2018 base year inventory.

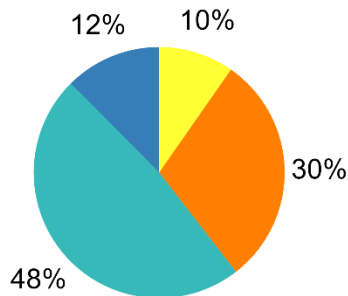
VOC Emissions: 344 tons/day



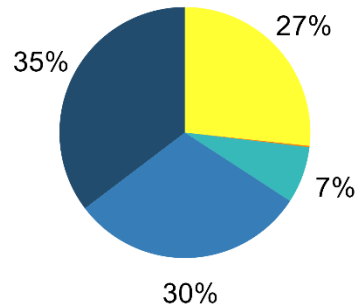
NOx Emissions: 210 tons/day



SOx Emissions: 15 tons/day



NH3 Emissions: 79 tons/day



PM2.5 Emissions: 54 tons/day

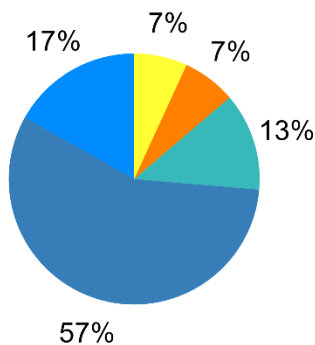
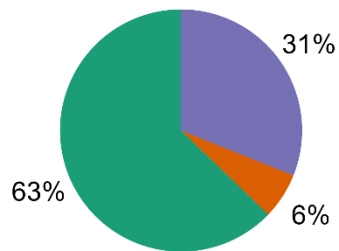
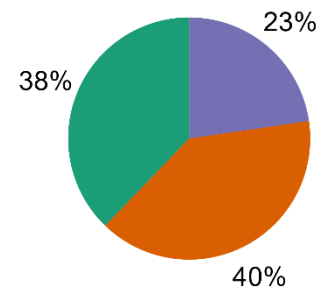


FIGURE 3-5
RELATIVE CONTRIBUTION BY SOURCE CATEGORY TO 2030 EMISSIONS INVENTORY
(ANNUAL AVERAGE, VALUES ARE ROUNDED AND MAY NOT SUM DUE TO ROUNDING)

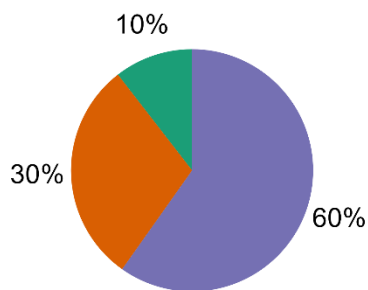
VOC Emissions: 344 tons/day



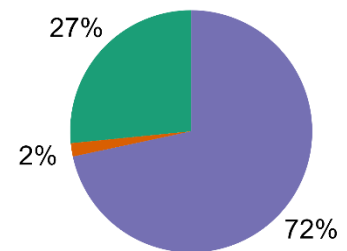
NO_x Emissions: 210 tons/day



SO_x Emissions: 15 tons/day



NH₃ Emissions: 79 tons/day



PM_{2.5} Emissions: 54 tons/day

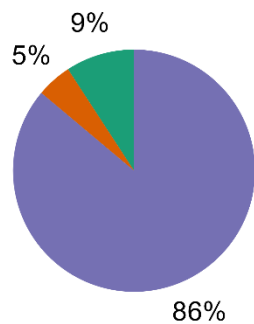


FIGURE 3-6
2030 EMISSIONS INVENTORY AGENCY RESPONSIBILITY
(ANNUAL AVERAGE, VALUES ARE ROUNDED TO NEAREST INTEGER AND
MAY NOT SUM DUE TO ROUNDING)

TABLE 3-6
SUMMARY OF EMISSIONS BY MAJOR SOURCE CATEGORY: 2030 BASELINE
~~DRAFT~~ PM2.5 PLAN (TONS PER DAY¹)

Source Category	DRAFT PM2.5 PLAN					
	VOC	NOx	CO	SOx	PM25	NH3
Fuel Combustion	5.4	29.4	75.3	6.1	5.2	7.3
Waste Disposal	15.7	1.6	0.7	0.5	0.3	6.4
Cleaning and Surface Coatings	39.2	0.0	0.1	0.0	1.6	0.2
Petroleum Production and Marketing	18.7	0.6	2.6	1.5	0.9	0.1
Industrial Processes	10.7	0.8	0.8	0.6	5.4	8.7
Misc. Processes						
Residential fuel combustion	8.9	15.2	47.4	0.3	6.6	0.1
Cooking	1.2	0.0	0.0	0.0	12.3	0.0
Paved & Unpaved Road Dust	0.0	0.0	0.0	0.0	11.6	0.0
Others	1.59	0.2	5.9	0.0	3.5	34.2
Solvent Evaporation	136.0	0.0	0.0	0.0	0.0	1.2
Total Stationary Sources	237.4	47.8	132.7	9.0	46.6	58.0
On-Road Vehicles	47.7	50.1	438.1	1.4	3.7	21.2
Off-Road Vehicles	58.6	112.6	595.7	4.4	3.7	0.1
Total Mobile Sources	106.3	162.7	1033.8	5.8	7.4	21.3
TOTAL	343.7	210.4	1166.5	14.8	54.1	79.3

¹Values are rounded to nearest integer and may not sum due to rounding

Impact of Growth

The Draft PM_{2.5} Plan forecasts the 2030 emissions inventories “with growth” through a detailed consultation process with SCAG. The region is projected to see 8 percent growth in population, 12 percent growth in housing units, 7 percent growth in employment, and 2 percent growth in VMT between 2018 and 2030. To illustrate the impact of demographic growth on emissions, “no growth” emissions were estimated by removing the growth factors from 2030 baseline emissions. Table 3-7 presents a comparison of projected 2030 emissions with and without growth. The growth impacts to 2030 VOC, NO_x, SO_x, NH₃ and directly emitted PM_{2.5} emissions are 27.5, 30.0, 1.0, 5.4, and 3.3 tons per day, respectively.

While economic growth is beneficial for the region, it presents a challenge to air quality improvement efforts as projected growth could offset the progress made in reducing VOC, NO_x, SO_x, and PM_{2.5} emissions through adopted regulations from the South Coast AQMD and CARB. Meeting the U.S. EPA’s current 2012 Annual PM_{2.5} standard of 12 µg/m³ and other NAAQS will require continued emission reduction efforts with shared responsibility from all levels of government.

**TABLE 3-7
GROWTH IMPACT TO 2030 EMISSIONS IN TONS PER DAY**

With Growth	VOC	NOX	SOX	PM2.5	NH3
Stationary Point and Area	237.4	47.8	9.0	35.8	58.0
Road Dust	0.0	0.0	0.0	10.8	0.0
On-Road	47.7	50.1	1.4	3.7	21.2
Off-Road	58.6	112.6	4.4	3.7	0.1
Total	343.7	210.4	14.8	54.1	79.3
No Growth	VOC	NOX	SOX	PM25	NH3
Stationary Point and Area	217.6	47.4	8.8	34.0	56.1
Road Dust	0.0	0.0	0.0	10.3	0.0
On-Road	45.4	38.1	1.3	3.3	17.8
Off-Road	53.2	94.9	3.8	3.2	0.1
Total	316.2	180.4	13.9	50.8	74.0
Impact of Growth	VOC	NOX	SOX	PM25	NH3
Stationary Point and Area ¹	19.8	0.4	0.2	1.9	1.9
Road Dust	0.0	0.0	0.0	0.5	0.0
On-Road	2.3	11.9	0.2	0.4	3.4
Off-Road	5.4	17.7	0.6	0.5	0.0
Total	27.5	30.0	1.0	3.3	5.4

¹ Overall growth in Electric Utilities is projected as a composite factor of employment growth, efficiency improvements and renewable portfolio standards. For this analysis, the growth portion is based on employment growth alone, which is the surrogate for overall electricity demand growth. Proposed control measures promoting zero emissions technology will increase electricity demand significantly, beyond what these baseline projections suggest.

Top Ten Source Categories in 2018 and 2030

The top ten source contributors to 2018 and 2030 annual average emissions inventories for VOC, NO_x, SO_x, directly emitted PM_{2.5} and NH₃ for years 2018 and 2030 are shown in Figures 3-7 to 3-14 and briefly discussed in this section.

Figures 3-7 to 3-8 provide the top ten source categories for VOC emissions in 2018 and 2030. These top ten categories account for approximately 82.8 and 81.5 percent of the total VOC inventories in 2018 and 2030, respectively. Consumer products, Light and Medium Duty Vehicles, and Off-Road Equipment are the three highest-emitting categories in both years. Emissions from Light and Medium Duty Vehicles and Off-Road Equipment decline substantially, which reflects the effect of regulations on vehicles and off-road equipment. On the other hand, emissions from Consumer Products, Coatings and Related Processes, and Architectural Coatings and Related Solvents emissions continue to rise due to increase in population and industrial activities.

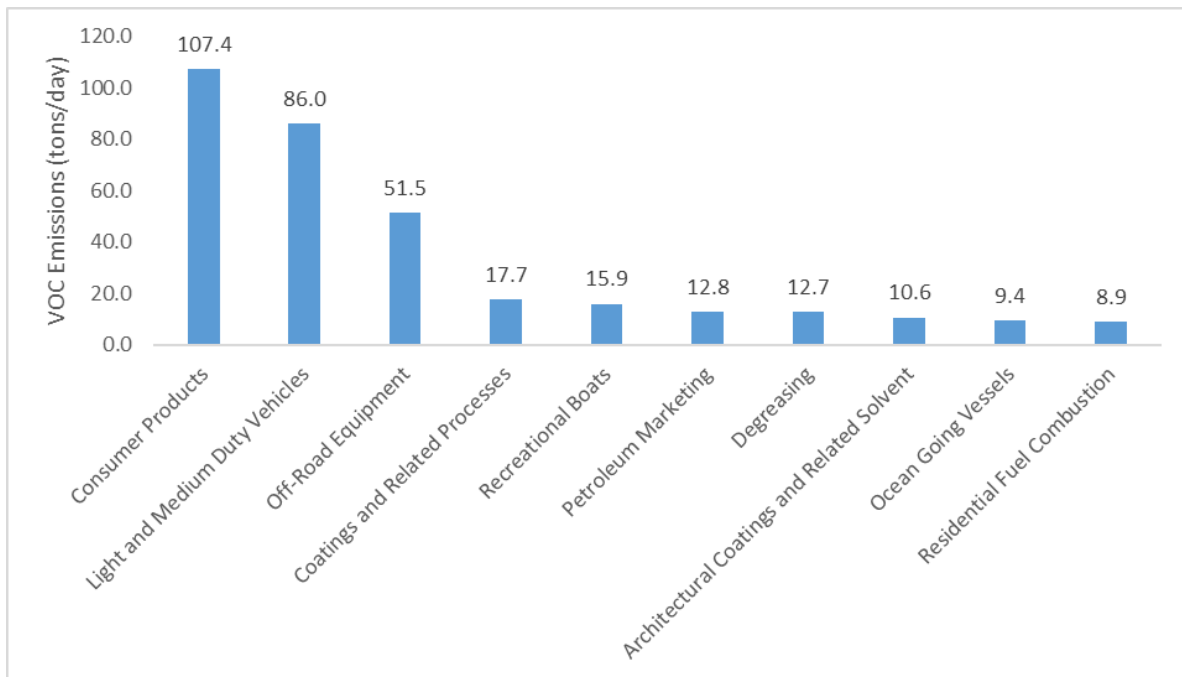


FIGURE 3-7
TOP TEN EMITTER CATEGORIES FOR VOC IN 2018
(ANNUAL AVERAGE)

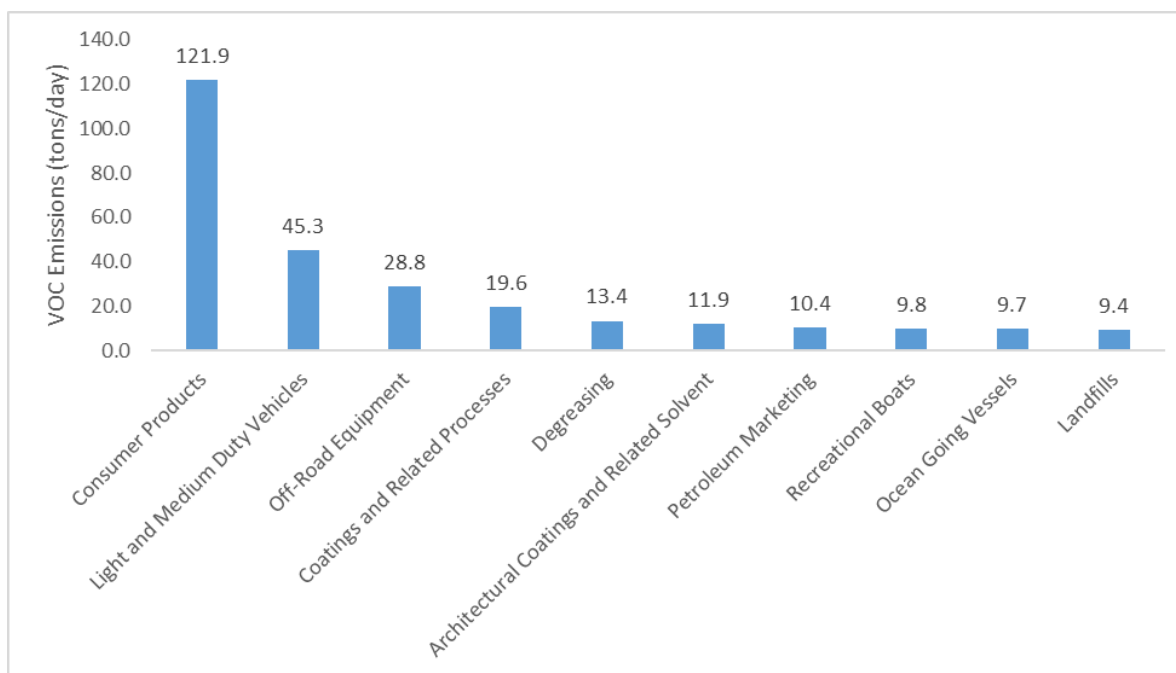


FIGURE 3-8
TOP TEN EMITTER CATEGORIES FOR VOC IN 2030
(ANNUAL AVERAGE)

Figures 3-9 to 3-10 show the top ten categories for NO_x emissions in base year 2018 and future attainment year 2030. The top ten categories account for 90.8 percent of the total NO_x inventory in 2018 and 89.6 percent in 2030. Mobile source categories remain the predominant contributor to NO_x emissions. Heavy-Duty Trucks, Light and Medium Duty Vehicles, Off-road equipment, and OGVs are the top emitters in 2018. Heavy-Duty Trucks is the top source in 2018 but their emissions are projected to decrease substantially through 2030 because of emission regulations. Other sources that are projected to decline due to regulations include Light and Medium Duty Vehicle, Off-Road Equipment and Residential Fuel Combustion. On the contrary, emissions from OGV, Aircrafts and Trains are projected to increase through 2030 driven by increases activities in those sectors.

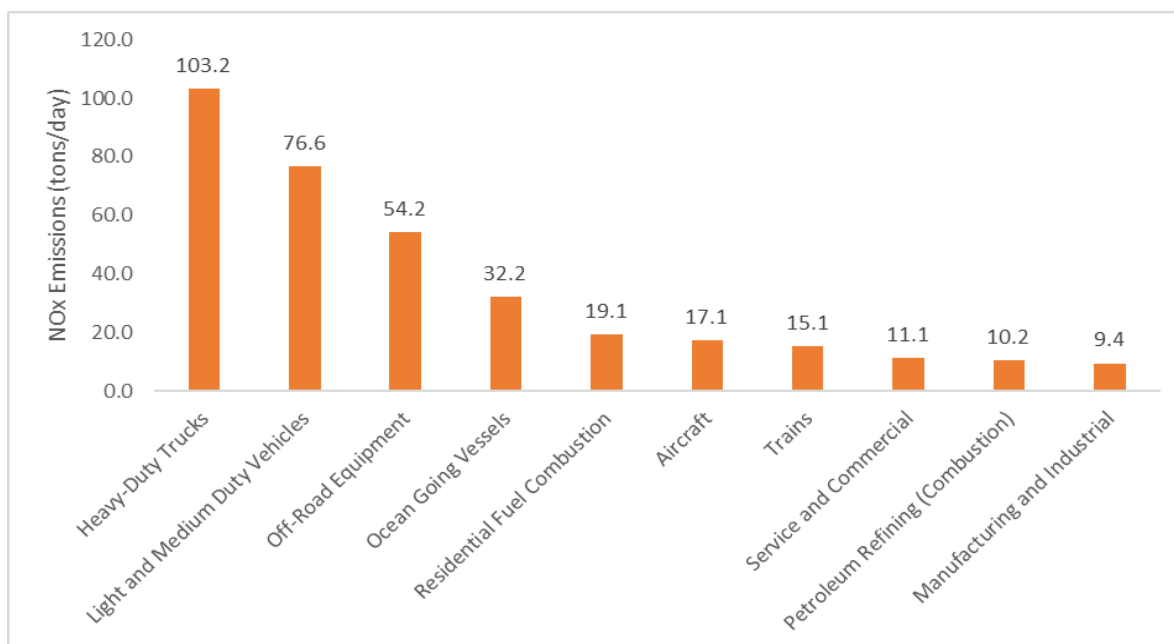


FIGURE 3-9
TOP TEN EMITTER CATEGORIES FOR NO_x IN 2018
(ANNUAL AVERAGE)

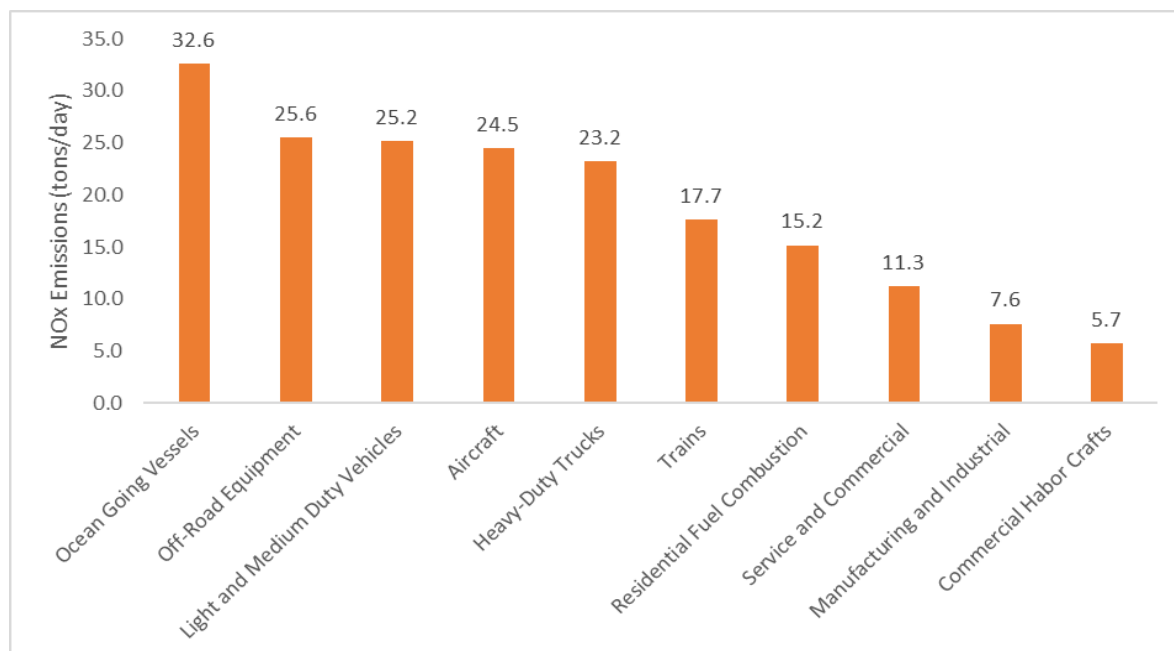


FIGURE 3-10
TOP TEN EMITTER CATEGORIES FOR NO_x IN 2030
(ANNUAL AVERAGE)

Figures 3-11 to 3-12 show the top source categories for SO_x emissions in 2018 and 2030. The top ten categories represent approximately 92 percent of total SO_x inventory in 2018 and 2030. SO_x emissions are projected to not change substantially from 2018 to 2030. Combustion in Petroleum Refining is the largest source in the Basin in both 2018 and 2030. OGV and Aircraft are the only sources that are expected to grow due to the expected increase in activity on those sectors and the limited regulations applicable to those sources. On the other hand, regulations and turnover to cleaner vehicles result in a marginal reduction in SO_x from Light and Medium Duty Vehicles.

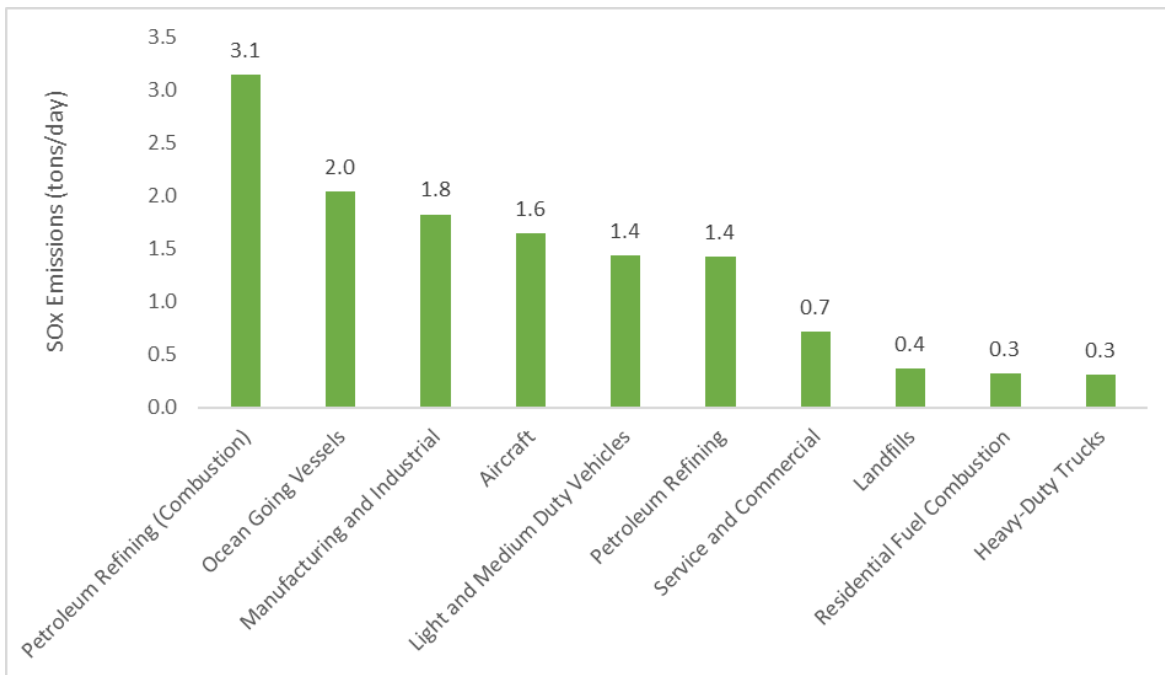


FIGURE 3-11
TOP EMITTER CATEGORIES FOR SO_x IN 2018
(ANNUAL AVERAGE)

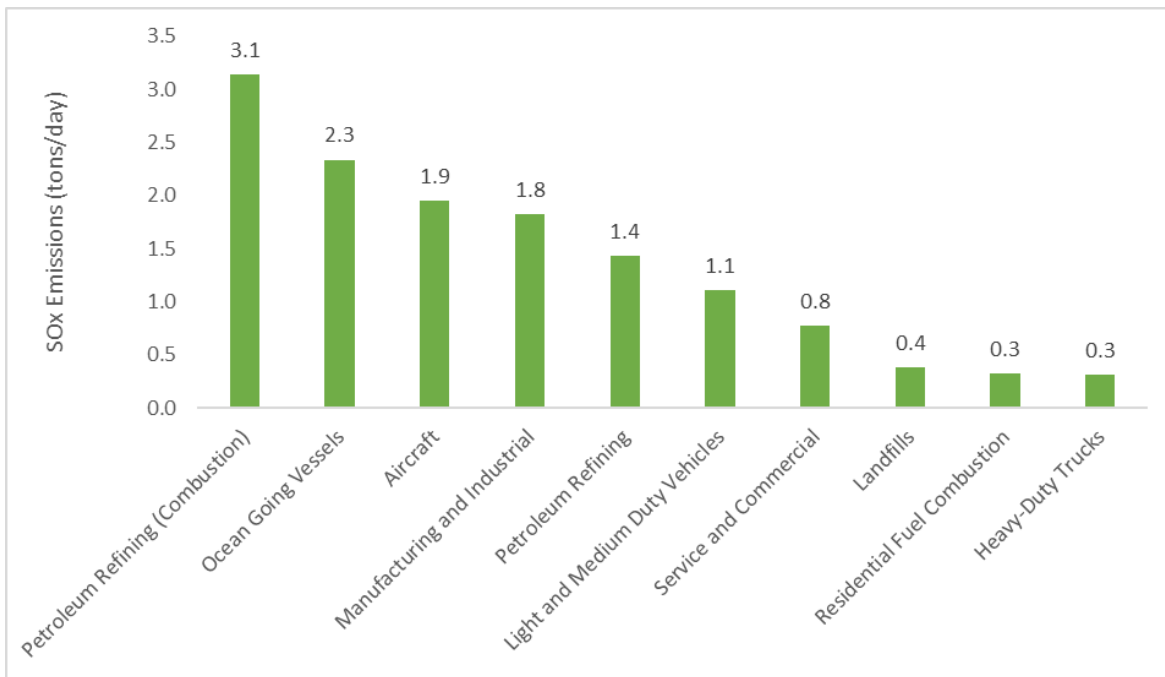


FIGURE 3-12
TOP EMITTER CATEGORIES FOR SO_x IN 2030
(ANNUAL AVERAGE)

Figures 3-13 to 3-14 show the top ten source categories for annual average directly emitted PM_{2.5} in 2018 and 2030. The top 10 categories represent 76.4 percent of the total directly emitted PM_{2.5} inventory in 2018 and 78.6 percent in 2030. Commercial cooking, paved road dust, and residential fuel combustion are the largest contributors to total direct PM_{2.5} emissions. Emissions from cooking and paved road dust are projected to grow through 2030 because of the increase in population and vehicle activity. On the other hand, tailpipe emissions from vehicles are expected to decline due to vehicle emission regulations, despite the increase in vehicle miles traveled, however non-tailpipe emissions such as tire and brake wear emissions are expected to grow due to increased VMT. Emissions from residential fuel combustion are also projected to decline through 2030 due to efficiency improvements and emissions regulations, despite the increase in population. Emissions from wood and paper industries, and from construction and demolition are among the top ten sources and are expected to grow through 2030 due to the projected increase in industrial activity in those sectors.

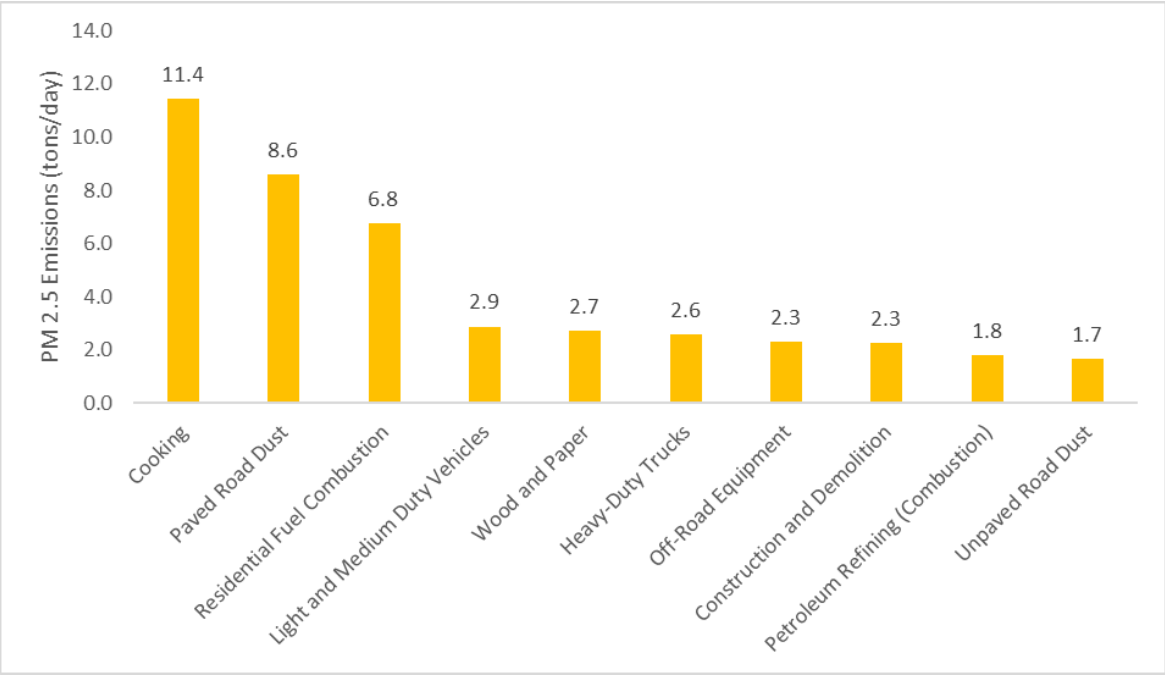


FIGURE 3-13
TOP TEN EMITTER CATEGORIES FOR DIRECTLY EMITTED PM_{2.5} IN 2018
(ANNUAL AVERAGE)

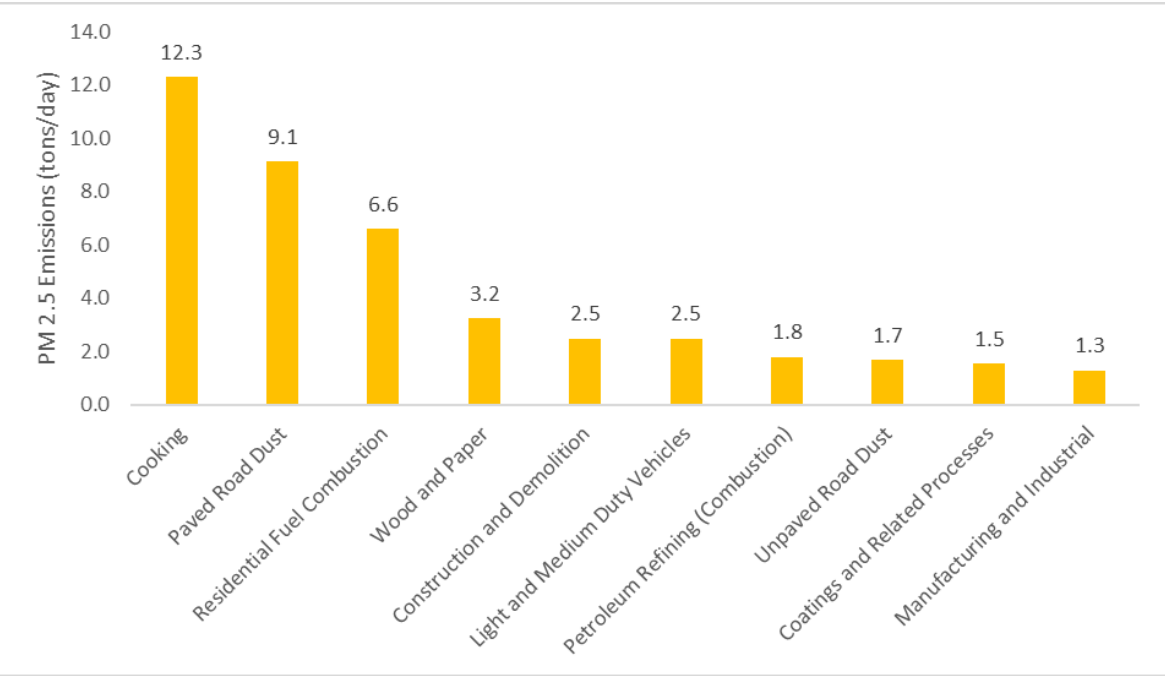


FIGURE 3-14
TOP TEN EMITTER CATEGORIES EMITTED PM_{2.5} IN 2030
(ANNUAL AVERAGE)

Figures 3-15 to 3-16 show the top ten source categories for NH₃ emissions in 2018 and 2030. The largest source of ammonia is a group of miscellaneous sources that include human and pet perspiration. This source is expected to grow through 2030 as population grows in the basin. Emissions from vehicles are expected to grow through 2030 as well. Emissions of NH₃ from gasoline vehicles are produced as a reaction in the catalytic converter. NH₃ emitted by heavy-duty diesel trucks originates from the use of selective catalytic reactors to control NO_x emissions from diesel vehicles.⁸ The projected increase in vehicle activity for light-, medium- and heavy-duty vehicles leads to the increase in NH₃ emissions. On the other hand, emissions from farming operations are projected to decline over the years as it is projected that some farming will gradually move away from the basin.⁹

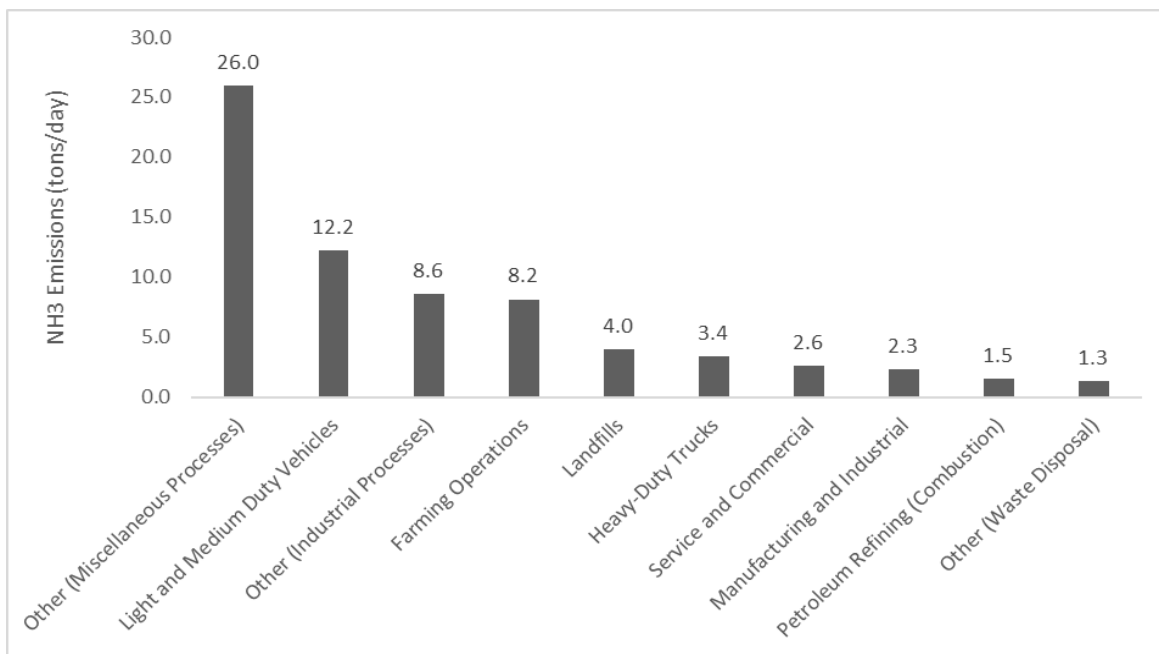


FIGURE 3-15
TOP TEN EMITTER CATEGORIES EMITTED NH₃ IN 2018
(ANNUAL AVERAGE)

⁸ Ammonia emissions from Selective Catalytic Reaction (SCR) systems is generally referred to as *ammonia slip*. SCR technology reduces NO_x emissions by converting them into harmless nitrogen and water vapor through a reaction with ammonia. However, if the SCR system injects more ammonia than required for the NO_x reduction process, or if the catalyst becomes inefficient, unreacted ammonia can escape into the exhaust stream.

⁹ Farming operations include emissions from livestock operations, with dairy cattle being the largest source in the basin. Cattle emissions are primarily based on the 2012 Census of Agriculture. Historical trends from the Santa Ana Water Control Board show a 39% decrease in the number of cows in the basin from 2008 to 2018. Growth profiles are based on CARB's projections of Census of Agriculture's historical livestock population trends, 2012. Additional information on CARB's methodology for farming operations is available at: <https://ww2.arb.ca.gov/carb-miscellaneous-process-methodologies-farming-operations>

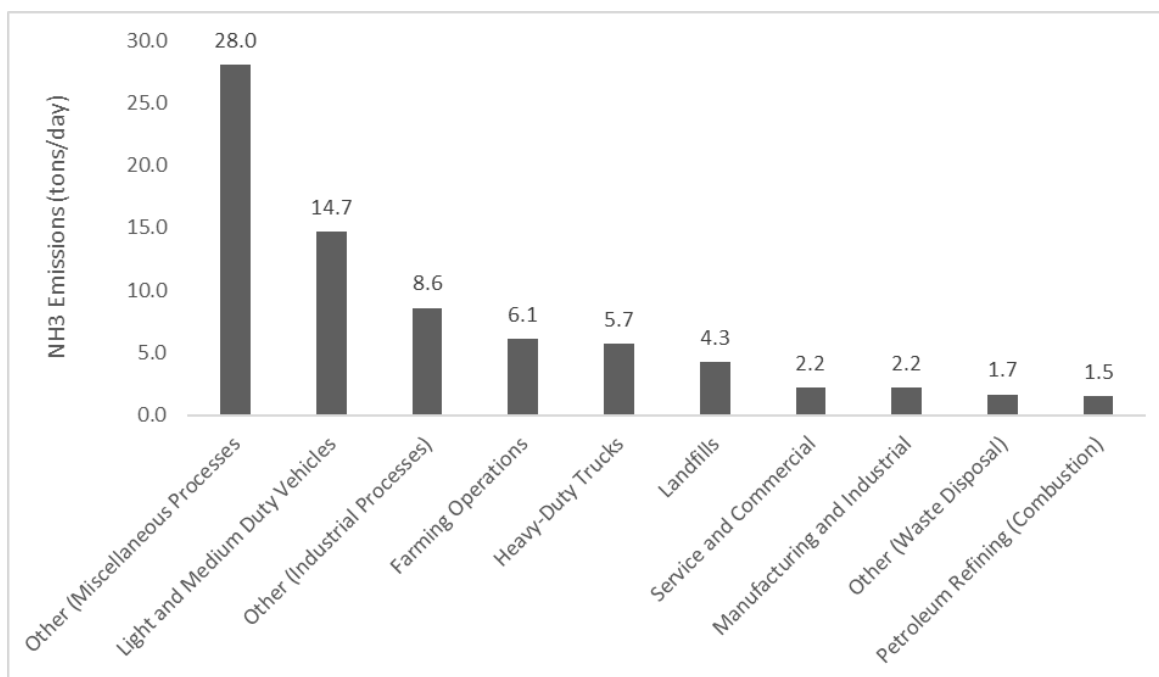


FIGURE 3-16
TOP TEN EMITTER CATEGORIES EMITTED NH₃ IN 2030
(ANNUAL AVERAGE)

Condensable and Filterable Portions of PM_{2.5} Emissions

Per PM_{2.5} NAAQS final implementation rule,¹⁰ the SIP emissions inventory is required to identify the condensable and filterable portions of PM_{2.5} separately, in addition to primary PM_{2.5} emissions. Primary PM emissions consist of condensable and filterable portions. Condensable PM is the material that is in vapor phase in stack conditions- which then condenses to PM after cooling. Filterable PM comprises “particles that are directly emitted by a source as a solid or liquid [aerosol] at stack or release conditions.” The U.S. EPA’s Air Emissions Reporting Requirements (AERR) requires states to report annual emissions of filterable and condensable components of PM_{2.5} and PM₁₀, “as applicable,” for large sources for every inventory year and for all sources every third inventory year, beginning with 2011.¹¹ Subsequent

¹⁰ 40 CFR 51.1008(a)(1)(iv).

¹¹ 40 CFR §51.15(a)(1) and §51.30(b)(1).

emissions inventory guidance¹² from the U.S. EPA clarifies the meaning of the phrase “as applicable” by providing a list of source types “for which condensable PM is expected by the AERR.”

Category specific conversion factors developed by CARB and used in the Imperial County 2018 SIP¹³ were applied in the current analysis to estimate condensable PM and then filterable PM was calculated by subtracting the condensable from the total PM_{2.5} primary emissions. This approach is consistent with South Coast AQMD’s South Coast PM_{2.5} Plan for 2006 PM_{2.5} Standard.¹⁴ The baseline 2018, future attainment year 2030 are included in the analysis. Figure 3-17 shows the annual average emissions of primary (or direct), condensable, and filterable PM_{2.5} emissions for 2018 and 20230. Details on the condensable and filterable PM_{2.5} emissions are provided in Appendix I of this Plan.

As shown on Figure 3-17, total primary PM_{2.5} emissions increase between base and future years from 45.2 tons per day in 2018 to 46.6 tons per day in 2030. The increase in total primary PM_{2.5} appears in both condensable and filterable portions with 0.8 tons per day and 0.6 tons per day increase, respectively, between 2018 and 2030. These increases can be attributed to the growth in population and economic activities in the Basin.

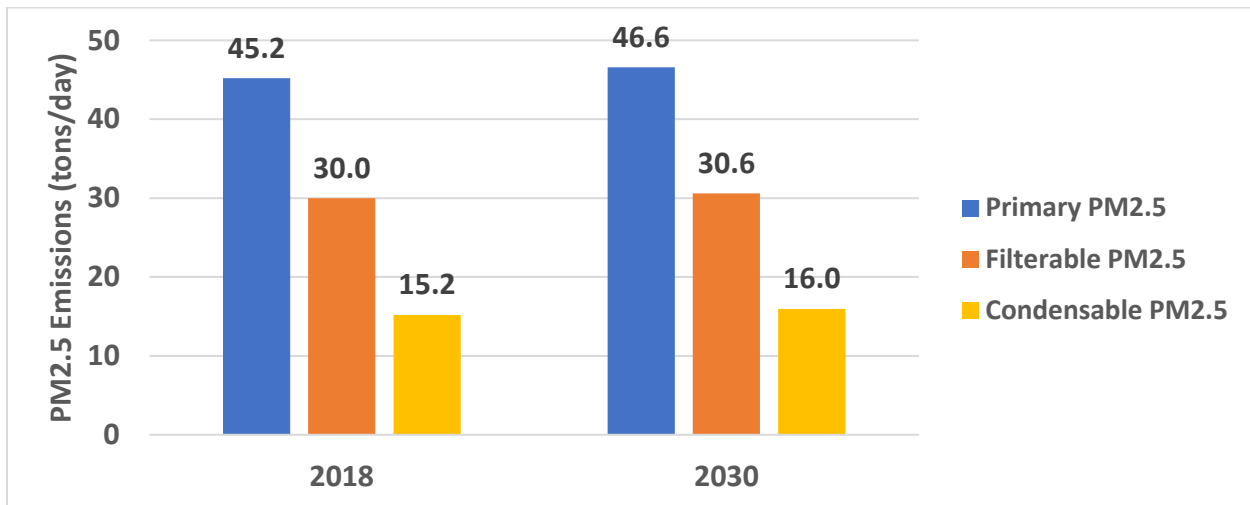


FIGURE 3-17
ANNUAL AVERAGE PRIMARY, FILTERABLE AND CONDENSABLE PM_{2.5} EMISSIONS FROM STATIONARY SOURCES

¹² USEPA. 2017. Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations. Available at: https://www.epa.gov/sites/production/files/2017-7/documents/ei_guidance_may_2017_final_rev.pdf.

¹³ Imperial County 2018 Annual Particulate Matter less than 2.5 microns in Diameter State Implementation Plan, April 2018. Available at https://ww3.arb.ca.gov/planning/sip/planarea/imperial/final_2018_ic_pm25_sip.pdf.

¹⁴ Available at <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/2-final-attainment-plan-for-2006-24-hour-pm2-5-standard-for-the-south-coast-air-basin.pdf?sfvrsn=6>

Table 3-8 presents the top five source categories for condensable PM_{2.5} in 2018 and future milestone years. The majority of condensable PM_{2.5} is emitted from the “Cooking” category, which accounts for 75.1 percent and 76.8 percent of the total condensable PM_{2.5} in 2018 and 2030, respectively. The sum of the top five condensable PM_{2.5} categories represents 95.7 percent and 95.9 percent of the total condensable PM_{2.5} both in 2018 and 2030, respectively. Table 3-9 shows the top five categories for filterable PM_{2.5}. The “Paved Road Dust” source category is the top emitter of filterable PM_{2.5}. The top five filterable PM_{2.5} emissions categories account for approximately 70.7 percent (2018) and 72.9 percent (2030) of the total filterable PM_{2.5} emissions. This points to a marginally higher contribution of top five filterable categories to total filterable PM_{2.5} emissions in future years. Detailed emissions by major source category are included in Appendix I of this Plan.

TABLE 3-8
TOP 5 CATEGORIES EMITTING CONDENSABLE PM_{2.5} (TONS PER DAY)

Category	2018	2030
Cooking	11.41	12.27
Petroleum Refining (Combustion)	1.00	1.00
Residential Fuel Combustion	0.79	0.77
Manufacturing and Industrial	0.75	0.72
Service and Commercial	0.61	0.57

TABLE 3-9
TOP 5 CATEGORIES EMITTING FILTERABLE PM_{2.5} (TONS PER DAY)

Category	2018	2030
Paved Road Dust	8.59	9.11
Residential Fuel Combustion	5.98	5.82
Wood and Paper	2.70	3.23
Construction and Demolition	2.27	2.49
Unpaved Road Dust	1.67	1.67



CHAPTER 4

Control Strategy

- The bulk of the emission reductions needed to attain the 2012 annual PM2.5 standard will come from continued implementation of already adopted rules and regulations.
- The PM2.5 Plan advocates for a control strategy aimed at expediting implementation of 2022 AQMP NOx measures, leveraging PM2.5 co-benefits from these NOx measures, and reducing ammonia and direct PM2.5 emissions through selected controls mandated by the U.S. EPA.
- The control strategy complies with U.S. EPA's requirements including Best Available Control Measures and Most Stringent Measures.

Introduction

The control strategy in the South Coast Air Basin Attainment Plan for the 2012 Annual PM2.5 Standard provides the path to achieving the emission reductions needed to meet the 2012 annual PM2.5 NAAQS. Implementation of the PM2.5 Plan will be based on a series of control measures and strategies that vary by source type (i.e., stationary or mobile) as well as by pollutant, i.e., NOx, ammonia (NH3), or direct PM2.5. This chapter outlines the proposed control strategy and the schedules to adopt and implement the PM2.5 Plan to meet the 2012 annual PM2.5 standard in the South Coast Air Basin (Basin). The PM2.5 Plan control strategy includes a variety of implementation approaches such as regulation, accelerated deployment of available cleaner technologies, best management practices, co-benefits from existing programs (e.g., climate and energy efficiency), and incentives. Table 4-1 provides an overview of the criteria used in evaluating and selecting feasible control measures.

TABLE 4-1
CRITERIA FOR EVALUATING THE PM2.5 PLAN CONTROL MEASURES (LISTED ALPHABETICALLY)

Criteria	Description
Cost-Effectiveness	The cost of a control measure per reduction of emissions of a particular pollutant (cost includes purchasing, installing, operating, and maintaining the control technology).
Emission Reduction Potential	The total amount of pollution that a control measure can reduce.
Enforceability	The ability to ensure compliance with a control measure.
Legal Authority	Ability of the South Coast AQMD or other adopting agency to legally implement the measure.
Public Acceptability	The likelihood that the public will approve or cooperate in the implementation of a control measure.
Rate of Emission Reduction	The time it will take for a control measure to reduce a certain amount of air pollution.
Technological Feasibility	The likelihood that the technology for a control measure is or will be available.

Overall Strategy

The PM2.5 Plan relies primarily on previously adopted control measures from the 2022 AQMP and the 2022 State SIP Strategy. The Plan also relies on limited new controls for directly-emitted PM2.5 and key precursor pollutants, including NOx and NH3. By 2030, directly-emitted PM2.5 needs to be reduced by 6

percent from 2018 levels and NO_x needs to be reduced by 54 percent. Although emissions of NH₃ will increase by 2 percent over this timeframe, the Basin is still expected to meet the standard by 2030.

NO_x is the primary precursor that will have the most impact on reducing PM_{2.5} levels in the Basin between 2018 and 2030. Approximately 383 tons per day of Basin total NO_x emissions in 2018 need to be reduced to 176 tons per day by 2030. Continued implementation of adopted rules and regulations (i.e., baseline measures) are already projected to decrease emissions to 210 tons per day by the 2030 attainment year. Control measures included in this Plan are projected to reduce an additional 10 tons per day of NO_x by 2030 and recently adopted regulations not included in the baseline will further reduce NO_x emissions by 25 tons per day.

The 2022 AQMP and 2022 State SIP strategy were focused on reducing ozone levels, and its control measures therefore maximized NO_x emission reductions. ~~The se Plans~~ overall approach of these plans requires broad adoption of zero emission technologies across all emission sources when cost-effective and feasible, and low NO_x emission technologies where zero emission technologies are not yet feasible – all with a goal of achieving federal ozone standard by 2037. Selected 2022 AQMP and 2022 State SIP Strategy measures with potential NO_x emission reductions that can be achieved by 2030 are included in the PM_{2.5} Plan and directly-emitted PM_{2.5} co-benefits have been quantified.

The PM_{2.5} Plan also includes limited strategies to reduce directly-emitted PM_{2.5} and NH₃ emissions to assist with attainment and to fulfill CAA requirements. If only baseline measures are considered, directly-emitted PM_{2.5} emissions are projected to decrease from 56 tons per day in 2018 to 54 tons per day in 2030 while NH₃ emissions are projected to increase from 75 tons per day in 2018 to 79 tons per day in 2030. Recently adopted regulations not included in the baseline will reduce directly-emitted PM_{2.5} and NH₃ emissions by 0.83 tons per day and 2.96 tons per day, respectively, by 2030. Control measures proposed in this Plan seek to lower directly-emitted PM_{2.5} and NH₃ emissions by an additional 0.54 tons per day and 0.25 tons per day, respectively, by 2030.

In addition to implementing a control strategy for attainment, the PM_{2.5} Plan is required to satisfy U.S. EPA's requirements including Best Available Control Measures (BACM) and Most Stringent Measures (MSM). Demonstrating compliance with BACM and MSM requirements is independent of attainment and therefore some control measures are included which are not needed for attaining the standard. For details on the BACM and MSM requirements and analysis, refer to Appendix III.

South Coast AQMD Proposed Annual PM_{2.5} Strategy

South Coast AQMD's proposed annual PM_{2.5} attainment strategy consists of two parts: stationary source measures and mobile source measures. In this PM_{2.5} Plan, the South Coast AQMD is proposing a total of 38 control measures. Only one of these measures is new and not carried over from the 2022 AQMP or the 2016 AQMP. Out of the 38 proposed control measures, 23 measures target reductions from stationary sources and the remaining 15 measures target reductions from mobile sources.

South Coast AQMD Proposed Stationary Source Measures

A control measure is a set of specific technologies and methods identified for potential implementation to reduce emissions to attain an air quality standard. The proposed stationary source PM2.5 measures are designed to assist with attainment of the 2012 annual PM2.5 standard primarily through NOx emission reductions with concurrent NH3 and direct PM2.5 reductions. Co-benefits from GHG emission reduction policies and other measures are included as well.

Stationary source measures include Best Control Measures (BCM) that seek to reduce NOx emissions from residential and large industrial combustion sources, NH3 emissions from livestock waste and greenwaste disposal, and direct PM2.5 emissions from combustion and non-combustion sources. Some of the NOx measures pursue co-benefits from Energy and Climate Change Programs (ECC) measures and from other BCM measures. While all control measures seek to reduce emissions, not all measures have quantified reductions. The majority of stationary source measures are anticipated to be developed in the next several years and implemented in whole or in part prior to 2030.

Table 4-2 provides a list of the South Coast AQMD proposed PM2.5 measures for stationary sources along with anticipated emission reductions in 2030. The following sections provide a brief description of the proposed stationary source measures. Detailed descriptions of the measures are provided in Appendix IV-A.

TABLE 4-2
SOUTH COAST AQMD PROPOSED STATIONARY SOURCE MEASURES

Number	Title [Pollutant]	Previous Plan Measure Was Included	Emission Reductions (2030) (tons per day)
South Coast AQMD Stationary Source NOx Measures:			
BCM-01	Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Water Heating* [PM2.5, NOx]	2022 AQMP (R-CMB-01)	TBD
BCM-02	Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Space Heating* [PM2.5, NOx]	2022 AQMP (R-CMB-02)	TBD
BCM-03	Emission Reductions from Residential Cooking Devices [PM2.5, NOx]	2022 AQMP (R-CMB-03)	TBD
BCM-04	Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Other Combustion Sources [PM2.5, NOx]	2022 AQMP (R-CMB-04)	TBD

Number	Title [Pollutant]	Previous Plan Measure Was Included	Emission Reductions (2030) (tons per day)
BCM-05	Emission Reductions from Emergency Standby Engines [PM2.5, NOx]	2022 AQMP (L-CMB-04)	0.04 [PM2.5] 0.36 [NOx]
BCM-06	Emission Reductions from Diesel Electricity Generating Facilities [NOx]	2022 AQMP (L-CMB-06)	0.16
BCM-07	Emission Reductions from Incinerators [NOx]	2022 AQMP (L-CMB-09)	0.81
	Total Quantified PM2.5 and NOx Reductions		0.04 [PM2.5] 1.33 [NOx]
South Coast AQMD Co-Benefits from Energy and Climate Change Programs Measures:			
ECC-01	Co-benefits from Existing and Future Greenhouse Gas Programs, Policies, and Incentives [All Pollutants]	2022 AQMP (ECC-01)	TBD
ECC-02	Co-benefits from Existing and Future Residential and Commercial Building Energy Efficiency Measures [All Pollutants]	2022 AQMP (ECC-02)	TBD
ECC-03	Additional Enhancements in Reducing Existing Residential Building Energy Use [All Pollutants]	2022 AQMP (ECC-03)	TBD
South Coast AQMD NH3 Measures:			
BCM-08	Emission Reductions from Livestock Waste at Confined Animal Facilities* [NH3]	2016 AQMP (BCM-04)	0.27
BCM-09	Ammonia Emission Reductions from NOx Controls [NH3]	2016 AQMP (BCM-05)	TBD
BCM-10	Emission Reductions from Direct Land Application of Chipped and Ground Uncomposted Greenwaste* [NH3]	2016 AQMP (BCM-10)	0.08
BCM-11	Emission Reductions from Organic Waste Composting [NH3]	2016 AQMP (BCM-10)	TBD
	Total Quantified NH3 Reductions		0.35
South Coast AQMD Direct PM2.5 Measures:			
BCM-12	Further Emission Reductions from Commercial Cooking* [PM2.5]	2016 AQMP (BCM-01)	TBD

Number	Title [Pollutant]	Previous Plan Measure Was Included	Emission Reductions (2030) (tons per day)
BCM-13	Emission Reductions from Cooling Towers [PM _{2.5}]	2016 AQMP (BCM-02)	TBD
BCM-14	Further Emission Reductions from Paved Road Dust Sources [PM _{2.5}]	2016 AQMP (BCM-03)	TBD
BCM-15	Emission Reductions from Abrasive Blasting Operations [PM _{2.5}]	2016 AQMP (BCM-06)	TBD
BCM-16	Emission Reductions from Stone Grinding, Cutting and Polishing Operations [PM _{2.5}]	2016 AQMP (BCM-07)	TBD
BCM-17	Emission Reductions from Prescribed Burning for Wildfire Prevention [PM _{2.5}]	2022 AQMP (MCS-02)	TBD
BCM-18	Further Emission Reductions from Wood-Burning Fireplaces and Wood Stoves* [PM _{2.5}]	2016 AQMP (BCM-09)	TBD <u>0.33</u>
BCM-19	Emission Reductions from Unpaved Road Dust Sources [PM _{2.5}]	New	TBD
	Total Quantified Direct PM_{2.5} Reductions		TBD <u>0.33</u>
South Coast AQMD Other Measures:			
BCM-20	Application of All Feasible Measures [All Pollutants]	2022 AQMP (MCS-01)	TBD

* These measures are included to satisfy MSM requirements.

Note: TBD are reductions to be determined once the measure is further evaluated, the technical assessment is complete, and inventories and cost-effective control approaches are identified, and are not relied upon for attainment demonstration purposes.

South Coast AQMD Stationary Source NO_x Measures

There are seven NO_x measures as listed below:

- BCM-01: Emission Reductions from Replacement with Zero Emission or Low NO_x Appliances – Residential Water Heating
- BCM-02: Emission Reductions from Replacement with Zero Emission or Low NO_x Appliances – Residential Space Heating

- BCM-03: Emission Reductions from Residential Cooking Devices
- BCM-04: Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Other Combustion Sources
- BCM-05: Emission Reductions from Emergency Standby Engines
- BCM-06: Emission Reductions from Diesel Electricity Generating Facilities
- BCM-07: Emission Reductions from Incinerators

BCM-01: EMISSION REDUCTIONS FROM REPLACEMENT WITH ZERO EMISSION OR LOW NOX APPLIANCES – RESIDENTIAL WATER HEATING: This control measure, based on 2022 AQMP control measure R-CMB-01, seeks to reduce NOx emissions from residential building water heating sources that are subject to Rule 1121 – Control of Oxides of Nitrogen (NOx) from Residential Type, Natural Gas-Fired Water Heaters. The measure proposes to: (1) develop a rule to require zero emission water heating units for installations in both new and existing residences; and (2) allow low NOx technologies as a transitional alternative when installing a zero emission unit is determined to be infeasible (e.g., colder climate zones, or architecture design obstacles). This control measure would include incentive funds to facilitate the transition to zero emission technologies and promote further emission reductions earlier than required.

BCM-02: EMISSION REDUCTIONS FROM REPLACEMENT WITH ZERO EMISSION OR LOW NOX APPLIANCES – RESIDENTIAL SPACE HEATING: This control measure, based on 2022 AQMP control measure R-CMB-02, seeks to reduce NOx emissions from residential space heating sources regulated by Rule 1111 – Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces. The measure proposes to: (1) develop a rule to require zero emission space heating units for installations in both new and existing residences; and (2) allow low NOx technologies as a transitional alternative when installing a zero emission unit is determined to be infeasible. This control measure would also provide incentive funds to facilitate adoption of zero emission technologies that would promote further emission reductions earlier than required.

BCM-03: EMISSION REDUCTIONS FROM RESIDENTIAL COOKING DEVICES: This control measure, based on 2022 AQMP control measure R-CMB-03, seeks to reduce NOx emissions from residential cooking devices including stoves, ovens, griddles, broilers, and others in new and existing buildings. Replacing the existing gas burners with electric cooking devices, induction cooktops, or low NOx gas burner technologies will reduce NOx emissions. NOx reductions will be pursued through a combination of regulatory approaches and incentives, and/or efficiency standards. Proposed method of control consists of two steps. Step one includes a technology assessment of emissions testing of various cooking devices to establish emissions rates. Once emissions rates are defined, step two supports future rule development and incentive programs. The rule would apply to manufacturers, distributors, and installers establishing emission limits. The incentive programs would provide funds to encourage and promote adoption of zero and low NOx emission technologies.

BCM-04: EMISSION REDUCTIONS FROM REPLACEMENT WITH ZERO EMISSION OR LOW NOX APPLIANCES – RESIDENTIAL OTHER COMBUSTION SOURCES: This control measure, based on 2022 AQMP control measure R-CMB-04, seeks to reduce NOx emissions from residential combustion sources that are not water heating (See BCM-01), space heating (See BCM-02) and cooking equipment (See BCM-03). BCM-04 sources are miscellaneous, but primarily comprised of natural gas and liquified petroleum gas (LPG) fired swimming pool heaters, laundry dryers, and barbecue grills. The measure proposes to: (1) develop a rule to require zero emission technologies for some emission sources in both new and existing residences; and (2) allow low NOx technologies as an alternative for the rest of emission sources. Mitigation fees may be required for certain lower NOx technology applications which will be evaluated during the future rulemaking process. During the rulemaking, staff will assess the universe of equipment. Incentive funds will be considered to facilitate adoption of zero emission technologies that would promote further emission reductions earlier than required.

BCM-05: EMISSION REDUCTIONS FROM EMERGENCY STANDBY ENGINES: South Coast AQMD regulations require permits for stationary Internal Combustion Engines (ICEs) rated over 50 brake horsepower. The permits currently limit emergency standby ICE usage to less than 200 hours per year which includes a limit of 20 to 50 hours for maintenance and testing purposes. Rule 1470 requires the use of CARB diesel fuel for all diesel-fueled ICEs rated over 50 brake horsepower. This control measure, based on 2022 AQMP control measure L-CMB-04, seeks to maximize PM2.5 and NOx emission reductions by requiring the use of renewable diesel as a drop-in replacement for CARB diesel fuel for all emergency standby ICEs that are not equipped with Tier 4 Final controls.

BCM-06: EMISSION REDUCTIONS FROM DIESEL ELECTRICITY GENERATING FACILITIES: This control measure, based on 2022 AQMP control measure L-CMB-06, seeks to reduce NOx emissions from electric generating units regulated by Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities. This measure proposes to implement low NOx and zero emission technologies and to require the use of renewable diesel in engines used for backup power. The target of this approach is to replace existing diesel internal combustion engines with lower-emitting technologies and utilize renewable diesel for fueling the remaining diesel engines used for backup power.

BCM-07: EMISSION REDUCTIONS FROM INCINERATORS: This control measure, based on 2022 AQMP control measure L-CMB-09, seeks emission reductions of NOx by replacement or retrofits with low NOx emission technologies on incinerators and other combustion equipment associated with incinerators and better control of NH3 injection used to control NOx. The South Coast AQMD has adopted a series of rules to promote clean, lower emission technologies, while encouraging economic growth and providing compliance flexibility. Burner technologies and combustion controls are utilized to reduce NOx emissions. The target of this approach is to reduce ammonia emissions by utilizing a closed loop feed-forward control system and reduce NOx emissions with improved burner technologies.

South Coast AQMD Co-Benefits from Energy and Climate Change Programs Measures

There are three energy and climate change programs co-benefit measures as listed below:

- ECC-01: Co-Benefits from Existing and Future Greenhouse Gas Programs, Policies, and Incentives
- ECC-02: Co-Benefits from Existing and Future Residential and Commercial Building Energy Efficiency Measures
- ECC-03: Additional Enhancements in Reducing Existing Residential Building Energy Use

ECC-01: CO-BENEFITS FROM EXISTING AND FUTURE GREENHOUSE GAS PROGRAMS, POLICIES, AND INCENTIVES: This control measure, based on 2022 AQMP control measure ECC-01, seeks to quantify and take credit for the criteria pollutant co-benefits associated with programs to reduce GHG emissions. The processes that emit criteria pollutants and their precursors also typically emit GHGs. Mandates and programs that reduce GHG emissions will therefore also reduce criteria pollutant emissions. Significant efforts are currently being planned and implemented to reduce GHG emissions under State programs such as California Governor Executive Order B-55-18 and SB 100 (California Renewables Portfolio Standard Program: Emissions of Greenhouse Gases), which established reduction goals for 2030, 2045, and 2050.

ECC-02: CO-BENEFITS FROM EXISTING AND FUTURE RESIDENTIAL AND COMMERCIAL BUILDING ENERGY EFFICIENCY MEASURES: This control measure, based on 2022 AQMP control measure ECC-02, seeks to quantify and take credit for criteria pollutant co-benefits resulting from the implementation of energy efficiency mandates such as California's Title 24 program. In addition, there are multiple programs that provide incentives, rebates, and loans for residential and commercial building efficiency projects. Improvements in weatherization and other efficiency measures provide emission reductions through reduced energy use for heating, cooling, lighting, cooking, and other needs. South Coast AQMD staff will work with agencies, utilities, and other stakeholders to implement innovative measures that provide energy savings along with emission reductions.

ECC-03: ADDITIONAL ENHANCEMENTS IN REDUCING EXISTING RESIDENTIAL BUILDING ENERGY USE: This control measure, based on 2022 AQMP control measure ECC-03, seeks to provide incentive funding to enhance the objectives of ECC-02. Incentives will be used to further promote programs reducing energy use associated with space heating, water heating, and other large residential energy sources, achieving emission reductions beyond the levels expected from program mandates. Residential incentive programs would be developed to facilitate weatherization, replace older appliances with highly efficient technologies and encourage renewable energy adoption. Incorporating efficient appliance technologies, improving weatherization, and encouraging renewables such as solar thermal and photovoltaics will reduce energy demand and provide additional emission reductions within the residential sector. The South Coast AQMD will collaborate with utilities, agencies, and organizations to help leverage funding and coordinate incentives with existing programs.

South Coast AQMD Stationary Source NH₃ Measures

There are four NH₃ measures as listed below:

- BCM-08: Emission Reductions from Livestock Waste at Confined Animal Facilities
- BCM-09: Ammonia Emission Reductions from NO_x Controls
- BCM-10: Emission Reductions from Direct Land Application of Chipped and Ground Uncomposted Greenwaste
- BCM-11: Emission Reductions from Organic Waste Composting

BCM-08: EMISSION REDUCTIONS FROM LIVESTOCK WASTE AT CONFINED ANIMAL FACILITIES: This control measure seeks to reduce NH₃ emissions from livestock waste at large Confined Animal Facilities (CAFs). The first approach aims to lower the applicability thresholds in South Coast AQMD Rule 223 to align with the more stringent thresholds in San Joaquin Valley Air Pollution Control District (SJVAPCD) Rule 4570 – Confined Animal Facilities. The second approach aims to introduce additional mitigation measures to reduce ammonia emissions at CAFs.

BCM-09: AMMONIA EMISSION REDUCTIONS FROM NO_x CONTROLS: This control measure seeks to reduce NH₃ emissions from NO_x controls such as Selective Catalytic Reduction (SCR) and Selective Non-Catalytic Reduction (SNCR). These systems are capable of effectively reducing NO_x emissions from combustion sources. However, their use also results in potential emissions of NH₃ that “slip” past the control equipment and into the atmosphere. Upgraded SCRs can be tuned/optimized by improving the Ammonia Injection Grid (AIG) to achieve the required NO_x limits and simultaneously reduce the NH₃ slip.

BCM-10: EMISSION REDUCTIONS FROM DIRECT LAND APPLICATION OF CHIPPED AND GROUND UNCOMPOSTED GREENWASTE: This control measure seeks reductions in NH₃ emissions from direct land application (DLA) of chipped and ground uncomposted greenwaste to agricultural land, public land for erosion control or roadway management, and consumers’ properties for gardening or landscaping purposes. This control measure proposes to require composting of chipped and ground greenwaste, in accordance with the Best Management Practices (BMP) requirements of Rule 1133.3, prior to DLA.

BCM-11: EMISSION REDUCTIONS FROM ORGANIC WASTE COMPOSTING: This control measure seeks emission reductions of NH₃ from the processing of organic waste materials including foodwaste, greenwaste, and agricultural waste. Control approaches include foodwaste co-digestion and integration of anaerobic digestion (AD) with composting. If foodwaste is the only feedstock input to AD, the resulting digestate could be included into greenwaste composting where emission control is governed by Rule 1133.3. This control measure proposes to expand the applicability of Rules 1133.2 and 1133.3 to regulate the co-digestion of foodwaste with biosolids and the integration of foodwaste digestate with greenwaste composting for further emission reductions. An integrated AD-composting system will result in less overall waste and a more useful product.

South Coast AQMD Stationary Source Direct PM_{2.5} Measures

There are eight direct PM_{2.5} measures as listed below:

- BCM-12: Further Emission Reductions from Commercial Cooking
- BCM-13: Emission Reductions from Cooling Towers
- BCM-14: Further Emission Reductions from Paved Road Dust Sources
- BCM-15: Emission Reductions from Abrasive Blasting Operations
- BCM-16: Emission Reductions from Stone Grinding, Cutting and Polishing Operations
- BCM-17: Emission Reductions from Prescribed Burning for Wildfire Prevention
- BCM-18: Further Emission Reductions from Wood-Burning Fireplaces and Wood Stoves
- BCM-19: Emission Reductions from Unpaved Road Dust Sources

BCM-12: FURTHER EMISSION REDUCTIONS FROM COMMERCIAL COOKING: This control measure seeks emission reductions from commercial cooking by lowering the applicability threshold for chain-driven charbroilers in Rule 1138. Other actions may be pursued such as revising the emissions inventory for charbroilers and evaluating the feasibility of under-fired control technology. The current emissions inventory for this category is based on a restaurant survey conducted in 1998, indicating the need for an update. A charbroiler registration program and/or survey may be considered to assist with revising the inventory. Additionally, projects to develop economically viable under-fired charbroiler control technology and pilot studies to test the efficacy of such control technologies will be considered.

BCM-13: EMISSION REDUCTIONS FROM INDUSTRIAL COOLING TOWERS: This control measure seeks reductions of PM emissions from industrial process cooling towers with drift eliminator technologies used for a variety of industrial operations including power plants, petroleum refineries, petrochemical plants, and natural gas processing plants. Prior to developing a policy to implement controls, an emissions inventory and an equipment universe must be established. Registration submittals collected through Rule 222 – Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II, may be used as a starting point to develop an equipment universe.

BCM-14: FURTHER EMISSION REDUCTIONS FROM PAVED ROAD DUST SOURCES: Existing South Coast AQMD regulations implement paved road dust controls based on U.S. EPA guidance through both preventative and mitigative controls such as street sweeping. Mandating increased street sweeping frequencies has unknown impacts on PM_{2.5} levels and studies that examine the effect of street sweeping on ambient PM_{2.5} levels are scarce. A pilot project along with a comprehensive atmospheric measurement campaign would be needed to assess the effectiveness of street sweeping as a method to reduce ambient PM_{2.5}.

BCM-15: EMISSION REDUCTIONS FROM ABRASIVE BLASTING OPERATIONS: This control measure seeks to reduce PM_{2.5} emissions from abrasive blasting operations. This control measure proposes voluntary applications of a portable blasting enclosure/booth with a dust collection system by providing incentives, primarily focusing on dry abrasive blasting operations conducted in open areas using portable blasting equipment with or without a South Coast AQMD permit.

BCM-16: EMISSION REDUCTIONS FROM STONE GRINDING, CUTTING AND POLISHING OPERATIONS: South Coast AQMD Rule 401 – Visible Emissions, prohibits from discharging of air contaminant that exceeds Ringelmann Chart No. 1 (equivalent to a 20 percent opacity) and Rule 403 – Fugitive Dust, prohibits fugitive dust emissions from any onsite mechanical activities such as cutting from being visible beyond the property line of the emission source. Various control measures to reduce the fugitive emissions are required as well. Rule 403 also prohibits the dust emissions from exceeding a 20 percent opacity limit, if dust emissions are the result of movement of a motorized vehicle. This control measure seeks to reduce PM emissions from stone grinding, cutting and polishing operations which are not regulated in Rule 401 or Rule 403. Moreover, Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II, does not require permits for machining equipment exclusively used for polishing, cutting, surface grinding, etc. Both dry and wet dust control options are available to reduce dust emissions from such operations. Wet systems involve spraying water onto the rotating cutting disc to reduce dust emissions. Dry cutting emissions can be controlled at the point of operation using a portable dust collector, air scrubber and negative air machine to prevent dust from being released into the atmosphere. Financial incentives will be considered to exchange existing dry/wet equipment with new equipment that includes integrated add-on controls.

BCM-17: EMISSION REDUCTIONS FROM PRESCRIBED BURNING FOR WILDFIRE PREVENTION: This control measure, based on 2022 AQMP control measure MCS-02, seeks particulate matter emission reductions and property defensible space enhancements from fuel reduction efforts via hand-thinning, mechanical thinning, and the use of chipping equipment (chipping) to mitigate excess fuels at properties located in the residential urban-wild-interface (UWI) areas of the San Bernardino National Forest (SBNF). The proposed method of control is to coordinate with other agencies to provide funding for chipping operations for the remaining untreated area in the Mountain Rim Fire Safe Council's UWI. With the chipping program in place, homeowners in the UWI are much more compliant and engaged with assisting with fuel load reduction by trimming and removing excess hazardous vegetation, such as dead trees and leaf litter, for chipping than without the program.

BCM-18: FURTHER EMISSION REDUCTIONS FROM WOOD-BURNING FIREPLACES AND WOOD STOVES: This control measure seeks additional emission reductions from residential wood burning activities. Staff analysis determined that the wood burning curtailment program in Rule 445 is potentially less stringent compared to similar programs in other districts. In order to satisfy U.S. EPA's stringency requirements, this control measure proposes to lower the curtailment threshold from 29 µg/m³ to 25 µg/m³ retain the sole source of heat exemption and remove the low-income exemption in Rule 445. South Coast AQMD may also consider lowering the Basin-wide curtailment threshold if future analyses demonstrate that this would be needed to maintain the stringency of Rule 445. The sole source of heat exemption in Rule 445 would be retained.

BCM-19: EMISSION REDUCTIONS FROM UNPAVED ROAD DUST SOURCES: This control measure seeks to evaluate the potential to reduce PM_{2.5} emissions from well-traveled unpaved lots, roads, shoulders, and other surfaces by applying paving materials. There are approximately 1,900 miles of unpaved roads in the Basin. However, not all of these roads are well-traveled or highly used and therefore, the suitability for paving will be determined on a case-by-case basis. Vehicle miles traveled, proximity to AB 617 communities, whether the road exists in natural or protected lands, and the effects of paving on climate-related drought conditions and heatwaves will be taken into account in determining the suitability for paving.

South Coast AQMD Stationary Source Other Measures

There is one proposed measure in this category, BCM-20: Application of All Feasible Measures.

BCM-20: APPLICATION OF ALL FEASIBLE MEASURES: This control measure, based on 2022 AQMP control measure MCS-01, seeks to explore all feasible measures that achieve criteria pollutant reductions. Existing rules and regulations reflect current Best Available Retrofit Control Technology (BARCT). However, BARCT continually evolves as new technology becomes available that is feasible and cost-effective. South Coast AQMD staff would continue to review new emission limits or controls introduced through federal, State or local regulations to determine if South Coast AQMD regulations remain equivalent or more stringent than rules in other regions. If not, a rulemaking process will be initiated to perform a BARCT analysis and potential rule amendments if deemed feasible. In addition, the South Coast AQMD will consider adopting and implementing new retrofit technology control standards, based on research and development and other information, that are feasible and cost-effective.

South Coast AQMD Proposed Mobile Source Measures

While the bulk of the authority to regulate mobile sources rests with CARB and the federal government, the South Coast AQMD also has a role in achieving emission reductions from these sources. The proposed South Coast AQMD mobile source measures are based on a variety of control technologies that are commercially available and/or technologically feasible to implement prior to the attainment year of 2030. The focus of these measures includes accelerated retrofits or replacement of existing vehicles or equipment, acceleration of vehicle turnover through voluntary vehicle retirement programs, and greater use of cleaner fuels in the near-term. The measures will encourage greater deployment of low NO_x and zero emission vehicle and equipment technologies such as plug-in hybrids, battery-electric, and fuel cells to the maximum extent feasible as such technologies are commercialized and become available.

The South Coast AQMD proposes a total of 15 mobile source measures which are categorized into five groups – emission growth management, facility-based mobile sources, on-road and off-road, incentives, and other (see Table 4-3). Two emission growth management measures (EGM-01 and EGM-02) are proposed to identify actions to help mitigate and potentially provide emission reductions due to new development and redevelopment projects. Four facility-based mobile source measures (FBMSMs) (MOB-01 to MOB-04) seek to identify actions that will result in additional emission reductions at commercial

marine ports, rail yards, warehouse distribution centers, and commercial airports. FBMSMs for marine ports and rail yards are currently undergoing a process to develop Indirect Source Rules. Six on-road and off-road mobile measures focus on on-road light/medium/heavy-duty vehicles, international shipping vessels, passenger locomotives and small off-road engines. Additionally, incentive-based measures such as MOB-11 will use established protocols such as Carl Moyer Program guidelines and report to the Governing Board periodically. MOB-12, Pacific Rim Initiative for Maritime Emission Reductions (PRIMER) seeks NOx emission reductions from partnership with local, State, federal and international entities. One other measure (MOB-13) focuses on fleet vehicle mitigation options and the development of a work plan to support and accelerate the deployment of zero emission infrastructure needed for the widespread adoption of zero emission vehicles and equipment that is described in more detail in Appendix IV-A.

TABLE 4-3
SOUTH COAST AQMD PROPOSED MOBILE SOURCE MEASURES

Number	Title [Pollutant]	Previous Plan Measure Was Included	Emission Reductions by 2030 (tons per day)
South Coast AQMD Emission Growth Management Measures:			
EGM-01	Emission Reductions from New Development and Redevelopment [All Pollutants]	2022 AQMP (EGM-01)	TBD
EGM-02	Emission Reductions from Clean Construction Policy [All Pollutants]	2022 AQMP (EGM-03)	TBD
South Coast AQMD Facility-Based Measures:			
MOB-01	Emission Reductions at Commercial Marine Ports [NOx, PM]	2022 AQMP (MOB-01)	TBD
MOB-02	Emission Reductions at New and Existing Rail Yards [NOx, PM]	2022 AQMP (MOB-02A & B)	TBD
MOB-03	Emission Reductions at Warehouse Distribution Centers [NOx, PM2.5]	2022 AQMP (MOB-03)	TBD
MOB-04	Emission Reductions at Commercial Airports	2022 AQMP (MOB-04)	TBD
South Coast AQMD On-Road and Off-Road Measures:			
MOB-05	Accelerated Retirement of Light-Duty and Medium-Duty Vehicles [NOx, PM]	2022 AQMP (MOB-05)	TBD
MOB-06	Accelerated Retirement of On-Road Heavy-Duty Vehicles [NOx, PM]	2022 AQMP (MOB-06)	TBD

Number	Title [Pollutant]	Previous Plan Measure Was Included	Emission Reductions by 2030 (tons per day)
MOB-07	On-Road Mobile Source Emission Reduction Credit Generation Program [NOx, PM]	2022 AQMP (MOB-07)	TBD
MOB-08	Small Off-Road Engine Equipment Exchange Program [VOCs, NOx, PM]	2022 AQMP (MOB-08)	TBD
MOB-09	Further Emission Reductions from Passenger Locomotives [NOx, PM]	2022 AQMP (MOB-09)	TBD
MOB-10	Off-Road Mobile Source Emission Reduction Credit Generation Program [NOx, PM]	2022 AQMP (MOB-10)	TBD
South Coast AQMD Incentive-Based Measures:			
MOB-11	Emission Reductions from Incentive Programs [NOx, PM]	2022 AQMP (MOB-11)	TBD
MOB-12	Pacific Rim Initiative for Maritime Emission Reductions [NOx, PM]	2022 AQMP (MOB-12)	TBD
South Coast AQMD Other Mobile Source Measures:			
MOB-13	Rule 2202 – On-Road Motor Vehicle Mitigation Options [NOx, PM2.5]	2022 AQMP (MOB-14)	TBD

South Coast AQMD Mobile Source Emission Growth Management Measures

There are two proposed control measures within this category:

- EGM-01: Emission Growth Management from New Development and Redevelopment
- EGM-02: Emission Reductions from Clean Construction Policy

EGM-01: EMISSION GROWTH MANAGEMENT FROM NEW DEVELOPMENT AND REDEVELOPMENT: The goal of this measure is to identify emission reduction opportunities and to mitigate and, where appropriate, reduce emissions from new development or redevelopment projects such as residential, commercial, and industrial projects that are otherwise not included in other FBMSMs identified in the 2022 AQMP. This proposed control measure, based on 2022 AQMP control measure EGM-01, seeks PM2.5 co-benefit emission reductions primarily from project construction activities by increasing the deployment of zero emission and low NOx emission technologies for on-road and off-road mobile sources. South Coast AQMD staff has held three Working Group meetings for the development of EGM-01. South

Coast AQMD staff will continue soliciting stakeholders' input towards the development of a method of control for EGM-01. Emission reductions and their SIP creditability will be determined dependent on the final method of control to be implemented.

EGM-02: EMISSION REDUCTIONS FROM CLEAN CONSTRUCTION POLICY: The purpose of this control measure is to identify potential approaches to mitigate and control emissions from construction activities in the South Coast Air Basin. This control measure, based on 2022 AQMP control measure EGM-03, will seek to develop a Clean Construction Policy (CCP) which can be utilized for reference and voluntary implementation by local municipalities and public agencies. The South Coast AQMD will work in collaboration with local municipalities, construction industry, and other affected stakeholders to develop such a policy and will consider existing control measures and best management practices that are currently being implemented by entities throughout California.

South Coast AQMD Facility-Based Measures

FBMSMs are derived from the 2022 AQMP and are included in the PM2.5 Plan for the purpose of evaluating whether their implementation can be accelerated. FBMSMs are aimed at reducing the emissions from indirect sources – facilities that do not emit much air pollution directly, but instead attract mobile sources which contribute significant emissions. There are four proposed control measures within this category:

- MOB-01: Emission Reductions at Commercial Marine Ports
- MOB-02: Emission Reductions at New and Existing Rail Yards
- MOB-03: Emission Reductions at Warehouse Distribution Centers
- MOB-04: Emission Reductions at Commercial Airports

MOB-01: EMISSION REDUCTIONS AT COMMERCIAL MARINE PORTS: This measure seeks to reduce NO_x, VOC, and PM emissions related to on-road heavy-duty vehicles, ocean going vessels, cargo handling equipment, locomotives, and harbor craft that go to and from the Ports of Los Angeles and Long Beach (Ports). As a follow up to implementation of MOB-01 from the 2016 AQMP, the South Coast AQMD is working on a variety of measures, including Proposed Rule 2304, to address emissions from marine ports. Through a public process, rule concepts and other measures will be proposed to address emissions from these sources. Rule development will continue to focus on deploying the cleanest technologies possible and supporting zero emissions fueling charging infrastructure as quickly as feasible. Incentive funding that supports the transition to cleaner technologies will also continue to be pursued to assist in implementing this measure.

MOB-02: EMISSION REDUCTIONS AT NEW AND EXISTING RAIL YARDS: This measure seeks to reduce NO_x and PM emissions related to on-road heavy-duty vehicles, off-road equipment, and locomotives at new and existing rail yards. Through a public process, the South Coast AQMD will assess and identify potential

actions that could result in further emission reductions at new facilities. This measure may include voluntary measures as well as additional actions which could include development of a rule as well as pursuit of incentive funding that can achieve and/or facilitate additional emission reductions. Emission reductions may also be achieved if new regulations are developed and implemented at the state or federal level.

MOB-03: EMISSION REDUCTIONS AT WAREHOUSE DISTRIBUTION CENTERS: The goal of this measure to reduce NO_x and PM emissions related to mobile sources and other equipment associated with warehouses. The strategy utilizes a menu-based point system in Rule 2305 (adopted in May 2021) to implement MOB-03 from the 2016 AQMP, where warehouses subject to the rule must annually earn points based on the amount of truck traffic at their facility. The menu includes actions that warehouse operators can take to reduce emissions, or to facilitate emission reductions from their operations. Required actions result in emission reductions when compared to conventional diesel technology, assist in implementation of other related measures, promote the demand for zero emission and low NO_x technology, foster early action of compliance, and infrastructure installation to support new or emerging zero emission technologies. Implementation of this measure will include ensuring that applicable warehouses comply with Rule 2305, quantifying the air quality benefits of Rule 2305 as they occur and seeking to incorporate those benefits as SIP-creditable emission reductions, evaluating the state of technology every five years and recommending if Rule 2305 should potentially be amended.

MOB-04: EMISSION REDUCTIONS AT COMMERCIAL AIRPORTS: The Facility-Based Mobile Source Measure for Commercial Airports, which controls non-aircraft mobile sources at commercial airports, was adopted by the South Coast AQMD on December 6, 2019. The measure consists of Memoranda of Understanding (MOUs) between the South Coast AQMD and five commercial airports in the Basin to develop and implement air quality improvement plans. The MOUs were executed with Los Angeles International Airport, John Wayne Orange County Airport, Hollywood Burbank Airport, Ontario International Airport, and Long Beach Airport. Each MOU contains performance targets for cleaner ground support equipment, airport shuttle buses, and heavy-duty trucks. Based on the measures in the MOUs, the South Coast AQMD committed to achieve 0.52 and 0.37 tons per day NO_x reductions in 2023 and 2031, respectively. Implementation of this measure will include ensuring that applicable airports comply with the performance targets in the MOUs. South Coast AQMD will encourage airports to accelerate implementation of the MOU measures ahead of 2031 so that emission reductions in 2030 can be quantified.

South Coast AQMD On-Road and Off-Road Measures

A total of six on-road and off-road mobile source measures derived from the 2022 AQMP are proposed to be included in the PM_{2.5} Plan as listed below.

- MOB-05: Accelerated Retirement of Light-Duty and Medium-Duty Vehicles
- MOB-06: Accelerated Retirement of On-Road Heavy-Duty Vehicles
- MOB-07: On-Road Mobile Source Emission Reduction Credit Generation Program
- MOB-08: Small Off-Road Engine Equipment Exchange Program
- MOB-09: Further Emission Reductions from Passenger Locomotives
- MOB-10: Off-Road Mobile Source Emission Reduction Credit Generation Program

MOB-05: ACCELERATED RETIREMENT OF LIGHT-DUTY AND MEDIUM-DUTY VEHICLES: The purpose of this control measure is to achieve emission reductions by accelerating retirement of older gasoline- and diesel-powered vehicles with up to 8,500 lbs. gross vehicle weight rating (GVWR). These vehicles include passenger cars, sports utility vehicles, vans, and light-duty pick-up trucks. The South Coast AQMD has been implementing the Replace Your Ride (RYR) Program since 2015 which provides a rebate to low- and moderate-income applicants for replacing their existing cars with newer, cleaner conventionally powered vehicles, plug-in hybrid electric vehicles or dedicated zero emission vehicles. This measure seeks to retire up to 2,000 light- and medium-duty vehicles annually through continued implementation of the RYR Program with incentives up to \$12,000 for residents in a Disadvantaged Community (DAC) zip code. For plug-in hybrid and battery electric vehicles, an additional incentive of up to \$2,000 is also provided for the installation of electric vehicle charging equipment.

MOB-06: ACCELERATED RETIREMENT OF ON-ROAD HEAVY-DUTY VEHICLES: This proposed control measure seeks additional emission reductions from existing heavy-duty vehicles with GVWR greater than 8,500 lbs through an accelerated vehicle replacement program with zero or low NO_x emission vehicles. One of the options being considered is a plus-up program to leverage existing incentive programs such as Carl Moyer and Prop 1B or other grant funding opportunities by providing supplemental funding to help truck owners and fleets with the purchase of cleaner engine vehicles, including zero emission trucks. This type of program would be especially helpful for individual operators and owners with limited financial resources to purchase or lease zero emission trucks which are still relatively costly compared to conventional vehicles.

MOB-07: ON-ROAD MOBILE SOURCE EMISSION REDUCTION CREDIT GENERATION PROGRAM: This proposed measure seeks to develop mechanisms to incentivize the early deployment of low NO_x and zero emission on-road heavy-duty trucks through the generation of mobile source emission reduction credits (MSERCs) which can be used as an alternative means of compliance with certain South Coast AQMD

regulations. These MSERCs will be used only by entities affected by the 2022 AQMP control measures MOB-01 through MOB-04, EGM-01, and EGM-03. South Coast AQMD staff will develop amendments to South Coast AQMD Rules 1612 and/or 1612.1 to provide greater flexibility, such as expanding the eligibility of vehicle types and projects as well as providing more flexibility in the application and use of MSERCs, for accelerated deployment of low NOx and zero emission heavy-duty vehicles in the Basin and Coachella Valley.

MOB-08: SMALL OFF-ROAD ENGINE EQUIPMENT EXCHANGE PROGRAM: This measure seeks to reduce NOx emissions by promoting the accelerated turn-over of in-use small off-road engines and other engines, such as those used in larger diesel-powered lawn and garden equipment, through expanded voluntary exchange programs. Since 2003, the South Coast AQMD has sponsored a lawn mower exchange programs for residential users of old lawn mowers which is now known as the Electric Lawn Mower Rebate Program. Since its inception, this program has replaced approximately 59,000 high polluting gasoline-powered lawn mowers with electric lawn mowers. The South Coast AQMD also launched the Commercial Electric Lawn and Garden Equipment Incentive and Exchange Program (Commercial L&G Equipment Program) in 2018 to accelerate the replacement of old gasoline- or diesel-powered commercial lawn and garden equipment with zero emission, battery electric technology. This program provides a point-of-sale discount of up to 75 percent off the purchase price of a variety of new electric equipment including lawn mowers (ride-on, stand-on and walk-behind mowers), handheld trimmers, chainsaws, and pruners in addition to backpack and handheld leaf blowers. More recently, the South Coast AQMD has also started a new battery rebate program for commercial lawn and garden equipment that funds up to 75 percent of the rechargeable battery cost with a maximum limit of three batteries per equipment. Moving forward, the South Coast AQMD will increase the number of outreach and exchange events as well as continue to seek additional funding opportunities and resources to expand the scope and types of equipment and engines that can be funded by these programs.

MOB-09: FURTHER EMISSION REDUCTIONS FROM PASSENGER LOCOMOTIVES: This measure seeks to promote earlier and cleaner replacement or upgrade of existing passenger locomotives with Tier 4 or cleaner locomotives. The South Coast AQMD is continuing to work collaboratively with other stakeholders to explore the feasibility of zero and low NOx emission locomotive technologies such as battery electric or fuel cell engine-driven systems. For example, the South Coast AQMD has been actively participating in the development and demonstration of zero emission battery-operated switcher locomotives in CARB-funded projects in the San Pedro Bay Ports since 2018. Through this measure, the South Coast AQMD will continue to not only promote earlier replacement or upgrade of existing passenger trains with Tier 4 locomotives, but also support the development and adoption of zero or low NOx emission technologies.

MOB-10: OFF-ROAD MOBILE SOURCE EMISSION REDUCTION CREDIT GENERATION PROGRAM: This measure seeks to develop mechanisms to incentivize the early deployment of Tier 4, low NOx, and zero off-road mobile combustion equipment, where applicable, through the generation of MSERCs. These MSERCs will be used only by entities affected by the 2022 AQMP control measures MOB-01 through MOB-04, EGM-01, and EGM-02; and cannot be used to offset emissions from stationary sources. These MSERCs will be discounted to provide additional emission reductions to help meet air quality standards. South

Coast AQMD staff seeks to amend Rule 1620 to provide greater flexibility for entities to initiate projects to accelerate the deployment of zero and low NOx emission off-road mobile equipment in the South Coast Air Basin and Coachella Valley.

South Coast AQMD Incentive-Based Measures

Two incentive-based mobile source measures are also included:

- MOB-11: Emission Reductions from Incentive Programs
- MOB-12: Pacific Rim Initiative for Maritime Emission Reductions

MOB-11: EMISSION REDUCTIONS FROM INCENTIVE PROGRAMS: This control measure seeks to apply the administrative mechanism, as initially proposed in the 2016 AQMP and revisited in the 2022 AQMP, to quantify and take credit for the emission reductions achieved through the implementation of South Coast AQMD-administered incentive programs for SIP purposes. The South Coast AQMD has been implementing a variety of incentive programs including, but not limited to, Carl Moyer Memorial Air Quality Standards Attainment Program, Proposition 1B, Lower Emission School Bus, Community Air Protection Program, and Volkswagen Environmental Mitigation Trust. Examples of projects funded by these programs include heavy-duty vehicle/equipment replacements, installation of retrofit units, and engine repowers. The emission reductions from these incentive programs will be calculated in two parts. First, the actual emission reductions associated with existing projects that were funded by 2021 with the remaining project life through 2030 are quantified. Second, potential reductions that are projected from the implementation of future projects to be funded through these incentive programs are quantified. These reductions will be estimated based on the projected level of funding for the programs and average emission reductions achieved by past projects, discounted by control factors for future years.

MOB-12: PACIFIC RIM INITIATIVE FOR MARITIME EMISSION REDUCTIONS: This measure, initially developed in the 2022 AQMP, seeks to reduce emissions from OGV through an incentive-based program to encourage the deployment of cleaner OGV to the Ports. This approach includes collaborating with international port authorities and shipping lines to establish common goals to reduce criteria pollutants from OGV. Incentives could be monetary (e.g., a per-visit payment for cleaner ships) or non-monetary (e.g., preferred berthing for cleaner ships). The cleanest commercially available OGV currently meet Tier III emission standards, however this class of vessels is not expected to be widely deployed for many years, in part due to the high cost of constructing new vessels and the difficulty in retrofitting existing vessels to Tier III standards. This measure would quicken the return on investment for these cleaner vessels by ensuring that shipping lines receive a benefit for every clean ship visit to a port with an incentive program. Clean ships could include Tier III vessels, retrofitted vessels that surpass Tier II standards, and eventually zero emissions shipping when it becomes available.

South Coast AQMD Other Mobile Source Measures

There is one proposed other mobile source measure, MOB-13: Rule 2202 – On-Road Motor Vehicle Mitigation Options, which is based on 2022 AQMP control measure MOB-14.

MOB-13: RULE 2202 – ON-ROAD MOTOR VEHICLE MITIGATION OPTIONS: This control measure proposes to reduce emissions by evaluating potential amendments to Rule 2202. Rule 2202 has been developed to reduce emissions associated with work commute trips. Specifically, larger employers in the region with more than 250 employees are required to mitigate employee commute trips into the worksite. Rule 2202 provides employers with a menu of options to select from to implement a combination of emission reduction strategies to meet an emission reduction target (ERT) for their worksite. During the Coronavirus (COVID-19) pandemic in 2020 and 2021, many Rule 2202 regulated employers (where applicable) incorporated widespread telecommuting practices which further reduced emissions by reducing commute trips into the worksite. Based on conditions observed and reported during the time-period, Rule 2202 was amended on August 4, 2023. The amended Rule 2202 includes two phases. The first phase (adopted August 4, 2023) focused on data collection and reporting that will be used to inform a potential second phase of rulemaking. Specifically, the first phase requires new limited reporting for all regulated worksites, including the reporting of telecommute activity, VMT data, and business type/classification for all worksites. The second phase will consider using VMT as an option to evaluate travel patterns, re-assess rule targets, explore multiple compliance options for zero emission vehicles and infrastructure, evaluate options to continue the use of credit, and consider modifying rideshare options. The new option will include placing a larger focus on telecommuting strategies.

Summary of South Coast AQMD Control Strategy

The PM2.5 Plan primarily requires NO_x emission reductions to meet the 2012 annual PM2.5 standard. The pathway to achieving the standard involves accelerated implementation of the 2022 AQMP and 2022 State SIP Strategy, with a limited control strategy for NH₃ and direct PM2.5 sources.

The control strategies in the PM2.5 Plan include both regulations and incentive programs. The control strategy is described in greater detail in Appendix IV-A. Tables 4-4 and 4-5 list emission reductions by 2030 and proposed adoption/implementation dates of the stationary source control measures and mobile source control measures, respectively. South Coast AQMD will develop, adopt, submit, and implement the control measures in Tables 4-4 and 4-5 as expeditiously as possible in order to meet or exceed the commitments needed to attain the 2012 annual PM2.5 standard, and to substitute any other measures as necessary to make up any emission reduction shortfall.

**TABLE 4-4
EMISSION REDUCTIONS AND ADOPTION AND IMPLEMENTATION SCHEDULE OF STATIONARY
SOURCE CONTROL MEASURES**

Number	Title [Pollutant]	Emission Reductions by 2030 (tons per day)	Proposed Adoption Date	Proposed Implementation Timeframe
South Coast AQMD NOx Measures:				
BCM-01	Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Water Heating [PM2.5, NOx]	TBD	2024	2029
BCM-02	Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Space Heating [PM2.5, NOx]	TBD	2024	2029
BCM-03	Emission Reductions from Residential Cooking Devices [PM2.5, NOx]	TBD	2027	2029
BCM-04	Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Other Combustion Sources [PM2.5, NOx]	TBD	2027	2029
BCM-05	Emission Reductions from Emergency Standby Engines [PM2.5, NOx]	0.04 [PM2.5] 0.36 [NOx]	2025	2030
BCM-06	Emission Reductions from Diesel Electricity Generating Facilities [NOx]	0.16	2027	2030
BCM-07	Emission Reductions from Incinerators [NOx]	0.81	2024	2029
South Coast AQMD Co-Benefits from Energy and Climate Change Programs Measures:				
ECC-01	Co-benefits from Existing and Future Greenhouse Gas Programs, Policies, and Incentives [PM2.5, NOx]	TBD	N/A	N/A
ECC-02	Co-benefits from Existing and Future Residential and Commercial Building Energy Efficiency Measures [PM2.5, NOx]	TBD	N/A	N/A

Number	Title [Pollutant]	Emission Reductions by 2030 (tons per day)	Proposed Adoption Date	Proposed Implementation Timeframe
ECC-03	Additional Enhancements in Reducing Existing Residential Building Energy Use [PM2.5, NOx]	TBD	N/A	N/A
South Coast AQMD NH3 Measures:				
BCM-08	Emission Reductions from Livestock Waste at Confined Animal Facilities* [NH3]	TBD <u>0.27</u>	2025	2030
BCM-09	Ammonia Emission Reductions from NOx Controls [NH3]	TBD	N/A	N/A
BCM-10	Emission Reductions from Direct Land Application of Chipped and Ground Uncomposted Greenwaste* [NH3]	TBD <u>0.08</u>	2026	2030
BCM-11	Emission Reductions from Organic Waste Composting [NH3]	TBD	N/A	N/A
South Coast AQMD Direct PM2.5 Measures:				
BCM-12	Further Emission Reductions from Commercial Cooking* [PM2.5]	TBD	2027	2030
BCM-13	Emission Reductions from Cooling Towers [PM2.5]	TBD	N/A	N/A
BCM-14	Further Emission Reductions from Paved Road Dust Sources [PM2.5]	TBD	N/A	N/A
BCM-15	Emission Reductions from Abrasive Blasting Operations [PM2.5]	TBD	N/A	N/A
BCM-16	Emission Reductions from Stone Grinding, Cutting and Polishing Operations [PM2.5]	TBD	N/A	N/A
BCM-17	Emission Reductions from Prescribed Burning for Wildfire Prevention [PM2.5, NOx]	TBD	N/A	N/A
BCM-18	Further Emission Reductions from Wood-Burning Fireplaces and Wood Stoves* [PM2.5]	TBD <u>0.33</u>	2026	2030

Number	Title [Pollutant]	Emission Reductions by 2030 (tons per day)	Proposed Adoption Date	Proposed Implementation Timeframe
BCM-19	Emission Reductions from Unpaved Road Dust Sources [PM _{2.5}]	TBD	N/A	N/A
South Coast AQMD Other Measures:				
BCM-20	Application of All Feasible Measures [PM _{2.5} , NO _x]	TBD	N/A	N/A

* These measures are included to satisfy MSM requirements.

TABLE 4-5
EMISSION REDUCTIONS AND ADOPTION AND IMPLEMENTATION SCHEDULE OF MOBILE
SOURCE CONTROL MEASURES

Number	Title [Pollutant]	Emission Reductions by 2030 (tpd)	Proposed Adoption Date	Proposed Implementation Timeframe
South Coast AQMD Emission Growth Management Measures:				
EGM-01	Emission Reductions from New Development and Redevelopment [All Pollutants]	TBD	2025	2025-2030
EGM-02	Emission Reductions from Clean Construction Policy [All Pollutants]	TBD	2025	2025-2030
South Coast AQMD Facility-Based Measures:				
MOB-01	Emission Reductions at Commercial Marine Ports [PM2.5, NOx]	TBD	2024	2025-2030
MOB-02	Emission Reductions at New and Existing Rail Yards [PM2.5, NOx]	TBD	2024	2025-2030
MOB-03	Emission Reductions at Warehouse Distribution Centers [PM2.5, NOx]	TBD	Adopted 2021 (Reassess every three years)	2022-2030
MOB-04	Emission Reductions at Commercial Airports [PM2.5, NOx]	TBD	Adopted 2019	2020-2030
South Coast AQMD On-Road and Off-Road Measures:				
MOB-05	Accelerated Retirement of Light-Duty and Medium-Duty Vehicles [PM2.5, NOx]	TBD	N/A	Ongoing
MOB-06	Accelerated Retirement of On-Road Heavy-Duty Vehicles [PM2.5, NOx]	TBD	N/A	Ongoing
MOB-07	On-Road Mobile Source Emission Reduction Credit Generation Program [PM2.5, NOx]	TBD	TBD	TBD
MOB-08	Small Off-Road Engine Equipment Exchange Program [PM2.5, NOx]	TBD	N/A	Ongoing

Number	Title [Pollutant]	Emission Reductions by 2030 (tpd)	Proposed Adoption Date	Proposed Implementation Timeframe
MOB-09	Further Emission Reductions from Passenger Locomotives [PM2.5, NOx]	TBD	N/A	Ongoing
MOB-10	Off-Road Mobile Source Emission Reduction Credit Generation Program [PM2.5, NOx]	TBD	TBD	TBD
South Coast AQMD Incentive-Based Measures:				
MOB-11	Emission Reductions from Incentive Programs [PM2.5, NOx]	TBD	N/A	Ongoing
MOB-12	Pacific Rim Initiative for Maritime Emission Reductions [PM2.5, NOx]	TBD	N/A	Ongoing
South Coast AQMD Other Mobile Source Measures:				
MOB-13	Rule 2202 – On-Road Motor Vehicle Mitigation Options [PM2.5, NOx]	TBD	2023	2023-2030

Proposed CARB Commitment for the South Coast

Overview of Commitment

SIPs may contain enforceable commitments to achieve the level of emissions necessary to meet federal air quality standards, as defined by the attainment demonstration. CARB's 2022 State Strategy for the State Implementation Plan¹ (2022 State SIP Strategy) lists new SIP measures for which potential emissions reduction SIP commitments for the South Coast in 2030 are now estimated based on the measures identified and quantified to date. Adoption of the 2022 State SIP Strategy and the measure schedule by the CARB Board on September 22, 2022, formed the basis of the commitments for emission reductions by the 2030 attainment deadline for South Coast that will be proposed for CARB Board consideration alongside the 2024 South Coast PM2.5 SIP. The commitments consist of two components:

¹ https://ww2.arb.ca.gov/sites/default/files/2022-08/2022_State_SIP_Strategy.pdf

1. A commitment to bring an item to the CARB Board for defined new measures or take other specified actions within CARB's authority; and
2. A commitment to achieve aggregate emission reductions by specific dates.

As part of each SIP needing emission reductions from the State, the total aggregate emission reductions and the obligation to make certain proposals to the CARB Board or take other actions within CARB's authority specified in the 2022 State SIP Strategy would become enforceable upon approval by U.S. EPA. While the 2022 State SIP Strategy discusses a range of measures and actions, those measures and actions are still subject to CARB's formal approval process and would not be final until the CARB Board takes action.

Commitment to Act on Measures

For each of the SIP measures shown in Table 4-6, CARB committed in the 2022 State SIP Strategy to address each measure as described. For each measure committed to, CARB staff would undertake the actions detailed for each measure. In the instance of measures that involve the development of a rule under CARB's regulatory authority, CARB committed to bring a publicly noticed item before the CARB Board that is either a proposed rule, or is a recommendation that the CARB Board direct staff to not pursue a rule covering that subject matter at that time. This recommendation would be based on an explanation of why such a rule is unlikely to achieve the relevant emission reductions in the relevant timeframe, and would include a demonstration that the overall aggregate commitment will be achieved despite that rule not being pursued. This public process and CARB hearing would provide additional opportunity for public and stakeholder input, as well as ongoing technology review, and assessments of costs and environmental impacts.

The measures, as proposed by staff to the CARB Board or adopted by the CARB Board, may provide more or less than the initial emission reduction estimates. In addition, action by the CARB Board may include any action within its discretion.

TABLE 4-6
2022 STATE SIP STRATEGY MEASURES AND SCHEDULE

Measure	Agency	Action	Implementation Begins
On-Road Heavy-Duty			
Advanced Clean Fleets Regulation	CARB	2023	2024
Zero-Emissions Trucks Measure	CARB	2028	2030
On-Road Light-Duty			
Clean Miles Standard	CARB	2021	2023
Off-Road Equipment			
Tier 5 Off-Road Vehicles and Equipment	CARB	2025	2029
Amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation	CARB	2022	2024
Transport Refrigeration Unit Regulation Part 2	CARB	2026	2028
Commercial Harbor Craft Amendments	CARB	2022	2023
Cargo Handling Equipment Amendments	CARB	2027	2030
Other			
Zero-Emission Standard for Space and Water Heaters	CARB	2025	2030
Primarily-Federally and Internationally Regulated Sources – CARB Measures			
In-Use Locomotive Regulation	CARB	2023	2024

Commitment to Achieve Emission Reductions

The following section describes the estimated emission reduction and potential commitment from the SIP measures identified and quantified to date for the South Coast. The aggregate commitment of emissions reductions from State sources to be proposed for CARB Board consideration will be found in CARB's staff report for the 2024 South Coast PM2.5 SIP when it is brought to the CARB Board and is summarized below.

While CARB includes estimates of the emission reductions in 2030 from each of the individual new measures, CARB's overall commitment is to achieve the total emission reductions necessary from State-regulated sources to attain the federal air quality standards, reflecting the combined reductions from the existing control strategy and new measures. Therefore, if a particular measure does not get its expected emission reductions, the State's overall commitment to achieving the total aggregate emission reductions still exists. If actual emission decreases occur that exceed the projections reflected in the current emission

inventory, CARB will submit an updated emissions inventory to U.S. EPA as part of a SIP revision. The SIP revision would outline the changes that have occurred and provide appropriate tracking to demonstrate that aggregate emission reductions sufficient for attainment are being achieved through enforceable emission reduction measures. CARB's emission reduction commitments may be achieved through a combination of actions including but not limited to the implementation of control measures; the expenditure of local, State or federal incentive funds; or through other enforceable measures.

Emission Reductions

CARB's control programs, including the measures in the 2022 State SIP Strategy provide emission reduction benefits throughout the State. Although the existing control program will provide mobile source emission reductions necessary to meet the attainment needs of many areas of the State, the new measures in the 2022 State SIP Strategy are needed to provide further reductions to achieve the 12 $\mu\text{g}/\text{m}^3$ PM_{2.5} annual standard in the South Coast and enhance statewide air quality progress towards the 9 $\mu\text{g}/\text{m}^3$ annual PM_{2.5} standard promulgated in 2024.

Emission Reductions from Current Programs

Table 4-7 provides the mobile source emissions under CARB and district current programs for the South Coast. Ongoing implementation of current control programs is projected to reduce mobile source emissions of direct PM_{2.5} and NO_x by 3.3 tpd and 160.6 tpd in the South Coast in 2030 compared to 2018 levels, respectively. Although the current mobile source baseline shows an increase in ammonia (NH₃) emissions in 2030 compared to 2018 levels, this baseline does not reflect emissions reductions from a number of recently-adopted CARB regulations identified in Table 4-5. When taking these reductions taken into account, NH₃ emissions are projected to only increase by 1.8 tpd in 2030 compared to 2018 levels. Achieving the benefits projected from the current control program will continue to require significant efforts for implementation and enforcement and thus represents an important element of the overall strategy.

TABLE 4-7
SOUTH COAST BASELINE MOBILE SOURCE EMISSIONS²

Pollutant	2018 Emissions (tpd)	2030 Emissions (tpd)	Change
PM _{2.5}	10.8	7.4	-31%
NO _x	323.3	162.6	-50%
NH ₃	16.5	21.3	29%

² Source: MSC_NAA_CEPAM_v101B; does not reflect emissions reductions from recently-adopted CARB regulations identified in Table 5

Although most of the 2016 State SIP Strategy measure commitments have been adopted, there remains the Zero-Emission Forklift measure which will be acted upon by the CARB Board in 2024. Table 4-8 below shows the timeline and anticipated emission reductions for this measure.

TABLE 4-8
SOUTH COAST REDUCTIONS FROM REMAINING 2016 STATE SIP STRATEGY MEASURE³

Measure	Action	Implementation Begins	2030 NOx (tpd)	2030 PM2.5 (tpd)	2030 NH3 (tpd)
Zero-Emission Forklift	2024	2026	0.8	<0.1	NYQ*

* Not yet quantified.

Emission Reductions from 2022 State SIP Strategy Measures

In addition to controlling direct PM2.5, air quality modeling has determined that NOx and ammonia are significant precursors for the 12 µg/m³ annual PM2.5 standard in the South Coast, and that ammonium nitrate contributes 20 to 35 percent of total PM2.5 in the region, varying by season and location. Further, modeling indicates that total NOx emissions from all sources in the South Coast will need to decrease by approximately 55 percent from 2018 levels in order to attain the 12 µg/m³ annual PM2.5 standard in 2030. A significant fraction of the needed reductions will come from the existing control program already in the baseline emission inventory. In addition, as described above, one measure commitment included in the 2016 State SIP Strategy has not yet been acted upon, and a number of measure commitments included in both the 2016 and 2022 State SIP Strategies were very recently adopted and are thus not yet in the baseline emissions inventory, as outlined in Table 4-8 above and Table 4-9 below.

The measures contained in the 2022 State SIP Strategy commitment reflect a variety of State actions across on-road and off-road vehicle and appliance sectors. Collectively, emissions reductions from CARB's current control program, reductions from the 2016 and 2022 State SIP Strategy measures adopted but not yet in the baseline, reductions from the remaining 2016 State SIP Strategy measure, and reductions estimated from the future measures identified in the 2022 State SIP Strategy and quantified below will provide the reductions needed from State sources to support attainment of the 12 µg/m³ annual PM2.5 standard in the South Coast. Table 4-9, 4-10, and 4-11 summarize the reductions from the identified and quantified measures. In Table 4-9, the reductions estimated from the remaining 2016 State SIP Strategy measure and future measures identified in the 2022 State SIP Strategy are described as the "potential CARB aggregate emissions reductions commitment" until staff proposes and the CARB Board adopts the aggregate emissions reductions commitment for the year 2030. The reductions in Table 4-9 are needed

³ Numbers may not add up due to rounding

to demonstrate reasonable further progress (RFP) towards attainment. More details can be found in Chapter 6 of this Plan.

TABLE 4-9
2030 SOUTH COAST EMISSIONS REDUCTIONS FROM CARB PROGRAMS⁴

CARB Programs in South Coast	NO _x (tpd)	PM _{2.5} (tpd)	NH ₃ (tpd)
Current Control Program ⁵	172.8	1.9	-4.7 ⁶
2016 and 2022 State SIP Strategy Measures Adopted (Not yet in baseline inventory)	20.5	0.8	2.9
Potential CARB Aggregate Emissions Reductions Commitment	9.1	0.5	0.2
2016 State SIP Strategy Measure Remaining	0.8	<0.1	NYQ*
2022 State SIP Strategy Measures Remaining	8.2	0.5	0.2
Total Reductions	202.4	3.2	-1.4

* Not yet quantified.

Table 4-10 reflects the 2016 and 2022 State SIP Strategy measure commitments that the CARB Board has recently adopted. The associated emissions reductions from these recently adopted measures are not yet all accounted for in the baseline emissions inventory. Nonetheless, CARB measure commitments are achieving emissions reductions and will contribute towards attainment of the 12 µg/m³ annual PM_{2.5} standard in South Coast in 2030.

⁴ Numbers may not add up due to rounding

⁵ Current Control Program represents the current baseline emissions out to 100 nautical miles with adopted CARB and district measures excluding those recently-adopted CARB regulations identified in Table 5 (Source: MSC_NAA_CEPAM_v101B)

⁶ Negative number indicates growth in emissions

TABLE 4-10
SOUTH COAST EXPECTED EMISSIONS REDUCTIONS FROM 2016 AND 2022 STATE SIP
STRATEGY RECENTLY ADOPTED MEASURES

2016 and 2022 State SIP Strategy Measures	2030 NOx (tpd)	2030 PM2.5 (tpd)	2030 NH3 (tpd)
On-Road Heavy-Duty			
Advanced Clean Fleets Regulation	4.7	<0.1	0.8
Total On-Road Heavy-Duty Reductions	4.7	<0.1	0.8
On-Road Light-Duty			
Advanced Clean Cars II	1.4	0.1	2.1
Clean Miles Standard	<0.1	<0.1	<0.1
Total On-Road Light-Duty Reductions	1.5	0.1	2.1
Off-Road Equipment			
Amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation	1.9	0.1	NYQ*
Commercial Harbor Craft Amendments	2.0	<0.1	NYQ
Transport Refrigeration Unit Part I	0.3	<0.1	NYQ
Total Off-Road Equipment Reductions	4.3	0.3	NYQ
Primarily-Federally and Internationally Regulated Sources – CARB Measures			
In-Use Locomotive Regulation	9.9	0.2	NYQ
Total Primarily-Federally and Internationally Regulated Sources – CARB Measures Reductions	9.9	0.2	NYQ
Emissions Reductions	20.5	0.8	2.9

* Not yet quantified.

TABLE 4-11
SOUTH COAST EXPECTED EMISSIONS REDUCTIONS FROM THE REMAINING 2022 STATE SIP
STRATEGY MEASURES⁷

2022 State SIP Strategy Measures	2030 NO _x (tpd)	2030 PM _{2.5} (tpd)	2030 NH ₃ (tpd)
On-Road Heavy-Duty			
Zero-Emissions Trucks Measure	2.9	<0.1	0.2
Total On-Road Heavy-Duty Reductions	2.9	<0.1	0.2
Off-Road Equipment			
Tier 5 Off-Road Vehicles and Equipment	0.2	<0.1	NYQ*
Transport Refrigeration Unit Regulation Part 2	1.7	<0.1	NYQ
Cargo Handling Equipment Amendments	0.7	<0.1	NYQ
Total Off-Road Equipment Reductions	2.7	<0.1	
Other			
Zero-Emission Standard for Space and Water Heaters ⁸	2.5	0.4	<0.1
Total Other Reductions	2.5	0.4	<0.1
Emissions Reductions	8.2	0.5	0.2

* Not yet quantified.

Title VI of the Civil Rights Act of 1964

Title VI of the Civil Rights Act of 1964 (Title VI) provides that no person in the United States shall, on the basis of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance. As a recipient of federal funds, CARB must ensure it complies with Title VI and U.S. EPA's Title VI implementation regulations in its relevant programs and policies. In developing the 2022 State SIP Strategy's robust suite of control measures, CARB staff engaged in a thorough public process that addresses the requirements of Title VI. CARB will continue to address the requirements of Title VI in

⁷ Numbers may not add up due to rounding

⁸ Reductions may be achieved through CARB and/or complementary South Coast AQMD control measures for this sector

implementation of the 2022 State SIP Strategy and related Clean Air Act implementation activities. Written guidance from U.S. EPA is needed to provide additional detail on Title VI requirements and expectations and support for effective implementation efforts.

Many low-income and disadvantaged communities in nonattainment areas, and across the State, continue to experience disproportionately high levels of air pollution and the resulting detrimental impacts to their health. Research shows large disparities in exposure to pollution between disadvantaged communities and other communities. There are disparities between white and non-white populations in California, with Black and Latino populations experiencing significantly greater air pollution impacts than white populations. Mobile source pollution exposures show some of the highest disparities. Mobile sources are the largest sources of pollution exposure disparity for Black populations and disadvantaged community residents, when compared to the average population in California. Specifically, mobile sources accounted for 45 percent of exposure disparity for the Black population, and 37 % of exposure disparity for people in disadvantaged communities. While significant progress has been made in reducing mobile and stationary source pollution in California through regulatory and other program activities, disparities in the location of pollution and cumulative exposures continue.

In 2023, CARB adopted the following Vision for Racial Equity to guide our external work, including the implementation of the Community Air Protection Program: CARB commits to just social change by working at all levels within the organization and externally to address environmental injustices and advance racial equity in the achievement of its mission. CARB works toward a future where all Californians breathe healthy and clean air, benefit from actions to address climate change, and where race is no longer a predictor of life outcomes. In working to realize this vision, CARB prioritizes environmental justice, uses tools to operationalize racial equity, and conducts meaningful community engagement in its policy and planning efforts and programs to address the longstanding environmental and health inequities from elevated levels of toxic air contaminants, criteria pollutants, and secondary impacts of climate change. It is imperative to optimize California's control programs to maximize emissions reductions and provide targeted near-term benefits in those communities that continue to bear the brunt of poor air quality. Specific efforts include a commitment to apply a racial equity lens in considering benefits and burdens of CARB's programs and policies, including regulatory actions. A racial equity lens is a set of questions to estimate impacts and benefits on the basis of race, ethnicity or other relevant categories, and considering alternatives.

Using a racial equity lens also requires a commitment to meaningful community engagement. In support of this commitment, CARB recently contracted with a number of community experts to vet and refine a model framework for community engagement. As noted above, while significant progress has been made to address air pollution statewide and in local communities, ensuring all Californians have access to healthy air quality is imperative.

In addition to these important efforts, the 2022 State SIP Strategy measures such as the Advanced Clean Fleets and In-Use Locomotive Regulations will reduce mobile source emissions from heavy-duty trucks

and other sources around warehouses, railyards, and ports, as well as reducing other emissions, which in turn will reduce corresponding health risk in California's most impacted communities.

CARB prioritized public participation as an essential part of developing the measures included in the 2022 State SIP Strategy. CARB initiated the public process with a workshop in July 2021. After the workshop, CARB staff reached out to and met with a number of community-based organizations who provided input on the potential control measures. CARB released the 2022 State SIP Strategy: Draft Measures document which considered the input from the community-based organizations and comments during the first workshop.

CARB staff held a second workshop discussing the Draft Measures document in October 2021 and received additional input from a broad array of interested parties. The workshop presented a detailed discussion on the potential measures and allowed for the public and interested parties to comment on every facet of each potential measure. CARB staff also participated in the South Coast measure workshops as part of their SIP development process. CARB staff released the Draft 2022 State SIP Strategy in January 2022, prior to a third workshop, and presented an informational update to the Board at the Board Meeting in February 2022 to discuss and obtain public feedback. The input from numerous interested parties and community-based organizations framed the control measures in the Strategy such as the Zero-Emissions Trucks and Pesticide Measures.

These workshops and Board updates provided forums in both English and Spanish and afforded any special accommodations if requested to facilitate discussing the proposed measures in a public setting and to provide additional opportunity for public feedback, input, and ideas. And finally, CARB released the Proposed 2022 State SIP Strategy and hosted our 4th workshop in August 2022, prior to the CARB Board adopting the 2022 State SIP Strategy in September 2022. The workshops were well attended by a wide range of interested parties including community-based organizations. CARB staff listened to interested parties, evaluated their recommendations, and included some of these recommendations as measures that were appropriate for the 2022 State SIP Strategy. In order for a public suggestion to be included as a SIP measure, it needed to meet U.S. EPA-required integrity elements. SIP measures are required to be quantifiable, enforceable, surplus, and permanent. Measures suggested by the public that were ultimately adopted in the 2022 State SIP Strategy include a regulation to reduce emissions of reactive organic gas from pesticides in collaboration with the California Department of Pesticide Regulation and a zero-emission truck measure to help ensure that smaller trucking companies have more consistent access to zero-emission truck incentives.

Following the Board's approval of the 2022 State SIP Strategy, the public processes continue as each measure within the strategy goes through its own public process to engage with impacted communities and interested parties to further develop the measures prior to being brought to the Board for consideration as a regulation or other program. As development and implementation of these measures progress, CARB staff will continue to identify and implement opportunities to mitigate air pollution associated with racial inequities and meaningfully engage and partner with communities most impacted to address long standing disparities and challenges. As CARB cannot do this alone, CARB will also continue

to partner with other authorities such as air districts including the South Coast AQMD, other State agencies, and the federal government to ensure emissions reduction are achieved.

These connected efforts, as well as interagency efforts, will provide additional pathways to address Title VI requirements and support achieving the goal where zip code or race does not predict air pollution exposures. CARB has reviewed U.S. EPA and U.S. Department of Justice resources for Title VI and environmental justice policies, and looks forward to written guidance from U.S. EPA to address Clean Air Act section 110(a)(2)(E) as the State develops future clean air plans.

Civil Rights Policy and Discrimination Complaint Process

Under CARB's written Civil Rights Policy and Discrimination Complaint process (Civil Rights Policy), CARB has a policy of nondiscrimination in its programs and activities and implements a process for discrimination complaints filed with CARB, which is available on CARB's website. The Civil Rights Officer coordinates implementation of CARB's nondiscrimination activities, including as the Equal Employment Opportunity (EEO) Officer for employment purposes, and who can be reached at EEOP@arb.ca.gov, or (279) 208-7110.⁹

The Civil Rights Policy and Discrimination Complaint Process provides the following information about the nondiscrimination policy and its applicability:

It is CARB policy to provide fair and equal access to the benefits of a program or activity administered by CARB. CARB will not tolerate discrimination against any person(s) seeking to participate in, or receive the benefits of, any program or activity offered or conducted by CARB. Members of the public who believe they were unlawfully denied full and equal access to a CARB program or activity may file a civil rights complaint with CARB under this policy. This non-discrimination policy also applies to people or entities, including contractors, subcontractors, or grantees that CARB utilizes to provide benefits and services to members of the public. [. . .]

As described in the Civil Rights Policy and Discrimination Complaint Process, the Civil Rights Officer coordinates implementation of nondiscrimination activities:

CARB's Executive Officer will have final authority and responsibility for compliance with this policy. CARB's Civil Rights Officer, on behalf of the Executive Officer, will coordinate this policy's implementation within CARB, including work with the Ombudsman's Office, Office of Communications, and the staff and managers within a program or activity offered by CARB. The Civil Rights Officer coordinates compliance efforts, receives inquiries concerning non-discrimination requirements, and ensures CARB is complying with state and federal reporting

⁹ CARB. California Air Resources Board and Civil Rights. <https://ww2.arb.ca.gov/california-air-resources-board-and-civil-rights>, Civil Rights Policy and Discrimination Complaint Process. November 1, 2016. <https://ww2.arb.ca.gov/sites/default/files/2023-01/2016-11-03%20CARB%20Civil%20Rights%20Policy%20Revised%20Final.pdf>

and record retention requirements, including those required by Code of Federal Regulations, Title 40, Section 7.10 et seq.

The Civil Rights Policy and Discrimination Complaint Process also describes in detail the complaint procedure, as follows:

A Civil rights complaint may be filed against CARB or other people or entities affiliated with CARB, including contractors, subcontractors, or grantees that CARB utilizes to provide benefits and services to members of the public. The complainant must file his or her complaint within one year of the alleged discrimination. This one-year time limit may be extended up to, but no more than, an additional 90 days if the complainant first obtained knowledge of the facts of the alleged violation after the expiration of the one-year time limit. [. . .]

The Civil Rights Officer will review the facts presented and collected and reach a determination on the merits of the complaint based on a preponderance of the evidence. The Civil Rights Officer will inform the complainant in writing when CARB has reached a determination on the merits of the discrimination complaint. Where the complainant has articulated facts that do not appear discriminatory but warrants further review, the Civil Rights Officer, in his or her discretion, may forward the complaint to a party within CARB for action. The Civil Rights Officer will inform the complainant, either verbally or in writing, before facilitating the transfer. [. . .]

CARB will not tolerate retaliation against a complainant or a participant in the complaint process. Anyone who believes that they have been subject to retaliation in violation of this policy may file a complaint of retaliation with CARB following the procedures outlined in this policy.

There is a Civil Rights Complaint Form available¹⁰ on the webpage, which should be used by members of the public to file a complaint of discrimination against CARB that an individual believes occurred during the administration of its programs and services offered to the public. As described on CARB's webpage, for all complaints submitted, the Civil Rights Officer will review the complaint to determine if there is a prima facie complaint (which means, if all facts alleged were true, would a violation of the applicable policy exist). If the Civil Rights Officer identifies a prima facie complaint in the jurisdiction of the Civil Rights Office, the Civil Rights Office will investigate and determine whether there is a violation of the policy.

The laws and regulations that CARB implements through this policy include:

- Code of Federal Regulations, Title 40 Parts 5 and 7;
- Title VI of the U.S. Civil Rights Act of 1964, as amended;
- Section 504 of the Rehabilitation Act of 1973;

¹⁰ CARB. Civil Rights Complaint Form. July 2019. https://ww2.arb.ca.gov/sites/default/files/2023-01/eo_eeo_033_civil_rights_complaints_form.pdf

- Age Discrimination Act of 1975;
- Title IX of the Education Amendments of 1972;
- California Government Code, Title 2, Division 3, Part 1, Chapter 2, Article 9.5, *Discrimination*, Section 11135 et seq.; and
- California Code of Regulations, Title 2, Section 10000 et seq.

As part of its overarching civil rights and environmental justice efforts, CARB is in the process of updating its Civil Rights Policy and will make those publicly available once complete. These updates will reflect available U.S. EPA and U.S. Department of Justice resources for Title VI and environmental justice policies. CARB encourages U.S. EPA to issue additional guidance to further clarify Title VI requirements and expectations to assist state implementation efforts.

CARB's Mobile Source Measures

On-Road Heavy-Duty

Advanced Clean Fleets Regulation

The Advanced Clean Fleets Regulation was adopted by CARB on April 27, 2023. This measure accelerates zero-emission vehicle (ZEV) adoption in the medium- and heavy-duty sectors by setting zero-emission requirements for fleets and a 100 percent ZEV sales requirement in California for manufacturers of Class 2b through 8 vehicles starting in 2036. The Advanced Clean Fleets Regulation focuses on strategies that ensure the cleanest vehicles are deployed by government, business, and other entities in California while meeting their transportation needs. The requirements are phased-in on varying schedules for different fleets including drayage trucks, high priority private and federal fleets, and state and local government fleets. All drayage trucks operating at seaports and intermodal railyards are required to be zero-emission by 2035. Drayage trucks also have new registration and reporting requirements, starting in 2023. High priority private and federal fleets must only add ZEVs or near-zero-emission vehicles with minimum all electric range to the California fleet starting January 1, 2024. However, to provide flexibility, these fleets may opt into the ZEV milestone schedule which is a ZEV phase-in as a percentage of the California fleet and targets vehicles that are well suited for electrification starting in 2025. State and local government fleets are required to phase-in a ZEV purchase requirement starting at 50 percent of new purchases in 2024 and 100 percent starting in 2027 or these fleets may opt into the ZEV milestone schedule.

Zero-Emission Trucks Measure

This measure would increase the number of ZEVs and require cleaner engines to achieve emissions reductions from fleets that are not affected by the Advanced Clean Fleets Regulation. This would include potential zero-emissions zone concepts around warehouses and sensitive communities if CARB is given

new authority to enact indirect source rules in combination with strategies to upgrade older trucks to newer and cleaner engines. This would be a transitional strategy to achieve zero-emissions medium- and heavy-duty vehicles everywhere feasible by 2045.

On-Road Light-Duty

Clean Miles Standard

The Clean Miles Standard was adopted by CARB on May 20, 2021. The primary goals of this measure are to reduce GHG emissions from ride-hailing services offered by transportation network companies (TNCs) and promote electrification of the fleet by setting an electric vehicle mile target, while achieving criteria pollutant co-benefits. TNCs would be required to achieve zero grams CO₂ emissions per passenger mile traveled and 90 percent electric VMT by 2030.

Off-Road Equipment

Tier 5 Off-Road Vehicles and Equipment

This measure would reduce NO_x and particulate matter (PM) emissions from new off-road compression-ignition (CI) engines by adopting more stringent exhaust standards for all power categories, including those that do not currently utilize exhaust aftertreatment such as diesel particulate filters and selective catalytic reduction. This measure would be more stringent than required by current CARB, U.S. EPA and European Stage V nonroad regulations and would require the latest generations of emission control technologies.

For this measure, CARB staff would develop and propose standards for new off-road CI engines including the following: lower PM standards for engines less than 19 kilowatt (kW) (25 horsepower [hp]), lower NO_x and PM standards for engines greater than or equal to 19 kW (25 hp) and less than 56 kW (75 hp), and more stringent aftertreatment-based PM and NO_x standards for engines greater than or equal to 56 kW (75 hp). Other possible elements include new manufacturer-based in-use testing requirements, proposing more representative useful life periods, and developing a low load certification test cycle. It is expected that this comprehensive offroad Tier 5 regulation would rely heavily on technologies that manufacturers are developing to meet the recently approved low NO_x standards and enhanced in-use requirements for on-road heavy-duty engines.

Amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation

The amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation were adopted by CARB on November 17, 2022. This measure further reduces NO_x and PM emissions from the in-use off-road diesel equipment sector by adopting more stringent requirements that target the oldest and dirtiest equipment that were previously allowed to operate indefinitely.

The amendments include a phase out schedule for most Tier 0, 1, and 2 engines between 2024 and 2036. This will allow a 12-year phase out of these oldest engines. Along with the engine tier phase out, adding vehicle provisions in the current regulation are extended to phase in a restriction on the adding of vehicles with Tier 3 and Tier 4 interim engines to fleets. The amendments also include new requirements for fleets to use renewable diesel (with some limited exemptions), new contracting requirements for prime contractors and public works awarding bodies to increase the enforceability and awareness of the regulation, and two optional flexibility provisions for fleet adoption of zero_-emission vehicles. Additional modifications include clarifications to implementation, sunset of year-by-year low use, the addition of flexibility to permanent low-use, and the sunset of a provision that would have allowed small fleets to continue to operate vehicles that could not be retrofitted with a verified diesel emission control strategy indefinitely.

Transport Refrigeration Unit Regulation Part 2 (Non-Truck TRUs)

This measure is the second part of a two-part rulemaking to transition diesel-powered transport refrigeration units (TRUs) to zero_-emission technologies. This measure would require zero_-emission equipment for non-truck TRUs (trailer TRUs, domestic shipping container TRUs, railcar TRUs, and TRU generator sets).

Commercial Harbor Craft Amendments

The amendments to the Commercial Harbor Craft Regulation were adopted by CARB on March 24, 2022. The amended regulation requires that starting in 2023 and phasing in through 2031, most commercial harbor crafts (CHCs) (except for commercial fishing vessels and categories listed below) are required to meet the cleanest possible standard (Tier 3 or 4) and retrofit with diesel particulate filters (DPFs) based on a compliance schedule. The prior regulated CHC categories are ferries, excursion, crew and supply, tug/tow boats, barges, and dredges. The amendments impose in-use requirements on the rest of vessel categories except for commercial fishing vessels, including workboats, pilot vessels, commercial passenger fishing, and all barges over 400 feet in length or otherwise meeting the definition of an ocean-going vessel. The amendments require engines on new build commercial fishing vessels to meet the most stringent marine standards (Tier 3 or Tier 4) or Tier 4 Final off-road emission standards. The amendments also remove the exemption for engines less than 50 hp.

The regulation also requires that, starting in 2025, all new and newly acquired excursion vessels to be plug-in hybrid vessels that are capable of deriving 30 percent or more of combined propulsion and auxiliary power from a zero_-emission tailpipe emission source. Starting in 2026, all new, newly acquired and in-use short run ferries are required to be zero_-emission; and starting in 2030 and 2032, all in-use commercial fishing vessels would need to meet a Tier 2 standard at minimum.

Cargo Handling Equipment Amendments

This measure would start transitioning Cargo Handling Equipment (CHE) to full zero_-emission by 2030, with over 90 percent penetration of ZE equipment by 2036. Based on the current state of zero_-emission

CHE technological developments, the transition to zero-emission would most likely be achieved largely through the electrification of CHE. This assumption about aggressive electrification is supported by the fact that currently some electric RTG cranes, electric forklifts, and electric yard tractors are already commercially available. The zero-emission phase-in schedule will be determined by technology feasibility determinations and discussions with public stakeholders during the rulemaking process.

Other

Zero-Emission Standard for Space and Water Heaters

For this measure, CARB would develop and propose zero-emission GHG standards for new space and water heaters sold in California; CARB could also work with air districts to further tighten district rules to drive zero-emission technologies. This measure would not mandate retrofits in existing buildings, but some buildings would require retrofits to be able to use the zero-emission technology that this measure would require. Beginning in 2030, 100 percent of sales of new space and water heaters (for either new construction or replacement of burned-out equipment in existing buildings) would need to meet zero-emission standards. It is expected that this regulation would rely heavily on heat pump technologies currently being sold to electrify new and existing buildings.

Primarily-Federally and Internationally Regulated Sources – CARB Measures

In addition to reducing emissions from the above sources, it is critical to achieve emissions reductions from sources that are primarily regulated at the federal and international level. It is imperative that the federal government and other relevant regulatory entities act decisively to reduce emissions from these primarily-federally and internationally regulated sources of air pollution. CARB and the air districts in California have taken actions to not only petition federal agencies for action, but also to directly reduce emissions using programmatic mechanisms within our respective authorities. CARB continues to explore additional actions, many of which may require a waiver or authorization under the Clean Air Act, as described below.

In-Use Locomotive Regulation

The In-Use Locomotive Regulation was adopted by CARB April 27, 2023. This measure uses mechanisms available under CARB's regulatory authority to accelerate the adoption of advanced, cleaner technologies, and include zero-emission technologies, for locomotive operations. The In-Use Locomotive Regulation applies to all locomotives operating in the State of California with engines that have a total rated power of greater than 1,006 horsepower, excluding locomotive engines used in training of mechanics, equipment designed to operate both on roads and rails, and military locomotives. The measure reduces emissions by increasing use of cleaner diesel locomotives and zero-emission locomotives through a spending account, in-use operational requirements, and by an idling limit. By July 1, 2024, a spending account is established for each locomotive operator. Funds in the account is only to be used toward Tier 4 or cleaner locomotives

until 2030, and at any time toward zero-emission locomotives, zero-emission pilot or demonstration projects, or zero-emission infrastructure.

For the in-use operational requirements, beginning January 1, 2030, only locomotives built after January 1, 2007, may operate in California. Each year after January 1, 2030, only locomotives less than 23 years old may operate in California. Additionally, under the in-use operational requirements, starting January 1, 2030, all switch, industrial, and passenger locomotives operating in California with an original engine build date 2030 or newer will be required to be zero-emission. Starting January 1, 2035, all freight line haul locomotives operating in California with an original engine build date 2035 or newer must be zero-emission. Locomotives equipped with automatic engine stop/start systems are to idle no more than 30 minutes unless an exemption applies. Also, locomotive operators would report locomotive engine emissions levels and activity on an annual basis.

U.S. EPA's Clean Trucks Rule

Effective March 27, 2023, the U.S. EPA adopted a final rule titled “Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards.”¹¹ This rule is part of the U.S. EPA's Clean Trucks Plan (CTP) that aims to reduce ozone and PM_{2.5} air pollution from heavy-duty trucks and buses. The rule applies to manufacturers of heavy-duty engines and vehicles. It will result in lower NO_x emissions from new heavy-duty vehicles beginning in model year (MY) 2027 by setting more stringent emission standards that cover a wider range of heavy-duty engine operating conditions and require those standards to be met for a longer period of time of when these engines operate on the road. The rule also changes key provisions of the existing heavy-duty vehicle emission control program, such as the test procedures, regulatory useful life, emission-related warranty, and other requirements. U.S. EPA's CTP will result in emission benefits by 2030 and South Coast AQMD includes those benefits as a line item adjustment to the baseline emissions in this PM_{2.5} Plan (see Table 4-12).

SCAG's Regional Transportation Plan/Sustainable Communities Strategy and Transportation Control Measures

The PM_{2.5} Plan includes Transportation Control Measures (TCMs) from Southern California Association of Government's (SCAG) Regional Transportation Plan/Sustainable Communities Strategy to address attainment of the 2012 annual PM_{2.5} standard in the South Coast Air Basin. The TCMs are based on SCAG's Final 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy (2020 RTP/SCS, also known as Connect SoCal) and 2023 Federal Transportation Improvement Program (FTIP), as amended.

¹¹ Control of Air Pollution From New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards, 88 Fed. Reg. 4296 (January 24, 2023)

The RTP/SCS and FTIP were developed in consultation with federal, state and local transportation and air quality planning agencies and other stakeholders. The four County Transportation Commissions (CTCs) in the South Coast Air Basin, namely Los Angeles County Metropolitan Transportation Authority, Riverside County Transportation Commission, Orange County Transportation Authority and the San Bernardino County Transportation Authority, were actively involved in the development of the regional transportation measures of this Appendix. While SCAG will soon adopt the 2024 RTP/SCS, this PM2.5 Plan is based on the 2020 RTP/SCS as it was the latest approved RTP/SCS at the time of plan development. Refer to Appendix IV-B for more details.

SIP Emission Reduction Commitment

The SIP emission reduction commitment in the PM2.5 Plan reflects the estimated emission reductions from adopted rules and proposed measures. These are the emission reductions that we use to show progress in reducing emissions in an expeditious manner, and how the region will be able to meet the 2012 annual PM2.5 standard. Not all emission reductions that occur are SIP-creditable – meaning they do not count for purposes of showing how an area will be able to meet federal air quality standards. To be SIP-creditable, emission reductions must meet specific U.S. EPA criteria (e.g., integrity elements) to provide confidence that the emission reductions relied upon to meet the standards will occur. The following sections first describe the methodology for calculating SIP emissions and SIP-creditable reductions, then describe what procedures will be followed to ensure fulfillment of the commitment.

SIP Emission Reduction Tracking

For purposes of tracking progress in emission reductions, the baseline annual average emissions for the year 2030 will be used, regardless of any subsequent new inventory information that may reflect more recent knowledge. This is to ensure that the same “currency” is used in measuring progress as was used in designing the AQMP and that there is an “apples to apples” comparison in evaluating emissions.

Any emission reductions achieved beyond the existing South Coast AQMD regulations are creditable only if there is also a mechanism to ensure that the commitments to achieve those emission reductions are enforceable. Therefore, in certain instances, the South Coast AQMD may have to adopt regulations to reflect the existing industry practices in order to claim SIP reduction credit, with the understanding that there may not be additional reductions beyond what has already occurred. Exceptions can be made where reductions are real, quantifiable, surplus to the baseline inventory, and enforceable through other State and/or federal regulations. Further, any emission inventory revisions, which have gone through a peer review and public review process, can also be SIP creditable.

The PM2.5 Plan includes emission reductions from voluntary incentive measures to help meet the 2012 annual PM2.5 standard. With reliance on voluntary incentive measures to achieve attainment of the federal PM2.5 standard and for those measures to be SIP-approved, the South Coast AQMD must design programs such that the emission reductions from these incentive measures are proven to be real, quantifiable, surplus, enforceable, and permanent.

There are key components required of a SIP submittal in order to rely on discretionary incentive programs to satisfy the CAA emission reduction requirements. These components include a demonstration addressing the “integrity elements” (the five requirements listed above), federally enforceable “backstop” commitments, technical support, funding, legal authority, public disclosure and provisions to track results that are common among the various voluntary incentive programs. The “backstop” commitments include a requirement to monitor emission reductions achieved by the voluntary incentive measures and to report annually to the U.S. EPA the amount of reductions achieved. If the U.S. EPA determines that insufficient progress has been made, then substitute measures must be implemented to rectify the shortfall prior to the statutory implementation deadline. The South Coast AQMD is committed to developing detailed guidelines for voluntary incentive programs for individual incentive measures in accordance with the U.S. EPA’s economic incentive programs guidelines. The following section describes the necessary criteria that will be included in each of the incentive measures.

Integrity Elements to Ensure Emission Reductions from Incentive Programs

To be SIP-creditable, emission reductions from voluntary incentive measures must meet the U.S. EPA’s integrity elements. The emission reductions must be real, quantifiable, surplus, enforceable, and permanent. This demonstration must include project type(s); project life; applicable incentive program guidelines by title and year; and analysis of applicable incentive program guidelines for consistency with the integrity elements. For the purposes of this demonstration, the following defines and provides examples of the key elements:

Quantifiable

Emission reductions are quantitatively measurable, supported by existing and acceptable technical data. The quantification should use well-established, publicly available, and approved emission factors and accepted calculation methodology. There must be procedures to evaluate and verify over time the level of emission reductions that are actually achieved.

Surplus

Emission reductions must be above and beyond all current and known future District, State, or federal regulations already included in the SIP. Annual tracking will account for any potential overlapping future regulations that could conflict with the surplus reductions. Emission reductions used to meet air quality attainment requirements are surplus as long as they are not otherwise relied on in the SIP, SIP-related requirements, and other State air quality programs adopted but not in the SIP, a consent decree, or federal rules that focus on reducing criteria pollutants or their precursors. In the event that a voluntary incentive program’s emission reductions are already relied on to meet air quality-related program requirements, they are no longer surplus. In addition, the emission reductions are available only for the remaining useful life of the equipment being replaced (e.g., if the equipment being replaced had a remaining useful life of five years, the additional emission reductions from the new equipment are available for SIP or conformity purposes under this guidance only for five years).

Enforceable

The South Coast AQMD will be responsible for assuring that the emission reductions credited in the SIP will occur. Emission reductions and other required actions are enforceable if:

- a. They are independently verifiable;
- b. Program violations are defined;
- c. Those liable for emission reductions can be identified;
- d. The South Coast AQMD and the U.S. EPA maintain the ability to apply penalties and secure appropriate corrective action where applicable;
- e. The general public has access to the emissions-related information obtained from the source;
- f. The general public can file suits against sources for violations (with the exception of those owned and operated by Tribes); and
- g. They are practically enforceable in accordance with other U.S. EPA guidance on practicable enforceability.

Actual emission reductions, for example, can be assured through replacement equipment registration, recordkeeping and reporting, and inspections (initial inspection after installation and subsequent inspections on a regular basis thereafter, if needed) throughout the term of project. Specific enforcement mechanisms will be addressed in the guidelines for the individual incentive measures.

Permanent

The emission reductions are permanent if they occur over the duration of the voluntary incentive program, and for as long as they are relied on in the SIP. For example, those awarded incentives would need to ensure the projects are properly implemented and the reductions are occurring and will continue to occur. Recipients of the incentive awards would therefore agree to contract provisions, such as recordkeeping and reporting to track reductions and agreements that newly installed equipment would not be removed without concurrence of the South Coast AQMD (i.e., permanent placement) and the proof that the replaced equipment would be destroyed or at least not be operated in the Basin (e.g., pictures, certification). Detailed procedures to ensure permanent reductions will be described in the guidelines for the individual incentive measures.

Reductions from South Coast AQMD Control Measures

For purposes of implementing an approved SIP, the South Coast AQMD is committed to adopt and implement control measures that will achieve, in aggregate, emission reductions to demonstrate expeditious progress toward meeting the federal 2012 annual PM_{2.5} standard. The South Coast AQMD is

committed to adopt the control measures in Tables 4-2 and 4-3 unless these measures or a portion thereof are found infeasible, and other substitute measures that can achieve equivalent reductions in the same adoption or implementation timeframes are adopted. Findings of infeasibility will be made at a regularly scheduled meeting of the South Coast AQMD Governing Board with proper public notification. For purposes of the SIP commitment, infeasibility means that the proposed control technology is not reasonably likely to be available by the implementation date in question, or achievement of the emission reductions by that date is not technically or economically feasible. The reductions in Tables 4-2 and 4-3 are committed only to the extent needed to achieve attainment by the 2030 attainment deadline. If any substitution is needed, the alternative measures will need to achieve the same emission reductions or air quality benefit. The aggregate emission reduction commitments, along with the anticipated specific control measures to meet that reduction commitment are made with the understanding that if there is a shortfall in the individual measures for a particular year, emission reductions from other control measures could be substituted. The South Coast AQMD acknowledges that this commitment is enforceable under CAA section 304(f). The U.S. EPA will not credit SIP reductions unless the control measures are adopted and approved into the SIP at the time the U.S. EPA takes action on the plan.¹²

Reductions from CARB Control Measures

The CARB proposed control measures presented in Table 4-6, combined with ongoing implementation of current control programs, will provide further reductions to enhance air quality progress and achieve the 2012 annual PM2.5 standard.

Overall Emission Reductions

Table 4-12 identifies projected reductions for the South Coast Air Basin based on the annual inventory for NOx and direct PM2.5 emissions for 2030 and Table 4-13 summarizes total reductions from 2018 base year to 2030 attainment. These reductions reflect the emission reductions associated with implementation of control measures under State and local jurisdiction. Table 4-12 also includes emission reductions from recently adopted regulations as line item adjustments. South Coast AQMD and CARB commit to reduce NOx and PM2.5 emissions by 9.99 tpd and 0.53 tpd, respectively, beyond the 2030 baseline emissions through control measures proposed in this PM2.5 Plan. This enforceable commitment represents 5 percent and 16 percent, respectively, of the overall NOx and PM2.5 reductions that will occur between 2018 and 2030. Both the enforceable commitment and attainment demonstration exclude emission reductions from control measures that are needed to satisfy MSM requirements, as these requirements are independent of attainment.

¹² U.S. EPA has in the past allowed about 10 percent of required reductions to be in the form of “enforceable commitments”

TABLE 4-12
EMISSION REDUCTIONS FOR 2030 BASED ON ANNUAL EMISSIONS INVENTORY
(TONS PER DAY)

	NO_x	PM_{2.5}
Year 2030 Baseline	210.31	54.05
Emission Reductions:		
South Coast AQMD Stationary Source Measures	1.33	0.04
CARB Stationary Source Measure	2.58	0.41
CARB Mobile Source Measures	6.08	0.09
U.S. EPA's Clean Trucks Plan [^]	0.61	-
Stationary and Mobile Source Line Item Adjustments [^]	24.34 <u>3.20</u>	0.83 <u>0.00</u>
<u>Mobile Source Line Item Adjustments[^]</u>	<u>21.14</u>	<u>0.83</u>
Total Reductions	34.94	1.36
2030 Remaining Emissions	175.37	52.69

[^] Includes stationary and mobile source baseline emissions inventory line item adjustments. For a complete list of adopted regulations included as line item adjustments, refer to Appendix I.

TABLE 4-13
EMISSION REDUCTIONS FROM 2018 TO 2030 ATTAINMENT BASED ON ANNUAL EMISSIONS
INVENTORY (TONS PER DAY)

	<u>NO_x</u>	<u>PM_{2.5}</u>
<u>2018 Base Year Emissions</u>	<u>383.02</u>	<u>56.04</u>
<u>2030 Baseline Emissions</u>	<u>210.31</u>	<u>54.05</u>
<u>2030 Attainment Scenario Emissions</u>	<u>175.37</u>	<u>52.69</u>
<u>Baseline Reductions from 2018 to 2030</u>	<u>172.71</u>	<u>1.99</u>
<u>Line Item Adjustments[^]</u>	<u>24.95</u>	<u>0.83</u>
<u>Reductions from the Proposed Control Measures</u>	9.99	<u>0.53</u>
<u>Total Reductions from 2018 to Attainment</u>	<u>207.65</u>	<u>3.35</u>

[^] Includes reductions from stationary and mobile source line item adjustments as well as reductions from U.S. EPA's Clean Trucks Plan

CHAPTER 5

Future Air Quality

- Modest additional emission reductions are required for the Basin to attain the 2012 annual PM_{2.5} standard in 2030.
- The emissions of direct PM_{2.5}, NO_x, and ammonia must be reduced by 1.4, 34.9, and 3.2 tons per day respectively, beyond the 2030 baseline levels to attain the standard in 2030.
- The control strategy discussed in Chapter 4 provides a path to attain the standard by 2030, with a design value at our highest monitoring site of 12.0 µg/m³.
- With the control strategy outlined in Chapter 4 of this Plan, it is anticipated that annual PM_{2.5} levels in all areas of the Basin will be below 12.0 µg/m³ by 2030.

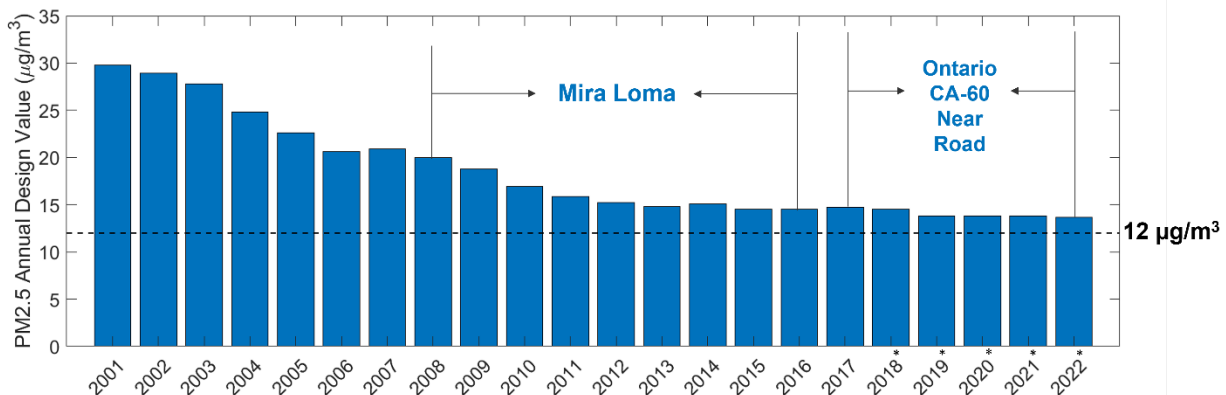


Introduction

The primary objective of the 2024 PM_{2.5} Plan is to address attainment of the federal 2012 annual average PM_{2.5} standard, set at 12 µg/m³. Air quality modeling to demonstrate future attainment of the PM_{2.5} standard is an integral part of the planning process to achieve clean air. Attainment demonstration is the modeling exercise that shows how emission reductions will result in lower concentrations of air pollutants, presenting the path to attainment. The demonstration reflects updated emissions estimates, new technical information, enhanced air quality modeling techniques, updated attainment demonstration methodology, and the control strategy.

Base Design Value

A design value is a statistical metric used to show whether a region is in attainment with the NAAQS. The base design value is the starting point of the modeling analysis to show the pathway to attainment. U.S. EPA guidance recommends the use of multiple year averages of design values where appropriate in establishing the base design value. This approach helps mitigate the impacts of single-year anomalies on air quality trends, which may arise due to factors including exceptional or adverse meteorological conditions or radical changes in local emissions profiles. The trend in the Basin's annual PM_{2.5} design values, determined from routine Federal Reference Method (FRM) samples, from 2001 through 2022 reveal substantial reductions in concentrations over this timeframe (see Figure 5-1). However, it's noteworthy that the rate of decrease in annual design values has decelerated since 2012.



*Data likely to be approved as exceptional events by U.S. EPA removed from analysis.

FIGURE 5-1
SOUTH COAST AIR BASIN ANNUAL PM_{2.5} DESIGN VALUES FROM 2001 TO 2022

Overall, since 2001, the annual PM_{2.5} design values have decreased by over 50%, from 30 µg/m³ in 2001 to 13.7 µg/m³ in 2022. The deceleration in PM_{2.5} reduction in recent years can be attributed to a variety of factors, including meteorology, increased activities at ports, and additional sources of PM_{2.5} precursors. Additionally, in January 2015, two new near-road monitors started operating and providing valid data: the Ontario CA-60 and the Long Beach I-710 near-road monitors. PM_{2.5} concentrations are often higher at near road monitors, reflecting higher levels of resuspended dust, vehicle exhaust and brake and tire wear. Since 2017, the Ontario CA-60 near-road station has served as the design site in the basin.

Modeling Base Design Value Calculation

The PM_{2.5} annual design value for a specific year is determined by averaging the annual PM_{2.5} concentrations over a three-year period that includes the given year and the two preceding years. However, U.S. EPA guidance on modeling the attainment demonstration¹ recommends using a 5-year weighted design value centered on the base year selected for the attainment demonstration as the modeling Base Design Value (DVB). This 5-year weighted average approach recommended by EPA is to reduce year-to-year variability compared to a single 3-year design value. In the context of this plan, the DVB for each monitoring station is calculated as the average of the design values for 2018 through 2020 (denoted as DV 2018, DV 2019, and DV 2020 in Figure 5-2). This calculation covers a 5-year period from 2016 through 2020, centered at the base year 2018. Under certain circumstances, the U.S. EPA allows modification of DVB calculation, such as in the case of exceptional events. Figure 5-2 presents the U.S. EPA-recommended DVB calculation on the left. The 2020 DV calculation includes the year 2020, which was marked by several extraordinary events that significantly altered PM_{2.5} concentrations in the basin. These events include the COVID-19 pandemic and associated changes in human activity, and record-setting wildfires. More details on the exceptionality of 2020 are discussed in Chapter 5 of Appendix II. To address this anomalous year this PM_{2.5} plan uses a modified DVB for 2018 that excludes the 2020 DV from DVB calculations and replaces it with the average of 2018 and 2019 annual means (Figure 5-2, right). In addition, exceptional events on July 4 and 5 due to Fourth of July fireworks are also excluded. Justification to exclude these days from DVB calculations is included in Appendix II.

¹ Modeling Guidance for Demonstrating Attainment of Air Quality Goals for Ozone, PM_{2.5}, and Regional Haze, U.S. EPA, November 2018. Available at: https://www.epa.gov/sites/default/files/2020-10/documents/o3-pm-rh-modeling_guidance-2018.pdf

2018 Base Design Value (DVB)			2018 Base Design Value (DVB)		
DV 2018	DV 2019	DV 2020	DV 2018	DV 2019	DV Modified
2016-2018	2017-2019	2018-2020	2016-2018	2017-2019	2018-2019
Average = DVB = $\frac{(DV\ 2018) + (DV\ 2019) + (DV\ 2020)}{3}$			Average = DVB = $(DV\ 2018) + (DV\ 2019) + \left(\frac{Avg2018 + Avg2019}{2}\right)$		

FIGURE 5-2
PM2.5 5-YEAR WEIGHTED AVERAGE FOR 2018 BASE DESIGN VALUE.
U.S. EPA'S DEFAULT METHODOLOGY (LEFT PANEL) AND MODIFIED METHODOLOGY TO
EXCLUDE YEAR 2020 (RIGHT PANEL). DV REFERS TO A 3-YEAR DESIGN VALUE.

Table 5-1 shows the annual 2018 DVB values for all monitoring stations within the Basin, and it includes the 2012 DVB presented in the 2016 AQMP. Notably, the Ontario CA-60 near-road monitor has the highest design value in 2018 (13.98 µg/m³) making it the designated design site for this PM2.5 plan. Mira Loma was the design site in the 2016 AQMP before data from the Ontario CA-60 near-road was available, but its DVB in 2018 is the second highest, with a decline from 14.87 µg/m³ in 2012 to 13.53 µg/m³. In general, the stations reported in the 2016 AQMP experienced a decrease in DVB from 2012 to 2018. While the DVB values for 2012 included the exceptional events of Fourth of July fireworks, which might amplify the reductions in DVB from 2012 to 2018 slightly, trends show that the annual PM2.5 concentrations keep improving.

TABLE 5-1
WEIGHTED ANNUAL PM_{2.5} DESIGN VALUES FOR 2012 FROM THE 2016 AQMP AND FOR 2018
CALCULATED FOR THE DRAFT PM_{2.5} PLAN (µg/m³)

Monitoring Site	Annual 2012 DVB from the 2016 AQMP	Annual 2018 DVB*
Anaheim-Pampas Lane	10.57	10.55
Azusa	-	10.13
Big Bear	-	6.35
Los Angeles-North Main Street	12.43	11.97
Compton-700 North Bullis Road	-	12.25
Fontana-Arrow Highway	12.60	11.35
Long Beach-Route 710 Near Road	-	12.28
North Long Beach	-	10.53
Mira Loma Van Buren	14.87	13.53
Mission Viejo-26081 Via Pera	-	7.94
Ontario- Route 60 Near Road	-	13.98
Pasadena-S Wilson Avenue	-	9.68
Pechanga	-	6.36
Pico Rivera-4144 San Gabriel	-	11.87
Reseda	-	9.74
Riverside-Rubidoux	13.13	12.13
South Long Beach	-	10.58
San Bernardino-4th Street	-	10.87

* Calculated based on the modified methodology illustrated in Figure 5-2

PM_{2.5} Speciation

PM_{2.5} species profiles for the base year are required to project future design values of PM_{2.5}. The PM_{2.5} species required in the calculation of future design values are the following: sulfate (SO₄), nitrate (NO₃), ammonium (NH₄), elemental carbon (EC), sea salts (Salt), crustal species, organic carbon (OC), particle-bound water (PBW), and a blank. There are a total of four monitoring stations from the Chemical Speciation Network (CSN) that routinely measure PM_{2.5} speciation data in the Basin. These CSN monitors are collocated where their corresponding FRM monitors are located. With one site in each county, the

four CSN sites are strategically located to represent aerosol characteristics in the four counties within the Basin. Historically, Riverside-Rubidoux served as the design site, a location with the highest annual PM_{2.5} concentration in the Basin. Fontana and Anaheim experienced elevated concentrations within their respective counties, and the Central Los Angeles site was intended to capture the characteristics of an emission source area.

The measurements of individual species obtained from the CSN sites may differ from the retained mass of a specific species in the FRM filter, due to the inherent differences in the measurement techniques. To reconcile the expected differences between speciated and FRM measurements, species are adjusted following the SANDWICH method², which is described in the U.S. EPA modeling guidance.³ This adjustment results in reduced nitrates (relative to the amount measured by routine speciation networks), higher mass associated with sulfates and nitrates (reflecting water included in gravimetric FRM measurements), and an estimate of organic carbonaceous mass, which is derived from the difference between FRM-measured PM_{2.5} and the sum of all components except measured organic carbon. EPA's mass balance method sets a ceiling for OC mass (OCM) to be 80 percent of the total PM_{2.5} mass. However, based on scientific literature on PM_{2.5} speciation data taken in the greater Los Angeles area,^{4,5} this ceiling was set as the 50 percent of PM_{2.5} FRM mass. EPA's guidance also sets a floor value for OCM to be the measured OC value. However, the sum of individual species measured from CSN is sometimes larger than the FRM mass. Under this condition, the measured OC as floor would erroneously exaggerate the OC fraction while reducing the other species, therefore, the OC floor was scaled by the ratio of FRM mass divided by the total CSN mass.

Directly measured ammonium (associated with nitrate and sulfate) at CSN stations, which is equivalent to particulate ammonium retained on FRM filters, was used for the speciation profiles. These measurements, however, were capped with fully neutralized ammonium, which is calculated as follows:

$$\text{Ammonium ceiling} = 0.375 \times \text{sulfate} + 0.29 \times \text{retained nitrate}$$

PBW was estimated using a polynomial regression equation fitted to the equilibrium model Aerosol Inorganic Matter (AIM) as a function of sulfate, nitrate, and adjusted ammonium concentrations. Most

² Frank, Neil. (2006). Retained Nitrate, Hydrated Sulfates, and Carbonaceous Mass in Federal Reference Method Fine Particulate Matter for Six Eastern U.S. Cities. Journal of the Air & Waste Management Association (1995). 56. 500-11. 10.1080/10473289.2006.10464517.

³ Modeling Guidance for Demonstrating Attainment of Air Quality Goals for Ozone, PM_{2.5}, and Regional Haze, U.S. EPA, November 2018. Available at: https://www.epa.gov/sites/default/files/2020-10/documents/o3-pm-rh-modeling_guidance-2018.pdf

⁴ Hayes et al., 2013. Organic aerosol composition and sources in Pasadena, California, during the 2010 CalNex campaign. Journal of Geophysical Research, 118, 9233-9257

⁵ Shirmohammadi et al., 2016. Fine and Ultrafine Particulate Organic Carbon in the Los Angeles Basin: Trends in Sources and Composition. Science of Total Environment, 541, 1083-1096

FRM monitors in the Basin lack a co-located CSN monitor. Thus, as recommended by EPA guidance⁶, the individual speciation components from nearby CSN monitors were interpolated to the locations of FRM monitors that do not have a co-located CSN monitor using Inverse Distance Squared Weights. The interpolated speciated component at a given unmonitored location in the Basin is calculated using a weighted average of CSN monitor values, with weights of a monitor calculated as a function of the inverse squared distance from said monitor.

Figure 5-3 and Figure 5-4 compare PM_{2.5} speciation fraction profiles estimated for the 2016 AQMP and the current Draft PM_{2.5} Plan at the Central LA and Riverside-Rubidoux monitoring stations, respectively. Speciated monitor data from 2017 through 2019 was used for the Draft PM_{2.5} Plan speciation fraction profile, while the 2016 AQMP speciation profile was calculated using the data collected in 2012. Generally, nitrate, elemental carbon (EC), and ammonium fractions have declined between the 2016 AQMP and the Draft PM_{2.5} Plan across all seasons. This reduction reflects the effect of existing rules and regulations aimed at reducing primary PM_{2.5} and its precursor emissions.

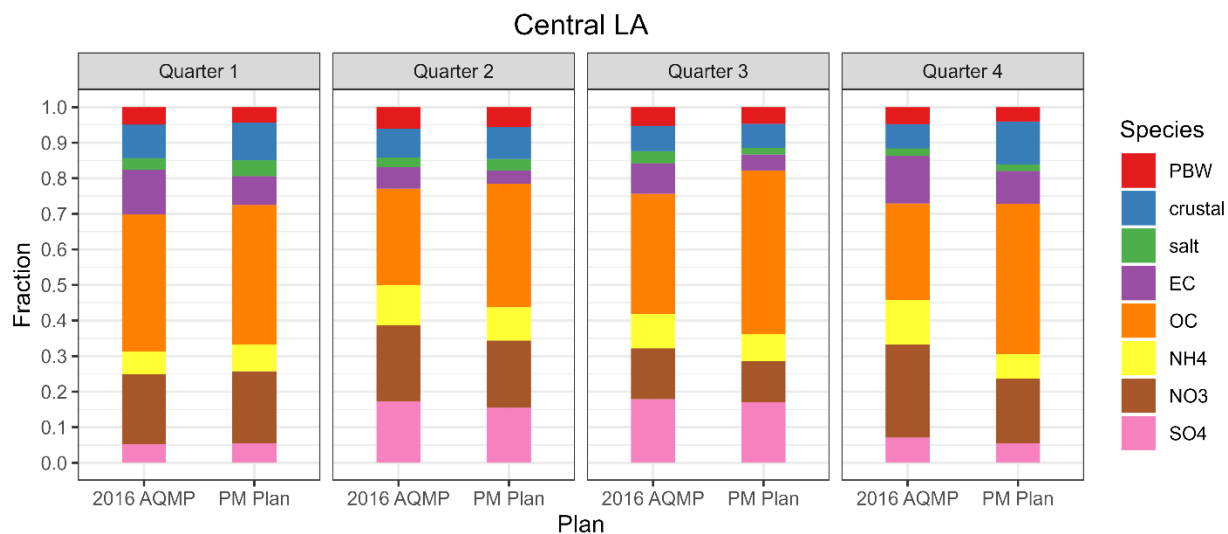


FIGURE 5-3
COMPARISON OF CENTRAL LA PM_{2.5} SPECIATION FRACTION PROFILE INCLUDED IN THE 2016 AQMP AND THE DRAFT PM_{2.5} PLAN

⁶ Modeling Guidance for Demonstrating Attainment of Air Quality Goals for Ozone, PM_{2.5}, and Regional Haze, U.S. EPA, November 2018. Available at: https://www.epa.gov/sites/default/files/2020-10/documents/o3-pm-rh-modeling_guidance-2018.pdf

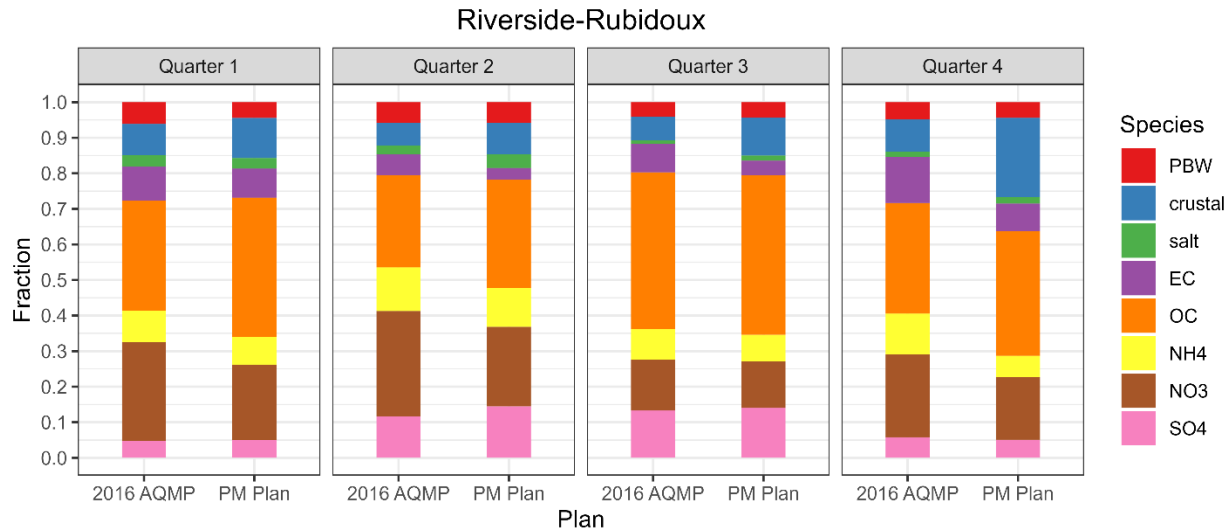


FIGURE 5-4
COMPARISON OF RIVERSIDE PM2.5 SPECIATION FRACTION PROFILE INCLUDED IN THE 2016 AQMP AND THE DRAFT PM2.5 PLAN

Annual PM2.5 Modeling Approach

Simulations for PM2.5 concentrations were conducted for the 2018 base year and the 2030 attainment year. CMAQ simulations covered the entire year of 2018 (from January 1st to December 31st). These simulations encompassed 8,760 consecutive hours from which daily 24-hour average PM2.5 concentrations were calculated. PM2.5 is divided into primary particles – which are directly emitted into the atmosphere – and secondary particles – which are formed from precursor gases. Sources of primary PM2.5 include but are not limited to road dust, diesel soot, and combustion products. Secondary products, such as sulfates, nitrates, and complex organic carbon compounds, are formed through chemical reactions involving oxides of sulfur (SOx), oxides of nitrogen (NOx), VOCs, and ammonia (NH3). The following section summarizes the PM2.5 modeling approach adopted for this Plan. The comprehensive modeling system used for this Plan includes photochemical reactions involved in the formation of PM2.5, horizontal and vertical transport, and removal mechanisms such as deposition. More detailed information on the PM2.5 modeling is presented in Appendix II.

Meteorology, Emissions, and Air Quality Model Configuration

The emissions inventory and meteorological conditions were developed for 2018, which was selected as the base year for emissions and meteorology. U.S. EPA requires the base year to be one of the three years

of which DV was used in designation/re-classification,⁷ and 2018 was the year that U.S. EPA relied on to re-classify the Basin from “moderate” to “serious” non-attainment area.⁸ In addition, the Multiple Air Toxics Exposure Study V (MATES V)⁹ conducted during 2018 involved comprehensive monitoring and numerical modeling. This effort contributed to the development of a robust dataset to evaluate modeling performance and to improve capabilities for modeling year 2018.

The PM_{2.5} Plan attainment demonstration framework is an upgrade from the modeling platform used in the 2022 AQMP and more recent SIP revisions. The framework uses the U.S. EPA-supported CMAQ modeling platform (version 5.3.3), incorporating the Statewide Air Pollution Research Center (SAPRC) 07 chemistry, and uses meteorological fields from the Weather Research and Forecasting Model (WRF). The modeling platform tracks primary pollutants, including precursors of ozone and particulate matter (PM_{2.5}) as well as the formation of secondary pollutants like ozone and particles that result from chemical reactions occurring in the atmosphere. The simulations were conducted over an area with a western boundary over 100 miles west of the Ports of Los Angeles and Long Beach. The eastern boundary extends slightly beyond the Colorado River, while the northern and southern boundaries of the domain extend to the San Joaquin Valley and the Northern portions of Mexico, respectively. CMAQ was performed at a 4 km by 4 km grid resolution. For the PM_{2.5} Plan, WRF was updated to the most recent version (4.4.2) available at the time of protocol preparation. The WRF simulations were initialized using National Centers for Environmental Prediction (NCEP) re-analysis data¹⁰ and run for three-day increments with four-dimensional data assimilation (FDDA).

Spatial and temporal allocation of emissions followed the same methodology used in the 2022 AQMP. Point source emissions were extracted from the South Coast AQMD’s Annual Emissions Reporting Program and were allocated to specific days of the year using temporal allocation factors developed by CARB. On-road mobile source emissions were calculated using CARB’s EMFAC2021 emissions model, incorporating vehicle travel activity data provided by Southern California Association of Governments (SCAG). Vehicle emissions accounted for meteorological effects on operational and evaporative emissions (temperature and relative humidity effects) which were derived from daily meteorological variables predicted with WRF. In addition, hourly vehicle activity profiles based on the California Department of Transportation (Caltrans) Performance Measurement System (PeMS) were used to refine the temporal variation of vehicle emissions. Spatial and temporal allocation of emissions from area sources and most off-road emissions sources were calculated using the latest spatial and temporal surrogates developed by CARB, which were released in January 2021. In addition, ocean-going vessel emissions were spatially allocated using data from the Automated Identification System (AIS), and aircraft emissions from major airports within the basin were allocated using aircraft location information data derived from the Aircraft Communication Addressing and Reporting System (ACARS). Gridded hourly biogenic emissions were calculated using the Model of Emissions of Gases and Aerosols from Nature version 3.0 (MEGAN3.0)

⁷ 40 CFR 51.1008

⁸ 85 FR 40026

⁹ <http://www.aqmd.gov/docs/default-source/planning/mates-v/mates-v-final-report-9-24-21.pdf?sfvrsn=6>.

¹⁰ NCEP Reanalysis data provided by the NOAA/OAR/ESRL PSL, Boulder, Colorado, USA, from their Web site at: <https://psl.noaa.gov/data/gridded/data.narr.html>.

driven by the meteorological inputs from WRF. More details on the modeling approach, data retrieval, model development and enhancement, model application, emissions inventory development, and interpretation of results is presented in Appendix II.

Design Values and Relative Response Factors (RRF)

To bridge the gap between air quality model predictions and measurements, U.S. EPA guidance¹¹ has recommended the use of relative response factors (RRFs). In this approach, future year concentration predictions require two elements: base year design values and RRFs. The RRF is simply a ratio of the future year predicted air quality to the simulated air quality in the base year, representing the model predicted change in air quality in response to predicted emissions changes. For the annual PM_{2.5} attainment demonstration, base year and future modeled concentrations are calculated as a quarterly average of a 3-by-3 grid centered at each station for each specific component. The ratio of base to future year quarterly mean concentrations for each component is the RRF for that component. Individual RRFs are calculated for NH₄, NO₃, SO₄, EC, OC, salt, and a combined grouping of crustal compounds and metals (Others). Future year design values were calculated by multiplying species- and site-specific RRFs by the corresponding quarterly design values. Once the future values for NH₄, NO₃ and SO₄ are calculated using RRFs, future PBW quarterly values are computed using the same polynomial fitting used in the SANDWICH method. The total future quarterly values at each site are then calculated by adding all the individual components and the blank. The four quarterly average concentrations are then averaged at each site to determine the future annual design values.

Model Performance Evaluation

The U.S. EPA recommends operational evaluations to assess how accurately the model predicts observed concentrations. The basis for this recommendation is that if the model can characterize base year PM_{2.5}, then greater confidence can be placed in the model-prediction of future concentrations. Figure 5-5 depicts the modeled and measured daily PM_{2.5} concentrations at stations of Los Angeles, Compton, Mira Loma, and Ontario CA-60 near-road during January 1 through December 31 of 2018. PM_{2.5} mass was measured every day for all stations in this Figure, except Compton at which PM_{2.5} was measured every three days. CMAQ predicts daily PM_{2.5} mass and seasonal variation of PM_{2.5} reasonably well with overestimation in winter months and underestimation in summer months. A comprehensive model performance evaluation for PM_{2.5}, NH₄, NO₃, SO₄, organic matter (OM), EC, and crustal species concentrations is presented in Appendix II.

Figure 5-6 shows the modeled (orange) and measured (blue) annual PM_{2.5} species concentrations at Anaheim, Central Los Angeles, Fontana, and Riverside in 2018. The model tends to overestimate

¹¹ Modeling Guidance for Demonstrating Attainment of Air Quality Goals for Ozone, PM and Regional Haze. Available at: https://www.epa.gov/sites/default/files/2020-10/documents/draft-o3-pm-rh-modeling_guidance-2014.pdf

concentrations at Central Los Angeles, which is near major sources of emissions. Conversely, the model tends to underestimate PM_{2.5} species concentrations at inland stations in Fontana and Riverside. Overall, the model predicts NH₄ ion, SO₄, nitrate, EC, and OM concentrations reasonably well. Model results accurately capture the relative contributions of PM_{2.5} species and show that nitrate and OM are the largest contributors to total PM_{2.5}.

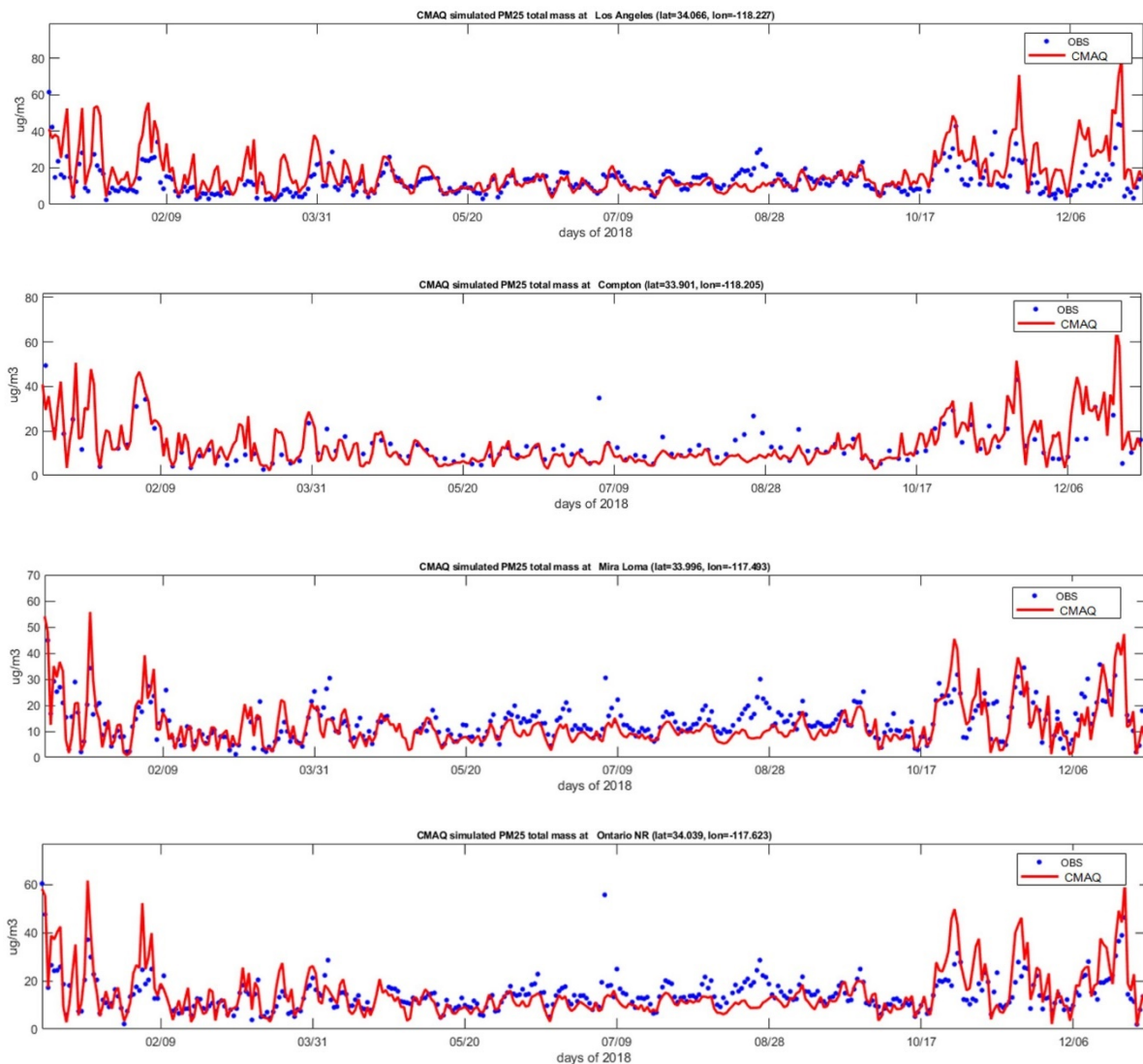
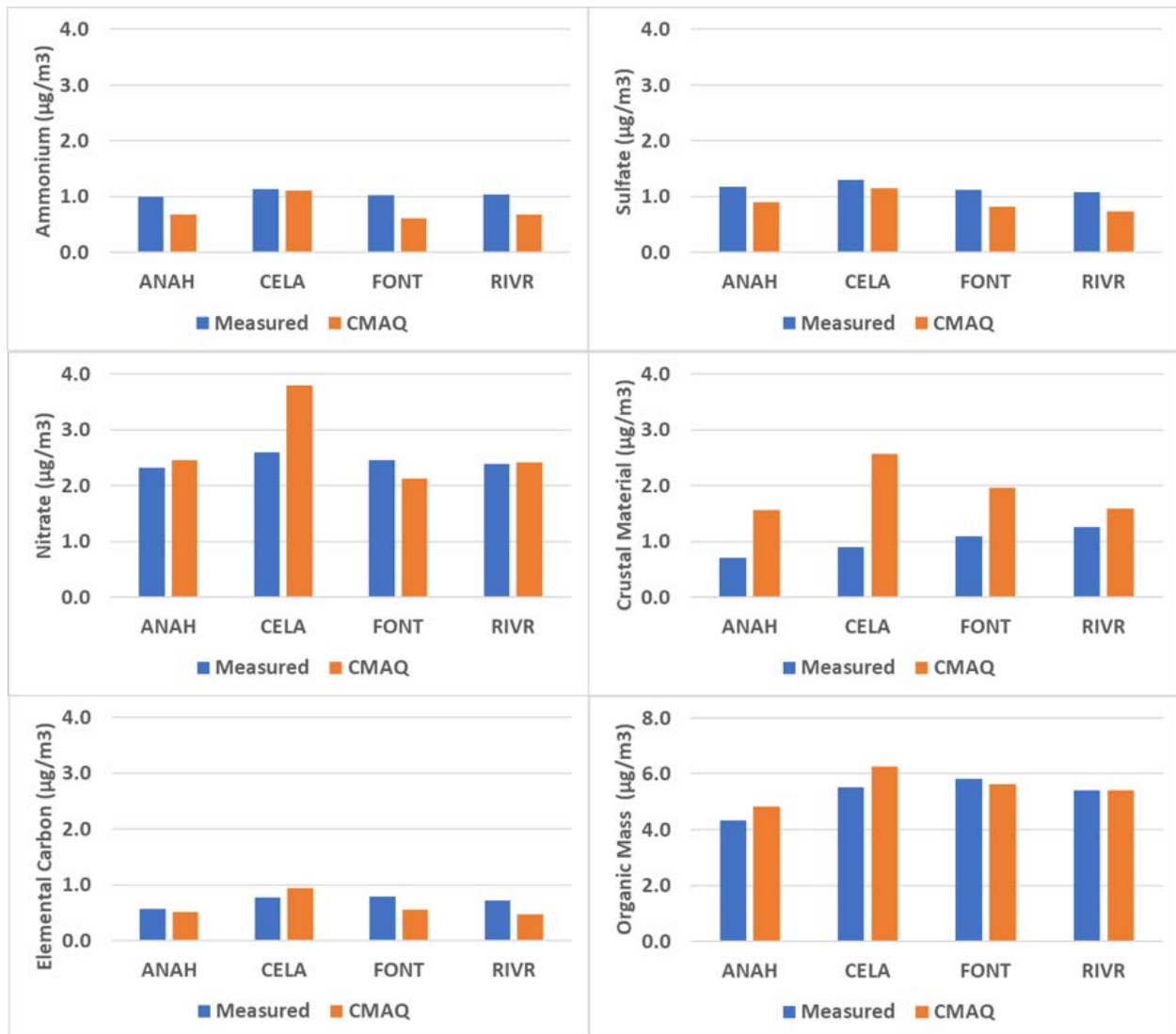


FIGURE 5-5
MODELED AND OBSERVED DAILY PM_{2.5} CONCENTRATIONS AT (TOP TO BOTTOM) LOS ANGELES, COMPTON, MIRA LOMA, ONTARIO NEAR-ROAD DURING JAN 1 THROUGH DEC 31, 2018



**FIGURE 5-6
MODELED (ORANGE) AND OBSERVED (BLUE) ANNUAL PM_{2.5} SPECIES CONCENTRATIONS IN
ANAHEIM (ANAH), CENTRAL LOS ANGELES (CELA), FONTANA (FONT), RIVERSIDE (RIVR)
DURING 2018**

Figure 5-7 shows the modeled (orange) and observed (blue) seasonal variation of nitrate and OM concentrations at Anaheim, Central Los Angeles, Fontana, and Riverside in 2018. The model predicts the seasonality of nitrate (top) and OM (bottom), accurately capturing peak nitrate and OM concentrations during winter months, and their subsequent drops during the summer. This is due to increased humidity, cooler temperatures, and frequent nocturnal inversions, conditions which favor the formation of ammonium nitrate, a significant component of secondary PM_{2.5}. Summer months, in contrast, increase the volatility of nitrate, leading to relatively lower pollutant concentrations.

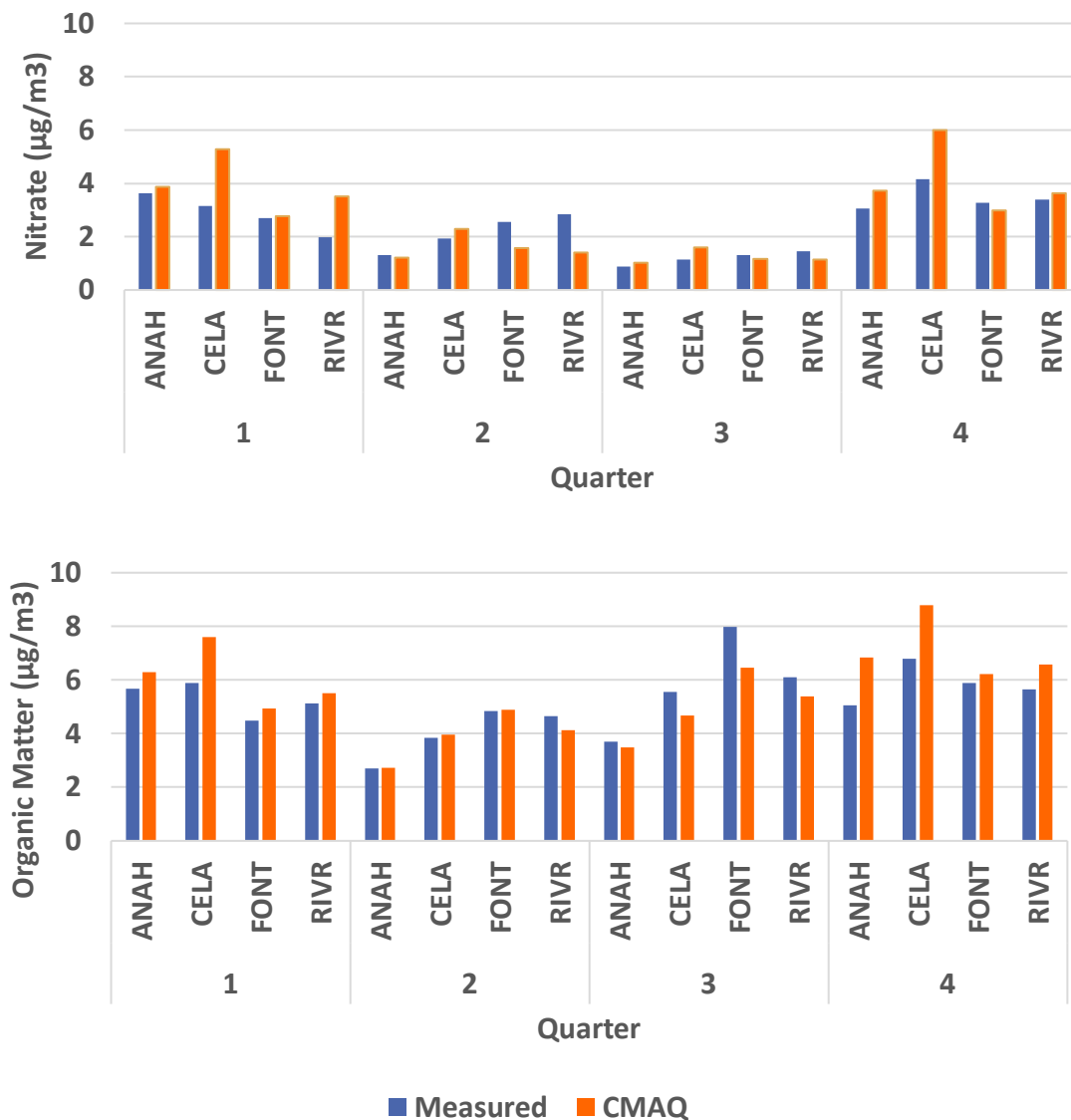


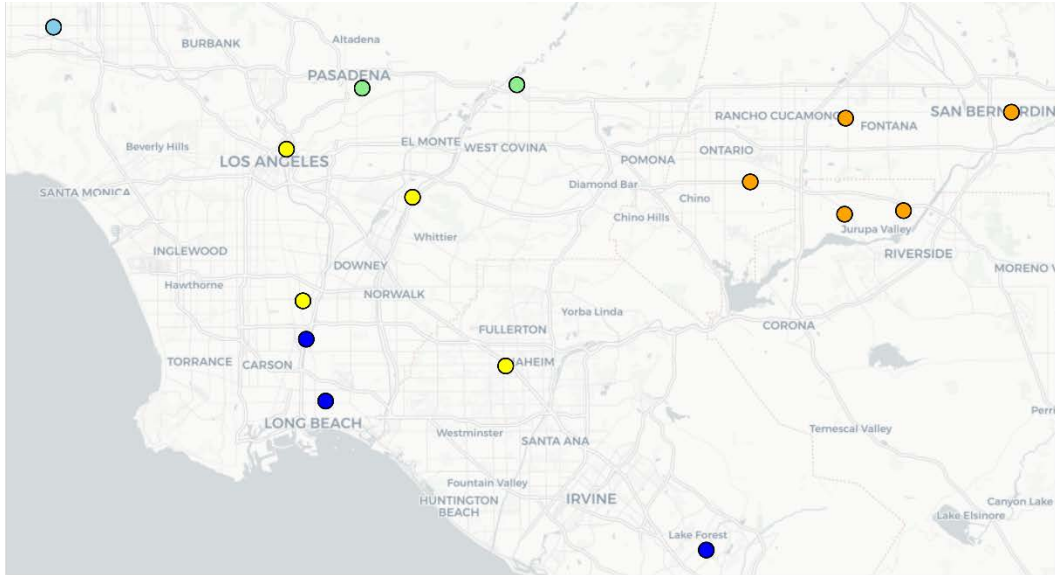
FIGURE 5-7

MODELED AND OBSERVED SEASONAL VARIATION OF NITRATE AND ORGANIC MATTER AT ANAHEIM (ANAH), CENTRAL LOS ANGELES (CELA), FONTANA (FONT), RIVERSIDE (RIVR) IN 2018

CMAQ performance evaluation segments the modeling domain into several sub-regions or zones. Table 5-2 lists the station locations and their assigned performance evaluation zone used to assess base-year simulation performance. Figure 5-8 maps the location of each station in the Basin. The “Urban Source” region typically has the highest emissions of PM_{2.5} and its precursors in the Basin, whereas the “Urban Receptor” region tends to experience high concentrations of secondary pollutants. Table 5-3 shows the model performance for daily PM_{2.5} in 2018 in each zone. While CMAQ underestimates PM_{2.5} mass in the San Fernando region and overestimates PM_{2.5} in over the Foothills and Urban Source regions, it shows the best model performance over the Urban Receptor region, which includes the Basin’s design site.

**TABLE 5-2
STATION INFORMATION OF PERFORMANCE EVALUATION ZONES**

Station Location	Performance Evaluation Zone
Long Beach	Coastal
Mission Viejo	Coastal
South Long Beach	Coastal
Azusa	Foothills
Pasadena	Foothills
Reseda	San Fernando
Fontana	Urban Receptor
Mira Loma	Urban Receptor
Ontario Near Road	Urban Receptor
Riverside	Urban Receptor
San Bernardino	Urban Receptor
Anaheim	Urban Source
Compton	Urban Source
Los Angeles	Urban Source
Pico Rivera	Urban Source



Performance Evaluation Zone ● Coastal ● Foothills ● San Fernando ● Urban Receptor ● Urban Source

FIGURE 5-8
MAP OF PERFORMANCE EVALUATION ZONES

TABLE 5-3
MODEL PERFORMANCE FOR DAILY PM_{2.5} OF 2018

	Observation ($\mu\text{g}/\text{m}^3$)	Simulation ($\mu\text{g}/\text{m}^3$)	Correlation R ²	Normalized Mean Bias (%)	Normalized Mean Error (%)
Coastal	10.5	11.4	0.66	7.8	43.0
San Fernando	10.5	10.1	0.53	-3.5	33.1
Foothills	10.6	15.1	0.49	38.5	56.8
Urban Source	12.7	14.4	0.68	12.4	41.4
Urban Receptor	12.7	12.9	0.68	0.6	33.8

Future PM_{2.5} Air Quality

Annual concentrations of PM_{2.5} were simulated for the base year 2018 and two future milestone years: 2025 and 2030. Both baseline and control scenarios were analyzed for 2030, the future attainment year. The outcomes are detailed in Figure 5-9 and Table 5-4.

The CA-60 Ontario near-road monitor is the base year's design site with a value of 13.98 $\mu\text{g}/\text{m}^3$ and is predicted to maintain the highest PM_{2.5} concentrations in the basin based on the baseline simulations for 2025 and 2030 (Figure 5-9). The projected design values at that site for 2025 is 13.09 $\mu\text{g}/\text{m}^3$, failing to meet the standard of 12 $\mu\text{g}/\text{m}^3$. Similarly, Mira Loma is projected to exceed the standard in 2025, with a design value of 12.62 $\mu\text{g}/\text{m}^3$. This demonstrates that the basin requires additional time beyond 2025 to meet the annual PM_{2.5} standard.

The simulation of the 2030 baseline also indicates that Ontario CA-60 near-road and Mira Loma will still exceed the annual PM_{2.5} standard. The 2030 baseline includes emission reductions of 173 tons per day of NO_x, 58 tons per day of VOC, and 2 tons per day of PM_{2.5} with respect to 2018 base year emissions. As shown in Table 5-4, CA-60 Ontario near-road remains with the highest design value of 12.88 $\mu\text{g}/\text{m}^3$ under the 2030 baseline scenario. Additionally, the Mira Loma site is projected to exceed the 2012 annual PM_{2.5} standard with a design value of 12.48 $\mu\text{g}/\text{m}^3$. As a result, the 2030 baseline scenario falls short of demonstrating attainment, underscoring the need of additional emission reductions.

The strategy to attain the annual PM_{2.5} standard by 2030 is provided in Chapter 4 and Table 4-12, which includes co-benefits from the ozone strategy in the 2022 AQMP, as well as other proposed control measures within this PM_{2.5} Plan. However, the ozone strategy outlined in the 2022 AQMP includes 182(e)(5) measures that are permitted in the SIP/AQMP for ozone 'extreme' non-attainment status, but that are not permitted in this PM_{2.5} Plan. Thus, the 2030 attainment scenario outlined in this PM_{2.5} Plan relies on defined control measures and excludes 182(e)(5) measures from the 2022 AQMP, such as reductions from ocean-going vessels by 2030. Reflecting control measures presented in Chapter 4, emissions of NO_x, NH₃, and PM_{2.5} decrease by 17%, 4% and 3%, respectively.

Measures targeting mobile source emissions are the primary drivers of NO_x emissions reductions as over 80% of the NO_x in the Basin are from these sources. Reductions of PM_{2.5} are equally attributable to measures directed at reducing stationary and mobile source emissions. See Table 4-12 for the emission reductions of NO_x and PM_{2.5} included in the attainment scenario. Detailed descriptions of control measures and their expected reductions are also outlined in Chapter 4 and Appendix II. These reductions guarantee attainment of the 2012 federal annual PM_{2.5} standard by 2030 at all stations except CA-60 Ontario. The demonstration of attainment at the Ontario CA-60 near-road monitor requires a specific methodology that better represents the impact of on-road emissions on the near-road monitor. This novel methodology for the attainment demonstration at near-road sites is summarized in the following section.

We explored whether attaining the standard earlier would be possible with 2029 baseline emissions. Assuming a linear progress in the emission reductions resulting from the measures in this Plan between

milestone years 2028 and 2030, the approximate emissions reductions with respect to the 2029 baseline would be 24 and 0.9 tons per day of NO_x and PM_{2.5}, respectively. These reductions are from linear interpolation, not a commitment by either South Coast AQMD or CARB. Actual reductions from a rule or control measure often occur as stepwise function, not in a linear context. Our modeling system indicates that a change of one ton per day in NO_x and PM_{2.5} emissions corresponds to roughly 0.006 µg/m³ and 0.121 µg/m³ changes in the annual PM_{2.5} design value at Mira Loma. Applying this response rate and the expected emission reductions in 2029, the design value at Mira Loma is projected to be 12.15 µg/m³ in 2029. This demonstrates that the earliest attainment of the annual PM_{2.5} standard would be in 2030.

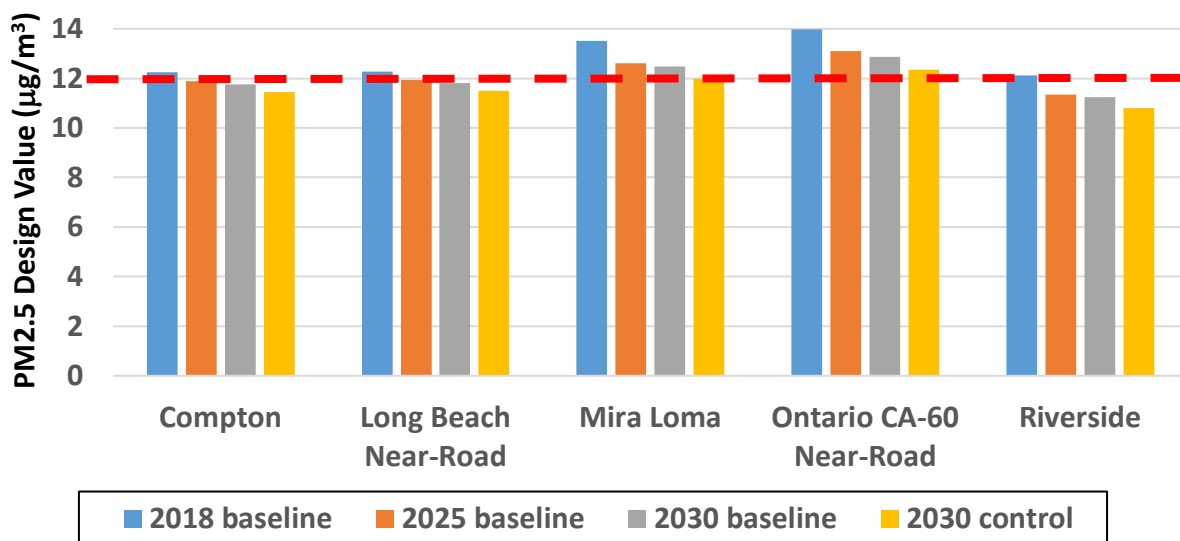


FIGURE 5-9
ANNUAL PM_{2.5} DESIGN VALUES. THE 2012 ANNUAL PM_{2.5} NAAQS IS DENOTED WITH A HORIZONTAL RED DASHLINE

TABLE 5-4
RRF-BASED ANNUAL PM_{2.5} DESIGN VALUES FOR BASE AND FUTURE YEARS (µg/m³)

Station	2018	2025 Baseline	2030 Baseline	2030 Attainment Scenario
Anaheim	10.54	10.22	10.15	9.90
Azusa	10.13	9.7	9.54	9.23
Big Bear	6.34	5.87	5.86	5.67
Los Angeles	11.96	11.48	11.36	11.02
Compton	12.25	11.89	11.75	11.44
Fontana	11.35	10.66	10.51	10.04
Long Beach near-road	12.28	11.95	11.81	11.51
Long Beach	10.53	10.25	10.14	9.90
Mira Loma	13.52	12.62	12.48	11.98
Mission Viejo	7.95	7.61	7.51	7.31
Ontario Near-road	13.98	13.09	12.88	11.59*
Pasadena	9.68	9.31	9.22	8.95
Pico Rivera	11.87	11.48	11.32	10.99
Reseda	9.73	9.06	9.01	8.73
Riverside	12.13	11.35	11.24	10.80
South Long Beach	10.57	10.31	10.21	9.96
San Bernardino	10.88	10.12	10.00	9.56

*Design Value from the hybrid approach for the Ontario Near-Road monitor. If the CMAQ based RRF is used, the future DV would be 12.35 µg/m³

Attainment Demonstration for the Near-Road Monitor

The current design site in the basin is the near-road monitor located by CA-60 freeway in Ontario. The monitor is sited just 16 meters away from the freeway, as shown in Figure 5-10, and is heavily influenced by the emissions released from vehicles as well as resuspended particles caused by moving traffic. The Ontario CA-60 near-road monitor was established before 2015 and the monitored data became available for regulatory purposes since 2015. Since then, the station recorded the highest annual average PM_{2.5} concentration in the basin. This monitor surpassed the concentrations at the previous design site in Mira Loma, which is located approximately 12 km eastward. However, the differences in annual PM_{2.5} concentrations between Mira Loma and CA-60 near-road have narrowed since 2015, as shown in Figure 5-11. This trend can be attributed to the fact that emissions from on-road sources have decreased substantially more than all other sources in the basin (see Figure 5-12), and as a result, PM_{2.5} concentrations at near-road monitors are decreasing faster than concentrations at regional monitors that represent air quality of wider areas.



FIGURE 5-10
LOCATION OF THE ONTARIO CA-60 NEAR-ROAD MONITOR

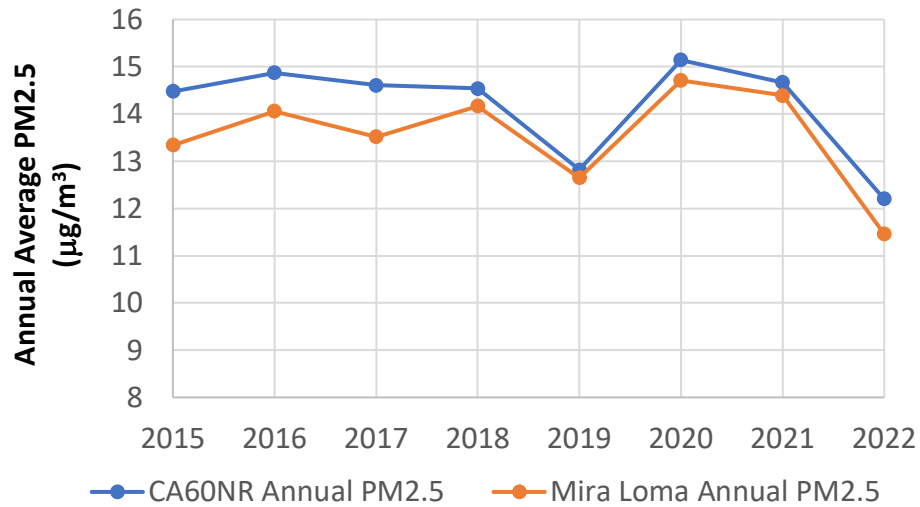


FIGURE 5-11
ANNUAL AVERAGE PM_{2.5} CONCENTRATIONS AT THE CA-60 NEAR-ROAD AND MIRA LOMA MONITORS SINCE THE DEPLOYMENT OF THE CA-60 NEAR-ROAD MONITOR

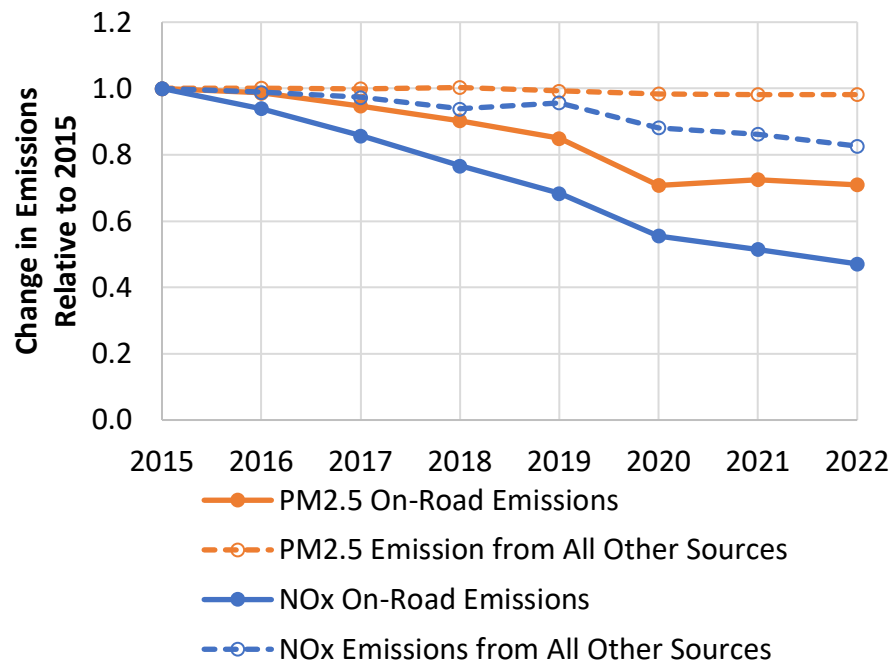


FIGURE 5-12
TRENDS IN EMISSIONS OF DIRECT PM_{2.5} AND NO_x FROM ON-ROAD COMPARED TO THE REST OF EMISSION SOURCES FROM 2015 TO 2022

Regional chemical transport modeling is designed to calculate air quality that is representative at the grid resolution of the model. This attainment demonstration uses a model resolution of 4 km by 4 km grid, and thus, should model concentration at monitors that are representative of a similar area. Near-road sites are heavily impacted by near-road sources and thus, are not representative of the overall grid. For monitors affected by localized sources like the CA-60 Ontario near-road site, the U.S. EPA modeling guidance suggests additional modeling techniques that would support the attainment demonstration. These techniques include increasing model resolution to a finer grid or using dispersion modeling to assess the impact of primary PM_{2.5} emissions from near sources on the monitor.

Approach to Model the Effect of Near-road Sources

As the modeling guidance suggests, a regional chemical transport model may not be sufficient to represent the large gradients in PM_{2.5} concentrations at near-road monitors. As depicted in Figure 5-13, measurements at the near-road monitor observe a large contribution from near-road sources, whereas a regional model only observes those near-road impacts averaged over the entire area of the modeling grid. Thus, regional modeling is used to represent the air quality resulting from all regional sources plus the grid-average impacts of the near-road sources, whereas dispersion modeling is used to represent the near-road increment (NRI) that is the result from the monitor being next to freeway CA-60. Because of the proximity of the monitor to the freeway, it is reasonable to assume that the NRI is primarily due to direct PM_{2.5} emissions and that contribution of secondary PM_{2.5} to this NRI is negligible.

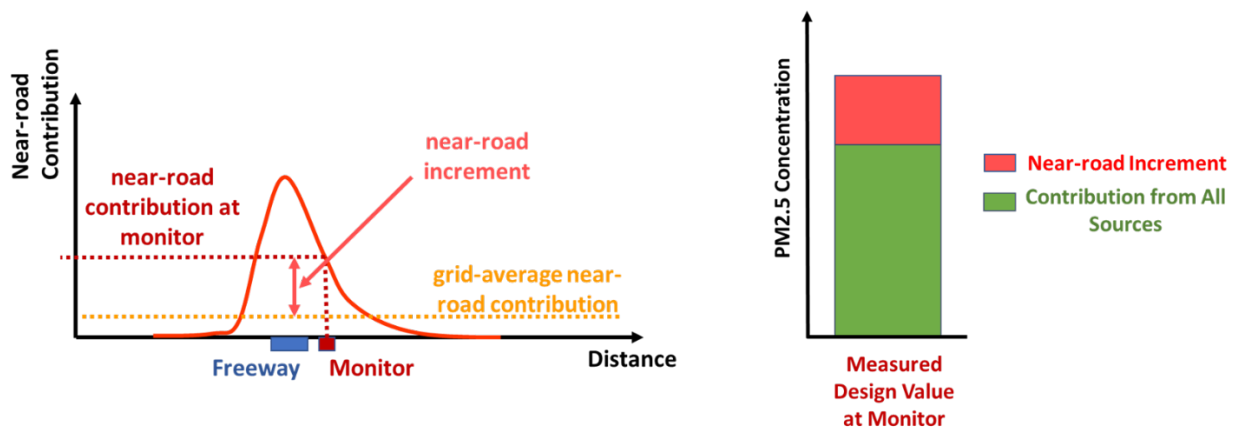


FIGURE 5-13
ILLUSTRATION OF THE NEAR-ROAD INCREMENT MODELED BY DISPERSION MODELING

The dispersion modeling is conducted using AERMOD, which is one of the official EPA dispersion models recommended for State Implementation Plan (SIP) revisions for existing sources and for New Source Review (NSR) and Prevention of Significant Deterioration (PSD) programs.¹² The modeling set-up only includes the emission sources along freeway CA-60 and its on- and off-ramps. Emission sources are grouped into 10 groups so that each category is modeled using distinctive emissions temporal and chemical profiles that can be tracked throughout the modeling. These emissions are derived from SCAG's vehicle activity dataset, which is also used in the regional modeling set-up. SCAG's dataset includes vehicle activity for 5 different vehicle classes: light and medium duty vehicles, light heavy-duty trucks, medium heavy-duty trucks, heavy heavy-duty trucks, and buses. EMFAC 2021 is used to calculate an aggregated emissions factor on a per-mile basis for these 5 groupings that includes exhaust, and tire and brake wear emissions. In addition, road dust emissions are estimated by using SCAG's vehicle activity and road information dataset and by using the road dust methodology described in Attachment H of Appendix III from the 2022 AQMP. In total, five vehicle categories and two emission processes per vehicle class for a total of ten sources of emissions are modeled using AERMOD. Detailed description of the AERMOD modeling setup is presented in Chapter 6 of Appendix II of this plan.

The estimated contributions of the near-road sources to annual PM_{2.5} at the CA60NR monitor determined by AERMOD for both 2018 and the 2030 attainment case are presented in Figure 5-14, by individual PM_{2.5} species. The annual average contribution of near-road sources at the monitor calculated using AERMOD in the 2018 base year is 3.13 µg/m³, which represents 22% of the base year design value. The contribution of near-road sources in the 2030 attainment case is projected to be 2.32 µg/m³, which corresponds to an overall 26% decrease from 2018. These results are used to determine the RRF for each PM_{2.5} species for the portion of the base year design value associated to the NRI.

¹² Air Quality Dispersion Modeling - Preferred and Recommended Models, Support Center for Regulatory Atmospheric Modeling (SCRAM), U.S. EPA, <https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models>

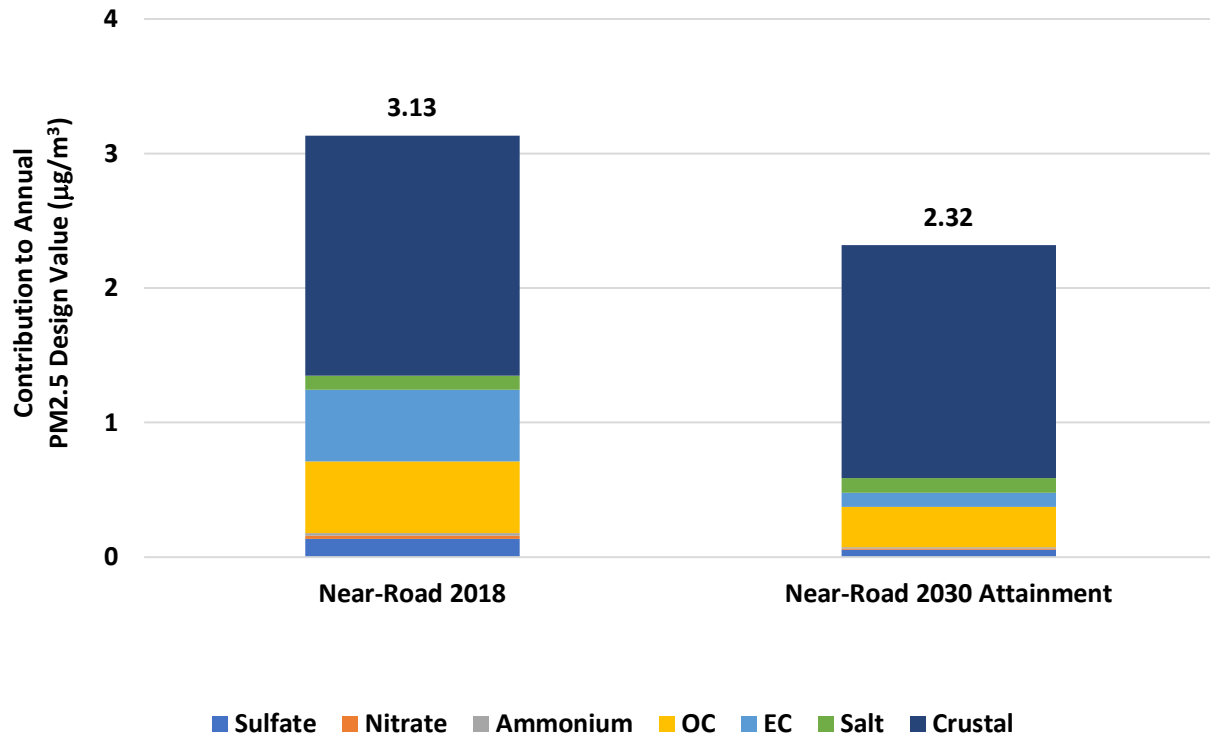


FIGURE 5-14
AERMOD ESTIMATED CONTRIBUTIONS FROM NEAR-ROAD SOURCES FOR 2018 AND
THE 2030 ATTAINMENT CASE

The NRI is calculated using the concentration at the monitor estimated with AERMOD and the grid cell average contribution of near road sources determined by modeling PM_{2.5} concentrations with CMAQ. The near-road contribution averaged over the CMAQ grid cell where the monitor is located at is 0.15 µg/m³, which subtracted from the near-road source contribution at the monitor (3.13 µg/m³) results in an annual average NRI of 2.98 µg/m³. Alternative approaches to determine the NRI are discussed in Chapter 6 of Appendix II of this Plan. More conservative estimates for NRI lower the values down to 1.64 µg/m³.

Once the NRI is disaggregated from the regional air quality impacts contribution, the future design value can be estimated by applying two differentiated RRF values to these two components. As illustrated in Figure 5-15, the regional air quality impacts are projected using the quarterly RRF calculated from regional air quality modeling, and the NRI portion is projected using the quarterly RRF calculated using the dispersion modeling results. The resulting design value for Ontario CA-60 using this hybrid approach is 11.59 µg/m³. The future design value calculated using this hybrid approach is sensitive to the magnitude of NRI. Because emissions from on-road sources are expected to decline faster than the overall emissions in the basin, the NRI portion is projected to decline faster than the overall design value. With more conservative estimates of NRI, the projected design value calculated using this hybrid modeling tends to

be higher. Using the most conservative NRI of 1.64 $\mu\text{g}/\text{m}^3$, the resulting DV at Ontario CA-60 is projected to be 11.91 $\mu\text{g}/\text{m}^3$, still demonstrating attainment of the annual PM_{2.5} standard. A more comprehensive description of the hybrid modeling methodology and calculation of design values using this novel approach is described in Chapter 6 of Appendix II.

Unlike the conventional modeling method, which suggests that the CA-60 near-road monitor would not meet the standard under the 2030 control scenario, this hybrid approach, specifically tailored to account for the sharp PM_{2.5} concentration gradients around the freeway, indicates that the projected annual PM_{2.5} concentration will remain below 12 $\mu\text{g}/\text{m}^3$.

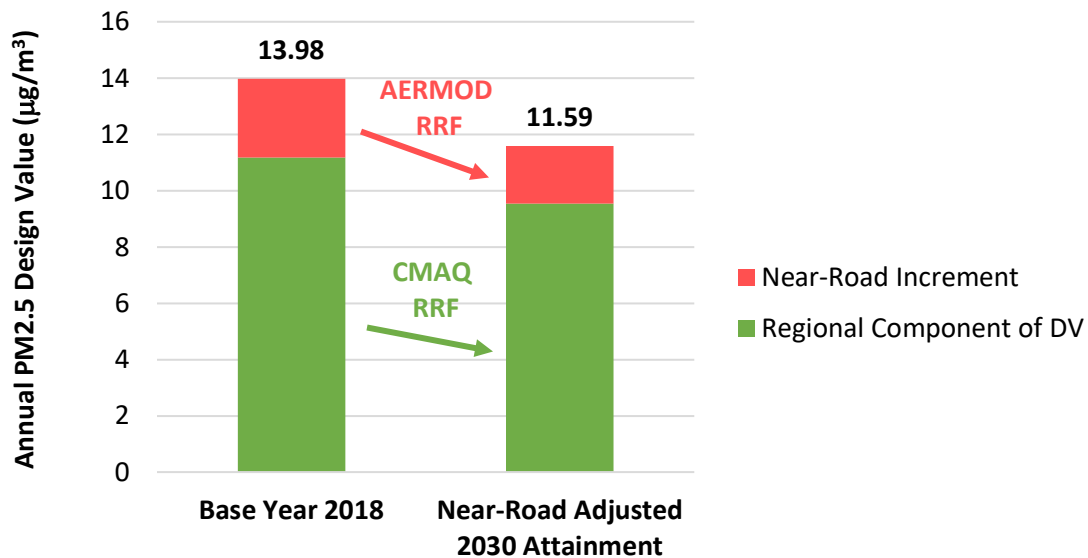


FIGURE 5-15
COMPARISON OF DESIGN VALUE PROJECTIONS BETWEEN THE TRADITIONAL APPROACH AND
THE HYBRID APPROACH TO ADJUST FOR NEAR-ROAD SOURCES

Spatial Projections of Annual PM_{2.5} Design Values

Figure 5-16 shows the Basin-wide spatial distribution of annual PM_{2.5} design values in the base year 2018 calculated based on interpolated design values using inverse distance-weighting of monitored DVs and model gradient-adjustment. Figures 5-17 and 5-18 show the Basin-wide spatial distribution of RRF-based annual PM_{2.5} design values for both the 2030 baseline and 2030 attainment scenario, respectively. By 2030 under baseline conditions (business-as-usual, Figure 5-17), design values exceeding the 12 µg/m³ federal standard are confined to a small region surrounding the Mira Loma and Ontario CA-60 monitoring stations in the northwestern boundary of Riverside and San Bernardino Counties. With the PM_{2.5} precursors reductions associated with the control measures proposed in this PM_{2.5} plan (Figure 5-18), the Basin is expected to meet the federal PM_{2.5} standard throughout the Basin.

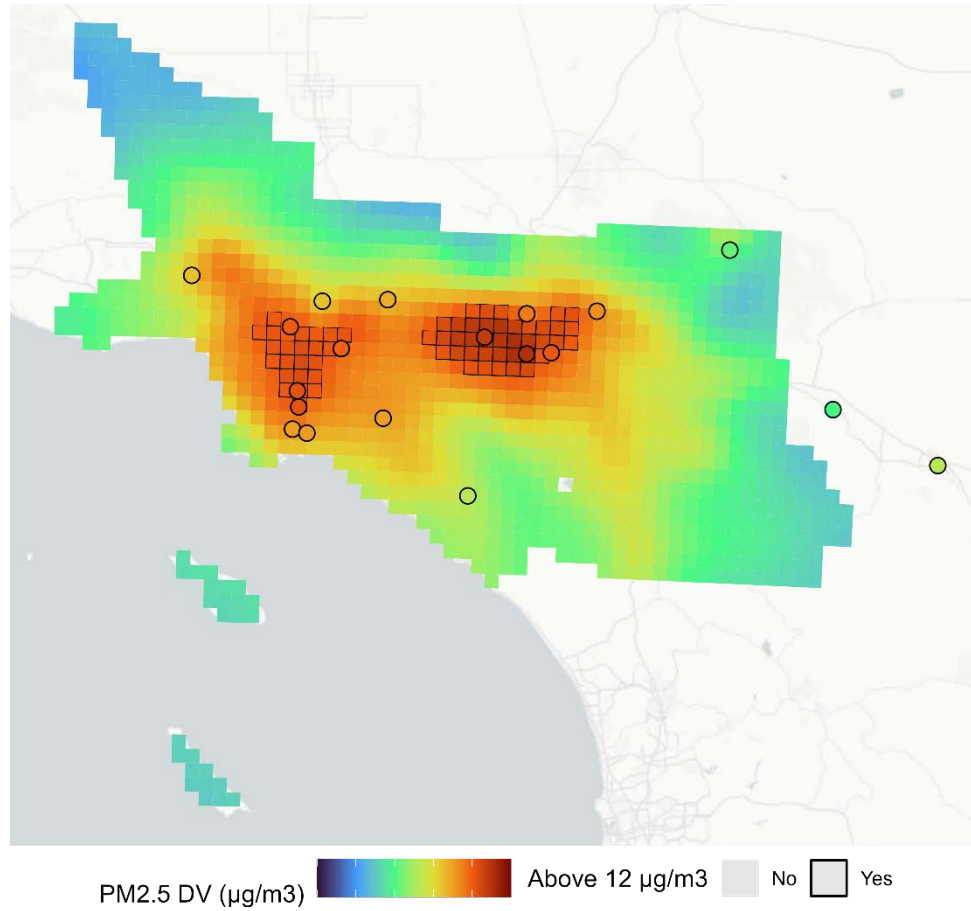


FIGURE 5-16
ANNUAL PM_{2.5} DESIGN VALUES (µg/m³) FROM THE 2018 BASELINE SCENARIO. CELLS EXCEEDING 12 µg/m³ ARE OUTLINED IN BLACK.

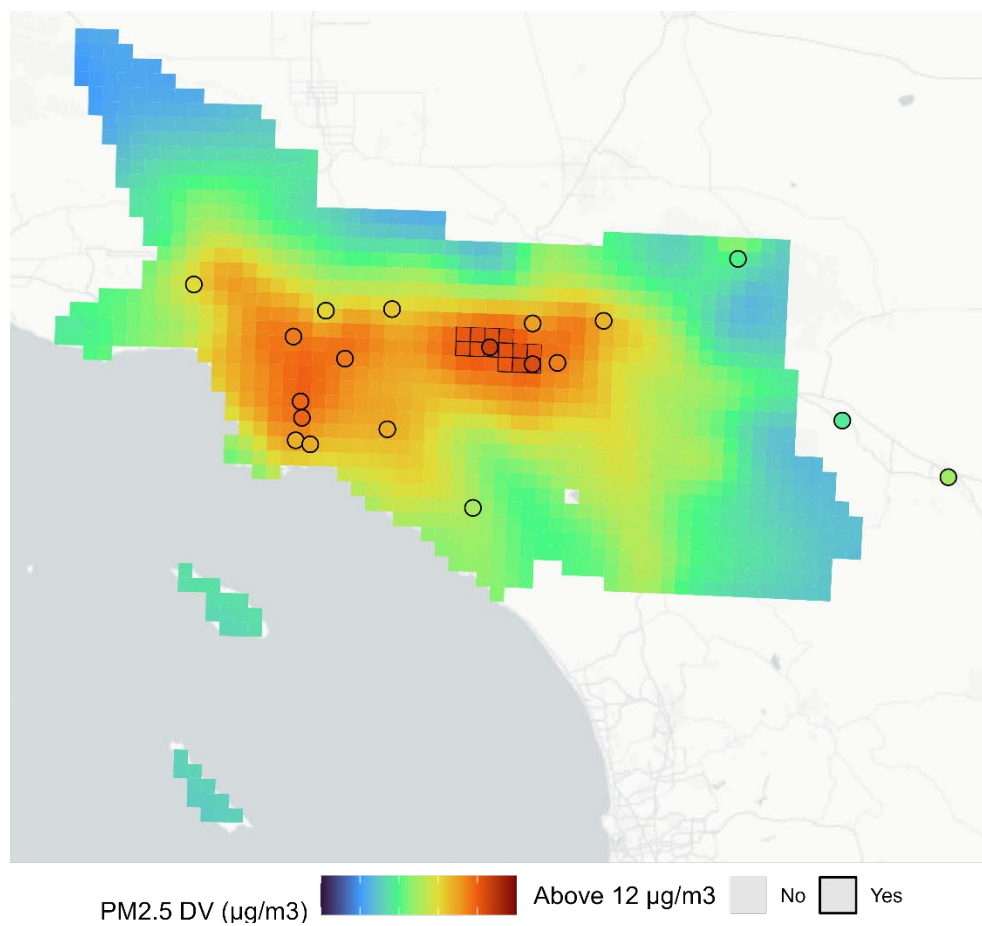


FIGURE 5-17
ANNUAL PM2.5 DESIGN VALUES ($\mu\text{g}/\text{m}^3$) FROM THE 2030 BASELINE SCENARIO. CELLS EXCEEDING $12 \mu\text{g}/\text{m}^3$ ARE OUTLINED IN BLACK.

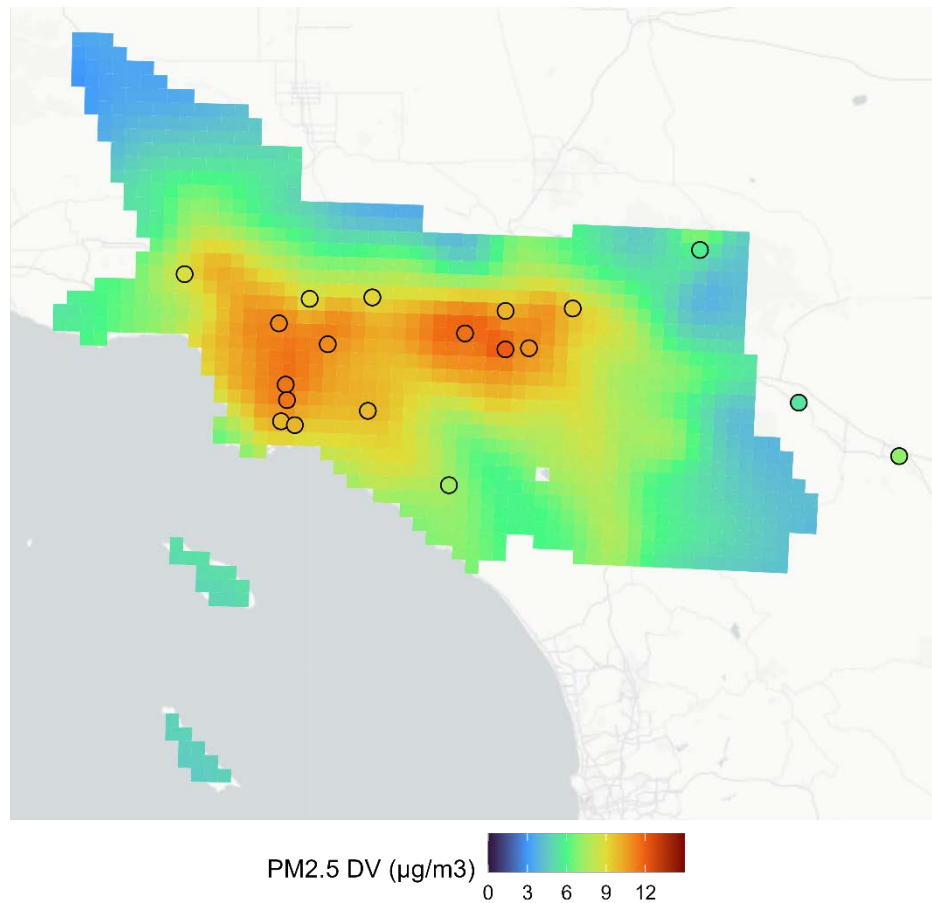


FIGURE 5-18
2030 ATTAINMENT ANNUAL PM_{2.5} RRF DESIGN VALUE CONCENTRATIONS.

Summary and Conclusions

Figure 5-19 presents the 2018 observed and 2030 projected future design values for annual PM_{2.5}. Mira Loma and Ontario CA-60 near-road stations are expected to exceed the annual PM_{2.5} standard under the 2030 baseline scenario. This 2030 baseline scenario projects emissions based on the rules that are in place by the cutoff date of this plan and represents a ‘business-as-usual’ projection. The emissions reductions beyond the baseline emission levels proposed in this Plan would enable the Basin to meet the 2012 annual PM_{2.5} standard. Table 5-5 summarizes the design values at the Mira Loma and Ontario CA-60 monitors, the two stations with the highest PM_{2.5} annual levels in the 2018 base year and the 2030 attainment year. Based on the design values for 2030 and model sensitivity analyses, the design value for 2029 at Mira Loma is projected to be above 12.04 µg/m³, exceeding the 2012 annual PM_{2.5} standard. Therefore, the earliest that the PM_{2.5} standard can be met in the South Coast Air Basin is projected to be 2030.

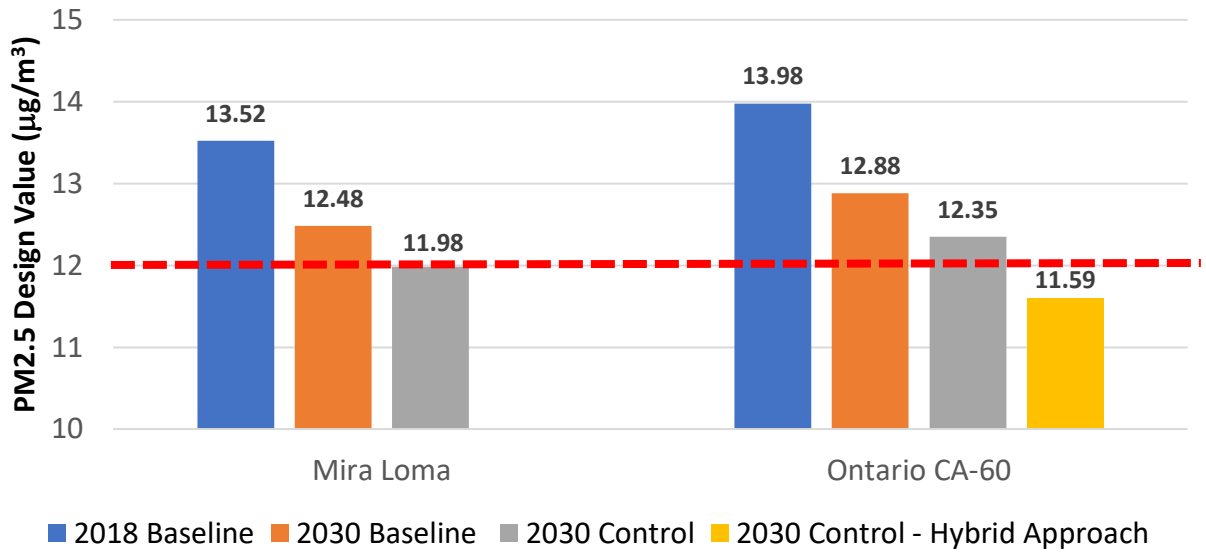


FIGURE 5-19
PROJECTION OF FUTURE ANNUAL PM_{2.5} AIR QUALITY IN THE BASIN IN COMPARISON
WITH 2012 FEDERAL ANNUAL PM_{2.5} STANDARDS

TABLE 5-5
FUTURE DESIGN VALUES OF ANNUAL AVERAGE PM_{2.5} AT MIRA LOMA AND ONTARIO CA-60 (in $\mu\text{g}/\text{m}^3$)

	Mira Loma		Ontario CA-60	
Calendar Year	Baseline	with Controls	Baseline	with Controls
2025	12.6	--	13.1	--
2030	12.5	12.0	12.9	11.6



CHAPTER 6

Federal Clean Air Act Requirements

- Due to unforeseen challenges such as adverse meteorology and high levels of PM_{2.5} recorded at near road monitors, it is impractical to attain the 2012 annual PM_{2.5} standard by the statutory “serious” area attainment date, December 31, 2025.
- This Plan requests an extension of the attainment date to December 31, 2030, as allowed by the Clean Air Act Section 188(e). With the control strategy proposed in this Plan, the South Coast Air Basin is expected to attain the 2012 annual PM_{2.5} standard by 2030.
- The PM_{2.5} Plan complies with SIP planning requirements including, but not limited to, reasonable further progress, quantitative milestones, a comprehensive emissions inventory, the implementation of best available control measures and most stringent measures, control strategies, contingency measures, transportation conformity, motor vehicle emissions budget, and new source review.

Other Federal Clean Air Act Requirements

This Plan addresses all “serious” PM2.5 nonattainment area Clean Air Act (CAA) planning requirements as shown in Table 6-1. Chapters 3 to 5 of this Plan fulfill the requirements related to the updated emissions inventory, control strategy, and attainment demonstration. This chapter addresses other CAA requirements.

TABLE 6-1
FEDERAL CLEAN AIR ACT REQUIREMENTS FOR THE 2012 PM2.5 NAAQS

Requirement	CAA Section	Definition	Location in Plan
Emissions Inventory	172(c)(3)	A comprehensive, accurate, current inventory of actual emissions from all sources of the relevant pollutant or pollutants.	Chapter 3
BACM/BACT	189(b)(1)(B)	Provisions to assure that the Best Available Control Measures (BACM) for the control of PM2.5 shall be implemented no later than 4 years after the date the area is reclassified as a “serious” nonattainment area. BACM includes Best Available Control Technology (BACT).	Chapter 4, Appendix III, Appendix IV
Attainment Demonstration	189(b)(1)(A), 188(e)	Attainment date shall be as expeditiously as practicable but no later than the end of the fifteenth calendar year after designation as nonattainment.	Chapter 5
Extension of Attainment Date for Serious Areas	188(e)	Demonstrations that 1) attainment by the statutory “serious” area attainment date is impracticable, 2) the State has complied with all requirements and commitments pertaining to the area in the SIP, and 3) the State demonstrates that the Plan includes the most <u>stringent</u> measures (MSM) feasible for the area.	Chapter 6, Appendix III
Reasonable Further Progress	172(c)(2)	Plan provisions shall require reasonable <u>further</u> progress (RFP).	Chapter 6
Transportation	176(c)	Plan provisions addressing transportation	Chapter 6

Requirement	CAA Section	Definition	Location in Plan
Conformity		conformity, including motor vehicle emissions budgets for RFP milestone years and the attainment year.	
Quantitative Milestones	189(c)	The Plan shall contain quantitative milestones which are to be achieved every three years until the area is redesignated attainment and which demonstrate reasonable further progress toward attainment by the applicable attainment date.	Chapter 6
Nonattainment New Source Review	189(a)(1)(A), 189(b)(3), 189(e)	A permit program requiring permits for the construction and operation of new and modified major stationary sources of PM. Control requirements applicable to major stationary sources of PM _{2.5} shall also apply to major stationary sources of PM _{2.5} precursors.	Chapter 6
Contingency Measures	172(c)(9)	Fully adopted rules or control measures that are ready to be implemented, should U.S. EPA issue a final rule that the Basin failed to meet a regulatory requirement necessitating implementation of a contingency measure. Contingency measures must take effect without significant additional action by the state or local agency or by U.S. EPA.	Chapter 6, Appendix V

Request for Extension of Attainment Date to 2030

Through this plan, South Coast AQMD is formally requesting an extension of the attainment deadline from December 31, 2025 to December 31, 2030 as allowed under CAA Section 188(e). U.S. EPA requires that additional elements accompany the attainment deadline extension request in order to consider it. First, an impracticability demonstration must be provided, showing that the area cannot practicably attain by the end of the tenth calendar year following designation of the area. Second, the State Implementation Plan (SIP) must provide for the implementation of ~~Most Stringent Measures (MSM)~~. Finally, a demonstration of compliance with all requirements and commitments in the applicable SIP must be included.

Impracticability Demonstration

The 2016 AQMP included a strategy to attain the 2012 annual PM_{2.5} standard by the 2025 attainment year. The strategy primarily relied on co-benefits from the measures to attain the 1997 8-hour ozone standard by 2023 and the 2008 8-hour ozone standard by 2031. Since the submittal of the 2016 AQMP, South Coast AQMD has implemented control measures and achieved emission reductions reflected in the 2016 AQMP attainment demonstration. However, progress in achieving the needed emission reductions was hampered by a variety of circumstances. These include a lack of action at the federal level for sources such as aircraft, ships, trains, interstate trucks, and offroad equipment. Such sources are the dominant source of nitrogen oxides (NO_x) emissions in the region and are subject to federal regulatory authority. Additionally, the region experienced unforeseen challenges including unfavorable meteorology, wildfires, increases in emissions in the goods movement sector during the COVID-19 pandemic, and the addition of the near-road monitors. All of these factors resulted in higher than expected PM_{2.5} concentrations.

Prior to the submittal of the 2016 AQMP, U.S. EPA established a requirement to monitor PM_{2.5} levels at near-road locations. Two near-road monitoring stations along the Interstate 710 (I-710) in Long Beach and the California State Route 60 (CA-60) in Ontario began PM_{2.5} measurements in 2015. At the time of 2016 AQMP adoption, neither of these monitors had sufficient data to be considered in the attainment demonstration. By January 1, 2020, however, these monitors had accumulated sufficient data to be considered in attainment demonstrations and the CA-60 monitor was measuring the highest PM_{2.5} levels in the Basin. The 2022 design value at the CA-60 monitor was 13.7 µg/m³.

U.S. EPA did not act on the submitted plan for a few years and, by the time the South Coast Air Basin was reclassified to “serious” nonattainment in 2020, U.S. EPA stated that near-road monitors must now be included in a supplemental attainment demonstration. South Coast AQMD subsequently determined that demonstrating attainment by 2025, especially at the CA-60 monitor, was impractical.

Currently, model-predicted design values for 2025, the statutory “serious” area attainment year, are well above 12.0 µg/m³ at multiple monitors (see Chapter 5, Table 5-4). This scenario reflects baseline emissions with adopted regulations and programs by South Coast AQMD and CARB. Another scenario, presented in Chapter 5, is also considered. In this scenario, emission reductions from recently adopted regulations not yet in the baseline are considered. Even with those additional reductions, attainment by 2025 is impractical. It is impractical and infeasible to implement additional reductions beyond already adopted regulations by December 31, 2024, given the amount of time needed to adopt and implement rules and regulations. The control strategy also requires that South Coast AQMD undertake multiple rulemakings, each with its own extensive public process. The proposed attainment year, 2030, reflects the challenges and complexities associated with this plan while balancing expeditious attainment and the time needed to adopt a SIP revision, develop rules, and achieve emission reductions.

Implementation of MSM

Appendix III presents a comprehensive BACM demonstration which also serves to demonstrate MSM. U.S.

EPA interprets MSM to mean the maximum degree of emission reduction that has been required or achieved from a source or source category in any other attainment plans or in practice in any other states and that can feasibly be implemented in the area seeking the extension. In Appendix III, potential control measures identified via MSM evaluation are assessed for technological and economic feasibility and incorporated as control measures if they are feasible. If potential MSM are rejected as infeasible, a reasoned justification is provided.

Compliance With the Applicable SIP

The final element that is required to accompany an attainment date extension request is a demonstration of compliance with commitments made in the applicable SIP. In this case, the applicable SIP is the “moderate” area plan for the 2012 annual PM_{2.5} standard which was submitted as part of the 2016 AQMP. U.S. EPA approved all but the contingency measure element of the 2016 AQMP as meeting applicable “moderate” area requirements.¹ With respect to the contingency measure element, U.S. EPA granted conditional approval based on South Coast AQMD’s commitment to adopt and submit a contingency measure for approval. In response, Rule 445 was amended twice in 2020 to add PM_{2.5} and ozone contingency provisions. Rule 445 was subsequently approved by U.S. EPA, excluding paragraph (g) (Ozone Contingency Measures) and paragraph (k) (Penalties), as fulfilling the commitment to adopt a contingency measure for PM_{2.5}.²

With respect to the Reasonably Available Control Measures (RACM)/Reasonably Available Control Technology (RACT) analysis, the “moderate” area plan in the 2016 AQMP concluded that South Coast AQMD’s existing rules were generally equivalent to, or more stringent than, those developed by other air districts. Thus, there were no control measures identified as RACM/RACT and no commitments were made in the “moderate” area plan. ~~There were, however, four control measures in the 2016 AQMP identified as additional reasonable measures with full or partial implementation by 2020 (see Table 6-2). U.S. EPA approved these additional reasonable measures including CMB-02, CMB-03, BCM-04, and BCM-10.~~³

¹ Approval and Promulgation of Implementation Plans; Designation of Areas for Air Quality Planning Purposes; California; South Coast Moderate Area Plan and Reclassification as Serious Nonattainment for the 2012 PM_{2.5} NAAQS, 85 Fed. Reg. 71264 (Nov. 9, 2020)

² Air Plan Approval; California; Los Angeles — South Coast Air Basin, 87 Fed. Reg. 12866 (March 8, 2022)

³ ~~Approval and Promulgation of Implementation Plans; Designation of Areas for Air Quality Planning Purposes; California; South Coast Moderate Area Plan and Reclassification as Serious Nonattainment for the 2012 PM_{2.5} NAAQS, 85 Fed. Reg. 40026 (July 2, 2020)~~

TABLE 6-2
SUMMARY OF ADDITIONAL REASONABLE MEASURES FOR
ANNUAL PM2.5 IN THE 2016 AQMP

CM Number	Title	Adoption	Implementation Period	Commitment Satisfied?
CMB-02	Emission Reductions from Replacement with Zero or Near-Zero NOx Appliances in Commercial and Residential Applications [NOx]	2018	2020-2031	Yes, Rule 1111
CMB-03	Emission Reductions from Non-Refinery Flares [NOx, VOC]	2018	2020	Yes, Rule 1118.1
BCM-04	Emission Reductions from Manure Management Strategies [NH3]	2019	2020	Yes, substitute reductions achieved
BCM-10	Emission Reductions from Greenwaste Composting [NH3]	2019	2020	Yes, substitute reductions achieved

As shown in Table 6-2, the 2016 AQMP also included a number of control measures (CMs) to reduce PM2.5 and PM2.5 precursor emissions. However, these control measures were associated with “serious” area plan commitments. Since the “serious” area plan was withdrawn, South Coast AQMD is not required to demonstrate compliance with those commitments.

TABLE 6-2*
SUMMARY OF CONTROL MEASURES IN THE WITHDRAWN “SERIOUS” AREA PLAN FOR
ANNUAL PM_{2.5} IN THE 2016 AQMP

CM Number	Title	Adoption	Implementation Period	Emission Reductions by 2025 (tpd)
BCM-01	<u>Further Emission Reductions from Commercial Cooking [PM]</u>	<u>2018</u>	<u>2025</u>	<u>3.3</u>
BCM-02	<u>Emission Reductions from Cooling Towers [PM]</u>	<u>TBD</u>	<u>TBD</u>	<u>TBD</u>
BCM-03	<u>Further Emission Reductions from Paved Road Dust Sources [PM]</u>	<u>TBD</u>	<u>TBD</u>	<u>TBD</u>
BCM-04	<u>Emission Reductions from Manure Management Strategies [NH₃]</u>	<u>2019</u>	<u>2020</u>	<u>0.2</u>
BCM-05	<u>Ammonia Emission Reductions from NO_x Controls [NH₃]</u>	<u>TBD</u>	<u>TBD</u>	<u>TBD</u>
BCM-06	<u>Emission Reductions from Abrasive Blasting Operations [PM]</u>	<u>TBD</u>	<u>TBD</u>	<u>TBD</u>
BCM-07	<u>Emission Reductions from Stone Grinding, Cutting and Polishing Operations [PM]</u>	<u>TBD</u>	<u>TBD</u>	<u>TBD</u>
BCM-08	<u>Further Emission Reductions from Agricultural, Prescribed and Training Burning [PM]</u>	<u>TBD</u>	<u>TBD</u>	<u>TBD</u>
BCM-09	<u>Further Emission Reductions from Wood-Burning Fireplaces and Wood Stoves [PM]</u>	<u>TBD</u>	<u>TBD</u>	<u>TBD</u>
BCM-10	<u>Emission Reductions from Greenwaste Composting [NH₃]</u>	<u>2019</u>	<u>2020</u>	<u>0.1</u>

* Reproduced with slight modifications from Table 4-7 in the 2016 AQMP.

South Coast AQMD evaluated its commitments included in the withdrawn “serious” area plan to track progress in PM_{2.5} and its precursors’ reductions. fulfilled CMB-02 and CMB-03 commitments through amendments to Rule 1111 and adoption of Rule 1118.1, respectively, whileSpecifically, the following discussion surrounds -the 2016 AQMP control measures BCM-04 and BCM-10, which have not yet been

adopted as rules. However, the quantified reductions from these measures are less than 0.5 percent of all ammonia emissions. The air quality benefit of the surplus nitrogen oxides (NO_x) and PM reductions achieved in 2022, discussed in detail later, is expected to greatly exceed the potential benefit of the relatively small ammonia reductions from BCM-04 and BCM-10. Additionally, updated analysis conducted for the PM_{2.5} Plan shows that ammonia emissions from livestock are considerably lower than those assumed in the 2016 AQMP. Total ammonia emissions for dairy cattle, poultry layers, and swine are 1.2 tons per day lower than the projected emissions for the 2025 attainment year in the 2016 AQMP (see Table 6-3). Therefore, the reductions achieved in practice far exceed the reductions sought by BCM-04 and BCM-10.

TABLE 6-3
COMPARISON OF 2030 LIVESTOCK AMMONIA EMISSIONS IN THE 2016 AND 2022 AQMPs

CES	Category Description	NH ₃ emissions (tpd)	
		2016 AQMP	2022 AQMP
89516	LIVESTOCK HUSBANDRY - DAIRY CATTLE	4.55	5.08
89557	LIVESTOCK HUSBANDRY - LAYERS	1.92	0.28
89573	LIVESTOCK HUSBANDRY - SWINE	0.15	0.02
Total		6.62	5.38

Implementation of certain control measures not only depends on South Coast AQMD, but also on state actions. South Coast AQMD determined that state legislation has achieved many of the same objectives as BCM-10 and this control measure has therefore been implemented statewide. The BCM-10 proposed control methods included potential emission reductions to be achieved through increased diversion of foodwaste from landfills to anaerobic digestion (AD), along with pollution control technology, and restricted direct land application (DLA) of chipped and ground uncomposted greenwaste.

BCM-10 was tied with implementation of AB 341 (Chesbro, Chapter 476, Statutes of 2011) and AB 1826 (Chesbro, Chapter 727, Statutes of 2014). AB 341 required mandatory commercial recycling, composting, or source reduction of 75 percent by 2020. AB 1826 introduced organic waste recycling requirements for businesses starting April 1, 2016, depending on the amount of waste they generate per week. For the purpose of AB 1826, organics were meant to include foodwaste, greenwaste, landscape/pruning waste, nonhazardous wood, and food-soiled paper waste mixed with foodwaste. Organics accounted for 34 percent of California's disposed waste stream in 2014.⁴ While AB 341 established a 75 percent recycling target by 2020, the actual statewide recycling rate (through source reduction, recycling, and composting) was only 42 percent in 2020.⁵ AB 1826 had phased-in requirements for businesses over time. In September

⁴ <https://calrecycle.ca.gov/Recycle/Commercial/Organics/MandatoryCommercialOrganicsRecycling-CalRecycle-Home-Page>

⁵ [CalRecycle, State of Disposal and Recycling in California for Calendar Year 2020. 2021: https://www2.calrecycle.ca.gov/Publications/Download/1754](https://www2.calrecycle.ca.gov/Publications/Download/1754)

2020, CalRecycle reduced the threshold to 2 cubic yards of solid waste (the total of trash, recycling, and organics) generated by covered businesses.

More recently, other legislation has been enacted to decrease emissions from landfills. SB 1383 (Lara, Chapter 395, Statutes of 2016) is the most significant landfill waste reduction mandate adopted in California. Its goal is to reduce organic waste landfill disposal by 50 percent from 2014 levels by 2020 and 75 percent by 2025. However, implementation of SB 1383 has faced challenges. In 2020, organic waste in landfills increased by a million tons above the 2014 baseline.⁶ The reasons for this increase may include: 1) residential organic waste separation and collection were not fully in effect until January 2022, and 2) more residential foodwaste was generated because of COVID-19. Due to restaurants shifting from dine-in to take-out and customers buying groceries in bulk, the generation of foodwaste increased as did the associated packaging waste.⁷

Since January 2022, approximately 72 percent of California communities have implemented residential organic waste collection, while 126 out of 615 jurisdictions (~20 percent) have requested more time to reach compliance.⁸ Rural and low population jurisdictions have waivers and exemptions from organic waste collection requirements. Data on the effectiveness of the residential organic waste collection program in achieving emission reductions is lacking.

In BCM-10, AD was one of the proposed control methods to handle the increased diversion of organic waste (mostly foodwaste) from landfills, resulting in emission reductions. State laws have been enacted to achieve the intent of BCM-10 since the adoption of the 2016 AQMP. While implementation of those laws has not proceeded as envisioned, the legal requirement to increase diversion of waste from landfills exists. Therefore, staff concludes that state actions have fulfilled the BCM-10 commitment.

Quantitative milestones provide another means to demonstrate continued compliance with the applicable SIP. CAA Section 189(c) requires that quantitative milestones must be achieved every 3 years until the area is redesignated attainment which demonstrate ~~Reasonable Further Progress (RFP)~~ toward attainment. South Coast AQMD submitted the 2022 Quantitative Milestone Report (QMR) to U.S. EPA demonstrating continued compliance with all applicable commitments for the 2012 annual PM_{2.5} standard.⁹ The 2016 AQMP projected that 7 tpd of surplus NO_x reductions would be needed to meet the 2022 RFP target, while all other pollutants would meet RFP based on baseline measures. Total surplus reductions were determined to be 15.90 tpd NO_x and 0.51 tpd PM_{2.5}, significantly exceeding the 7 tpd of NO_x reductions needed for RFP.

A significant portion of the reductions came from mobile source incentive measures. The 2016 AQMP included MOB-14 – Emission Reductions from Incentive Programs and provided a mechanism to ensure

⁶ Little Hoover Commission, Reducing California's Landfill Methane Emissions: SB 1383 Implementation, Report #274, June 2023: <https://lhc.ca.gov/sites/lhc.ca.gov/files/Reports/274/Report%20274.pdf>

⁷ CalRecycle, Analysis of the Progress Toward the SB 1383 Organic Waste Reduction Goals. August 18, 2020

⁸ ~~California's Climate Progress on SB 1383: <https://calrecycle.ca.gov/organics/slcp/progress/> California's Climate Progress on SB 1383 – CalRecycle Home Page~~

⁹ Submitted to U.S. EPA via CARB on June 7, 2023

that emission reductions were SIP creditable. The incentive programs include the Carl Moyer Program, Proposition 1B – Air Quality Improvement Fund, Lower-Emission School Bus Program (LESBP), and the Community Air Protection Program (CAPP). The Carl Moyer Program funds projects that reduce NO_x, volatile organic compound (VOC) and PM caused by the combustion of diesel and gasoline in on-road vehicles and off-road engines. The program also funds after-treatment devices such as diesel oxidation catalysts and PM filters. The emission reductions from Proposition 1B are the result of the deployment of cleaner locomotives and heavy-duty trucks. Since 2018, LESBP has funded the replacement of 201 school buses with newer, cleaner models and CAPP incentives have resulted in emission reductions from locomotives, heavy-duty trucks, cargo handling equipment, harbor craft, and other sources that impact disadvantaged communities. Table 6-4 summarizes the emission reductions from these incentive programs.

**TABLE 6-4
SURPLUS NOX AND PM2.5 REDUCTIONS IN 2022 FROM
MOBILE SOURCE INCENTIVE PROGRAMS**

Program	Source Category	NO _x (tpd)	PM2.5 (tpd)
Carl Moyer	Metrolink ¹⁰	3.00	Not Quantified
	Harbor Craft	3.32	0.128
	Off-road	3.80	0.139
	On-road	0.17	0.003
	Locomotives	0.11	0.002
Prop 1B	Freight Locomotives	0.61	0.023
	On-road HD Trucks	0.38	0.000
LESBP	School Buses	0.10	0.005
CAPP	Harbor Craft	0.27	0.012
	Off-road	1.41	0.041
	On-road	0.14	0.000
	Locomotives	0.67	0.023
	Total	13.99	0.377

¹⁰ Funded with Carl Moyer and other programs. Since February 2013, South Coast AQMD awarded Metrolink a total of \$101.85 million for the replacement of 37 Tier 0 & Tier 2 locomotives with Tier 4 locomotives and the new purchase of three Tier 4 locomotives. As of April 2021, 39 Tier 4 locomotives had been delivered to Metrolink and delivery of a final Tier 4 locomotive was expected by June 2021. Beginning in fiscal year 2022, Metrolink

The 2022 QMR quantified additional reductions resulting from the unused portion of the general conformity set-aside account. Pursuant to Clean Air Act Section 176(c) (42 U.S.C. 7506) and the U.S. EPA's implementing regulations (40 CFR Part 93, Subpart B and 40 CFR Part 51, Subpart W), general conformity is required for NAAQS nonattainment and maintenance areas. The intent of general conformity is to prevent the air quality impacts of a proposed federal action, under Title 23 U.S.C., from causing or contributing to new violations of the air quality standards, exacerbating existing violations, or interfering with the purpose of the applicable implementation plan.

In order to streamline a conformity evaluation process, SIP set-aside accounts were allocated in the 2016 AQMP. The revised set-aside account to accommodate projects subject to general conformity included a balance of: 2.0 tpd of NO_x and 0.5 tpd of VOC each year from 2017 to 2030, and 0.5 tpd of NO_x and 0.2 tpd of VOC in 2031. Emissions from general conformity projects are tracked by South Coast AQMD and debited from the account on a first-come-first-serve basis. In 2022, the set-aside account had a remaining balance of 1.15 tpd NO_x and 0.32 tpd VOC since approved projects had not consumed the entire allocation.

A summary of the overall NO_x reductions quantified as part of the 2022 QMR is presented in Table 6-5. In addition to the incentive measures and general conformity set-aside account, the Regional Clean Air Incentives Market (RECLAIM) shutdown credit, Rule 445, and Rule 1179.1 reductions are considered.

The RECLAIM shutdown incorporates reductions from the decommissioning of a coke calciner in 2022 by Marathon Petroleum Corporation. The reductions from Rule 445 - Wood Burning Devices - stem from the June 2020 amendment which established PM_{2.5} contingency provisions that would be automatically triggered in the event that the U.S. EPA determines that the Basin failed to meet any RFP requirement, meet any quantitative milestone, submit a quantitative milestone report, or attain applicable PM_{2.5} NAAQS by the attainment date. The amendment also expanded the curtailment to the entire Basin instead of using a source receptor area approach. The South coast Air Basin failed to attain the 2006 24-hour PM_{2.5} standard by the statutory attainment date, December 31, 2019, which triggered a contingency measure in Rule 445 and lowered the curtailment threshold to 29 µg/m³ in 2020.¹¹ Overall, the amendment resulted in a total of 0.13 tpd of PM_{2.5} reductions. Finally, Rule 1179.1 - Emission Reductions from Combustion Equipment at Publicly Owned Treatment Works Facilities - was adopted in October 2020 and established NO_x emission limits for boilers, process heaters and engines burning digester gas or those units capable of burning digester and natural gas.

anticipated operating 40 trainsets serviced by a fleet of 48 to 52 locomotives. The emission reductions from the Tier 4 conversions and the purchase of the new Tier 4 locomotives, which are surplus to the 2016 AQMP inventory, are estimated to be 3 tpd in 2022

¹¹ Finding of Failure To Attain the 2006 24-Hour Fine Particulate Matter Standards; California; Los Angeles- South Coast Air Basin, 85 Fed. Reg. 57733 (Sept. 16, 2020)

TABLE 6-5
SURPLUS REDUCTIONS IN 2022 BASED ON REGULATIONS AND INCENTIVES

Regulation/Incentive	Surplus NO _x Reduction in 2022 (tpd)	Surplus PM _{2.5} Reduction in 2022 (tpd)
Rule 445	Not Quantified	0.13
Rule 1179.1	0.05	Not Quantified
RECLAIM Shutdown Credit (Rule 1109.1)	0.71	Not Quantified
Mobile Source Incentive Programs	13.99	0.38
General Conformity Set-Aside Credit	1.15	N/A
Total	15.90	0.51

In summary, South Coast AQMD determined that, although BCM-04 and BCM-10 were not adopted as rules, substitute reductions were achieved. ~~all annual PM_{2.5} “moderate” area plan commitments have been fulfilled. The additional reasonable measures identified in the 2016 AQMP have either been implemented or substitute reductions have been achieved.~~ These reductions exceed the level of reductions committed by the measures in the withdrawn “serious” area plan. BCM-04 and BCM-10 have been incorporated into the control strategy of this plan (as BCM-08 and BCM-10) and South Coast AQMD commits to adopt the measures to satisfy MSM requirements.

~~In the 2016 AQMP, South Coast AQMD committed to achieve emission reductions in aggregate to accommodate necessary changes during rulemaking, during which emission reduction commitments of individual control measures are adjusted to reflect stakeholder’s needs, technological maturity, commercial availability and other economic needs. The reductions quantified as part of the 2022 QMR, which are surplus to the 2016 AQMP baseline and count towards the aggregate reduction commitment, exceed the level of reductions needed to demonstrate RFP. Therefore, South Coast AQMD concludes that commitments to adopt control measures and meet RFP targets have been achieved.~~

Reasonable Further Progress and Quantitative Milestones

Reasonable Further Progress

The CAA requires that SIPs for most nonattainment areas demonstrate Reasonable Further Progress (RFP) towards attainment through emission reductions phased in from the base year until the attainment date. Per CAA Section 171(1), RFP is defined as:

“such annual incremental reductions in emissions of the relevant air pollutant as are required by this part or may reasonably be required by the Administrator for the purpose of ensuring attainment of the applicable national ambient air quality standard by the

applicable date.”

Emission reductions required under an RFP plan for PM_{2.5} are directly emitted PM_{2.5} and applicable precursors. Appendix VI of this Plan presents a precursor demonstration to exclude VOCs and sulfur oxides (SO_x) from certain planning requirements including the RFP demonstration. Therefore, this RFP demonstration focuses on NO_x, direct PM_{2.5}, and ammonia (NH₃) as the pollutants with a significant impact on PM_{2.5} levels.

To determine RFP for the attainment date, U.S. EPA guidance states that the plan should rely only on emission reductions achieved from sources within the nonattainment area. Section 172(c)(2) of the CAA requires that attainment plans show ongoing annual incremental emission reductions toward attainment, which is commonly expressed in terms of target emission levels to be achieved by certain interim milestone years.

For PM_{2.5} nonattainment areas, in addition to the RFP requirements, CAA Section 189(c)(1) requires states to achieve quantitative milestones, which are designed to track RFP to ensure expeditious attainment. U.S. EPA requires that all “serious” area PM_{2.5} attainment plans define appropriate quantitative milestones to be achieved 7.5 years from the original designation of the area and every 3 years thereafter until the area is re-designated as attainment.¹² The South Coast Air Basin was originally designated nonattainment for the 2012 annual PM_{2.5} NAAQS effective April 15, 2015.¹³ Therefore, the first “serious” area quantitative milestone occurred on October 15, 2022. The 2022 Quantitative Milestone Report was submitted to U.S. EPA to address compliance with this milestone.

U.S. EPA requires that RFP plans contain projected emissions for each calendar year in which quantitative milestones must be met. Since the first “serious” area quantitative milestone is in the past (October 15, 2022), the first quantitative and RFP milestone year considered in this plan is 2025. The quantitative milestones recur every 3 years and continue through 2031, the post-attainment milestone year.

As described in Chapter 3 – Base-Year and Future Emissions, the base year of this Plan is 2018, which also serves as the base year for the purposes of tracking RFP. Alignment of the RFP and modeling base year is clarified in U.S. EPA’s implementation rule for PM_{2.5} NAAQS.¹⁴

“Because the statute does not clearly establish the applicable baseline year from which to begin calculating annual emissions reductions for purposes of demonstrating RFP, the EPA is finalizing a requirement that states use the same year as the base year inventory used for developing the control strategy and associated air quality modeling demonstrating that the area will attain expeditiously.”

¹² CFR §51.1013(a)(2)(i)

¹³ Air Quality Designations for the 2012 Primary Annual Fine Particle (PM_{2.5}) National Ambient Air Quality Standards (NAAQS), 80 Fed. Reg. 2206 (Jan. 15, 2015)

¹⁴ Fine Particulate Matter National Ambient Air Quality Standards: State Implementation Plan Requirements, 81 Fed. Reg. 58009 (Aug. 24, 2016)

U.S. EPA requires that all SIPs contain RFP projected emissions and that those emissions demonstrate either: (i) Generally linear progress toward the projected attainment date; or (ii) stepwise progress toward the projected attainment date with proper justification.¹⁵ This analysis demonstrates generally linear RFP for NOx and direct PM2.5 and stepwise RFP for ammonia.

Stepwise RFP Justification

The RFP demonstrations for NOx and PM2.5 were conducted following the generally linear approach, while RFP for ammonia was demonstrated using the stepwise approach. This is due to the nature of ammonia emissions in the Basin, technologies anticipated to bring ammonia reductions, and the timeline to develop and implement rules to achieve reductions.

Attainment of the 2012 annual PM2.5 NAAQS requires NOx and PM2.5 emissions reductions of 54 percent and 6 percent, respectively, from 2018 to 2030. While portions of the needed reductions come from continued implementation of already adopted rules and regulations, new reductions from the proposed control measures are necessary for attainment. In Chapter 4, Tables 4-4 and 4-5 present South Coast AQMD's commitment to adopt and implement the proposed control measures. CARB's commitments are provided in Tables 4-6 and 4-11, which includes adoption and implementation dates for each measure. The adoption and implementation dates are as expeditious as possible and reflect best estimates of the time required to develop and implement each proposed measure. Table 4-9 summarizes emission reductions in the South Coast Air Basin in 2030 from CARB programs. In Table 4-9, the reductions estimated from the remaining 2016 State SIP Strategy and future measures identified in the 2022 State SIP Strategy are described as the "potential CARB aggregate emissions reductions commitment" until the CARB Board adopts the aggregate emissions reductions commitment for the year 2030. These reductions are needed to demonstrate RFP.

In addition, the nature of ammonia emissions needs to be considered. The South Coast Air Basin is a highly urbanized area with limited agricultural activities and dairy operations. The majority of ammonia emissions come from area sources such as humans and pets in the Basin. Other large sources include on-road vehicles, industrial processes, and farming. Area source emissions are expected to grow in the future due to increases in the population of humans and pets. While the ammonia emissions from mobile or stationary point sources can be controlled by transitioning to zero emissions, ammonia from humans and pets cannot be controlled with current technology. Although there are limited ammonia controls proposed in control measures BCM-08 through BCM-11, the majority of ammonia reductions are anticipated from the deployment of zero emission vehicles. This contrasts with the widespread availability of control technologies targeting NOx and PM2.5 from combustion sources. For NOx, Selective Catalytic Reduction (SCR) and low-NOx burners are available and, for PM2.5, Diesel Particle Filters are available for certain applications. Such controls are already required by adopted regulations and will continue to lower NOx and PM2.5 emissions to meet generally linear progress toward attainment. However, such NOx and PM2.5 control technologies often do not reduce ammonia concurrently and transition to zero emissions

¹⁵ CFR § 51.1012(a)(4)

technologies is often the only pathway to achieve significant amount of ammonia reductions. Although the deployment of zero emission technologies is complex and requires more time to implement, ammonia emissions will be sufficiently controlled to attain the 2012 annual PM_{2.5} standard in 2030.

In summary, it is necessary to rely on a stepwise RFP demonstration for ammonia. Generally linear progress is not feasible due to the type of control technologies relied on for attainment, and time required to develop and implement rules.

Adoption Dates

The committed adoption dates in Table 4-4, Table 4-5, and Table 4-6 are based on the best estimate of the amount of time required to develop a measure. Time spent in this developmental phase is influenced by the level of interest from stakeholders and conflicts of interest, if any, among stakeholders. Maturity of technology, market capacity for at-scale deployment, infrastructure to support the new technology, and cost effectiveness determine the timeline to develop a proposed control measure to a rule/regulation. In addition, once the proposed measure has been developed, it must be adopted through a public process, which entails procedural requirements with their own timing.

Implementation Dates

The committed implementation dates in Table 4-4, Table 4-5, and Table 4-6 are based on the best estimate of the amount of time required for measure adoption and procedural elements as well as the implementation phase. For example, CARB regulations, once adopted, undergo a prescribed review process by the State Office of Administrative Law (OAL) to ensure compliance with California's Administrative Procedure Act before the measure can be codified in the California Code of Regulations. The effective date of an OAL-approved regulation can be a year or more from the date of CARB adoption. Following development and adoption, in all cases, the implementation schedule of a measure must account for the time needed by the affected entities to comply with the requirements in the measure. This includes planning for, and investing in, the resources to implement the required controls—to change, buy, or install new technology, if applicable. Specific challenges related to the timing of implementation of innovative South Coast AQMD and CARB measures are described in further detail below.

South Coast AQMD Stationary Source Measures

As outlined in Table 4-4, South Coast AQMD has committed to adopt stationary source control measures beginning in 2024, and not later than 2027. Implementation is set to begin as expeditiously as possible for each measure. For example, for BCM-10 - Emission Reductions from Direct Land Application of Chipped and Ground Uncomposted Greenwaste, is scheduled to adopt in 2026 but will be implemented starting in 2030. This is to allow composting facilities sufficient lead time to expand their operations to accommodate the increased demand for greenwaste composting.

Further understanding of the applicability of control technologies, the cost-effectiveness of controls, and the socioeconomic impacts of potential regulations are necessary before regulations can be adopted. The

market availability of control equipment capable of reducing emissions further than the already stringent limits required by South Coast AQMD's technology-forcing rules is an additional consideration in implementing new regulatory requirements.

Time after rule adoption will be necessary for manufacturers and vendors to make available compliant equipment, and for facility operators to source, purchase, and install new units or compliant retrofit equipment. Dependent on the source category, construction of controls may include engineering, site preparation and infrastructure upgrades, unit installation, and operator training on proper operation. Potential control technologies have significant costs to affected facilities, and these operations will also require time to plan for these investments. Based on these challenges, rule implementation is not expected to be feasible prior to the implementation date listed in Table 4-4.

Considering the factors mentioned earlier, the emission reductions resulting from the proposed control measures are projected to materialize around 2030 rather than in the immediate future. This necessitates a stepwise RFP demonstration for ammonia. The expeditious implementation of some measures, where feasible, may result in emission reductions that occur before 2030. South Coast AQMD commits to demonstrate and discuss any early emission reductions achieved in Quantitative Milestone Reports.

Zero Emission Mobile Source Measures

Mobile sources are responsible for approximately 25 percent of the NH₃ emissions in the South Coast; NH₃ can be emitted as a byproduct during the use of control technologies designed to lower the emissions of NO_x, the dominant precursor of both ozone and PM_{2.5} pollution. In engines fueled by Compressed Natural Gas (CNG), NH₃ is formed as a byproduct of a three-way catalyst that converts NO_x to nitrogen (N₂). In diesel engines, Selective Catalytic Reduction controls use NH₃ as a catalyst to convert NO_x to N₂ and water. Unreacted NH₃ can be emitted as part of in this process, referred to as an ammonia slip.

CARB programs that drive mobile sources to zero-emission vehicles and engines will provide ammonia emission reduction benefits in 2030 in the South Coast, in addition to significant NO_x and PM_{2.5} reductions; these programs include adopted regulations such as the Advanced Clean Cars, Advanced Clean Trucks, Advanced Clean Fleets, and the Transport Refrigeration Unit (Part I) Regulations, and proposed measures such as the Zero-Emissions Truck Measure, Transport Refrigeration Unit (Part II) Regulation, and Cargo Handling Equipment Amendments. CARB's adoption and implementation schedules are as expeditious as possible, but like many stationary source control measures, sufficient time is needed for both regulatory development and for development, manufacture, and purchase of control technologies prior to emissions reductions being achieved from these programs. Based on these challenges, rule implementation is not expected to be feasible prior to the implementation date listed in Table 4-8. Considering all of the factors mentioned, the majority of emission reductions resulting from the proposed control measures are projected to be achieved by 2030 rather than in the near-term years.

RFP Demonstration

This analysis demonstrates generally linear RFP for NO_x and direct PM_{2.5} emissions and stepwise RFP for ammonia emissions. Table 6-6 presents the baseline emissions of NO_x, direct PM_{2.5}, and ammonia including line item adjustments reflecting adopted regulations for the RFP milestone years. The regulations included in the line item adjustments are provided in Table 6-7. RFP is demonstrated using reductions from three categories: adopted regulations already reflected in the baseline emissions, regulations adopted since the development of the 2022 AQMP, and control measures proposed in this Plan. The second category includes South Coast AQMD's rules adopted during November 2020 to September 2023 and CARB's regulations adopted in 2022 and afterwards. The projected emissions account for all of these reductions. However, in some years, the RFP target is higher than the projected emissions. This is because the projected emissions are below the level needed to demonstrate linear progress. RFP is expected to be met for all milestone and attainment years as presented in detail for each pollutant in subsequent sections. The 2031 post-attainment year target is assumed to have same amount of reductions as the attainment scenario. However, in reality, 2031 emissions are expected to be below the RFP target levels due to continued implementation of the control strategies required to meet the 2008 and 2015 ozone NAAQS by 2031 and 2037, respectively.

**TABLE 6-6
REASONABLE FURTHER PROGRESS CALCULATIONS FOR MILESTONE YEARS**

	Pollutant	2018	2025	2028	2030	2031
Baseline Emissions	NOx	383.02	239.40	219.29	210.31	207.17
	PM2.5	56.04	54.01	54.11	54.05	54.06
	NH3	74.54	77.79	78.91	79.31	79.48
Line Item Adjustments	NOx	-	3.26	10.06	24.34	24.34
	PM2.5	-	0.14	0.47	0.83	0.83
	NH3	-	0.10	1.40	2.96	2.96
Control Measure Reductions	NOx	-	0	0	10.60	10.60
	PM2.5	-	0	0	0.54	0.54
	NH3	-	0	0	0.24	0.24
Projected Emissions	NOx	-	236.14	209.23	175.37	172.23
	PM2.5	-	53.87	53.64	52.68	52.69
	NH3	-	77.69	77.51	76.11	76.28
Generally Linear RFP Target	NOx	-	261.89	209.98	175.37	172.23
	PM2.5	-	54.08	53.64	52.68	52.69
Stepwise RFP Target	NH3	-	77.69	77.51	76.11	76.28

TABLE 6-7
REGULATIONS INCLUDED IN THE LINE-ITEM ADJUSTMENTS FOR RFP DEMO

Adopted Measure	Adoption Date	2025			2028			2030			2031		
		NOx	PM2.5	NH3	NOx	PM2.5	NH3	NOx	PM2.5	NH3	NOx	PM2.5	NH3
Advanced Clean Cars II	Nov. 2022	0.00	0.00	0.00	0.67	0.12	0.94	1.49	0.18	2.12	1.49	0.18	2.12
Clean Miles Standard	Mar. 2022	0.01	0.00	0.00	0.03	0.01	0.00	0.04	0.00	0.00	0.04	0.00	0.00
EPA Clean Trucks Plan	Dec. 2022	0.00	0.00	0.00	0.23	0.00	0.00	0.61	0.00	0.00	0.61	0.00	0.00
Advanced Clean Fleets	Oct. 2023	1.10	0.01	0.10	2.99	0.04	0.46	4.79	0.09	0.84	4.79	0.09	0.84
In-use Locomotive Regulation	Oct. 2023	0.69	0.01	0.00	2.78	0.06	0.00	9.90	0.24	0.00	9.90	0.24	0.00
Commercial Harbor Craft Amendments	Dec. 2022	1.06	0.06	0.00	1.58	0.08	0.00	2.06	0.09	0.00	2.06	0.09	0.00
Amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation	Nov. 2022	0.31	0.02	0.00	1.53	0.10	0.00	1.91	0.12	0.00	1.91	0.12	0.00
Transport Refrigeration Unit Phase 1	Feb. 2022	0.09	0.04	0.00	0.25	0.07	0.00	0.33	0.10	0.00	0.33	0.10	0.00
Non-RECLAIM Rules adopted/amended after 2022 AQMP cut-off date	Sep. 2023	0.00	0.00	0.00	0.00	0.00	0.00	0.34	0.00	0.00	0.34	0.00	0.00
RECLAIM landing rules adjustment	Sep. 2023	0.00	0.00	0.00	0.00	0.00	0.00	2.86	0.00	0.00	2.86	0.00	0.00
Total Benefit (tpd)		3.26	0.14	0.10	10.06	0.47	1.40	24.34	0.83	2.96	24.34	0.83	2.96

Table 6-8 summarizes the total reductions needed from the 2018 baseline emissions inventory that must be achieved to reach attainment in 2030.

TABLE 6-8
TOTAL REDUCTIONS NEEDED FOR ATTAINMENT (TPD)

Pollutant	2018 Base Year Emissions	2030 Attainment Scenario Emissions	Total Reductions Needed
NO_x	383.02	175.37	207.65
PM_{2.5}	56.04	52.68	3.36
NH₃	74.54	76.11	-1.57*

*Negative reductions reflect increase in emissions from 2018 to 2030

NO_x

NO_x emissions are expected to decrease in a generally linear fashion from the base year to the attainment scenario, as shown in Figure 6-1. The NO_x emission reductions anticipated from the baseline reductions and line item adjustments are sufficient to meet or exceed the RFP targets. Therefore, NO_x is determined to meet the RFP requirements.

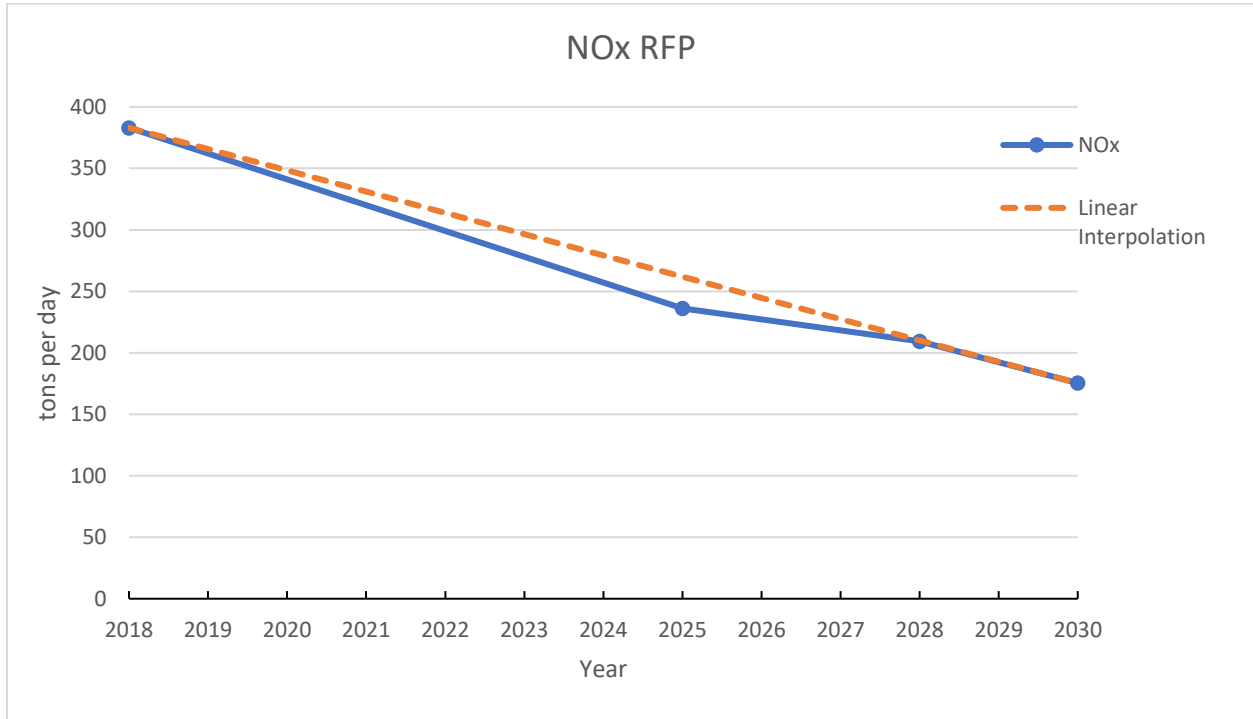


FIGURE 6-1
NO_x RFP TOWARD ATTAINMENT:
ORANGE DASHED LINE PRESENTS THE LINEAR INTERPOLATION FROM BASE YEAR TO
ATTAINMENT SCENARIO EMISSIONS AND BLUE SOLID LINE PRESENTS ANTICIPATED
PROGRESS TOWARD ATTAINMENT

PM2.5

Direct PM2.5 emissions are expected to decrease in a generally linear fashion from the base year to the attainment scenario, as shown in Figure 6-2. The direct PM2.5 emission reductions anticipated from the baseline reductions and line item adjustments are sufficient to meet or exceed the RFP targets. Therefore, direct PM2.5 is determined to meet the RFP requirements.

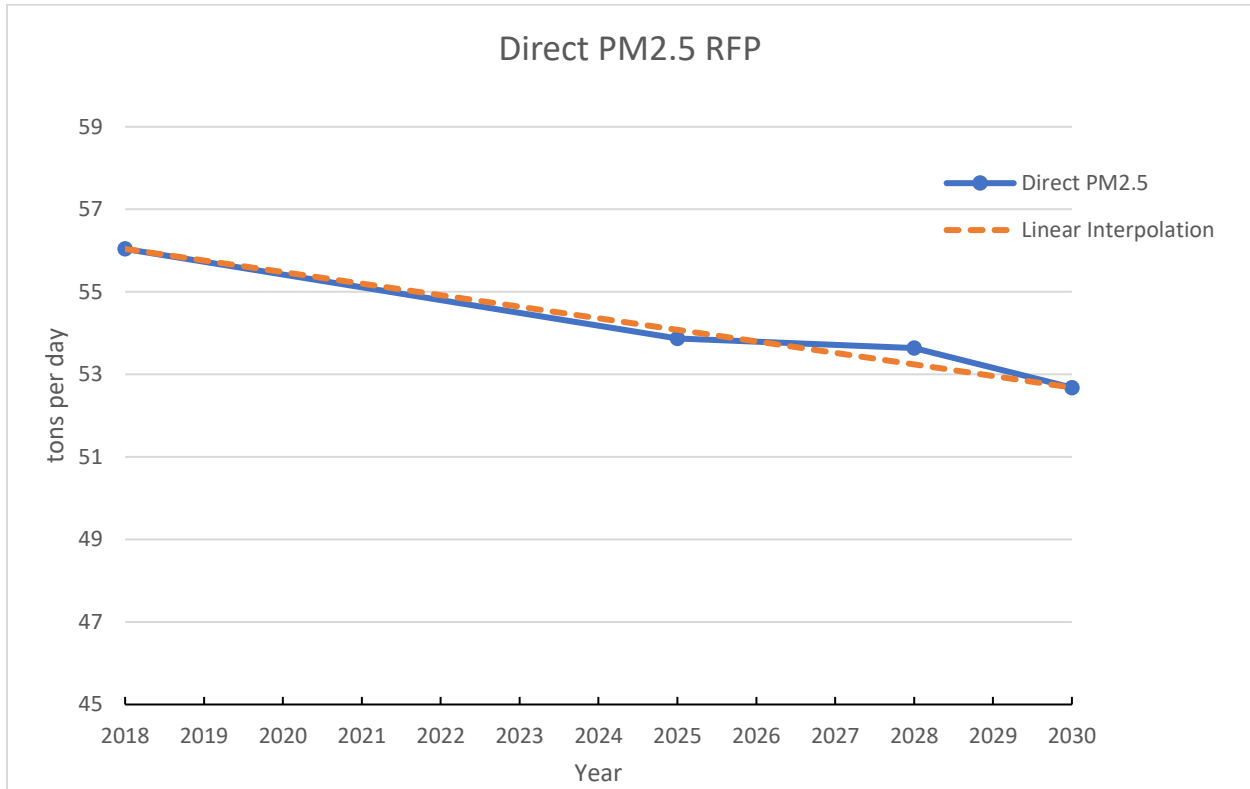


FIGURE 6-2
DIRECT PM2.5 RFP TOWARD ATTAINMENT:
ORANGE DASHED LINE PRESENTS THE LINEAR INTERPOLATION FROM BASE YEAR TO
ATTAINMENT SCENARIO EMISSIONS AND BLUE SOLID LINE PRESENTS ANTICIPATED
PROGRESS TOWARD ATTAINMENT

Ammonia

RFP for ammonia utilizes a stepwise approach as justified earlier in this chapter. Figure 6-3 illustrates a parabolic ammonia trend. As explained in the stepwise justification, the projected growth in ammonia emissions between 2018 and 2025 is mainly driven by increases in the human and pet population that outpace emission reductions. However, the pace of ammonia emission reductions accelerates after 2025 due to increasing penetration of zero emission technologies especially in the on-road sector. CARB regulations such as Advanced Clean Cars II and Advanced Clean Fleets contribute to these emission reductions. The control strategy also includes South Coast AQMD's ammonia measures, BCM-08 through BCM-11, and CARB's Zero Emissions Truck Measure which are expected to further reduce ammonia emissions. In 2028 and 2030, these regulations result in ammonia reductions that outpace increases due to population growth. While 2030 is projected to have higher emissions than 2018, this marginal increase will not hinder attainment of the 2012 annual PM_{2.5} NAAQS in 2030. In addition, the implementation of zero emission vehicles and technologies will continue beyond 2030 and lower ammonia emissions even further. Therefore, ammonia is determined to meet the RFP requirements.

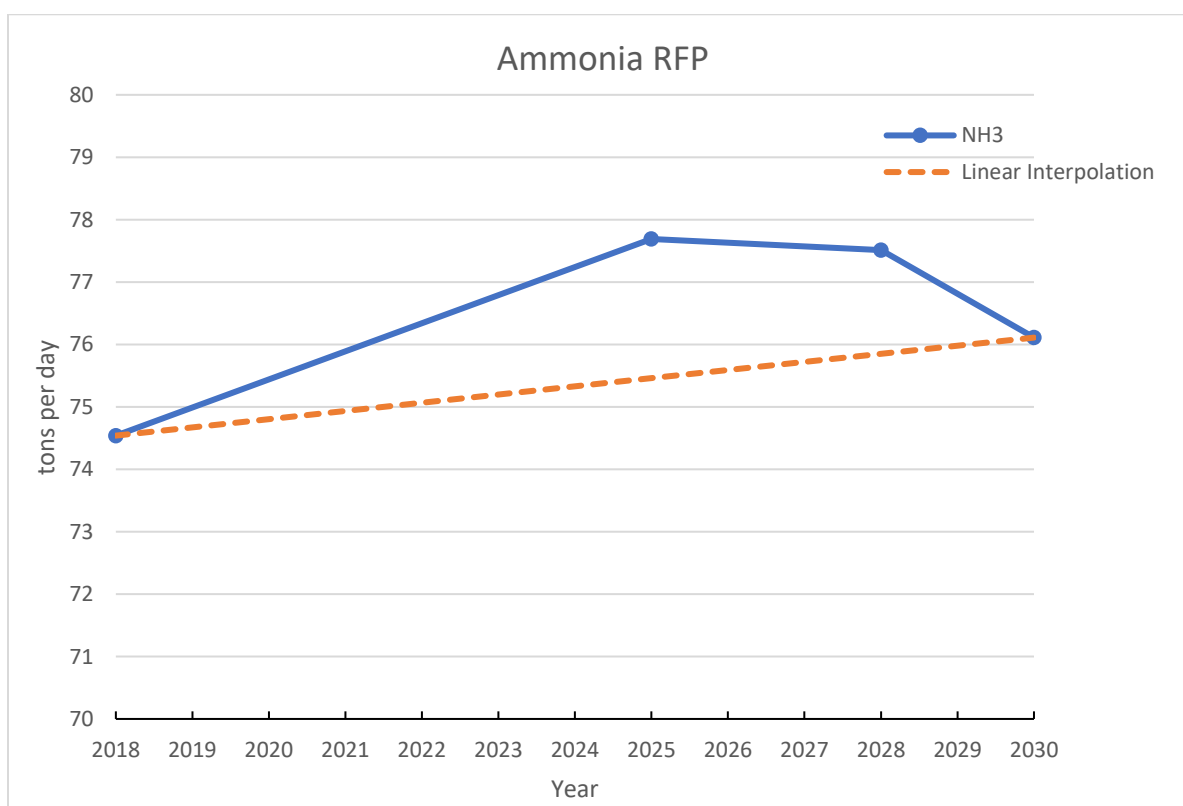


FIGURE 6-3

AMMONIA RFP TOWARD ATTAINMENT:

ORANGE DASHED LINE PRESENTS THE LINEAR INTERPOLATION FROM BASE YEAR TO ATTAINMENT SCENARIO EMISSIONS AND BLUE SOLID LINE PRESENTS ANTICIPATED PROGRESS TOWARD ATTAINMENT

Quantitative Milestones for South Coast AQMD Stationary Source Regulations

The RFP and quantitative milestone demonstrations in this Plan rely, in part, on NO_x reductions from South Coast AQMD rules, the most significant of which is Rule 1109.1. South Coast AQMD will also report on the adoption and implementation of stationary source measures as specified in Chapter 4.

The applicable quantitative milestone years for the 2012 12 µg/m³ annual PM_{2.5} standard are 2025, 2028, and 2031.

For the 2025 milestone year, South Coast AQMD will report on the following:

- Implementation from 2022 through 2025 of Rule 1109.1, which establishes NO_x and CO emission limits for combustion equipment at petroleum refineries and facilities with operations related to petroleum refineries.
- Adoption and implementation of applicable PM_{2.5} Plan measures according to the schedule specified in Chapter 4.

For the 2028 milestone year, South Coast AQMD will report on the following:

- Implementation from 2026 through 2028 of Rule 1109.1, which establishes NO_x and CO emission limits for combustion equipment at petroleum refineries and facilities with operations related to petroleum refineries.
- Adoption and implementation of applicable PM_{2.5} Plan measures according to the schedule specified in Chapter 4.

For the 2031 milestone year, South Coast AQMD will report on the following:

- Implementation from 2029 through 2031 of Rule 1109.1, which establishes NO_x and CO emission limits for combustion equipment at petroleum refineries and facilities with operations related to petroleum refineries.
- Adoption of applicable PM_{2.5} Plan measures since the 2028 milestone year.
- Demonstration of implementation of all PM_{2.5} Plan measures with committed adoption and implementation schedules.
- Demonstration that the aggregate emission reduction commitment was achieved for the 2030 attainment year.

Quantitative Milestones for State Mobile Source Regulations

CARB will work closely with South Coast AQMD to report on the milestones identified in this Plan for the applicable milestone years. CARB will report on milestones for implementation of mobile source measures that contribute significant emissions reductions included in the reasonable further progress demonstration through the 2031 milestone year. These regulations were originally set forth as measure commitments in the 2016 State Strategy for the State Implementation Plan (2016 State SIP Strategy) and the 2022 State Strategy for the State Implementation Plan (2022 State SIP Strategy).

For the 2025 milestone year, CARB is reporting on the following three milestones:

- Implementation from 2022 through 2025 of the Clean Truck Check Program, previously known as the Heavy-Duty Vehicle Inspection and Maintenance Program, which ensures that vehicles' emissions control systems are properly functioning when traveling on California's roadways;
- Implementation from 2022 through 2025 of the Advanced Clean Fleets Regulation which focuses on strategies to ensure that the cleanest vehicles are deployed by government, business, and other entities in California to meet their transportation needs; and
- Implementation from 2022 through 2025 of the In-Use Off-Road Diesel-Fueled Fleets Regulation which requires fleets operating in-use off-road diesel equipment to meet an annual fleet average emissions target that decreases over time.

For the 2028 milestone year, CARB is reporting on the following three milestones:

- Implementation from 2026 through 2028 of the Heavy-Duty Vehicle Inspection and Maintenance Program, also known as Clean Truck Check, which ensures that vehicles' emissions control systems are properly functioning when traveling on California's roadways;
- Implementation from 2026 through 2028 of the Advanced Clean Fleets Regulation which focuses on strategies to ensure that the cleanest vehicles are deployed by government, business, and other entities in California to meet their transportation needs; and
- Implementation from 2026 through 2028 of the In-Use Off-Road Diesel-Fueled Fleets Regulation which requires fleets operating in-use off-road diesel equipment to meet an annual fleet average emissions target that decreases over time.

For the 2031 milestone year, CARB is reporting on the following milestone:

- The status of new CARB SIP measures adopted between 2024 and 2030 per the schedule included in the adopted South Coast 12 $\mu\text{g}/\text{m}^3$ annual PM_{2.5} Plan that provide for attainment of the 12 $\mu\text{g}/\text{m}^3$ PM_{2.5} annual standard in 2030.

Transportation Conformity

CAA Section 176(c) establishes transportation conformity requirements which are intended to ensure that transportation activities do not interfere with air quality progress. The CAA requires that transportation plans, programs, and projects that obtain federal funds or approvals conform to applicable SIPs before being approved by a Metropolitan Planning Organization (MPO). –Conformity to a SIP means that proposed activities must not:

- (1) Cause or contribute to any new violation of any standard;
- (2) Increase the frequency or severity of any existing violation of any standard in any area; or
- (3) Delay timely attainment of any standard or any required interim emission reductions or other milestones in any area.

A SIP that analyzes the region's total emissions inventory from all sources is necessary for purposes of demonstrating RFP and attainment. The portion of the total emissions inventory from on-road highway and transit vehicles in these analyses becomes the Motor Vehicle Emissions Budget (MVEB).¹⁶ Budgets are set for each criteria pollutant or its applicable precursor(s), for all RFP milestone years and the attainment year. Subsequent transportation plans and programs produced by transportation planning agencies are required to conform to the SIP by demonstrating that the emissions from the proposed plan, program, or project do not exceed the MVEB.

PM2.5 Requirements for Conformity

The U.S. EPA has promulgated separate rules addressing the PM2.5 emission categories and precursors that must be considered in PM2.5 transportation conformity determinations.

PM2.5 Motor Vehicle Emission Category Requirements

Guidance on the motor vehicle emission categories that must be considered in transportation conformity determinations can be found in the July 1, 2004, Final Rule amending the Transportation Conformity Rule to implement criteria and procedures for the 8-hour ozone and PM2.5 standards:¹⁷

[A]ll regional emissions analyses in PM2.5 nonattainment and maintenance areas [must] consider directly emitted PM2.5 motor vehicle emissions from the tailpipe, brake wear, and tire wear...Sections IX. and X. [of the Final Rule] provide information on when re-entrained

¹⁶ Federal transportation conformity regulations are found in 40 CFR Part 51, subpart T – Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Title 23 U.S.C. of the Federal Transit Laws. Part 93, subpart A of this chapter was revised by the EPA in the August 15, 1997 Federal Register.

¹⁷ Transportation Conformity Rule Amendments for the New 8-hour Ozone and PM2.5 National Ambient Air Quality Standards and Miscellaneous Revisions for Existing Areas; Transportation Conformity Rule Amendments: Response to Court Decision and Additional Rule Changes, 69 Fed. Reg. 40004 (July 1, 2004)

road dust and construction-related dust must also be included in PM_{2.5} conformity analyses...[T]he analysis for direct PM_{2.5} must include:

- tailpipe exhaust particles,
- brake and tire wear particles,
- re-entrained road dust, if before a SIP is submitted to U.S. EPA or the state air agency has made a finding of significance or if the applicable or submitted SIP includes re-entrained road dust in the approved or adequate budget, and
- fugitive dust from transportation-related construction activities, if the SIP has identified construction emissions as a significant contributor to the PM_{2.5} problem.¹⁸

PM_{2.5} Motor Vehicle Emission Precursor Requirements

Following the July 1, 2004, Final Rule identifying the motor vehicle emission categories that must be considered in transportation conformity determinations, U.S. EPA issued the May 6, 2005, Final Rule¹⁹ amending the Transportation Conformity Regulation. In this Final Rule, U.S. EPA identifies four transportation-related precursors that result in PM_{2.5} formation—~~nitrogen oxides (NO_x), volatile organic compounds (VOCs), sulfur oxides (SO_x),²⁰ and ammonia (NH₃)~~—for consideration in the conformity process in PM_{2.5} nonattainment and maintenance areas.²¹ Of these PM_{2.5} precursors, NO_x must be included in the regional transportation conformity determination unless it is found to be an insignificant contributor to the formation of PM_{2.5} in the region, per Section 93.102(b)(2)(iv) of the Conformity Regulation. Conversely, VOCs, SO_x, and NH₃ are not required unless these precursors are found to be significant contributors to the formation of PM_{2.5} in the region or are included in the RFP demonstration.²² In this plan, NH₃ emissions are considered in the MVEB as NH₃ emissions are included in the RFP demonstration.

¹⁸ 69 FR 40331-40333. Codified in Sections 93.102(b)(1) and (3) and Section 93.122(f) of the Conformity Regulation.

¹⁹ Transportation Conformity Rule Amendments for the New PM_{2.5} National Ambient Air Quality Standard: PM_{2.5} Precursors, 70 Fed. Reg. 24280 (June 1, 2005)

²⁰ U.S. EPA revised the transportation conformity rule to revise PM_{2.5} precursors from SO_x to SO₂ for consistency with the broader PM_{2.5} implementation strategy. (Transportation Conformity Rule Amendments To Implement Provisions Contained in the 2005 Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), 73 Fed. Reg. 4435 (Jan. 24, 2008))

²¹ Transportation Conformity Rule Amendments for the New PM_{2.5} National Ambient Air Quality Standard: PM_{2.5} Precursors, 70 Fed. Reg. 24282 (June 1, 2005)

²² 40 CFR 93.102(b)(2)(v)

Conformity Budgets

Introduction

The California Air Resources Board (CARB) has prepared the ~~motor vehicle emissions budget (MVEB)~~²³ for the South Coast Attainment Plan for the 2012 Annual PM2.5 National Ambient Air Quality Standard (NAAQS).²⁴ The MVEB is the maximum allowable emissions from motor vehicles within a nonattainment area and is used to determine whether transportation plans and projects conform to the applicable state implementation plan (SIP).

Transportation conformity is the federal regulatory procedure for linking and coordinating the transportation and air quality planning processes through the MVEB established in the SIP. Under section 176(c) of the Clean Air Act (Act), federal agencies may not approve or fund transportation plans and projects unless they are consistent with the regional SIP. In addition, conformity with the SIP requires that transportation activities do not (1) cause or contribute to new air quality violations, (2) increase the frequency or severity of any existing violation, or (3) delay the timely attainment of NAAQS. Therefore, quantifying on-road motor vehicle emissions and comparing those emissions with a budget established in the SIP determine transportation conformity between air quality and transportation planning.

The MVEBs are set for each criteria pollutant or its precursors for each milestone year and the attainment year of the SIP. Subsequent transportation plans and programs produced by transportation planning agencies must demonstrate that the emissions from the proposed plan, program, or project do not exceed the MVEBs established in the applicable SIP. The MVEBs established in this SIP apply as a "ceiling" or limit on transportation emissions for the Southern California Association of Governments (SCAG) for the years in which they are defined and for all subsequent years until another year for which a different budget is specified, or until a SIP revision modifies the budget. For the South Coast Air Quality Management District's (District) annual PM2.5 attainment plan, the milestone years, attainment year of the SIP, and post-attainment milestone years (also referred to as the plan analysis years) are 2025, 2028, 2030, and 2031.

Methodology

The MVEB for the South Coast annual PM2.5 attainment plan is established based on guidance from the U.S. EPA on the motor vehicle emission categories and precursors that must be considered in transportation conformity determinations as found in the transportation conformity regulation and final rules as described below. The MVEB must be clearly identified, precisely quantified, and consistent with

²³ Federal transportation conformity regulations are found in 40 CFR Part 51, subpart T – Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Title 23 U.S.C. of the Federal Transit Laws. Part 93, subpart A of this chapter was revised by the EPA in the August 15, 1997 Federal Register.

²⁴ National Ambient Air Quality Standards for PM, <https://www.epa.gov/pm-pollution/national-ambient-air-quality-standards-naaqs-pm#rule-summary>

applicable Act requirements. Further, it should be consistent with the South Coast PM2.5 Attainment Plan's emission inventory and control measures.

The South Coast annual PM2.5 attainment plan establishes the MVEB only for primary emissions of PM2.5 from motor vehicle exhaust, tire and brake wear, and paved and unpaved road dust, as well as for the precursors of NOx and NH3. This section discusses budgets that have been set for annual average daily emissions in the analysis years 2025, 2028, 2030, and 2031. The MVEB presented below uses emission rates from California's motor vehicle emission model, EMFAC2021 (V.1.0.2),²⁵ with South Coast activity data (Vehicle Miles Traveled, i.e., VMT, and speed distributions), along with California Emissions Projection Analysis Model (CEPAM) 2022v1.01. The activity data are from the region's 2020 Regional Transportation Plan (RTP).²⁶ Thus, they are consistent with the attainment demonstration for the SIP.

On November 15, 2022, the U.S. EPA approved EMFAC2021 for use in SIPs and demonstrating transportation conformity.²⁷ The EMFAC model estimates emissions from two combustion processes (running and start exhaust) and four evaporative processes (hot soak, running losses, diurnal, and resting losses). Further, the estimated emissions were adjusted for the Heavy-Duty Inspection and Maintenance (HD I/M) Program,²⁸ the Advanced Clean Fleets (ACF) program,²⁹ the Advanced Clean Cars II (ACCII) program,³⁰ and the Clean Trucks Plan.³¹

The MVEB for the South Coast annual PM2.5 attainment plan was developed to be consistent with the on-road emissions inventory³² and attainment demonstration using the following method:

- (1) Used the EMFAC2021 model to produce the on-road motor vehicle emissions totals (average annual day) for the appropriate pollutants (NOx, NH3, and PM2.5)³³ using the 2020 RTP activity data.
- (2) Applied the off-model adjustments (HD I/M, ACF, ACCII, and Clean Trucks Plan) to account for recently adopted regulations.
- (3) Used CEPAM2022 model to estimate on-road construction dust, paved road dust, and unpaved road dust for PM2.5.
- (4) Rounded the totals for NOx, NH3, and PM2.5 to the nearest ton.

²⁵ More information on data sources can be found in the EMFAC technical support documentation at:

<https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/msei-road-documentation>

²⁶ SCAG 2020 RTP, <https://scag.ca.gov/read-plan-adopted-final-connect-socal-2020>

²⁷ U.S. EPA approval of EMFAC2021 can be found at 87 FR 68483: [federalregister.gov](https://www.federalregister.gov)

²⁸ Heavy-Duty Engine and Vehicle Omnibus Regulations, <https://ww2.arb.ca.gov/rulemaking/2020/hdomnibuslownox>

²⁹ Advanced Clean Fleet, <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets>

³⁰ Advanced Clean Cars II, <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program/advanced-clean-cars-ii>

³¹ Clean Trucks Plan, <https://www.epa.gov/system/files/documents/2021-08/420f21057.pdf>

³² More information about the on-road motor vehicle emission budgets can be found in Chapter 3 of the plan

³³ More information about the significance of these pollutants can be found in Appendix VI of the plan

Motor Vehicle Emissions Budget

The MVEB in Table ~~6-9~~ was established according to the methodology outlined above and in consultation with SCAG, the District, U.S. EPA, Federal Highway Administration (FHWA), and Federal Transit Administration (FTA). The MVEB is consistent with the emission inventories and control measures in the PM2.5 attainment plan. This budget will be effective once U.S. EPA determines it is adequate or approved.

Table 6-9 contains the Summary MVEB for the South Coast Air Basin. It includes pollutants of NO_x, NH₃, and PM2.5 emissions for milestone and attainment years using the EMFAC2021 model and 2020 RTP activity data.

TABLE 6-9
SUMMARY MVEB FOR THE SOUTH COAST PM2.5 ATTAINMENT PLAN (TONS PER DAY)

	2025			2028			2030			2031		
	NOx	NH3	PM2.5	NOx	NH3	PM2.5	NOx	NH3	PM2.5	NOx	NH3	PM2.5
Vehicular Exhaust (including brake/tire wear for PM10)	86.7	20.2	4.0	74.8	21.0	3.9	68.5	21.2	3.9	65.9	21.2	3.8
Construction Road Dust	-	-	0.3	-	-	0.3	-	-	0.3	-	-	0.3
Paved Road Dust	-	-	8.9	-	-	9.1	-	-	9.1	-	-	9.1
Unpaved Road Dust	-	-	1.27	-	-	1.27	-	-	1.27	-	-	1.27
Reductions from HD I/M ^a	14.2	0.0	0.1	17.5	0.0	0.2	18.5	0.0	0.2	18.8	0.0	0.2
Reductions from Advanced Clean Fleets	1.1	0.1	0.0	3.0	0.5	0.0	4.8	0.8	0.1	4.8	0.8	0.1
Reductions from ACCII	-	-	-	0.7	0.9	0.1	1.5	2.1	0.2	1.5	2.1	0.2
Reductions from Clean Trucks Plan	-	-	-	0.2	0.0	0.0	0.6	0.0	0.0	0.6	0.0	0.0
Total ^{ab}	71.36	20.14	14.2973	53.36	19.58	14.2469	43.10	18.25	14.0146	40.24	18.29	14.441399
Motor Vehicle Emission Budget^b	72	21	15	54	20	15	44	19	15	41	19	15

^a Values may not add up due to rounding.

^b Motor Vehicle Emission Budgets calculated are rounded up to the nearest ton.

Source: EMFAC2021 v1.02 and CEPAM2022 v1.01

Fulfillment of New Source Review Requirements

CAA Section 172(c) requires permits for the construction and operation of new or modified major stationary sources. New Source Review (NSR) for major and in some cases minor sources of PM_{2.5} and its precursors is presently addressed through South Coast AQMD's NSR and RECLAIM programs (Regulations XIII and XX, respectively). Both programs are applicable to sources located in the South Coast AQMD jurisdiction, including the South Coast Air Basin and the Coachella Valley. Regulation XIII establishes the federal and State mandated pre-construction review program for new, modified, or relocated sources. The NSR program is a critical component of South Coast AQMD's attainment strategy and ensures that all new and modified sources install BACT and their emission increases are fully offset with creditable emission reductions.

The components of South Coast AQMD's NSR program are contained within Regulation XIII. Rule 1325 was adopted June 3, 2011 to incorporate the U.S. EPA's requirements for PM_{2.5} and its precursors into Regulation XIII. The rule mirrors federal requirements which include the definition of major source, significant emissions rate, offset ratios, and the applicability requirements of Lowest Achievable Emission Rate (LAER), facility compliance, offsets, and control of PM_{2.5} precursors. In 2021, U.S. EPA approved Rule 1325 as meeting all applicable NSR requirements.³⁴

RECLAIM facilities are currently not subject to emission offsets for NO_x and SO_x under Regulation XIII, however, these facilities are instead subject to NO_x and SO_x emission offsets under Regulation XX. Under existing NSR in Regulation XIII and RECLAIM programs in Regulation XX, major stationary sources of NO_x and SO_x are already subject to emission offsets. The 2016 AQMP included a control measure, CMB-05 - Further NO_x Reductions from RECLAIM Assessment, to achieve an additional five tons per day of NO_x emissions as soon as practicable, but no later than 2025, and to transition RECLAIM to a command-and-control regulatory structure. The transition will include requiring former RECLAIM sources to be subject to Regulation XIII for NO_x and SO_x as applicable. Regulation XIII will be updated to reconcile the program with U.S. EPA's 2002 NSR Reform.³⁵

VOC and ammonia emissions are also subject to BACT under existing NSR. VOC emissions are required to be offset when a new or modified source has the potential to emit 4 tons per year or more of VOC. Ammonia emission sources have not historically been subject to NSR offset requirements. However, for permitted ammonia sources, Rule 1303 (NSR Requirements) requires denial of "the Permit to Construct for any relocation, or for any new or modified source which results in an emission increase of any nonattainment air contaminant, any ozone depleting compound, or ammonia, unless BACT is employed for the new or relocated source or for the actual modification to an existing source." BACT shall be at least as stringent as LAER as defined in CAA Section 171(3); therefore, South Coast AQMD's current regulations requiring BACT

³⁴ Air Plan Approval; California; South Coast Air Quality Management District; Stationary Source Permits, 86 Fed. Reg. 58592 (Oct. 22, 2021)

³⁵ Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR): Baseline Emissions Determination, Actual-to-Future-Actual Methodology, Plantwide Applicability Limitations, Clean Units, Pollution Control Projects, 67 Fed. Reg. 80186 (Dec. 31, 2002)

comply with the federal LAER requirements.

Major Source Threshold

The NSR permitting program relies on emissions thresholds to determine when certain requirements apply to new stationary sources and to modifications of existing stationary sources. If a new or modified facility will emit PM_{2.5} or PM_{2.5} precursor emissions greater than the major source threshold, the facility is considered a major source. Under a “serious” nonattainment classification, the major source threshold is defined as a potential to emit 70 or more tons per year of PM_{2.5} or PM_{2.5} precursors. To comply with federal requirements for “serious” nonattainment areas, Rule 1325 was amended on November 4, 2016 to update the Major Polluting Facility definition to align the associated major source emission threshold at 70 tons per year for PM_{2.5} and PM_{2.5} precursors. VOC and ammonia were added to the Rule 1325 definition of “precursors” and a VOC and ammonia threshold at 40 tons per year was added as part the definition of “significant” which is used in the determination of a “major modification.” The SO_x major polluting facility threshold defined in Rule 1302 was also lowered from 100 to 70 tons per year. While the 2016 amendment expanded the definition of “precursors,” it did not expand the definition of “regulated NSR pollutant” to explicitly reference VOC and NH₃ as PM_{2.5} precursor. For this reason, U.S. EPA conditionally approved Rule 1325 based on a commitment to amend Rule 1325 to expand the definition of “regulated NSR pollutant.”³⁶ South Coast AQMD subsequently amended Rule 1325 on January 4, 2019 to correct this deficiency and U.S. EPA approved the amendment into the SIP.³⁷

PM Precursor Requirement in Nonattainment NSR

CAA Section 189(e) states that control requirements applicable to plans in effect for major stationary PM sources shall also apply to major stationary sources of PM precursors, except where such sources do not contribute significantly to PM levels which exceed the standard in the area. A state is required to conduct a Nonattainment NSR (NNSR) precursor demonstration, which evaluates the sensitivity of PM_{2.5} levels to an increase in emissions of a precursor, to exempt the precursor from NSR requirements.³⁸ This differs from a comprehensive precursor demonstration, which evaluates the sensitivity of PM_{2.5} levels to a decrease in emissions of a precursor. South Coast AQMD has not conducted an NNSR precursor demonstration and is not seeking to exempt precursors from NSR requirements. Therefore, Rule 1325 satisfies CAA Section 189(e) by addressing all precursors of PM_{2.5} including NO_x, VOC, ammonia, and SO_x.

³⁶ Revisions to California State Implementation Plan; South Coast Air Quality Management District; Stationary Source Permits, 83 Fed. Reg. 61551 (Nov. 30, 2018)

³⁷ Air Plan Approval; California; South Coast Air Quality Management District; Stationary Source Permits, 86 Fed. Reg. 58592 (Oct. 22, 2021)

³⁸ Fine Particulate Matter National Ambient Air Quality Standards: State Implementation Plan Requirements, 81 Fed. Reg. 58010 (Aug. 24, 2016)

Contingency Measures

Clean Air Act Section 172(c)(9) requires a SIP to provide for the implementation of specific measures to be undertaken if the nonattainment area fails to make RFP, or to attain the NAAQS by the applicable attainment date. Such contingency measures need to take effect within 60 days in any such case without further action by South Coast AQMD. Furthermore, contingency measures must achieve ~~their full~~ emission reductions within 2 years of being triggered. The U.S. EPA provides further details in its Draft Contingency Measures Guidance.³⁹

Rule 445 (Wood-Burning Devices)

To comply with PM_{2.5} contingency requirements, South Coast AQMD amended Rule 445 (Wood-Burning Devices) on June 5, 2020 to include multiple triggers for contingency measures. Rule 445 was subsequently approved by U.S. EPA, excluding paragraph (g) (Ozone Contingency Measures) and paragraph (k) (Penalties), as fulfilling PM_{2.5} contingency measure requirements.⁴⁰ Rule 445 contains four PM_{2.5} contingency measures, each of which impose lower curtailment thresholds upon any of U.S. EPA's findings of failure to comply or attain as specified in 40 CFR §51.1014(a). The first Rule 445 contingency measure was triggered upon U.S. EPA's finding of failure to attain the 2006 24-hour PM_{2.5} standard.⁴¹ As a result, Rule 445 wood burning curtailment applies to the entire Basin when PM_{2.5} is forecast to be higher than 29 µg/m³ on any day during the wood-burning season.

~~Each subsequent finding by the U.S. EPA will trigger increasingly stringent requirements by lowering the curtailment threshold in the rule. The PM_{2.5} reductions for imposing the remaining thresholds of 28, 27, and 26 µg/m³ are expected to be 20.9, 13.9 and 19.1 tpy, respectively. If future amendments to Rule 445 modify the curtailment threshold, South Coast AQMD commits to consider retaining the existing structure for contingency measures.~~ Control measure BCM-18 proposes to lower the Basin-wide curtailment threshold in Rule 445 from 29 µg/m³ to 25 µg/m³. To satisfy contingency measure requirements, South Coast AQMD proposes to further lower the curtailment threshold to 23 µg/m³ upon any of the applicable triggering events described earlier.

One Year's Worth of Emission Reductions

The reductions from contingency measures are required to satisfy U.S. EPA's definition of one year's worth (OYW) of reductions, which is given by the following equation:

³⁹ U.S. EPA DRAFT: Guidance on the Preparation of State Implementation Plan Provisions that Address the Nonattainment Area Contingency Measure Requirements for Ozone and Particulate Matter, <https://www.epa.gov/system/files/documents/2023-03/CMTF%202022%20guidance%203-17-23.pdf>

⁴⁰ Air Plan Approval; California; Los Angeles — South Coast Air Basin, 87 Fed. Reg. 12866 (March 8, 2022)

⁴¹ Finding of Failure To Attain the 2006 24-Hour Fine Particulate Matter Standards; California; Los Angeles- South Coast Air Basin, 85 Fed. Reg. 57733 (Sept. 16, 2020)

$$\frac{(base\ year\ EI - attainment\ year\ EI)}{(attainment\ year - base\ year)} \div base\ year\ EI \times attainment\ year\ EI$$

Thus, OYW of reductions represents the average emission reductions expected per year over the planning timeline, expressed as a percentage of the base year emission inventory (EI), applied to the attainment year EI. Table 6-10 provides the calculated OYW of reductions for PM2.5 and NOx. Ammonia is omitted from Table 6-10 as its emissions increase between 2018 and 2030 and it would be unreasonable to propose a contingency measure that results in an emissions increase.

TABLE 6-10
OYW OF PM2.5 AND APPLICABLE PRECURSOR REDUCTIONS BASED ON 2018 BASE YEAR AND 2030 ATTAINMENT YEAR EI (TPD)

	NOx	PM2.5
2018 Base Year EI	383.02	56.04
2030 Attainment Year EI	175.37	52.68
OYW of Reductions	7.92	0.26

The PM2.5 Plan includes two contingency measures – further lowering the curtailment threshold in Rule 445 and CARB’s Smog Check Contingency Measure. The Rule 445 contingency measure only quantified reductions for PM2.5 emissions as concurrent reductions of NOx are expected to be small. A comparison of the emission reductions achieved by these contingency measures to OYW of reductions is provided in Table 6-11.

TABLE 6-11
EMISSION REDUCTIONS PROVIDED BY CONTINGENCY MEASURES AND COMPARISON TO OYW (TPD)

	NOx	PM2.5
Rule 445	<u>0.0</u>	<u>0.32</u>
CARB’s Smog Check Contingency Measure	<u>0.30</u>	<u>0.0</u>
Percentage of OYW of Reductions	<u>3.8</u>	<u>123</u>

While Rule 445 achieves OYW of PM2.5 reductions, CARB’s Smog Check Contingency Measure achieves less than OYW of NOx reductions. If contingency measures are unable to provide OYW of reductions, U.S. EPA requires that agencies provide a reasoned justification for achieving a lesser amount of reductions. While the Draft Contingency Measures Guidance outlines a process for developing such a justification, however, the guidance has not yet been finalized and is therefore subject to revision. Nevertheless, based on the Draft Contingency Measures Guidance and currently available information, staff developed a justification for achieving less than OYW of NOx reductions and included it in Appendix V. The justification includes evaluation of potential contingency measures for all sources of PM2.5, ammonia, and NOx emissions in the Basin. South Coast AQMD includes feasible ammonia measures in the control strategy; as such, these measures are ineligible for consideration as contingency measures. Similarly, no further contingency measures that achieve

NOx reductions were identified. Finally, since Rule 445 provides OYW of PM2.5 reductions, additional contingency measures for PM2.5 are not needed.

Reductions from the remaining contingency triggers in Rule 445 are compared to OYW's of reductions in Table 6-11. The difference between the cumulative reductions of all contingency triggers and OYW of reductions is also displayed for comparison.

TABLE 6-11
RULE 445 CONTINGENCY MEASURE REDUCTIONS (TPY)

Pollutant	Rule 445 Curtailment Threshold			Difference [OYW Reductions— Cumulative Reductions]
	28 µg/m³	27 µg/m³	26 µg/m³	
PM2.5	20.9	13.9	19.1	42.2
NOx	0	0	0	2,890.8

While Rule 445 satisfies the triggering mechanism requirement and results in PM2.5 reductions, it does not achieve OYW of reductions as required by U.S. EPA. Concurrent reductions of other pollutants are expected to be small and were not quantified. If contingency measures are unable to provide OYW of reductions, U.S. EPA requires that agencies provide a reasoned justification for achieving a lesser amount of reductions. While the Draft Contingency Measures Guidance outlines a process for developing such a justification, the guidance has not yet been finalized and is therefore subject to revision. Nevertheless, based on the Draft Contingency Measures Guidance and currently available information, staff developed a justification for achieving less than OYW of reductions and included it in Appendix V.

South Coast AQMD's Opportunities for Contingency Measures

The South Coast Air Basin faces some of the most difficult air quality challenges in the nation and, accordingly, South Coast AQMD has one of the most stringent stationary source control programs in the country. South Coast AQMD recently expanded its regulatory activities to mobile sources using innovative approaches such as indirect source rules, voluntary Memoranda of Understanding, and incentive measures. Due to the stringency of those existing requirements, further opportunities for a triggered contingency measure that can be implemented by South Coast AQMD and result in OYW of emission reductions within two years of triggering are non-existent. Even if there were measures capable of achieving this level of emission reductions, they would not be withheld for contingency purposes. Instead, they would be adopted to improve air quality in furtherance of the obligation to meet the NAAQS as soon as feasible. As demonstrated in Appendix V, staff did not identify any other feasible measures that satisfy contingency measure criteria.

Conclusion

The PM2.5 Plan complies with all federal CAA requirements. The most significant CAA requirements, including

the emissions inventory, control strategy, and attainment demonstration, are discussed in Chapters 3 through 5. This chapter demonstrates compliance with other CAA requirements. Further details showing compliance with control strategy and contingency measure requirements are provided in Appendices III, IV and V.



CHAPTER 7

Environmental Justice

- The impacts of air pollution are not distributed equitably throughout the South Coast Air Basin, with some communities bearing much higher air pollution burdens.
- The Draft PM2.5 Plan includes control measures to reduce the levels of PM2.5, a regional pollutant in the entire Basin to meet the annual PM2.5 NAAQS. South Coast AQMD, however, addresses disproportionate impacts of local air pollution in disadvantaged communities through the AB 617 program.
- Environmental Justice (EJ) communities typically experience higher PM2.5 levels and higher cancer risks from toxic air pollutants than other regions in the Basin.
- Measures associated with the Draft PM2.5 Plan will help reduce air pollution in disproportionately impacted areas.
- In the implementation of both existing and future incentive programs, South Coast AQMD will continue to prioritize EJ areas to address the issues of the most disadvantaged communities.

Introduction

Environmental Justice (EJ) communities are disproportionately impacted by various types of pollution and experience health, social, and economic inequities. These inequities can also make residents of EJ communities more vulnerable to the effects of environmental pollution. These communities are often located near multiple air pollution sources including both mobile sources and commercial and industrial facilities. For example, communities adjacent to ports, rail yards and warehouses are exposed to higher levels of emissions from the associated ships, trains, and trucks, including diesel particulate matter, a carcinogen. Communities near refineries and other industries can also suffer from higher levels of air pollution.

The California Office of Environmental Health Hazard Assessment (OEHHA) developed the California Communities Environmental Health Screening Tool (CalEnviroScreen) to identify disadvantaged communities across California based on pollution exposure and population characteristics. This information can be used to advise and assist South Coast AQMD in protecting and improving public health in the most impacted communities through the reduction and prevention of air pollution. While there is no universal definition for what constitutes an EJ community, one that is commonly used is the Senate Bill (SB) 535 definition of disadvantaged communities (DACs)¹. These are defined as:

1. Census tracts receiving the highest 25 percent of overall scores in CalEnviroScreen 4.0 (1,984 tracts).
2. Census tracts lacking overall scores in CalEnviroScreen 4.0 due to data gaps, but ~~receiving that~~ receive the highest 5 percent of CalEnviroScreen 4.0 cumulative pollution burden scores (19 tracts).
3. Census tracts identified in the 2017 DAC designation as disadvantaged, regardless of their scores in CalEnviroScreen 4.0 (307 tracts).
4. Lands under the control of federally recognized Tribes.

All calculations and maps in this section that refer to EJ communities are consistent with this definition. The map of EJ communities alongside major roads within the Basin are presented in Figure 7-1.

¹ Monserrat, Laurie. "SB 535 Disadvantaged Communities." OEHHA, 20 Nov. 2015, <https://oehha.ca.gov/calenviroscreen/sb535>.

SB 535 Disadvantaged Communities

South Coast Air Basin

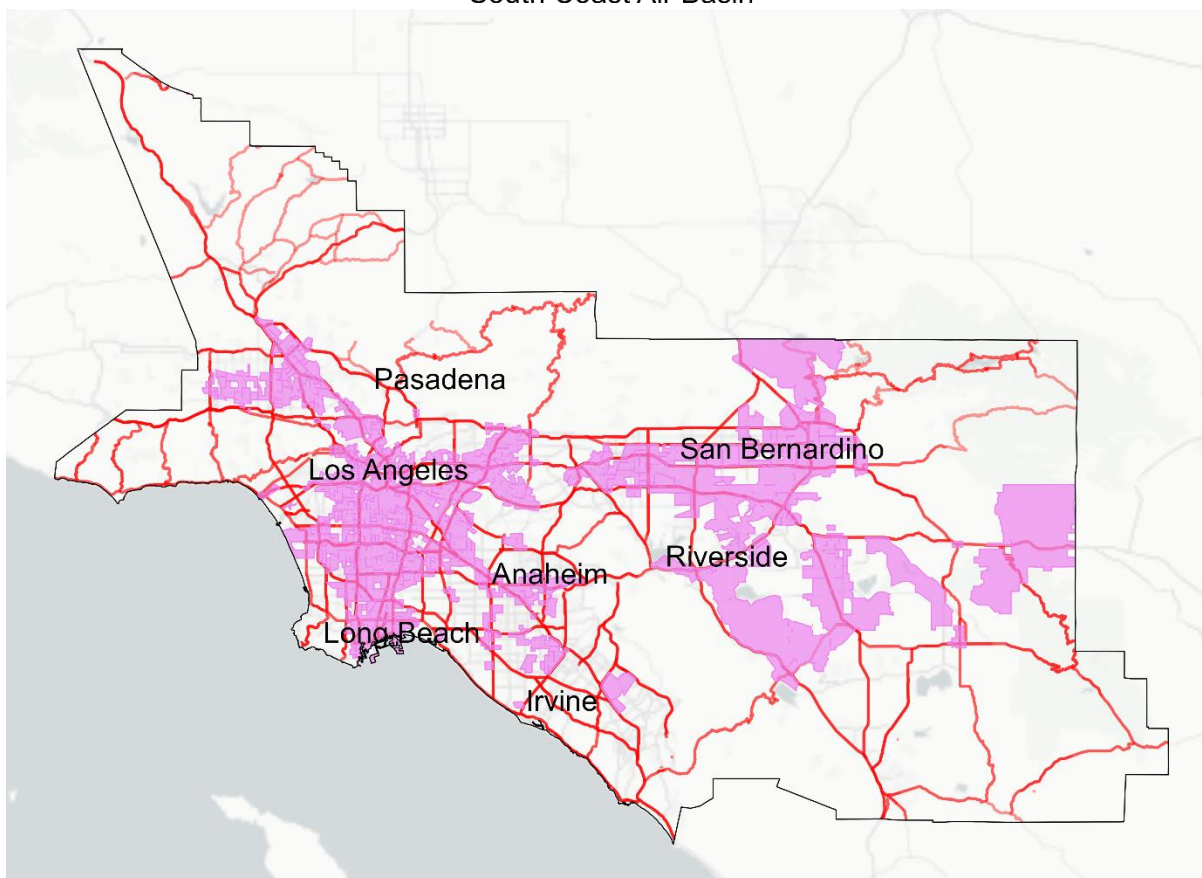


FIGURE 7-1

MAP OF ENVIRONMENTAL JUSTICE COMMUNITIES (VIOLET) WITHIN THE SOUTH COAST AIR BASIN. PRIMARY AND SECONDARY ROADS ARE IN RED

The PM_{2.5} Plan focuses on steps needed to attain the 2012 annual PM_{2.5} standard. As further described in this chapter, environmental justice communities typically experience worse levels of PM_{2.5} than other areas in the Basin. The control strategy proposed in this Plan, which includes transitioning to zero emission technologies where feasible and the cleanest available technologies where zero emission technologies are not feasible, will substantially reduce PM_{2.5} emissions. This includes diesel particulate matter, a powerful cancer-causing pollutant, and other mobile source pollutants that go on to form PM_{2.5}, such as nitrogen oxides. As shown in Figure 7-2 below, the highest levels of air toxics risk are around our ports, rail yards, and major transportation corridors, where many of our EJ communities are located. About 88 percent of those risks are from pollutants associated with mobile sources, with diesel particulate matter alone accounting for about half of those risks. Cleaning up emissions from truck, ship, locomotive, and aircraft fleets will therefore substantially reduce health risks from air pollution in impacted communities, while also putting the region on a path to meet federal air quality standards.

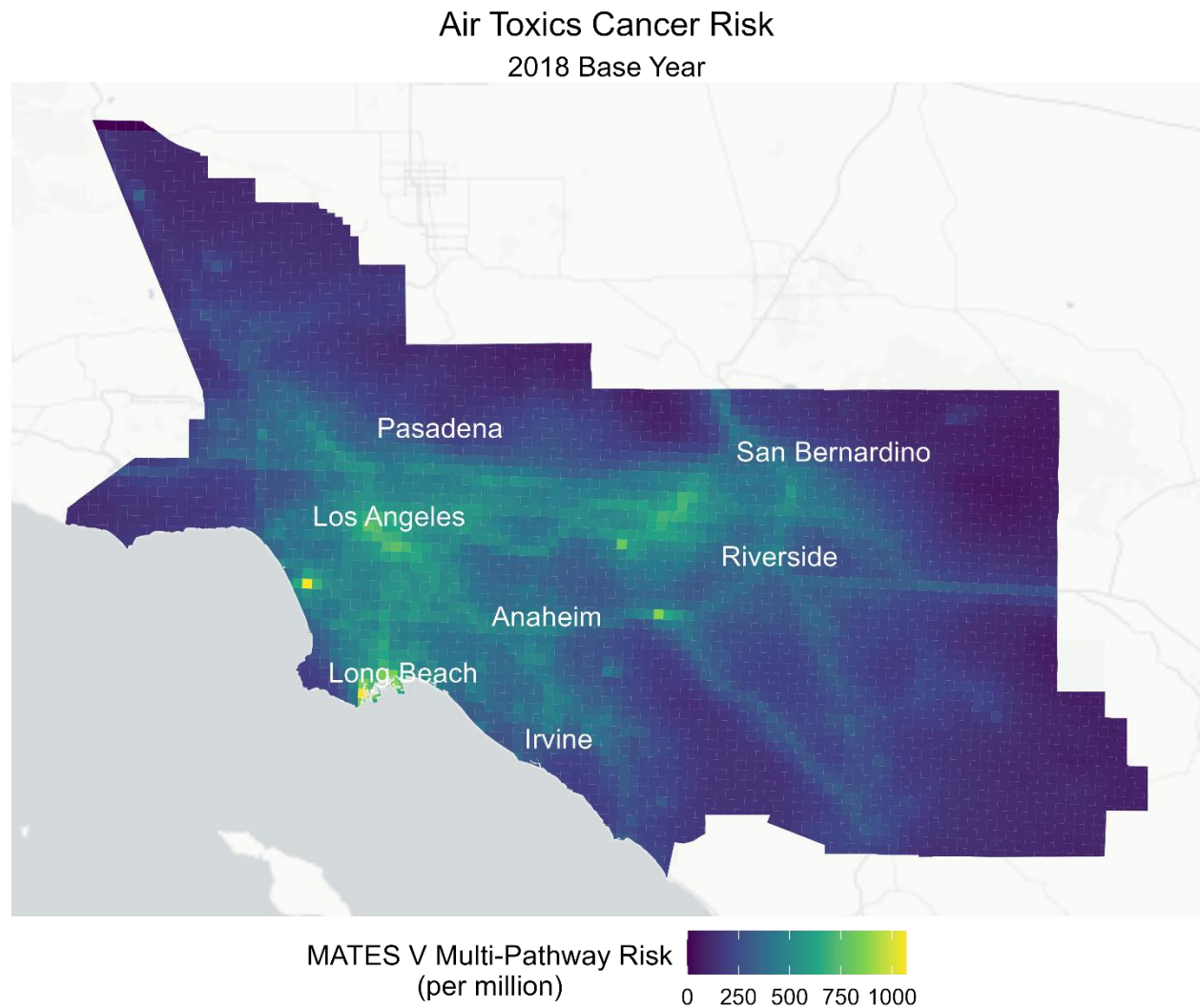


FIGURE 7-2
MODELED MULTI-PATHWAY AIR TOXICS CANCER RISK FROM MATES V IN THE SOUTH
COAST AIR BASIN²

² South Coast AQMD. Multiple Air Toxics Exposure Study in South Coast AQMD. South Coast Air Quality Management District, Aug. 2021, <https://www.aqmd.gov/docs/default-source/planning/mates-v/mates-v-final-report-9-24-21.pdf?sfvrsn=6>.

The purpose of this chapter is to describe air quality impacts experienced in EJ communities and projected future air quality and attainment of the 2012 annual PM_{2.5} standard. While the work described in this chapter will help reduce localized impacts, South Coast AQMD understands that work is ongoing, and much more will need to be done to address historic environmental injustice. South Coast AQMD is committed to continuing work with impacted communities, listening to their concerns, and to the greatest extent possible, addressing their concerns. Environmental justice principles center the importance of public participation in decision-making. To that end, as highlighted in chapter 8, public participation and outreach are critical to the development of the PM_{2.5} Plan. Relevant stakeholders in the development of the PM_{2.5} Plan include environmental justice organizations, environmental advocacy groups, and members of the public. Outreach occurs in-person and remote participation at Advisory Group Meetings, South Coast AQMD Governing Board Meetings, and Regional Public Hearings. For these programs, South Coast AQMD releases Spanish-language versions of meeting notices, agendas, and presentations alongside live Spanish translation.

Environmental Justice Communities

Environmental Justice, or "EJ" has been defined by South Coast AQMD as "equitable environmental policymaking and enforcement to protect the health of all residents, regardless of age, culture, ethnicity, gender, race, socioeconomic status, or geographic location, from the health effects of air pollution." While there are many approaches for identifying EJ communities, throughout this ~~Draft-PM_{2.5}~~ Plan, we consider EJ communities as the disadvantaged communities defined under SB 535.³ By that definition, approximately 42 percent of South Coast Air Basin residents are in EJ communities. Race and ethnicity are not included in the CalEnviroScreen population indicators, but as discussed in the OEHHA Analysis of Race/Ethnicity and CalEnviroScreen results,⁴ people of color disproportionately reside in highly impacted communities in California. These disparities are also clear in the South Coast Air Basin, reflecting the impact of institutional and structural racism that has created unequal pollution burdens and health impacts for different groups (Figure 7-3). Mental and physical disabilities are not considered in this analysis since they are not accounted for in the CalEnviroScreen.

³ Refer the 2nd paragraph of this chapter for the definition of EJ community

⁴OEHHA. Analysis of Race/Ethnicity and CalEnviroScreen 4.0 Scores. California Office of Environmental Health Hazards Assessment, Oct. 2021.

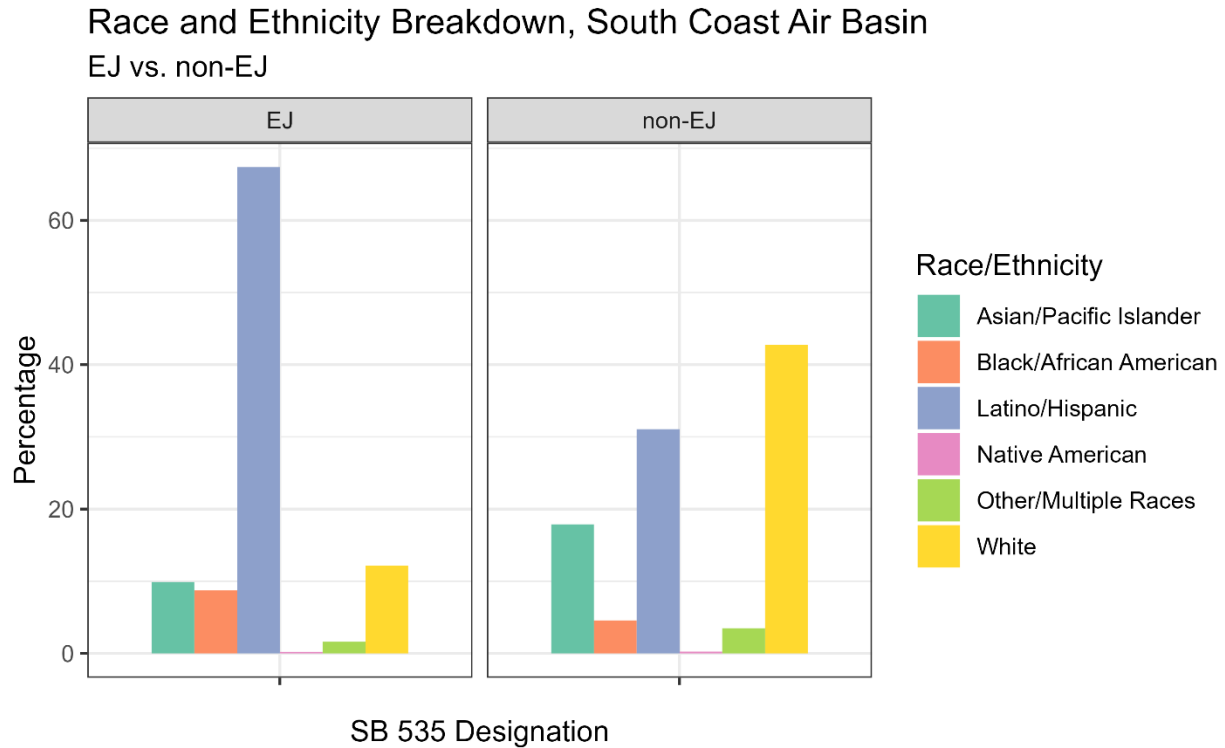


FIGURE 7-3
RACIAL AND ETHNIC MAKEUP OF EJ AND NON-EJ COMMUNITIES IN SOUTH COAST AIR BASIN (2021)

Assembly Bill 617

The PM2.5 Plan is designed to address regional air pollution, however, South Coast AQMD recognizes there is still much work to be done to reduce local exposures within EJ communities. Statewide and South Coast AQMD environmental justice efforts, such as the Assembly Bill 617 (AB 617)⁵ program, seek to collaboratively address environmental challenges in communities that are disproportionately impacted by pollution and more vulnerable to the health effects of pollution.

⁵ California Health and Safety Code § 44391.2

AB 617 Communities South Coast Air Basin

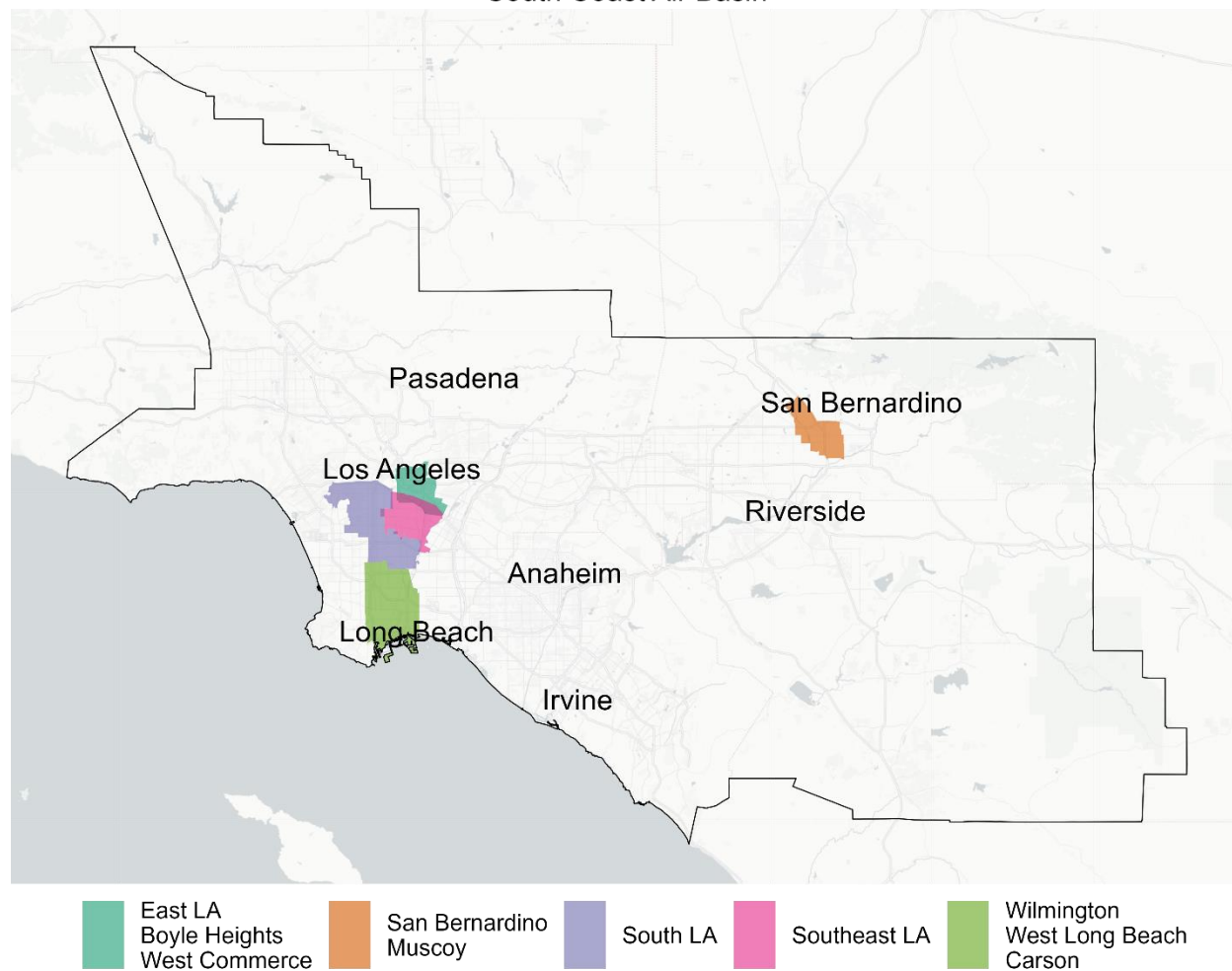


FIGURE 7-4
MAP OF AB 617 COMMUNITIES WITHIN THE SOUTH COAST AIR BASIN

AB 617 was signed into California law on July 26, 2017, and focused on addressing disproportionate impacts of local air pollution in EJ communities. The AB 617 program requires local air districts and California Air Resources Board (CARB) to reduce air pollution in disproportionately burdened communities, improve accountability and transparency, and promote collaborative partnerships with community stakeholders. AB 617 communities are designated by CARB, and they specify the plan(s) for the community as either an emission reduction program, air monitoring program, or both.

To meet the emission reduction program requirements, South Coast AQMD works with the communities to develop and implement Community Emission Reduction Plans (CERPs). CERPs are specific to each AB 617 community and are intended to address air quality related impacts in those communities. Similarly, for the air monitoring program requirements, South Coast AQMD works with the communities to develop and deploy Community Air Monitoring Plans (CAMPs). Both the measures associated with the PM2.5 Plan and the elements of AB 617 CERPs will help reduce air pollution in disproportionately impacted areas. More detail on the AB 617 program can be found on South Coast AQMD's AB 617 Community Air Initiatives webpage.⁶

To date, there are six designated AB 617 communities in the South Coast AQMD jurisdiction. These communities are the East Los Angeles/Boyle Heights/West Commerce (ELABHWC) community, San Bernardino/Muscoy community (SBM) and Wilmington/Carson/West Long Beach community (WCWLB) designated in 2018; the Southeast Los Angeles community (SELA) and Eastern Coachella Valley (ECV) designated in 2019; and the South Los Angeles community (SLA) designated in 2020. All of these communities, with the exception of ECV are located within the South Coast Air Basin and shown in Figure 7-4.

Air Quality in Environmental Justice Communities

The impacts of air pollution are not distributed equitably throughout South Coast AQMD jurisdiction, with some communities bearing much higher air pollution burdens. In this section, results from the recently released CalEnviroScreen 4.0 are used to show the distribution of air pollution across the South Coast Air Basin.

Figure 7-5 shows levels of PM2.5 concentrations in AB 617 communities, in EJ and non-EJ areas in the South Coast Air Basin, and the overall basin-wide levels. As described in the CalEnviroScreen 4.0 report, average annual PM2.5 concentrations in each census tract were calculated using 2015-2017 ambient air monitoring data combined with satellite observations in a land-use regression model. For AB 617 communities, estimates were generated using the census tracts in each community. Boxes indicate the interquartile range (25th to 75th percentile), and the bold line indicates the median concentration (50th percentile). The two ends of the whiskers represent 1.5 multiplied by the interquartile range added and

⁶ South Coast AQMD. "AB 617 Community Air Monitoring." South Coast AQMD, <https://www.aqmd.gov/nav/about/initiatives/environmental-justice/ab617-134/ab-617-community-air-monitoring>. Accessed 2 Jan. 2024.

subtracted to the median. The dashed line represents the $12 \mu\text{g}/\text{m}^3$ standard. The dotted line represents the basin median ($11.9 \mu\text{g}/\text{m}^3$) concentration. Colors of the bars for each AB617 community correspond to map locations illustrated in Figure 7-4. While estimated annual average PM_{2.5} concentrations span a wide range of concentrations in EJ and non-EJ areas, PM_{2.5} concentrations are generally higher in EJ areas and some AB 617 communities in the South Coast Air Basin. The observed disparities within the basin are likely driven by local sources of directly emitted PM_{2.5} such as freeways and industrial facilities, that tend to be concentrated in disadvantaged communities. These sources also contribute to higher levels of diesel particulate matter, a powerful air toxic, in EJ communities.

Importantly, PM_{2.5} is one of the many air pollution challenges that these communities face. All five communities contain census tracts that rank in the CalEnviroScreen 4.0 top 25 percent most impacted tracts across California. Estimated PM_{2.5} concentrations for three EJ communities in the Basin are above the median concentration of $11.9 \mu\text{g}/\text{m}^3$ of all Basin tracts, as estimated by CalEnviroScreen.

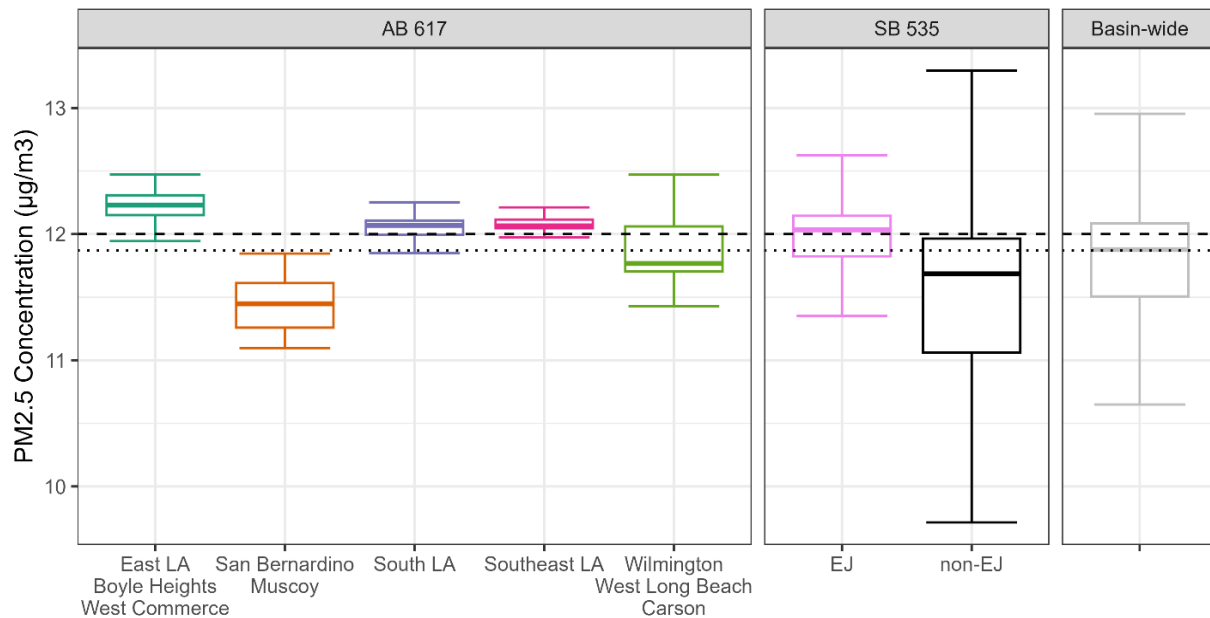


FIGURE 7-5
ESTIMATED PM_{2.5} CONCENTRATIONS IN AB 617 COMMUNITIES (LEFT) AND SB 535-DEFINED EJ COMMUNITIES (MIDDLE) AND OVERALL PM_{2.5} CONCENTRATIONS (2021) IN THE SOUTH COAST AIR BASIN (RIGHT)

Exposure to air toxics is also an important driver of health risks in AB 617 communities. The Multiple Air Toxics Exposure Study V (MATES V)⁷ found a substantial decrease in estimated cancer risk in each of the AB 617 communities from 2012 to 2018⁸. Figure 7-6 shows the air toxic risk in the AB617 communities, and in EJ and non-EJ communities. Boxes indicate the interquartile range (25th to 75th percentile), and the bold line indicates the median concentration (50th percentile). The two ends of the whiskers represent 1.5 multiplied by the interquartile range added and subtracted to the median. Colors of the bars for the AB617 communities correspond to map locations illustrated in Figure 7-4.

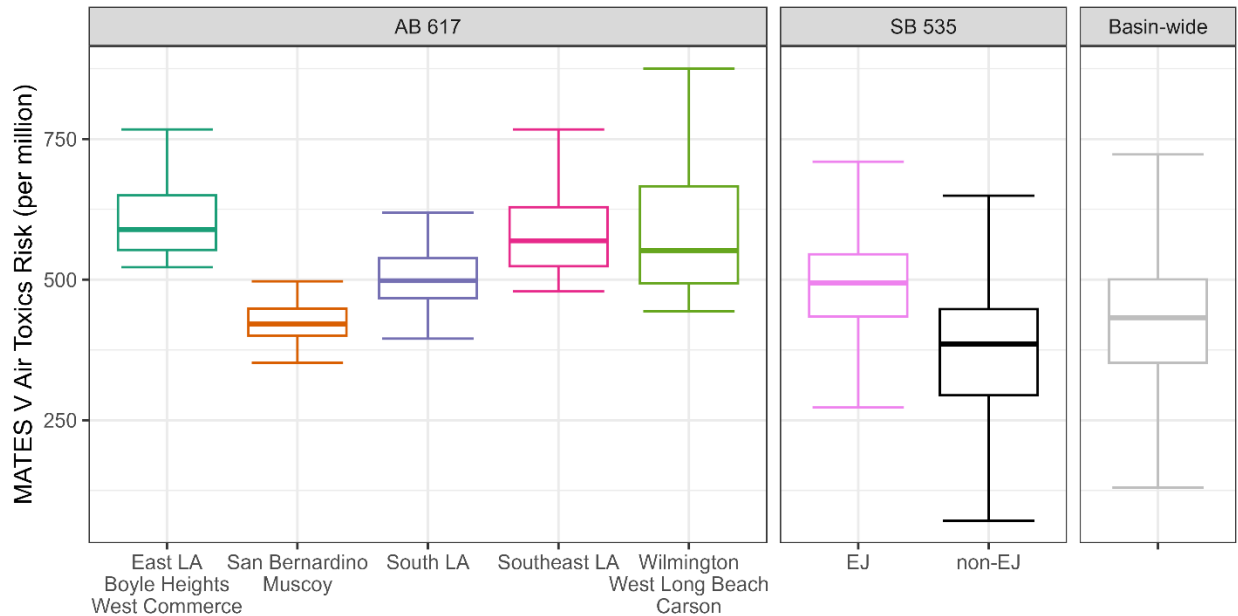


FIGURE 7-6
MATES AIR TOXIC RISK IN AB 617 COMMUNITIES (LEFT) AND SB 535-DEFINED EJ COMMUNITIES (CENTER) AND OVERALL AIR TOXIC RISK IN THE SOUTH COAST AIR BASIN, PER MATES V (2021) (RIGHT)

⁷ South Coast AQMD. Multiple Air Toxics Exposure Study in South Coast AQMD. South Coast Air Quality Management District, Aug. 2021, <https://www.aqmd.gov/docs/default-source/planning/mates-v/mates-v-final-report-9-24-21.pdf?sfvrsn=6>.

⁸ South Coast AQMD. Multiple Air Toxics Exposure Study in South Coast AQMD. South Coast Air Quality Management District, Aug. 2021, <https://www.aqmd.gov/docs/default-source/planning/mates-v/mates-v-final-report-9-24-21.pdf?sfvrsn=6>.

As shown in Figure 7-6, non-EJ areas have the lowest toxics air risk as modeled in MATES V. In comparison, the median air toxic risk among AB 617 communities and EJ areas is higher than the median risk for non-EJ areas. This is likely due to these communities' proximity to air toxics sources. As shown on Figure 7-4, there is a significant toxics risk hotspot near the ports of Los Angeles and Long Beach. This is due to the activity associated with shipping, handling and transporting cargo in the region. The related activity extends up the 710 freeway, where many of the AB 617 communities are located. In addition to freeways and shipping activity, some AB 617 communities, such as Wilmington/West Long Beach/Carson, East Los Angeles/Boyle Heights/West Commerce, and Southeast LA are homes to heavy industry that contribute to higher air toxic risk. Consequently, AB 617 communities suffer the highest concentrations of cancer-causing pollutants, such as diesel particulates, due to the proximity of AB617 communities to sources of these pollutants. South Coast AQMD plans to conduct MATES VI in near future to assess the progress in air quality improvement in recent years.

Annual PM_{2.5} Attainment in AB 617 and Environmental Justice Communities

Air quality simulations to demonstrate future attainment of the PM_{2.5} standard are an integral part of the planning process to achieve clean air. These simulations evaluate the changes in PM_{2.5} concentrations over time and in response to various emissions and development scenarios. Figure 7-7 summarizes the results of the PM_{2.5} simulations in each of South Coast AQMD's AB 617 communities for the 2018, 2030 baseline, and 2030 attainment scenarios. In this analysis, model simulations were run across the entire South Coast Air Basin domain. Model results were then cropped to the boundaries illustrated in Figure 7-1 (DACs) and Figure 7-4 (AB 617 communities). Within each community, we calculated a distribution of PM_{2.5} levels in the future that would result after the implementation of the Plan. We compared these summary statistics to the 2012 annual PM_{2.5} standard of 12 µg/m³, which is marked in Figure 7-7 by the dotted line.

As shown in Figure 7-7, all AB617 communities and EJ areas have higher mean PM_{2.5} concentrations than the basin-wide average, and the maximum annual PM_{2.5} concentrations occur in EJ communities. While parts of the Basin that include portions of AB617 and EJ communities were not in attainment in 2018 and are not expected to be in attainment under the 2030 baseline conditions, all the AB 617 communities and EJ areas will attain the standard when the Plan is fully implemented.

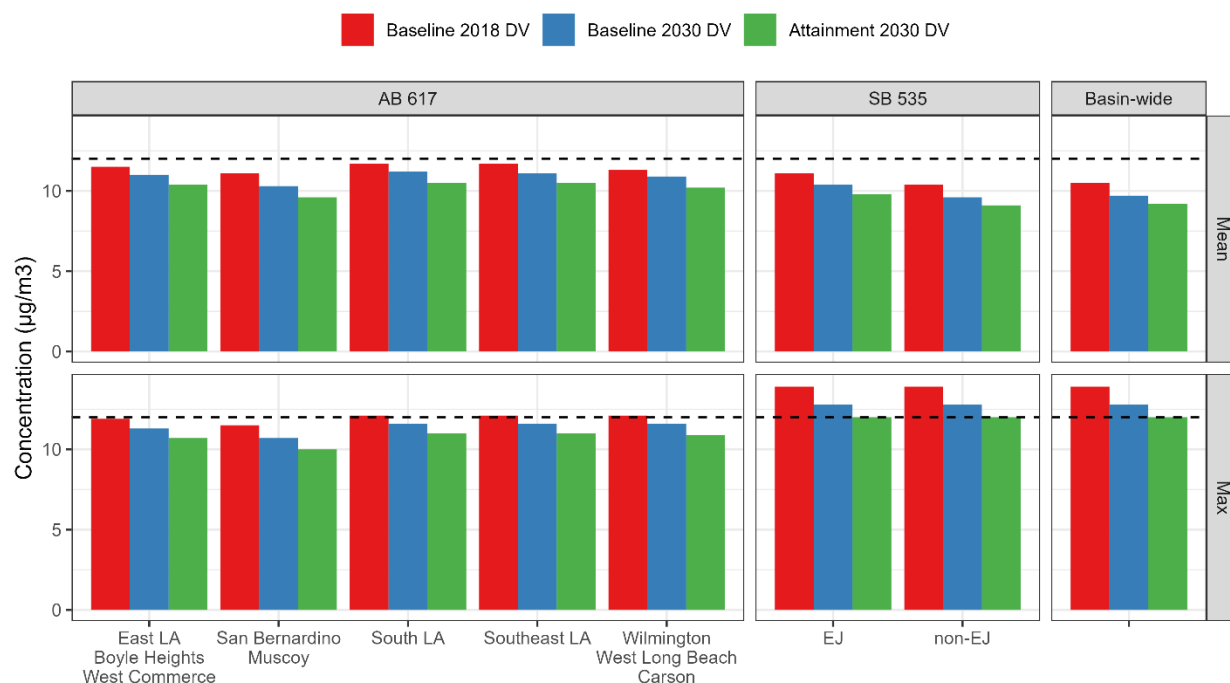


FIGURE 7-7
MODEL-PREDICTED MEAN (TOP) AND MAXIMUM (BOTTOM) ANNUAL DESIGN VALUES IN SOUTH COAST AQMD'S AB 617 (LEFT) AND SB 535-DESIGNATED EJ AND NON-EJ COMMUNITIES (CENTER), AND BASIN-WIDE (RIGHT)

Design values are calculated under three scenarios: 2018 baseline (red), 2030 baseline (blue), and 2030 attainment (green). The dashed line represents the 12 µg/m³ standard.

Incentives and Funding in Environmental Justice Communities

Incentives and funding will continue to be a critical component in implementing the control strategies in the PM_{2.5} Plan. Among the 2022 AQMP control measures required to attain the 2015 8-hour ozone standard by 2037, this PM_{2.5} Plan included selected measures that can be implemented and achieve emission reductions prior to 2030. The 2022 AQMP commits both traditional regulatory and incentive funding-based approaches to achieve emission reductions needed to meet the federal ozone standard. Incentives and funding for EJ communities will be pursued to implement both the 2022 AQMP and this PM Plan commitments.

Incentive funding can be used to subsidize low-emitting or zero emission equipment purchases and help promote deployment of clean technologies for both stationary and mobile sources. For mobile sources, incentive funds can facilitate the replacement of older, high-emitting vehicles and equipment with the cleanest vehicles and equipment commercially available. South Coast AQMD has been implementing a

number of incentive programs to accelerate the deployment of clean technologies with a particular emphasis on benefits to EJ communities. For example, under the Lower-Emission School Bus Program, the Carl Moyer Program and other diesel mitigation programs, not less than 50 percent of the funds appropriated are expended in a manner that directly reduces air contaminants and/or associated public health risks in disadvantaged and low-income communities. Notably, programs may employ different definitions of disadvantaged in their implementation. The Lower-Emission School Bus Program allows individual agencies to develop their own individual criteria in consultation with CARB, but by default recommends uses the percentage of students in a public school district participating in the free and reduced-lunch meal program.⁹ South Coast AQMD frequently uses SB 535 to define disadvantaged communities. In their implementation of the Lower-Emission School Bus Program, they include an additional low-income criterion.¹⁰ The Carl Moyer program uses a combination of racial and ethnic composition alongside income in their definition of disadvantaged.¹¹ In implementing existing incentive programs and for the development of future programs, South Coast AQMD will continue to prioritize incentive funding in EJ areas and seek opportunities to expand funding to benefit the most disadvantaged communities, which is frequently defined using the DACs under SB535.

For stationary sources, incentives can help promote the transformation to zero emission technologies for small commercial and residential combustion sources such as water heaters and furnaces. Incentive programs will be of particular importance for measures regarding zero emission buildings. Programs to change out gas appliances, heaters and boilers may be cost-effective, but not necessarily affordable. First, there is the cost of replacing the appliances themselves – which would not be insignificant for many smaller businesses or residential households. Second, many buildings will likely need additional electrical panel upgrades and other infrastructure to support the increased electrical load needed to power the replacement appliances. These infrastructure upgrades can be far more costly than the cost of replacing gas appliances. These issues are further magnified in economically disadvantaged communities, where switching from gas to electrical appliances may be cost-prohibitive unless a substantial portion of those costs are covered by other programs.

Existing rebate programs, such as South Coast AQMD's Clear Air Furnace program, funded by Rule 1111 mitigation fees, provides rebates to those installing a residential electric heat pump to replace a natural gas furnace. In addition, a specific percentage of the funding was dedicated to those applying from a disadvantaged community. This program can be further funded to enhance the existing rebate program or expanded to include other building appliances such as water heaters. In addition, partnerships with other organizations, such as Technology and Equipment for Clean Heating (TECH) Clean California or

⁹ CARB. 2008 Lower-Emission School Bus Program Guidelines. California Air Resources Board, 15 Apr. 2008, https://ww2.arb.ca.gov/sites/default/files/2022-02/2008_LESBP_Guidelines-with-Advisories.pdf.

¹⁰ South Coast AQMD. Issue Program Announcement for Lower School Bus Emissions Program, Oct 2020. <https://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2020/2020-oct2-006.pdf?sfvrsn=2>

¹¹ Legislature, Cal. Cal. Health & Safety Code § 43023.5. https://california.public.law/codes/ca_health_and_safety_code_section_43023.5. Accessed 2 Jan. 2024.

Southern California Edison, with similar programs and directives could assist in providing more rebate money to further incentivize early deployment of cleaner technologies. Therefore, evaluating funding needs and sourcing funding to support control measures associated with zero emission building measures will be critical. But a much larger issue will be structuring incentive/rebate programs in a way that is equitable and does not leave economically disadvantaged communities behind. Stationary source control measures (BCM-01, BCM-02, BCM-03, BCM-04, ECC-02 and ECC-03, see Table 7-1) target emission reductions from residential buildings and include incentive components as part of the proposed control approach.

**TABLE 7-1
SELECTED SOUTH COAST AQMD PROPOSED STATIONARY SOURCE MEASURES**

Number	Title [Pollutant]
BCM-01	Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Water Heating [PM2.5, NOx]
BCM-02	Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Space Heating [PM2.5, NOx]
BCM-03	Emission Reductions from Residential Cooking Devices [PM2.5, NOx]
BCM-04	Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Other Combustion Sources [PM2.5, NOx]
ECC-02	Co-benefits from Existing and Future Residential and Commercial Building Energy Efficiency Measures [All Pollutants]
ECC-03	Additional Enhancements in Reducing Existing Residential Building Energy Use [All Pollutants]

In addition, mitigation fees will be considered where appropriate under BCM-04. The mitigation fee collected would be utilized as incentives to accelerate the adoption of zero emission units or utilized to assist in panel upgrades or infrastructure at residences in disadvantaged communities. In developing these incentive programs, South Coast AQMD will seek community input and evaluate ways to prioritize distribution of funding to benefit the most disadvantaged communities. South Coast AQMD will ensure that environmental justice areas are able to access advanced technologies while benefiting from the transition to zero emission technologies.

Summary

PM2.5 air pollution and air toxics risk impact residents in the South Coast Air Basin disproportionately. EJ communities often contend with higher PM2.5 concentrations, elevated cancer risks from toxic air pollutants, and exposure to multiple pollution sources than the average levels in the Basin. The ~~Draft~~ PM2.5 Plan incorporates control measures aimed at reducing PM2.5 levels in the entire South Coast Air Basin and meeting the federal 2012 annual PM2.5 standard. These measures will help reduce air pollution in disproportionately impacted areas as well.

Efforts to address environmental injustices extend beyond the ~~Draft~~ PM2.5 Plan, with initiatives like the AB 617 program which focuses on reducing local air pollution exposure, promoting transparency, accountability, and community engagement. Collaborative partnerships, emission reduction programs, and air monitoring initiatives are integral components of AB 617, aiming to reduce air pollution and improve public health outcomes in disproportionately impacted areas.

Incentives and funding mechanisms are pivotal in facilitating the implementation of control measures, ensuring accessibility to clean technologies, and promoting the transition to zero emission solutions. South Coast AQMD is committed to prioritizing EJ areas in existing and future incentive programs, striving for equitable distribution of resources and fostering community engagement. Ongoing collaboration with impacted communities, coupled with community input and evaluation, will guide the development of inclusive incentive programs, ensuring that economically disadvantaged communities are not left behind. Moving forward, South Coast AQMD remains dedicated to addressing historic environmental injustices, improving public health, and creating a more equitable and sustainable future for all residents.



CHAPTER 8

Public Process

- PM2.5 Plan development has been a multi-agency effort including the California Air Resources Board, Southern California Association of Governments and U.S. Environmental Protection Agency.
- The PM2.5 Plan was developed through a robust and transparent process. Specific outreach efforts included:
 - Convening the AQMP Advisory Group and the Scientific, Technical, and Modeling Peer Review Advisory Group;
 - Holding regional public hearings;
 - Briefing the South Coast AQMD Mobile Source Committee and Governing Board on PM2.5 Plan development;
 - Providing meeting materials in Spanish and conducting public meetings in both English and Spanish languages; and
 - Conducting public meetings in both in-person and virtual formats, scheduled during both regular business hours and evening hours.
- Two written comments were received on the Draft PM2.5 Plan

Introduction

Development of the PM2.5 Plan has been a regional multi-agency effort including South Coast Air Quality Management District (South Coast AQMD), California Air Resource Board (CARB), Southern California Association of Governments (SCAG), U.S. EPA and other entities. Staff conducted robust public outreach efforts to engage the public and interested stakeholders, solicit feedback, and ensure transparency in the development of the Plan. The following describes specific outreach activities conducted by staff regarding the PM2.5 Plan.

Outreach Program

As a public agency, South Coast AQMD is committed to transparency and public participation during the development of State Implementation Plan (SIP) revisions. Outreach for the PM2.5 Plan aimed to achieve multiple goals including ensuring greater transparency in the process, reaching a broader and more diverse audience, and facilitating participation and engagement. The outreach program has been designed to inform the policy discussion by helping to ensure that all stakeholders have access to a common set of facts. Public awareness of federal requirements for PM2.5 SIPs and having appropriate background information are vital to engaging in a meaningful dialogue on the PM2.5 Plan.

Clean air goals cannot be achieved solely by the decisions and actions of South Coast AQMD. Stakeholder engagement is critical to the development of a successful plan. Stakeholders include community groups, businesses, environmental organizations, academia, and local, regional, state, and federal government entities. Table 8-1 lists specific stakeholder groups participating in PM2.5 Plan development.

TABLE 8-1
STAKEHOLDERS PARTICIPATING IN PM2.5 PLAN DEVELOPMENT

Stakeholder Category	Agency/Stakeholder Group
Public Agencies	<ul style="list-style-type: none"> CARB U.S. EPA
Local/Regional Government	<ul style="list-style-type: none"> SCAG Councils of government/associated governments Transportation commissions
Special Districts	<ul style="list-style-type: none"> Sanitation districts Water/power districts
Community/Health/Environmental Groups	<ul style="list-style-type: none"> Public health departments/associations Environmental justice organizations Environmental advocacy groups
Academia/Research	<ul style="list-style-type: none"> Universities

Stakeholder Category	Agency/Stakeholder Group
	<ul style="list-style-type: none"> National laboratories
General Public	<ul style="list-style-type: none"> Residents Interested parties
Business	<ul style="list-style-type: none"> Energy industry (electricity, petroleum production and refining, natural gas, biofuels, renewables, etc.) Goods movement and logistics (warehousing, trucking, railroads, ports/shipping/freight) Printing/coating industry Airport/airline operations Chambers of commerce/business councils Trade associations Labor organizations Small businesses

Advisory Group Meetings

Staff convened the AQMP and Scientific, Technical, and Modeling Peer Review (STMPR) Advisory Groups to provide feedback and recommendations on the development of the PM2.5 Plan. Advisory Group meetings were conducted in a hybrid format with in-person participation required for Advisory Group members, while members of the public were allowed to provide comment in-person or remotely. Special accommodations were offered to those with disabilities or those requiring translation. Both Advisory Groups met periodically throughout PM2.5 Plan development as shown in Table 8-2.

The AQMP Advisory Group represents a diverse cross-section of stakeholders, such as large and small businesses, labor associations, government agencies, environmental and community groups, and academia. Together, the Advisory Groups reviewed the overall aspects of the PM2.5 Plan and made recommendations concerning emissions inventories, modeling, control measures, and socioeconomic impacts, including:

- Reviewing and providing comments on: (a) studies relevant to advancing scientific and technical knowledge in support of AQMP preparation; (b) emissions inventory development and modeling approaches; (c) the development of new and revised control measures; and (d) socioeconomic data and evaluations;
- Fostering coordinated approaches toward overall attainment strategies; and
- Assisting in resolving key technical issues.

The STMPR Advisory Group consists of experts in the field of socioeconomic modeling, air quality modeling, and atmospheric science. The duties of this advisory group included reviewing and providing

feedback on air quality modeling, socioeconomic modeling techniques and making recommendations for and comments on proposed modeling approaches for attainment demonstration, precursor analysis, near-road attainment approach and emissions inventory.

TABLE 8-2
ADVISORY GROUP MEETINGS FOR THE PM2.5 PLAN

Date	Meeting
5/25/2023	AQMP Advisory Group Meeting
7/13/2023	AQMP Advisory Group Meeting
8/3/2023	STMPR Advisory Group Meeting
10/11/2023	STMPR Advisory Group Meeting
11/8/2023	AQMP Advisory Group Meeting

South Coast AQMD Governing Board Meetings

Before South Coast AQMD makes decisions that affect local residents and businesses, ideas and comments from the public must be considered. The opportunity to comment begins weeks prior to public workshops and ends with a public hearing by the South Coast AQMD Governing Board, where the Governing Board may vote to adopt a plan as proposed or with changes. Anyone may testify or present written comments. Holding public workshops, recording oral and written comments, responding to those comments, publishing draft plans, holding public hearings and voting publicly are all based on set procedures. Documenting the process is necessary to ensure public participation, fairness, and an accurate account to which interested parties can refer to in the future. The Governing Board meets at South Coast AQMD's Diamond Bar headquarters on the first Friday of each month. In addition, select members from the South Coast AQMD Governing Board are also members of the Mobile Source Committee, which periodically reviewed PM2.5 Plan development. South Coast AQMD released the Draft PM2.5 Plan on March 22, 2024. Table 8-3 lists the South Coast AQMD Governing Board and Mobile Source Committee meetings in which PM2.5 Plan development was or will be discussed.

TABLE 8-3
SOUTH COAST AQMD GOVERNING BOARD ACTIVITIES FOR THE PM2.5 PLAN

Date	Meeting
3/17/2023	South Coast AQMD Mobile Source Committee
10/20/2023	South Coast AQMD Mobile Source Committee
3/15/2024	South Coast AQMD Mobile Source Committee
4/5/2024	South Coast AQMD Governing Board Meeting
6/7/2024	South Coast AQMD Governing Board Meeting

Regional Public Hearings

Regional public hearings are held prior to taking a proposed plan or other significant action to the South Coast AQMD Governing Board to allow public input before Governing Board members vote on plans. Regional public hearings for the PM2.5 Plan ~~will be~~were held in April – May 2024 as shown in Table 8-4. Meeting materials for the regional public hearings ~~will be~~were translated to Spanish and ~~there will be~~one all meeting ~~hearings that features~~ were provided with live Spanish translation.

TABLE 8-4
SOUTH COAST AQMD REGIONAL PUBLIC HEARINGS SCHEDULE FOR THE PM2.5 PLAN

Date	Meeting
4/23/2024	PM2.5 Plan Regional Public Hearing – San Bernardino County
4/24/2024	PM2.5 Plan Regional Public Hearing – Riverside County
4/25/2024	PM2.5 Plan Regional Public Hearing – Orange County
5/1/2024	PM2.5 Plan Regional Public Hearing – Los Angeles County

Language Accommodations

According to the U.S. Census Bureau, almost 51% ~~percent~~of the population in the counties under South Coast AQMD jurisdiction speaks a language other than English.¹ The Spanish language is the second most common language spoken after English, where about 35% ~~percent~~of the population in the counties under South Coast AQMD jurisdiction speaks Spanish.² To facilitate greater participation and engagement of the public, including Spanish-speaking community members, South Coast AQMD staff posts a Spanish

¹ 2022 American Community Survey:

<https://data.census.gov/table?q=language&g=050XX00US06037,06059,06065,06071>

² Ibid.

version of meeting notices, agendas, and presentations for key public meetings on the South Coast AQMD meeting webpages. Key public meetings include Regional Public Hearings and Governing Board meetings. Live Spanish translation will be provided at these meetings. Translation services are offered upon request for all other public meetings. In addition, most meetings are conducted via videoconferencing and closed captioning is available for deaf audiences.

Written Comments and Responses to Comments

Two written comments were received on the Draft PM2.5 Plan. Responses to these comments are provided below.

Comment Letter #1

From: Dave Hall <bittermelondave@gmail.com>

Sent: Sunday, March 24, 2024 9:14 PM

To: AQMPTeam <AQMPteam@aqmd.gov>

Subject: [EXTERNAL] Draft Plan Comments-South Coast Air Basin Attainment Plan for the 2012 Annual PM2.5 Standard

Dear AQMD:

After reviewing the Environmental Justice Plan, Chapter 7 of the Draft document, I was dismayed that only a few examples of ways to reduce emissions in West Long Beach where I live were suggested. Primarily the document only focused on reducing school bus emissions in Chapter 7. Couldn't many other methods be used to reduce air pollution in the port communities and other areas with high emissions. Chapter 7 is lacking real tangible ways to address environmental justice and is cursory at best.

Respectfully,

DAVE HALL

1047 Chestnut Avenue

Long Beach, CA 90813-2921

Comment
1-1

Response to Comment 1-1: South Coast AQMD recognizes the importance of reducing pollution in port communities and has designated the area of Wilmington, Carson, and West Long Beach (WCWLB) as an AB-617 community. AB-617 is a state program that addresses the disproportionate impacts of local air pollution in disadvantaged communities. South Coast AQMD is implementing a Community Emission

Reduction Plan for WCWLB and is committed to prioritizing incentives and rulemaking efforts to reduce pollution in these communities.³

While Chapter 7 of this Plan describes air quality impacts experienced in environmental justice communities and outlines some of the steps South Coast AQMD is taking to address localized impacts, Chapter 4 and Appendix IV-A present the specific emission reduction measures that will be needed to attain the 2012 annual PM_{2.5} standard by 2030. Control measure MOB-01: Emission Reductions at Commercial Marine Ports seeks to reduce emissions from port-related sources through a rule, incentives, and/or other voluntary programs. MOB-01 seeks to reduce air pollution from some or all port-related sources (e.g., on-road heavy-duty trucks, cargo handling equipment, harbor craft, marine vessels, locomotives, and stationary equipment), to the extent that cost-effective and feasible strategies are available. The goal of this measure is to assist in achieving the committed emission reductions described in the State Implementation Plan Strategy related to on-road heavy-duty vehicles, off-road equipment, and federal and international sources that operate in and out of the Ports of Los Angeles and Long Beach. South Coast AQMD encourages all interested stakeholders to participate in the public process associated with MOB-01.⁴

³ <https://www.aqmd.gov/docs/default-source/ab-617-ab-134/steering-committees/wilmington/cerp/final-cerp-wcwlb.pdf?sfvrsn=8>

⁴ <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-2304>

Comment Letter #2



Ontario International Airport Administration Offices

1923 E. Avion Street, Ontario, CA 91761

ALAN D. WAPNER
President

CURT HAGMAN
Vice President

RONALD O. LOVERIDGE
Treasurer

JIM W. BOWMAN
Secretary

JULIA GOUW
Commissioner

ATIF J. ELKADI
Chief Executive Officer

LORI D. BALLANCE
General Counsel

May 6, 2024

Dr. Sang-Mi Lee, Planning and Rules Manager
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4178

Dear Dr. Lee,

The Ontario International Airport Authority (OIAA) has submitted this comment letter on the Draft South Coast Air Basin Attainment Plan for the 2012 Annual PM_{2.5} Standard (Draft PM_{2.5} Plan) to request that the Draft PM_{2.5} Plan be updated to accurately reflect Ontario International Airport's (ONT) forecasted aviation-related activity data and corresponding emissions.

According to the Draft PM_{2.5} Plan, the emissions inventory for all sources was derived from the emissions inventory developed for the 2022 Air Quality Management Plan (2022 AQMP).¹ The primary differences in the emissions inventories between the 2022 AQMP and the Draft PM_{2.5} Plan are: (1) the switch from EMFAC2017 to EMFAC2021 for on-road sources, and (2) a small change in construction equipment emissions for off-road sources.² As we understand it, there have been no updates to the aircraft emissions in the Draft PM_{2.5} Plan (i.e., none since the 2022 AQMP).

As discussed in our prior comment letter (dated July 5, 2022) on the then-draft 2022 AQMP, the aircraft emissions analysis in that regional planning document was not indicative of future operations at ONT. Indeed, the aircraft fleet mix

¹ South Coast Air Quality Management District. 2022. Air Quality Management Plan. <https://www.aqmd.gov/home/air-quality/air-quality-management-plans/air-quality-mgt-plan>

² The Draft PM_{2.5} Plan states that "after the development of the 2022 AQMP, an error was discovered in the emission allocations for in-use emissions from off-road construction equipment in Riverside County. This error only affected future year emissions and is now corrected in this Draft PM_{2.5} Plan."

www.flyontario.com

Page 1 of 2

Comment
2-1

used in the 2022 AQMP's analysis is not indicative of the aircraft fleet mix using ONT today. Since the aircraft emissions assumptions remain unchanged from the 2022 AQMP to the Draft PM_{2.5} Plan, the Draft PM_{2.5} Plan erroneously continues to underrepresent the potential emissions at ONT for future years.

OIAA began a review of ONT's activity forecasts in late 2021, due to the ongoing COVID recovery trends and anticipated projects at ONT. In the process of that review, OIAA discovered that aviation forecast data for ONT previously provided to AQMD was inaccurate and outdated. These inaccurate assumptions led to a significant underrepresentation of aircraft emissions for ONT in the 2022 AQMP. In order to align the Draft PM_{2.5} Plan with the anticipated future aviation-related operations at ONT, OIAA is requesting the forecast and fleet mix assumptions for ONT be updated in the Draft PM_{2.5} Plan. OIAA is happy to provide more accurate aircraft fleet mix data for ONT, both current and forecast, for your use.

OIAA looks forward to working with AQMD to resolve this issue that currently exists in the Draft PM_{2.5} Plan. We believe it is imperative that AQMD's regional plans more accurately reflect ONT's forecasted aviation activity data and related emissions for purposes of addressing both air quality issues in the South Coast Air Basin and ONT's continued ability to operate to provide important services for the benefit of the region. Please do not hesitate to contact me to facilitate further discussions on this important topic.

Sincerely,



Karen Kavanagh
Interim Chief Capital Development Officer
Ontario International Airport

Comment
2-1 Con't

Response to Comment 2-1: South Coast AQMD appreciates Ontario International Airport Authority's (OIAA) concerns regarding the aircraft emissions inventory for Ontario Airport. Please refer to response to comment 61-1 for the 2022 Air Quality Management Plan (AQMP).⁵ The 2022 AQMP aircraft emissions inventory was developed through an extensive public process that began in May 2020 and included multiple Aircraft Mobile Source Working Group Meetings. The PM2.5 Plan emissions inventory is based on that of the 2022 AQMP with only minor changes and updates reflected. Although the PM2.5 Plan does not revise the aircraft emissions inventory, South Coast AQMD anticipates that the next major emissions inventory update will occur during development of the attainment plan for the 2024 annual PM2.5 standard. OIAA is encouraged to participate in the public process for that plan and work with staff to incorporate changes in the fleet mix and growth projections at Ontario Airport.

⁵ <https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/responses-to-comments-volume-i.pdf?sfvrsn=6>

Glossary

AAQS (Ambient Air Quality Standards): Health and welfare based standards for clean outdoor air that identify the maximum acceptable average concentrations of air pollutants during a specified period of time. (See NAAQS.)

Acute Health Effect: An adverse health effect that occurs over a relatively short period of time (e.g., minutes or hours).

Aerosol: Particles of solid or liquid matter that can remain suspended in air for long periods of time because of their small size and light weight.

Air Pollutants: Amounts of foreign and/or natural substances occurring in the atmosphere that may result in adverse effects on humans, animals, vegetation, and/or materials.

Air Quality Simulation Model: A computer program that simulates the transport, dispersion, and transformation of compounds emitted into the air and can project the relationship between emissions and air quality.

Air Toxics: A generic term referring to a harmful chemical or group of chemicals in the air. Typically, substances that are especially harmful to health, such as those considered under U.S. EPA's hazardous air pollutant program or California's AB 1807 toxic air contaminant program, are considered to be air toxics. Technically, any compound that is in the air and has the potential to produce adverse health effects is an air toxic.

Alternative Fuels: Fuels such as methanol, ethanol, hydrogen, natural gas, and liquid propane gas that are cleaner burning and help to meet mobile and stationary emission standards.

Ambient Air: The air occurring at a particular time and place outside of structures. Often used interchangeably with "outdoor" air.

ATCM (Airborne Toxic Control Measure): A type of control measure, adopted by the CARB (Health and Safety Code Section 39666 et seq.), which reduces emissions of toxic air contaminants from nonvehicular sources.

APCD (Air Pollution Control District): A county agency with authority to regulate stationary, indirect, and area sources of air pollution (e.g., power plants, highway construction, and housing developments) within a given county, and governed by a district air pollution control board composed of the elected county supervisors and in most cases, representatives of cities within the district.

AQMD (Air Quality Management District): A group or portions of counties, or an individual county specified in law with authority to regulate stationary, indirect, and area sources of air pollution within the region and governed by a regional air pollution control board comprised mostly of elected officials from within the region.

AQMP (Air Quality Management Plan): A Plan prepared by an APCD/AQMD, for a county or region designated as a nonattainment area, for the purpose of bringing the area into compliance with the requirements of the national and/or California Ambient Air Quality Standards. AQMPs designed to attain national ambient air quality standards are incorporated into the SIP.

Area-wide Sources (also known as "area" sources): Smaller sources of pollution, including permitted sources smaller than the district's emission reporting threshold and those that do not receive permits (e.g., water heaters, gas furnace, fireplaces, woodstoves, architectural coatings) that often are typically associated with homes and non-industrial sources. The California Clean Air Act requires districts to include area sources in the development and implementation of the AQMPs.

Atmosphere: The gaseous mass or envelope surrounding the earth.

Attainment Area: A geographic area which is in compliance with the National and/or California Ambient Air Quality Standards (NAAQS or CAAQS).

Attainment Plan: In general, a plan that details the emission reducing control measures and their implementation schedule necessary to attain air quality standards. In particular, the federal Clean Air Act requires attainment plans for nonattainment areas; these plans must meet several requirements, including requirements related to enforceability and adoption deadlines.

AVAPCD (Antelope Valley APCD): The Antelope Valley Air Pollution Control District.

BAAQMD (Bay Area AQMD): The San Francisco Bay Area Air Quality Management District.

BACM (Best Available Control Measure): The maximum degree of emission reduction achievable from a source or source category which is determined on a case-by-case basis, considering energy, economic and environmental impacts and other costs, which includes Best Available Control Technology. (see BACT.)

BACT (Best Available Control Technology): The most up-to-date methods, systems, techniques, and production processes available to achieve the greatest feasible emission reductions for given regulated air pollutants and processes. BACT is a requirement of NSR (New Source Review) and PSD (Prevention of Significant Deterioration). BACT as used in federal law under PSD applies to permits for sources of attainment pollutants and other regulated pollutants is defined as an emission limitation based on the maximum degree of emissions reductions allowable taking into account energy, environmental & economic impacts and other costs. [(CAA Section 169(3))]. The term BACT as used in state law means an emission limitation that will achieve the lowest achievable emission rates, which means the most stringent of either the most stringent emission limits contained in the SIP for the class or category of source, (unless it is demonstrated that the limitation is not achievable) or the most stringent emission limit achieved in practice by that class in category of source. "BACT" under state law is more stringent than federal BACT and is equivalent to federal LAER (Lowest Achievable Emissions Rate) which applies to nonattainment NSR permit actions.

BAR (Bureau of Automotive Repair): An agency of the California Department of Consumer Affairs that manages the implementation of the motor vehicle Inspection and Maintenance Program.

BARCT (Best Available Retrofit Control Technologies): an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source.

Basin (South Coast Air Basin): Area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. It includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties.

Carrying Capacity: Amount of allowable regional emissions that would still meet health-based air quality standards.

CAA (Clean Air Act): A federal law passed in 1970 and amended in 1977 and 1990 which forms the basis for the national air pollution control effort. Basic elements of the Act include national ambient air quality standards for major air pollutants, air toxics standards, acid rain control measures, and enforcement provisions.

CAAQS (California Ambient Air Quality Standards): Standards set by the State of California for the maximum levels of air pollutants which can exist in the outdoor air without unacceptable effects on human health or the public welfare, which are often more stringent than NAAQS.

CARB (California Air Resources Board): The State's lead air quality agency, consisting of a nine-member Governor-appointed board. It is responsible for attainment and maintenance of the State and federal air quality standards, and is primarily responsible for motor vehicle pollution control. It oversees county and regional air pollution management programs.

CCAA (California Clean Air Act): A California law passed in 1988 which provides the basis for air quality planning and regulation independent of federal regulations. A major element of the Act is the requirement that local APCDs/AQMDs in violation of state ambient air quality standards must prepare attainment plans which identify air quality problems, causes, trends, and actions to be taken to attain and maintain California's air quality standards by the earliest practicable date.

CEQA (California Environmental Quality Act): A California law which sets forth a process for public agencies to make informed decisions on discretionary project approvals. The process aids decision makers to determine whether any environmental impacts are associated with a proposed project. It requires significant environmental impacts associated with a proposed project to be identified, disclosed, and mitigated to the maximum extent feasible.

Chronic Health Effect: An adverse health effect which occurs over a relatively long period of time (e.g., months or years).

CMAQ (Community Multiscale Air Quality Model): A computer modeling system designed to address air quality as a whole by including state-of-the-science capabilities for modeling multiple air quality issues, including tropospheric ozone, fine particles, toxics, acid deposition, and visibility degradation.

Conformity: Conformity is a process mandated in the federal Clean Air Act to insure that federal actions do not impede attainment of the federal health standards. General conformity sets out a process that requires federal agencies to demonstrate that their actions are air quality neutral or beneficial. Transportation conformity sets out a process that requires transportation projects that receive federal funding, approvals or permits to demonstrate that their actions are air quality neutral or beneficial and meet specified emissions budgets in the SIP.

Congestion Management Program: A state mandated program (Government Code Section 65089a) that requires each county to prepare a plan to relieve congestion and reduce air pollution.

Consumer Products: Products for consumer or industrial use such as detergents, cleaning compounds, polishes, lawn and garden products, personal care products, and automotive specialty products which

are part of our everyday lives and, through consumer use, may produce air emissions which contribute to air pollution.

Contingency Measure: Contingency measures are statute-required back-up control measures to be implemented in the event of specific conditions. These conditions can include failure to meet interim milestone emission reduction targets or failure to attain the standard by the statutory attainment date. Both State and federal Clean Air Acts require that District plans include contingency measures.

CTG (Control Techniques Guidelines): Documents issued by U.S. EPA to provide recommendations for state and local air agencies on how to control the emissions of VOCs from certain types of sources in areas with smog problems. CTGs are not regulations, but they help states and areas meet the RACT requirements under the CAA. CTGs provide information on the available control technologies and their respective cost-effectiveness for reducing VOC emissions from these sources. States and areas can use the CTGs as guidance to develop their own RACT rules or standards that are appropriate for their specific circumstances.

Electric Vehicle: A motor vehicle which uses a battery-powered electric motor as the basis of its operation. Such vehicles emit virtually no air pollutants. Hybrid electric motor vehicles may operate using both electric and gasoline powered motors. Emissions from hybrid electric motor vehicles are also substantially lower than conventionally powered motor vehicles.

EMFAC: The EMISSION FACTOR model used by CARB to calculate on-road mobile vehicle emissions. The Coachella Valley Contingency Measure SIP Revision is based on the version of EMFAC2017.

Emission Inventory: An estimate of the amount of pollutants emitted from mobile and stationary sources into the atmosphere over a specific period such as a day or a year.

Emission Offset (also known as an emission trade-off): A regulatory requirement whereby approval of a new or modified stationary source of air pollution is conditional on the reduction of emissions from other existing stationary sources of air pollution or banked reductions. These reductions are required in addition to reductions required by BACT.

Emission Standard: The maximum amount of a pollutant that is allowed to be discharged from a polluting source such as an automobile or smoke stack.

FIP (Federal Implementation Plan): In the absence of an approved State Implementation Plan (SIP), a plan prepared by the U.S. EPA which provides measures that nonattainment areas must take to meet the requirements of the Federal Clean Air Act.

Fugitive Dust: Dust particles which are introduced into the air through certain activities such as soil cultivation, off-road vehicles, or any vehicles operating on open fields or dirt roadways.

Goods Movement: An event that causes movement of commercial materials or stock typically at ports, airports, railways, highways, including dedicated truck lanes and logistics centers.

GHGs (Greenhouse Gases): A gas in an atmosphere that absorbs long-wave radiant energy reflected by the earth, which warms the atmosphere. GHGs also radiate long-wave radiation both upward to space and back down toward the surface of the earth. The downward part of this long-wave radiation absorbed by the atmosphere is known as the “greenhouse effect.”

HEV (Hybrid Electric Vehicles): Hybrids commercially available today combine an internal combustion engine with a battery and electric motor.

Hydrocarbon: Any of a large number of compounds containing various combinations of hydrogen and carbon atoms. They may be emitted into the air as a result of fossil fuel combustion, fuel volatilization, and solvent use, and are a major contributor to smog. (Also see VOCs.)

HFCV (Hydrogen Fuel Cell Vehicles): Vehicles that produce zero tailpipe emissions and run on compressed hydrogen fed into a fuel cell "stack" that produces electricity to power the vehicle.

ICAPCD (Imperial County APCD): The County of Imperial Air Pollution Control District.

Incentives: Tax credits, financial rebates/discounts, or non-monetary conveniences offered to encourage further use of advanced technology and alternative fuels for stationary and mobile sources.

Indirect Source: Any facility, building, structure, or installation, or combination thereof, which generates or attracts mobile source activity that results in emissions of any pollutant (or precursor). Examples of indirect sources include employment sites, shopping centers, sports facilities, housing developments, airports, commercial and industrial development, and parking lots and garages.

Indirect Source Control Program: Rules, regulations, local ordinances and land use controls, and other regulatory strategies of air pollution control districts or local governments used to control or reduce emissions associated with new and existing indirect sources.

Inspection and Maintenance Program: A motor vehicle inspection program implemented by the BAR. It is designed to identify vehicles in need of maintenance and to assure the effectiveness of their emission control systems on a biennial basis. Enacted in 1979 and strengthened in 1990. (Also known as the "Smog Check" program.)

LAER (Lowest Achievable Emission Rate): The more stringent rate of emissions for any source based on the following: the most stringent emissions limitation in which is contained in the implementation plan of any State for such class or category of sources, unless the owner or operator of the proposed source demonstrates that such limitations are not achievable; or the most stringent emissions limitation which is achieved in practice by such class or category of stationary sources. This limitation, when applied to a modification, means the lowest achievable emissions rate for the new or modified emissions units within or stationary source. In no event shall the application of this term permit a proposed new or modified source to emit any pollutant in excess of the amount allowable under applicable new source standards of performance.

LEV (Low Emission Vehicle): A vehicle which is certified to meet the CARB 1994 emission standards for low emission vehicles.

Low NO_x Technologies: Refers to NO_x emissions approaching zero and will be delineated for individual source categories through the process of developing the Air Quality Management Plan/State Implementation Plan and subsequent control measures.

Maintenance Plan: In general, a plan that details the actions necessary to maintain air quality standards. In particular, the federal Clean Air Act requires maintenance plans for areas that have been redesignated as attainment areas.

MCAQD (Maricopa County Air Quality Department): The Maricopa County Air Quality Department in Arizona.

MDAQMD (Mojave Desert AQMD): The Mojave Desert Air Quality Management District.

Mobile Sources: Moving sources of air pollution such as automobiles, motorcycles, trucks, off-road vehicles, boats and airplanes.

Model Year: Model year refers to the actual annual production period (year) as determined by the manufacturer.

MSM (Most Stringent Measures): The maximum degree of emission reduction that has been required or achieved from a source or source category in any other attainment plans or in practice in any other states and that can feasibly be implemented in the area seeking the extension. "Serious" nonattainment areas can request an extension of the attainment date under CAA Section 188(e) and are required to demonstrate that the attainment plan includes the MSM. In some cases it may be possible for the MSM requirement to result in no more controls and no more emissions reductions in an area than result from the implementation of BACM and BACT.

MVEB (Motor Vehicle Emissions Budget): The portion of the total allowable emissions allocated to highway and transit vehicles and is defined in the SIP for the purpose of demonstrating Reasonable Further Progress (RFP) for interim milestone years and attainment of the NAAQS.

NAAQS (National Ambient Air Quality Standards): Standards set by the federal U.S. EPA for the maximum levels of air pollutants which can exist in the outdoor air without unacceptable effects on human health or the public welfare.

NOx (Nitrogen Oxides, Oxides of Nitrogen): A general term pertaining to compounds of nitric acid (NO), nitrogen dioxide (NO₂), and other oxides of nitrogen. Nitrogen oxides are typically created during combustion processes, and are major contributors to smog formation and acid deposition. NO₂ is a criteria air pollutant, and may result in numerous adverse health effects; it absorbs blue light, resulting in a brownish-red cast to the atmosphere and reduced visibility.

Nonattainment Area: A geographic area identified by the U.S. EPA and/or CARB as not meeting either NAAQS or CAAQS for a given pollutant.

NSR (New Source Review): A program used in development of permits for new or modified industrial facilities which are in a nonattainment area, and which emit nonattainment criteria air pollutants. The two major requirements of NSR are Best Available Control Technology and Emission Offsets.

Ozone: A strong smelling reactive toxic chemical gas consisting of three oxygen atoms. It is a product of the photochemical process involving the sun's energy. Ozone exists in the upper atmosphere ozone layer as well as at the earth's surface. Ozone at the earth's surface causes numerous adverse health effects and is a criteria air pollutant. It is a major component of smog.

Ozone Precursors: Chemicals such as hydrocarbons and oxides of nitrogen, occurring either naturally or as a result of human activities, which contribute to the formation of ozone, a major component of smog.

PCAPCD (Placer County APCD): The County of Placer Air Pollution Control District.

Permit: Written authorization from a government agency (e.g., an air quality management district) that allows for the construction and/or operation of an emissions generating facility or its equipment within certain specified limits.

PEV (Plug-in Electric Vehicle): Vehicles that can be recharged from any external source of electricity and the electricity is stored in a rechargeable battery pack to drive or contribute to drive the wheels.

PHEV (Plug-in Hybrid Electric Vehicle): Vehicles similar to traditional hybrids but are also equipped with a larger, more advanced battery that allows the vehicle to be plugged in and recharged in addition to refueling with gasoline. This larger battery allows the car to drive on battery alone, gasoline alone, or a combination of electric and gasoline fuels.

PM (Particulate Matter): Solid or liquid particles of soot, dust, smoke, fumes, and aerosols.

PM Precursors: Chemicals such as volatile organic compounds, oxides of nitrogen, and ammonia, occurring either naturally or as a result of human activities, which contribute to the formation of particulate matter.

PM₁₀ (Particulate Matter less than 10 microns): A major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, and aerosols. The size of the particles (10 microns or smaller, about 0.0004 inches or less) allows them to easily enter the air sacs in the lungs where they may be deposited, resulting in adverse health effects. PM₁₀ also causes visibility reduction and is a criteria air pollutant.

PM_{2.5} (Particulate Matter less than 2.5 microns): A major air pollutant consisting of tiny solid or liquid particles, generally soot and aerosols. The size of the particles (2.5 microns or smaller, about 0.0001 inches or less) allows them to easily enter the air sacs deep in the lungs where they may cause adverse health effects, as noted in several recent studies. PM_{2.5} also causes visibility reduction and is a criteria air pollutant.

PSD (Prevention of Significant Deterioration): A program used in development of permits for new or modified industrial facilities in an area that is already in attainment. The intent is to prevent an attainment area from becoming a nonattainment area. This program, like require BACT as defined in the Clean Air Act and, if an AAQS is projected to be exceeded, Emission Offsets.

Public Consultation: A consultation held by a public agency for the purpose of informing the public and obtaining its input on the development of a regulatory action or control measure by that agency.

Public Workshop: A workshop held by a public agency for the purpose of informing the public and obtaining its input on the development of a regulatory action or control measure by that agency.

PZEV (Partial Zero Emission Vehicle): A vehicle emissions rating within California's exhaust emission standards. Cars that are certified as PZEVs meets the Super Ultra Low Emission Vehicle exhaust emission standard and has zero evaporative emissions from its fuel system.

RACM (Reasonably Available Control Measures): An area-specific analysis focusing on area, mobile and non-major point sources. It considers measures that are readily implemented, are economically and technologically feasible, and contribute to the advancement of attainment in a manner that is "as expeditious as practicable."

RACT (Reasonably Available Control Technology): The lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility.

RFP (Reasonable Further Progress): Annual incremental reductions in emissions of the relevant air pollutant as are required by this part or may reasonably be required by the Administrator for the purpose of ensuring attainment of the applicable national ambient air quality standard by the applicable date, as defined in CAA Section 171(1). The goal of the RFP requirements is for areas to achieve generally linear progress toward attainment. To determine RFP for the attainment date, EPA guidance states that the plan should rely only on emission reductions achieved from sources within the nonattainment area.

RTP (Regional Transportation Plan): The long-range transportation plan developed by the Southern California Association of Governments that provides a vision for transportation investments throughout the South Coast region. The RTP considers the role of transportation in the broader context of economic, mobility, environmental, and quality-of-life goals for the future, identifying regional transportation strategies to address regional mobility needs.

SBCAPCD (Santa Barbara County APCD): The County of Santa Barbara Air Pollution Control District.

SCM (Suggested Control Measure): A model rule developed by CARB that local air districts can adopt for their architectural coatings rule. The SCM was last updated in 2020.

SCS (Sustainable Communities Strategy): Planning element in the RTP that integrates land use and transportation strategies that will achieve CARB's GHG emissions reduction targets.

SDAPCD (San Diego County APCD): The County of San Diego Air Pollution Control District.

SIP (State Implementation Plan): A document prepared by each state describing existing air quality conditions and measures which will be taken to attain and maintain national ambient air quality standards. (see AQMP.)

SJVAPCD (San Joaquin Valley APCD): The San Joaquin Valley Air Pollution Control District.

SMAQMD (Sacramento Metro AQMD): The Sacramento Metropolitan Air Quality Management District.

Smog: A combination of smoke, ozone, hydrocarbons, nitrogen oxides, and other chemically reactive compounds which, under certain conditions of weather and sunlight, may result in a murky brown haze that causes adverse health effects. The primary source of smog in California is motor vehicles. (See Inspection and Maintenance Program.)

Smoke: A form of air pollution consisting primarily of particulate matter (i.e., particles). Other components of smoke include gaseous air pollutants such as hydrocarbons, oxides of nitrogen, and carbon monoxide. Sources of smoke may include fossil fuel combustion, agricultural burning, and other combustion processes.

SO₂ (Sulfur Dioxide): A strong smelling, colorless gas that is formed by the combustion of fossil fuels. Ocean-going vessels, which may use oil high in sulfur content, can be major sources of SO₂. SO₂ and other sulfur oxides contribute to ambient PM_{2.5}. SO₂ is also a criteria pollutant.

SSAB (Salton Sea Air Basin): Area comprised of a central portion of Riverside County (the Coachella Valley) and Imperial County. The Riverside County portion of the SSAB is bounded by the San Jacinto Mountains in the west and spans eastward up to the Palo Verde Valley.

Stationary Sources: Non-mobile sources such as power plants, refineries, and manufacturing facilities which emit air pollutants; can include area sources depending on context.

SULEV (Super Ultra Low Emission Vehicle): A vehicle emissions rating within California's LEV 1 and LEV 2 exhaust emission standards.

TAC (Toxic Air Contaminant): An air pollutant, identified in regulation by the CARB, which may cause or contribute to an increase in deaths or in serious illness, or which may pose a present or potential hazard to human health. TACs are considered under a different regulatory process (California Health and Safety Code Section 39650 et seq.) than pollutants subject to CAAQS. Health effects due to TACs may occur at extremely low levels, and it is typically difficult to identify levels of exposure which do not produce adverse health effects.

TCM (Transportation Control Measure): Under Health & Safety Code Section 40717, any control measure to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, or traffic congestion for the purpose of reducing motor vehicle emissions. TCMs can include encouraging the use of carpools and mass transit. Under federal law, includes, but is not limited to those measures listed in CAA Section 108(f).

UFP (Ultrafine Particles): Particles with a diameter less than 0.1 mm (or 100 nm).

ULEV (Ultra Low Emission Vehicle): Vehicles with low emission ratings within California's LEV 1 or LEV 2 exhaust emission standards. The LEV 1 emission standards typically apply to cars from 1994–2003. The LEV 2 emission standards were adopted in 1998 and typically apply to cars from 2004–2010.

U.S. EPA (United States Environmental Protection Agency): The federal agency charged with setting policy and guidelines, and carrying out legal mandates for the protection of national interests in environmental resources.

VCAPCD (Ventura County APCD): The Ventura County Air Pollution Control District.

VMT (Vehicle Miles Traveled): Total vehicle miles traveled by all or a subset of mobile sources.

VOCs (Volatile Organic Compounds): Hydrocarbon compounds that exist in the ambient air. VOCs contribute to the formation of smog and/or may themselves be toxic. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints.

Zero Emission Technologies: Advanced technology or control equipment that generates zero end-use emissions from stationary or mobile source applications.

ZEV (Zero Emission Vehicle): A vehicle that produces no emissions from the on-board source of power.

Attachment C

Transcripts of the Regional Public Hearings

1. Transcript of the Regional Public Hearing for San Bernardino County on April 23, 2024
2. Summary of Public Comment Received at the Regional Public Hearing for Riverside County on April 24, 2024 (in lieu of transcript)
3. Transcript of the Regional Public Hearing for Orange County on April 25, 2024
4. Transcript of the Regional Public Hearing for Los Angeles County on May 1, 2024

Audio Transcription
South Coast AQMD
Regional Public Hearing
April 23, 2024

South Coast Air Basin Attainment Plan
for the 2012 Annual PM_{2.5} Standard



www.aptusCR.com | 866.999.8310

Audio Transcription

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

AUDIO TRANSCRIPTION

SOUTH COAST AQMD

REGIONAL PUBLIC HEARING FOR

SOUTH COAST AIR BASIN ATTAINMENT PLAN

FOR THE 2012 ANNUAL PM2.5 STANDARD

APRIL 23, 2024

Transcribed by:
Diana Sasseen
CSR No. 13456

Job No. 10141370

Audio Transcription

1 IAN MacMILLAN: Good morning, everybody. We'll
2 get started in just a couple minutes here.

3 Okay. Good morning, everybody. My name is Ian
4 MacMillan. I'm an assistant deputy executive officer in
5 the Planning Division here at South Coast AQMD.

6 Before we get started today, I just want to go
7 through some housekeeping remarks. This is something
8 that we do before every meeting.

9 So again, good morning. Thank you for
10 participating in the first of four regional public
11 hearings for the PM2.5 Plan. This first meeting is
12 focused on San Bernardino County. We're going to do our
13 best to facilitate a smooth meeting with public
14 participation. We have two formats for participation.
15 The Zoom web application as well as teleconference.

16 Before we begin, I want to review some
17 guidelines and general instructions for the meeting.

18 First, please silence your other communication
19 devices such as your cell or desk phone. This will
20 ensure that we're not hearing any feedback or causing
21 interruption during the meeting. This meeting is being
22 translated in Spanish. To watch or listen to this
23 meeting in the language of your choice, click on the
24 globe icon labeled "Interpretation" at the bottom of
25 your screen. From there, select the language of your

Audio Transcription

1 choice. After you select your language, if you hear
2 both languages at the same time, please click "Mute
3 original audio."

4 For those participating by phone, if you wish
5 to hear the meeting in Spanish, please use the phone
6 number and meeting I.D. number posted on the agenda.
7 I'm going to pause right now for the translators to come
8 in and repeat some of this relevant information.

9 (Translator speaking in Spanish.)

10 IAN MacMILLAN: Thank you.

11 Okay. So to continue, all participants on
12 Zoom, except for panelists, will be placed on mute by
13 the host. You will not be able to mute or unmute your
14 line manually.

15 After each agenda item, I will ask if there are
16 any clarifying questions, but we would like to reserve
17 public comments for the end of the meeting after all
18 presentations.

19 For those on Zoom, if you would like to make
20 public comment on the Zoom screen, please click on the
21 raise hand button. For those calling in by phone, you
22 can dial star 9 to signal you would like to comment.
23 Your name or part of your phone number will be called
24 when it is your turn to comment, and the host will
25 unmute your line automatically.

Audio Transcription

1 Please note you can hang up and/or leave the
2 Zoom meeting at any time. As always, please treat
3 others with courtesy, civility, and respect. Failure to
4 do so can result in your mic being muted or you being
5 dropped from the meeting.

6 Lastly, please be aware that this video
7 conference meeting is being recorded. By participating
8 in this meeting hosted by South Coast AQMD, you agree to
9 authorize recording of audio and visual content
10 presented during the live event and consent to
11 subsequent use of the recording in the public domain by
12 South Coast AQMD.

13 At this time I'll ask if there are any board
14 members or board member consultants who would like to be
15 placed on the panel, please raise your hand and staff
16 will move you over.

17 And then finally, as far as introductions, I'll
18 ask every presenter to introduce themselves as they --
19 right before they give their presentation.

20 With that, let's go ahead and get started. We
21 have four presentations today to go through. So let's
22 go ahead and get started.

23 The first one is going to be an overview of the
24 PM2.5 Plan itself.

25 And, Eric, if you want to go ahead, take it

Audio Transcription

1 away.

2 ERIC PRASKE: Thanks, Ian. I'll just wait for
3 the slides to come up here.

4 All right. So I'm Eric Praske. I supervise
5 the State Implementation Plan development here at South
6 Coast AQMD. And as Ian mentioned, I'll be presenting a
7 general overview of the South Coast Air Basin Attainment
8 Plan for the 2012 Annual PM2.5 Standard.

9 Next slide, please.

10 So the South Coast Air Quality Management
11 District is the local air pollution control agency
12 responsible for the South Coast Air Basin and Coachella
13 Valley. Our jurisdiction encompasses all of Orange
14 County as well as portions of L.A., San Bernardino, and
15 Riverside counties. We are the largest of 35 local air
16 agencies in California as well as across the rest of the
17 nation, and over 17 million residents are in our
18 jurisdiction.

19 In terms of responsibilities, we regulate
20 emissions primarily from stationary sources with limited
21 authority over mobile sources. We develop and implement
22 plans to meet national air quality standards. We permit
23 and inspect over 28,000 businesses and administer over
24 \$100 million of incentive funding annually.

25 Next slide, please.

Audio Transcription

1 So as many of you are likely aware, our region
2 has historically suffered from some of the worst air
3 quality in the United States. Despite significant
4 process that's been made over the past several decades,
5 our residents still suffer from breathing the worst
6 ozone in the nation and among the worst fine particulate
7 matter, or PM2.5 levels in the nation.

8 Next slide, please.

9 In this presentation I'll be providing
10 background on PM2.5 as well as air quality trends in the
11 South Coast Air Basin. Next I'll discuss the proposed
12 control strategy to meet the 2012 annual PM2.5 Standard.
13 Then I'll be providing an overview on the attainment
14 demonstration; essentially how we demonstrate the
15 implementation of that control strategy will lead us
16 into attainment. And then I'll be discussing --
17 wrapping up with next steps and the public process.

18 Next slide, please.

19 So PM2.5 is defined as particulate matter less
20 than 2.5 microns in diameter. This is very small. It's
21 so small in fact that you can't see PM2.5. By
22 comparison, a fine grain of beach sand is about 90
23 microns in diameter, and the width of a human hair is
24 about 50 to 70 microns. And because PM2.5 is so small,
25 it is able to penetrate our body's defenses, end up deep

Audio Transcription

1 in our lungs, and then eventually cross over into the
2 bloodstream and even cross the blood-brain barrier.

3 So because it is able to penetrate our body's
4 defenses, it is linked to a number of very serious
5 health effects, including premature death, asthma, and
6 lung cancer. There's even evidence to link it to
7 metabolic diseases, cognitive diseases such as
8 Alzheimer's disease. And because exposure to PM2.5 is
9 so toxic, it actually drives the majority of public
10 health costs due to air pollution in our region.

11 Next slide, please.

12 So as the title of the presentation suggested,
13 I'll be discussing the 2012 Annual PM2.5 Standard. The
14 level of that standard is 12 micrograms per cubic meter.
15 The South Coast Air Basin is classified as a serious
16 non-attainment area with an attainment date of December
17 2025. There are also a few other PM2.5 standards that
18 I'll go over just briefly for information purposes.

19 So there's the 1997 annual standard at
20 15 micrograms per cubic meter. The South Coast Air
21 Basin attains this standard; it actually has attained
22 the standard since 2013. In addition, there's the 2006
23 24-hour standard at 35 micrograms per cubic meter.
24 We're also in serious non-attainment of this standard
25 with an attainment date of December of last year.

Audio Transcription

1 Some good news, we actually have reviewed the
2 monitoring data from last year, and we believe that we
3 met the standard by the attainment date.

4 And then some of you may have heard of a new
5 PM2.5 Standard that EPA recently set; that's the 2024
6 annual PM2.5 Standard. They lowered the level from 12
7 down to 9 micrograms per cubic meter.

8 We currently don't have any planning
9 requirements for this standard; however, we do expect
10 that EPA will designate us as a non-attainment area in
11 2026. And as far as the attainment plan goes, we would
12 likely be looking at an attainment date in 2036 with a
13 potential to extend to 2041.

14 Next slide, please.

15 So this graph is showing the trend in PM2.5
16 levels in the South Coast Air Basin over the past two
17 decades. As you can see, clearly significant progress
18 has been made, however, there has been a bit of a
19 leveling off over the past several years. Shown in the
20 horizontal lines are the levels of the various annual
21 PM2.5 standards. So there's the 1997 standard. Recall
22 that I mentioned we're in attainment of this standard,
23 so our levels are below that line. And then the subject
24 of today's presentation, the 2012 standard, is shown in
25 the orange line. And right now we're about 2 micrograms

Audio Transcription

1 per cubic meter over that standard, 1.5 to 2 micrograms
2 per cubic meter over.

3 And then there is the 2024 standard shown in
4 the dashed yellow line. And as is evident from this
5 graph, we have a significant ways to go to meet that
6 standard. We'll encounter substantial challenges
7 associated with that, as will many other air districts
8 throughout California as well as across the rest of the
9 nation.

10 Next slide, please.

11 Okay. So I'll be discussing the 2012 PM2.5
12 Standard in today's presentation.

13 For PM2.5 there are two classifications for
14 non-attainment areas. There's moderate and serious.
15 And the South Coast Air Basin is in serious
16 non-attainment. Essentially what that means is it
17 allows us the most amount of time to meet the standard.

18 The Coachella Valley is in attainment of the
19 2012 PM2.5 standards, so I won't be discussing Coachella
20 Valley in this presentation.

21 Next slide.

22 So South Coast AQMD initially developed an
23 attainment plan for the 2012 PM2.5 Standard as part of
24 the 2016 Air Quality Management Plan. The 2016 AQMP was
25 submitted to EPA in 2017; however, EPA did not act on

Audio Transcription

1 that plan for several years, and during that time some
2 new monitoring data at near-road monitors became
3 available and eligible for consideration and attainment
4 demonstration starting in 2020. So when EPA finally got
5 around to acting on our plan in December of 2020, they
6 requested a supplemental attainment demonstration for
7 these near-road monitors.

8 Due to challenges and concerns associated with
9 the near-road monitors, the submitted plan was withdrawn
10 in 2023 to avoid potential disapproval by EPA. That
11 withdrawal triggered the need to develop a revised
12 attainment plan, and that plan needs to be submitted to
13 EPA before December of this year to avoid stationary
14 source permitting sanctions.

15 Next slide, please.

16 So the proposed control strategy to attain the
17 2012 PM_{2.5} Standard is based on the continued
18 implementation of the control measures to reduce ozone
19 that were adopted as part of the 2022 Air Quality
20 Management Plan. In addition we are required to satisfy
21 EPA stringency requirements, and so there are some
22 limited new control measures to reduce direct PM_{2.5} as
23 well as ammonia emissions, and those are included in
24 this plan.

25 Next slide, please.

Audio Transcription

1 So the measures from the 2022 AQMP, just a
2 broad overview of them, so we have the stationary source
3 measures which seek to transition to zero emission
4 wherever feasible while allowing the lowest alternative
5 emission source technology wherever zero emission is
6 infeasible. We are also proposing to include our mobile
7 source incentive measures and facility-based mobile
8 source measures. In the next presentation you'll be
9 hearing from CARB about the specific measures that
10 they'll be continuing to implement as part of the State
11 SIP Strategy.

12 Next slide, please.

13 So I mentioned EPA stringency requirements.
14 Chief among those is that of Most Stringent Measures, or
15 MSM, the reason we need to implement MSM in this plan is
16 because we are requesting a five-year extension of the
17 attainment date. So recall from earlier that the
18 current statutory serious attainment date is set
19 December 2025. We're requesting a five-year extension
20 as part of this plan to demonstrate attainment by 2030.

21 So MSM is a requirement that we demonstrate
22 that our rules are at least as stringent as those in any
23 other air district or state. And so as part of the MSM
24 analysis we developed four measures that will need to be
25 implemented by December 2029.

Audio Transcription

1 The first measure involves Rule 445. This is
2 our Check Before You Burn program. We are proposing to
3 remove the low income exemption while retaining the sole
4 source of heat exemption.

5 Next is -- our next MSM is Rule 1138. This is
6 our commercial cooking rule. We are proposing to lower
7 the threshold to require catalytic oxidizers for
8 chain-driven charbroilers.

9 The third measure involves Rule 223. This is a
10 permitting rule for large, contained animal facilities,
11 and we are proposing to lower the thresholds for dairy
12 and poultry farms to match the thresholds in
13 San Joaquin Valley.

14 The fourth measure is to require composting of
15 chipped and ground green waste prior to land
16 application.

17 Next slide, please.

18 Okay. So now I'll segue into the attainment
19 demonstration component of this presentation, but first
20 a little bit of background or what an attainment
21 demonstration is and how we conduct the attainment
22 demonstration.

23 So we begin by developing a comprehensive
24 emissions inventory of all stationary and mobile sources
25 in our jurisdiction. We then feed those emissions into

Audio Transcription

1 our air quality model which is able to simulate PM2.5
2 concentrations. And so we run this process for a base
3 year. In this case the base year is 2018.

4 Then we develop a control strategy for our
5 attainment year. So that would be 2030 in the case of
6 this plan. And so we apply those controls to select
7 sources in the emissions inventory, and then we rerun
8 the air quality model with those reduced emissions and
9 we look at essentially the change in PM2.5 levels from
10 the base to the future year and we use that ratio and
11 apply it to the base year PM2.5 levels to project future
12 air quality.

13 Next slide, please.

14 So here you can see that our control strategy
15 is calling for a 54 percent reduction in NOx emissions
16 from 2018 to our 2030 attainment year. In addition, we
17 will be reducing PM2.5 emissions by about 3 tons per
18 year -- 3 tons per day between 2018 and 2030. And so
19 when we run our air quality model with these 2030
20 attainment scenario emissions, we are able to
21 demonstrate attainment at all locations across the
22 South Coast Air Basin.

23 Next slide, please.

24 So here we're seeing the base year, 2018 design
25 values at monitors that exceed the 2012 annual PM2.5

Audio Transcription

1 Standard. The highest standard is on -- the highest
2 measured design value or level of PM2.5 is at the
3 Ontario near-road monitor at 14 micrograms per cubic
4 meter. This is actually -- this is a measured design
5 value.

6 And then recall that we apply the ratio from
7 the air quality model of the future to the base year
8 projected air quality, and then we're able to determine
9 and apply that ratio to the level to determine whether
10 we'll be in attainment of the standard. And so when we
11 do that we will actually come out with a design value of
12 11.6 micrograms per cubic meter at the Ontario near-road
13 monitor well in attainment of the 2012 PM2.5 Standard.

14 The next highest site in the 2018 base year is
15 Mira Loma at 13.5 micrograms per cubic meter. Mira Loma
16 is expected to be in attainment by 2030 with a design
17 value at 12 micrograms per cubic meter.

18 So shown here are the other monitors that
19 exceeded the standard in the base year. So Long Beach
20 near road, Compton, and Riverside. And all of these
21 monitors are expected to be in attainment by 2030.

22 Next slide, please.

23 So we began the process to develop this plan in
24 spring of last year when we convened our advisor groups.
25 Those advisor groups met periodically between spring and

Audio Transcription

1 fall. We then continued to develop the draft plan, and
2 we actually just released the draft plan on March 22nd
3 for public review and comment. We're currently in the
4 public review stage for the plan, and that's why we're
5 hold our regional public hearings. Within another week
6 or so we'll be releasing the Draft Socioeconomic Impact
7 Assessment.

8 And then the public hearing for board
9 consideration of the PM2.5 Plan will be held on
10 June 7th. Should the board choose to adopt the PM2.5
11 Plan, it will be submitted to CARB for approval and
12 subsequent transmittal to EPA for incorporation into the
13 State Implementation Plan.

14 Next slide.

15 Okay. So there's -- recall there's the new
16 2024 annual PM2.5 Standard in which EPA lowered the
17 level from 12 to 9 micrograms per cubic meter. We are
18 expecting that the South Coast Air Basin will be
19 designated as a non-attainment area in 2026, and we will
20 be looking at an attainment year of 2036 with the
21 potential to request an extension to 2041. That plan
22 will need to be adopted and submitted to EPA by August
23 of 2027.

24 We do know that the AQMP NOx strategy, the 2022
25 AQMP NOx strategy alone will not be sufficient to meet

Audio Transcription

1 this standard, and achieving the new standard will
2 require substantial additional controls, especially on
3 direct PM2.5 sources.

4 Next slide, please.

5 So as Ian mentioned, we have four regional
6 public hearings. We're currently holding the first
7 hearing for San Bernardino County. Tomorrow we will be
8 switching to an in-person format at CARB headquarters in
9 Riverside. Then we will be going back to the virtual
10 format for Orange County on Thursday. And next
11 Wednesday we will be at the Dollarhide Community Center
12 in Compton for the L.A. County public hearing.

13 Next slide, please.

14 All supporting documents as well as this
15 presentation and PM2.5 Plan chapters and appendices are
16 available on our web site. You can also point your
17 camera here at the QR code to be taken directly to that
18 site.

19 Next slide, please.

20 So the written comment deadline for the PM2.5
21 Plan is Tuesday, May 7th. You can submit all written
22 comments via e-mail to AQMPteam@AQMD.gov. If you have
23 specific inquiries related to PM2.5 Plan, please contact
24 Dr. Sang-Mi Lee, and for inquiries specific to CEQA and
25 socioeconomic impacts, please contact Barbara Radlein.

Audio Transcription

1 Next slide, please.

2 So the PM2.5 Plan in summary, the PM2.5 Plan
3 has been developed to demonstrate attainment of the 2012
4 PM2.5 Standard in the South Coast Air Basin by 2030.
5 The PM2.5 Plan is based on continued implementation of
6 the 2022 AQMP NOx strategy with limited additional
7 controls to satisfy EPA stringency requirements. The
8 public hearing will be on June 7th. And obviously we'll
9 need to be developing a new plan for the -- to attain
10 the 2024 PM2.5 Standard.

11 Next slide, please.

12 All right. So we encourage you to sign up for
13 our newsletter at the web site shown here, and make sure
14 to tic the box for AQMP/SIP interested parties.

15 That concludes my presentation, and I'll hand
16 it back over to Ian.

17 IAN MacMILLAN: Hey there, everybody. I
18 apologize for that. My Zoom just quit. I apologize.
19 Hopefully, can everybody hear me?

20 ERIC PRASKE: We can hear you, Ian.

21 IAN MacMILLAN: Okay. I'm sorry about that.

22 So the question I think was from Mary V. asking
23 about San Bernardino data. We did show some data on one
24 of the slides, and here -- no, I think we were just
25 showing some of the key sites that are important for

Audio Transcription

1 this PM2.5 Plan. But within the plan itself there's a
2 lot more information about all the sites that we collect
3 PM2.5 data as well as on our web site. So we can
4 provide some more information on that. Feel free to
5 reach out to us if there are any further questions
6 there.

7 For now, we're going to go ahead and move on to
8 our next presentation. This is going to be from CARB.

9 And so, Ariel, if you're available, feel free
10 to introduce yourself and take it away.

11 ARIEL FIDELDY: Thanks, Ian.

12 Hi, everybody. Yeah, while we're bring up the
13 slides, I'll just say my name is Ariel Fideldy. I am a
14 manager at the California Air Resources Board over the
15 team that works really closely with South Coast on
16 developing SIPs and the control strategies that are
17 needed. At the state level, my team does lead our
18 development, what is known as the State SIP Strategy.
19 So I will be walking through today, once we get the
20 slides up, kind of the CARB side of the control strategy
21 that's going into this PM2.5 Plan.

22 All right. Why don't you go ahead, next slide,
23 please.

24 Thank you.

25 So like AQMD, CARB's reductions in the PM2.5

Audio Transcription

1 Plan are based on measures in our 2022 State SIP
2 Strategy which was focused on the 70 parts per billion
3 ozone standard. This strategy that we developed over a
4 few years through a robust public process, it identified
5 the level of action needed to meet air quality standards
6 and improve public health. It was, you know, really a
7 document that identified a bunch of new control measures
8 from CARB that are going to be driving the pace and
9 scale of our rule makings at CARB through the end of
10 this decade really.

11 Our board approved the state measure
12 commitments that were in that document, the State SIP
13 Strategy, in September of 2022. And this strategy is
14 what we've utilized for the PM plan. We've basically
15 taken these measures, estimated the emission reductions
16 in 2030 that can help support attainment of the PM2.5
17 Standard.

18 Next slide.

19 This figure here identifies the list of these
20 measures that CARB is pursuing, you know, included in
21 the State SIP Strategy, but these are the ones
22 specifically that are going to support attainment of the
23 PM2.5 Standard in the South Coast. Some of the measures
24 on this slide, they have already been adopted as
25 regulations by the CARB board. Those are the ones that

Audio Transcription

1 are identified with the asterisk on the slide here.

2 Specifically I want to mention our Advanced
3 Clean Fleets and in use locomotive regulations. Those
4 programs were both adopted last year and they were
5 really monumental regulation, of course, first of their
6 kind. Our Advanced Clean Fleets regulation, you know,
7 is going to require fleets, heavy duty truck fleets
8 specifically to turn over to zero emission vehicles over
9 the next decade. And the in use locomotive regulation
10 sets in use requirements, but it uses mechanisms under
11 our available authority to accelerate the adoption of
12 advanced cleaner locomotive technologies, including zero
13 emission locomotives.

14 There are many other regulations listed here.
15 These measures that are currently undergoing their
16 regulatory process, so they're under development right
17 now, including another thing I wanted to mention
18 specifically, our zero emission standards for space and
19 water heaters, which are listed under the other box here
20 on this slide.

21 We are also pursuing a number of off road
22 equipment measures, including setting a new standard, a
23 tier 5 standard for off road equipment as well as zero
24 emission requirements for certain manufacturers and for
25 other sources like cargo handling equipment at ports and

Audio Transcription

1 things like that that are really going to contribute to
2 reductions in the South Coast.

3 We are also continuing to pursue additional
4 measures beyond our Advanced Clean Fleets and our prior
5 Advanced Clean Trucks program for heavy duty trucks,
6 heavy duty vehicles on road with our zero emission truck
7 measure which we'll be developing over the next few
8 years.

9 Next slide.

10 So this is that same list of measures you just
11 saw, but it's showing their currently planned schedules
12 for adoption and the beginning of their implementation.
13 So the measures that have been adopted already, they're
14 shown with purple stars. And the ones that are still
15 under development, we have the planned adoption
16 schedules shown in gold stars here on this slide. And
17 then the dark blue box on each one of these lines here
18 represents the implementation begins -- well, the
19 time line for which we expect implementation to begin
20 for the program.

21 Next slide.

22 So this table shows again that suite of
23 measures, but these are the ones specifically that have
24 already been adopted and the emission reductions we have
25 quantified that are being -- contributing to the

Audio Transcription

1 attainment demonstration for this PM plan. And these --
2 I just want to mention that this does include measures
3 from this 2022 State SIP Strategy which, of course, the
4 bulk of the measures there, but there is also one or two
5 recently adopted measures from the -- that were
6 originally commitments in our 2016 State SIP Strategy a
7 few years back. That's also included in this list. And
8 so we have the NO_x, the direct PM_{2.5}, and the ammonia
9 emission reductions quantified here.

10 These reductions, you know, these programs
11 have all, as I mentioned, been adopted, but they are
12 going to provide significant emission reductions in the
13 South Coast. And they've not yet been accounted for in
14 the baseline emissions inventory, so we're quantifying
15 their emission reductions here and factoring those into
16 an adjusted baseline that is a part of the baseline in
17 the control strategy for the PM plan.

18 Next slide.

19 And this table specifically shows the suite of
20 measures that are remaining and still have yet to be
21 adopted by the CARB board as regulations and programs
22 for both the 2016 and the 2022 State SIP Strategies.
23 And then again, their corresponding NO_x, direct, PM_{2.5},
24 and ammonia emission reductions.

25 And so these are, of course, everything that

Audio Transcription

1 CARB still has on the docket that is going to support
2 attainment in 2030 of the PM2.5 Standard, in addition,
3 more, you know, really key programs as I mentioned
4 earlier. And the reductions you see at the total at the
5 bottom there, that 9.1 and the corresponding PM2.5 and
6 ammonia reductions, those represent what CARB will be
7 committing to for our emission reductions commitment to
8 support attainment in 2030.

9 Next slide.

10 So in addition to evaluating the state SIP
11 measures to support attainment, as Eric discussed, we
12 also do have to analyze our control programs, our entire
13 control programs to meet the most stringent measure, or
14 MSM control requirements for the standard. Eric touched
15 on this, but essentially, you know, this MSM is a level
16 of stringency that exceeds both the, you know, other
17 stringencies, reasonably available control measures, or
18 RACM, and best available control measures known as BACM.
19 And this is required for the plan because we're
20 requesting the five-year extension of the attainment
21 date.

22 As you may know, CARB has a unique authority
23 under the federal Clean Air Act no other state has to
24 set standards for mobile sources that are more stringent
25 than the federal government. So we've over our history,

Audio Transcription

1 you know, maximized utility of this unique authority
2 such that our mobile control programs go far beyond
3 other states and even national programs. So, you know,
4 we have been able to demonstrate this in the past and
5 EPA has approved our programs in the past as MSMS.

6 So we have, you know, updated this analysis
7 consistent with our current programs, looking at all of
8 our control measures being implemented by CARB in
9 California compared to other jurisdictions, states,
10 et cetera, talked about, also looked at our, you know,
11 measures in the State SIP Strategy. And, you know, each
12 mobile source category, as you can see here on this
13 slide, is broken into a few, you know, subcategories,
14 vehicle engine standards, in use control of the fuels.
15 And our conclusion from this analysis is that CARB's
16 programs, our current control programs for each source
17 category does meet MSM requirements. So this is just
18 kind of a summary of that here.

19 And I think that's the end of my slide deck.

20 IAN MacMILLAN: Great. Thank you very much,
21 Ariel. Appreciate all the work that CARB does with us
22 on these plans, it's always fun, and thanks for the
23 presentation there too.

24 I do see we have a couple of other questions
25 that came through from your presentation. I think that

Audio Transcription

1 they might have actually been for the prior
2 presentation.

3 So one question, I'm just going to go ahead and
4 read it here from Mary V. Asking again -- asking again
5 about San Bernardino and Muscoy data, and as they are
6 one of the first communities selected for A B 617, just
7 asking that we include that data in future
8 presentations.

9 We'll take that into account and look at that
10 for future presentations that are not the regional
11 public hearings because the slides are already out, but
12 we'll look at that for future meetings.

13 And then we have another question here as well
14 from Bobby Joe. And I'm going to ask Eric to answer
15 this briefly. I'll go ahead and just read it out.

16 With the vast expansion of new logistic centers
17 built in Ontario, Eastville, Jurupa Valley, Fontana,
18 Riverside and San Bernardino, how is AQMD and CARB
19 accounting for the fact that none of these newer
20 facilities are operating, or if they are, likely not yet
21 at full capacity?

22 Eric, you want to touch on this briefly, how we
23 accommodate and consider growth in the AQMP?

24 ERIC PRASKE: Yeah. Thanks, Ian.

25 So we rely on Southern California Association

Audio Transcription

1 of Governments growth projections from their regional
2 transportation plan sustainable community strategy. So
3 we actually received those growth factors from SCAG and
4 incorporate those into our modeling and emissions
5 projections.

6 IAN MacMILLAN: Great. Thank you.

7 And that does include a lot of new warehousing,
8 for example, in the Inland Empire as well as part of
9 their land use planning.

10 Okay. So I think we're going to go ahead and
11 move on to our next presentation. This will be our
12 third presentation, and it's going to be an overview,
13 just kind of an introductory overview of the
14 socioeconomic impact assessment that will be conducted
15 as part of the PM2.5 planning effort. So I'm going to
16 ask Tony to go ahead and give the presentation on this
17 third one.

18 TONY TIAN: Good morning, everyone. I'm Tony
19 Tian, a program supervisor in South Coast AQMD. I've
20 seen the socioeconomic impact assessment. Now let's
21 begin our -- the slide one.

22 So next slide, please.

23 So for this presentation we'll cover several
24 items. So first we'll cover cost estimates and the
25 macroeconomic impacts of this PM2.5 Plan. So

Audio Transcription

1 (inaudible) health benefit analysis.

2 So second, so for the health benefit analysis
3 we will discuss some methodologies for quantifying the
4 health benefits, specific health impacts to be
5 considered in the analysis.

6 So finally we'll present next action plans and
7 steps and staff contacts in case you have any questions.

8 So next slide, please.

9 So as we know, because of its small size, so
10 PM2.5 tends to penetrate new gases exchange regions of
11 the lung and cause many health risks, including
12 respiratory and cardiovascular diseases, asthma
13 exacerbation, and premature death.

14 So this PM2.5 Plan aims to lower PM2.5
15 emissions in South Coast Air Basin and thus achieve
16 annual PM2.5 national ambient air quality standards by
17 December 31st, 2030. And the health benefits brought
18 about by control measures in the PM2.5 Plan will be
19 quantified in the health benefits analysis.

20 So next slide, please.

21 So note that the costs, the macroeconomic
22 impacts and the health benefits control measures in
23 PM2.5 Plan has already been assessed in prior 2016 and
24 2022 AQMPs. So for this PM2.5 Plan no additional costs
25 or impacts are anticipated, and we're not prepare new

Audio Transcription

1 modified socioeconomic impact assessment. However,
2 we're due to refine the (inaudible) of the health
3 benefits of the PM2.5 reductions, and the results of
4 analysis will be presented in appendix to the PM2.5
5 Plan.

6 So next slide, please.

7 So basically we use environmental benefits
8 mapping and analysis program software developed by EPA
9 to quantify the health benefits of this PM2.5 Plan. So
10 specifically we use three input modules to do the
11 quantification.

12 So first air quality change. So staff will
13 simulate air quality change by 2030 in South Coast Air
14 Basin so (inaudible) PM2.5 to provide emission
15 reductions. So secondly, population and incidences
16 data, we obtain projections (inaudible) data from
17 (inaudible) including California Department of Finance,
18 U.S. Centers for Disease Control and Prevention, and
19 California Department Healthcare Access Commission.

20 So lastly, concentration response functions.
21 So those function is to establish quantitative links
22 between PM2.5 exposure and the various health effects.
23 So staff rely on the functions from the most reliable
24 and imputable peer-reviewed academic research to
25 quantify the health benefits of the PM2.5 reductions.

Audio Transcription

1 So next slide, please.

2 So we consider both long-term and short-term
3 effects of PM2.5 reductions.

4 So long-term benefits include premature deaths
5 avoided, decreased asthma onset and lung cancer, among
6 others. So examples of short-term benefits include
7 reduced emergency department visits, reduced hospital
8 admissions. So less (inaudible) days and workless days.

9 So next slide, please.

10 So (inaudible) health benefit assessment will
11 be released on or before May 7th, 2024, as an appendix
12 to the PM2.5 Plan. So in case you should have any
13 questions with regard to health benefits analysis of
14 this PM2.5 Plan, so we provide staff contacts in the box
15 of the slide (inaudible) appreciate it.

16 So that concludes my presentation. Thank you.

17 IAN MacMILLAN: Great. Thank you so much,
18 Tony. Appreciate that.

19 I do see a question came in in the Q and A
20 while you were speaking, but it was actually I think
21 again for the previous presentation.

22 So I'm going to go ahead and read that one out
23 and I'm going to ask Ariel if maybe she can take a quick
24 response to this question.

25 So question came in from Fabian V. If the EPA

Audio Transcription

1 does not approve the in use locomotive rule, how will it
2 affect these efforts?

3 ARIEL FIDELDY: Thanks, Ian, and thanks,
4 Fabian, for the question.

5 You know, CARB is working really closely as we
6 always do with U.S. EPA at the regional and at the, you
7 know, headquarters level to ensure that our
8 authorization waivers, all of them are going to be
9 approved, but especially, yes, for the in use locomotive
10 regulation. And we do anticipate that happening and we
11 do anticipate them approving the rule as well.

12 But by the form of our commitments, for any
13 strategy really, you know, our commitments are made at
14 the tonnage level for the total emissions reductions
15 needed. So if a specific rule, you know, doesn't go
16 forward or is not approved for some reason or another,
17 we always -- our commitment is to meet the total
18 emission reductions that we commit to in the plan. So
19 we will need to go forth and basically identify other
20 strategies, whether that is from locomotives or some
21 other source category that we can still control to
22 ensure we get those emission reductions. We would
23 essentially always be identifying other strategies, but
24 we're continuing to work really closely with U.S. EPA,
25 and we do anticipate the authorization and the rule

Audio Transcription

1 being approved.

2 IAN MacMILLAN: Great. Thanks so much, Ariel.

3 And just from the South Coast AQMD perspective,
4 I think we share the same perspective. It's really
5 critical that all three agencies take action when it
6 comes to meeting air quality standards. The local
7 government, ourselves, state government CARB, and the
8 federal government EPA, it's really critical that all
9 three do their part on emission sources within their
10 authority. So we fully support CARB's authorization
11 request on this.

12 So let's go ahead and keep moving in this
13 presentation. I think we're on to our fourth
14 presentation today, and we wanted to go over briefly the
15 California Environmental Quality Act, CEQA analysis
16 PM2.5 Plan, at least the draft, some draft results so
17 far.

18 And, Jivar, if you wanted to come on and
19 introduce yourself and cover this last topic.

20 JIVAR AFSHAR: Thank you, Ian.

21 Hello, everyone. My name is Jivar Afshar. I'm
22 an air quality specialist here at South Coast AQMD. And
23 I will be going over the CEQA portion of this
24 presentation. Thank you.

25 So CEQA is a California state law that requires

Audio Transcription

1 the state and local agencies to identify the significant
2 environmental impacts of a project and to avoid or
3 mitigate those impacts if feasible. But its main
4 purpose is to disclose to public and decision makers the
5 potential environmental effects of these projects.

6 Next slide, please.

7 So CEQA applies to PM2.5 Plan. It also applies
8 to prior air quality management plans or AQMPs. PM2.5
9 Plan contains a series of control measures, and the
10 environmental impacts of majority of these control
11 measures have been previously evaluated and certified in
12 Final Program EIRs for 2016 and 2022 AQMPs as you can
13 see in the bottom in the little figure.

14 Next slide, please.

15 To be more specific, the PM2.5 Plan contains 38
16 control measures, 9 of which are carried over from 2016
17 AQMP as you can see on the left, the orange box, and 27
18 of them from 2022 AQMP on the right, the green box.
19 This means that 36 of the control measures are retained
20 from previously adopted CEQA documents. This leaves us
21 with two new control measures in PM2.5 Plan in the
22 middle purpose box.

23 So one of these control measures focuses on
24 reducing emissions from chain-driven charbroilers, as
25 Eric mentioned at the beginning of the presentation, by

Audio Transcription

1 potentially retrofitting them with catalytic oxidizers
2 and also making future amendments to Rule 1138, which is
3 control of emissions from restaurants' operations.

4 The second new control measure in the PM2.5
5 Plan applies to emission reductions on unpaved road
6 dust. And this specific control measures only involves
7 administrative actions and will result in no physical
8 alterations.

9 I will take a deeper dive in explaining these
10 two control measures in the future slides, however, if
11 you would to take a look at a list of previously adopted
12 control measures, you can refer to Table 8.1 in Appendix
13 8 of PM2.5 Plan.

14 Next slide, please.

15 So the purpose of CEQA is to evaluate any
16 alterations made to control measures, identifying new or
17 modified environmental impacts, and also determine
18 whether a new CEQA document needs to be prepared or not.

19 Next slide, please.

20 So this is the first new control measure out of
21 the two that I am going to talk about. This specific
22 control measure focuses on further reducing emissions
23 from commercial cooking. And it expands upon previous
24 control measure that was outlined in 2016 AQMP.

25 Back in 2016 the AQMP focused and targeted

Audio Transcription

1 under-fired charbroilers and offered multiple control
2 options. However, in PM2.5 Plan we shift our focus to
3 emission reductions from chain-driven charbroilers
4 equipped with catalytic oxidizers.

5 It's noteworthy to mention that this
6 enhancement in utilization on catalytic oxidizers offer
7 easy installation with minimal maintenance requirements.
8 And as a component of a new measure, these catalytic
9 oxidizers were previously assessed in final subsequent
10 assessment for Rule 1138.

11 So these changes will result in improving
12 operational air quality impacts by greater reductions in
13 PM2.5 emissions. And the overall impacts are expected
14 to either mirror or be less severe than those previously
15 analyzed for under-fired charbroilers in our previous
16 CEQA documents.

17 Next slide, please.

18 This is the second control measure that I
19 talked about earlier, which is emission reductions from
20 unpaved road dust, which proposes to create an inventory
21 of unpaved roads and parking lots within the
22 jurisdiction of South Coast AQMD. And as I mentioned
23 previously, it's an administrative exercise, therefore,
24 it has no environmental impacts.

25 Next slide, please.

Audio Transcription

1 Apart from the 2000 new control measures
2 discussed earlier, the remaining control measures align
3 with those adopted in 2016 and 2022 AQMP and are not
4 expected to yield in additional changes in operational
5 air quality benefits or environmental impacts. And
6 because of that, the analysis of PM2.5 Plan does not
7 change the conclusions from our previous CEQA documents.

8 Next slide, please.

9 So to conclude, the control measures in PM2.5
10 Plan, new and previously analyzed, reduce PM2.5
11 emissions and result in no additional environmental
12 impacts. And since the PM2.5 Plan does not present
13 substantial new information in comparison to what was
14 analyzed in our previously adopted CEQA documents and
15 the effects of PM2.5 Plan have sufficiently been
16 outlined in previous CEQA documents, this plan qualifies
17 as a later activity within the scope of previously
18 approved CEQA documents under CEQA guidelines Section
19 15168(c).

20 If you are interested, you can access the
21 detailed CEQA analysis in Appendix 8 of the PM2.5 Plan.

22 This concludes my presentation. And I will
23 hand it over to Ian.

24 IAN MacMILLAN: Great. Thank you very much,
25 Jivar, I really appreciate the work on the CEQA and then

Audio Transcription

1 the presentation here.

2 I don't see any questions in the Q and A box
3 right now. I think we've gotten everything that's been
4 typed in so far. I think we're at the part of the
5 agenda now where we'd like to open it up for any public
6 comment, remaining questions. And this would be on any
7 of the four presentations, whether it's the AQMP itself,
8 CARB's measures, the socioeconomic impact assessment, or
9 the CEQA analysis.

10 If anybody has any questions, again, you can
11 raise your hand at the bottom of the screen, click that
12 little button. If you're on the phone, press star 9.
13 And we can just take any general comment or any
14 questions if you'd like. And I'll pause right here in
15 case anyone wants to click that.

16 All right. Not seeing any, we are looking to
17 bring this to our board in June for their consideration.
18 We do have three more regional public hearings that
19 we're going to be holding this week and next week as
20 well to go over the same material, but really, you know,
21 trying to focus on each individual county, but, you
22 know, anybody is free to attend any of those regional
23 public hearings, provide some feedback there.

24 If you also have any feedback you'd like to
25 provide or any questions, feel free to reach out to

Audio Transcription

1 staff directly, and we're more than happy to engage with
2 whatever stakeholders on this.

3 So I'm going to give one last call. Any more
4 questions or comments?

5 Not seeing any. So I'll give you a thank you
6 to all the stakeholders for joining us today, really do
7 appreciate it. Thank you to all the staff who
8 participated and prepared materials for today. And I
9 think with that we're going to conclude this meeting
10 today and we'll pick it up at the next hearing tomorrow.

11 All right. Thank you very much, everybody.
12 Have a great day.

13 (End of recording.)

14

15

16

17

18

19

20

21

22

23

24

25

Audio Transcription

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

REPORTER'S CERTIFICATE

I, the undersigned, a Certified Shorthand
Reporter of the State of California, do hereby certify:

That the foregoing electronically-recorded
proceedings were transcribed by me to the best of my
ability.

I further certify I am neither financially
interested in the action nor a relative or employee of
any attorney or party to this action.

IN WITNESS WHEREOF, I have this date
subscribed my name.

Dated: 05/07/2024



Diana Sasseen
CSR No. 13456

Audio Transcription

\$	2022 10:19 11:1 15:24 17:6 19:1,13 22:3,22 27:24 32:12, 18 35:3	5	accounted 22:13
\$100 5:24	2023 10:10	5 20:23	accounting 25:19
1	2024 8:5 9:3 15:16 17:10 29:11	50 6:24	achieve 27:15
1.5 9:1	2025 7:17 11:19	54 13:15	achieving 16:1
11.6 14:12	2026 8:11 15:19	6	act 9:25 23:23 31:15
1138 12:5 33:2 34:10	2027 15:23	617 25:6	acting 10:5
12 7:14 8:6 14:17 15:17	2029 11:25	7	action 19:5 27:6 31:5
13.5 14:15	2030 11:20 13:5,16, 18,19 14:16,21 17:4 19:16 23:2,8 27:17 28:13	70 6:24 19:2	actions 33:7
14 14:3	2036 8:12 15:20	7th 15:10 16:21 17:8 29:11	activity 35:17
15 7:20	2041 8:13 15:21	8	addition 7:22 10:20 13:16 23:2,10
15168(c) 35:19	223 12:9	8 33:13 35:21	additional 16:2 17:6 21:3 27:24 35:4,11
17 5:17	22nd 15:2	8.1 33:12	adjusted 22:16
1997 7:19 8:21	24-hour 7:23	9	administer 5:23
2	27 32:17	9 3:22 8:7 15:17 32:16 36:12	administrative 33:7 34:23
2 8:25 9:1	28,000 5:23	9.1 23:5	admissions 29:8
2.5 6:20	3	90 6:22	adopt 15:10
2000 35:1	3 13:17,18	A	adopted 10:19 15:22 19:24 20:4 21:13,24 22:5,11,21 32:20 33:11 35:3,14
2006 7:22	31st 27:17	able 3:13 6:25 7:3 13:1,20 14:8 24:4	adoption 20:11 21:12,15
2012 5:8 6:12 7:13 8:24 9:11,19,23 10:17 13:25 14:13 17:3	35 5:15 7:23	academic 28:24	advanced 20:2,6,12 21:4,5
2013 7:22	36 32:19	accelerate 20:11	advisor 14:24,25
2016 9:24 22:6,22 27:23 32:12,16 33:24,25 35:3	38 32:15	access 28:19 35:20	affect 30:2
2017 9:25	4	accommodate 25:23	Afshar 31:20,21
2018 13:3,16,18,24 14:14	445 12:1	account 25:9	agencies 5:16 31:5 32:1
2020 10:4,5			agency 5:11
			agenda 3:6,15 36:5
			agree 4:8

Audio Transcription

<p>ahead 4:20,22,25 18:7,22 25:3,15 26:10,16 29:22 31:12</p> <p>aims 27:14</p> <p>air 5:7,10,11,12,15,22 6:2,10,11 7:10,15,20 8:16 9:7,15,24 10:19 11:23 13:1,8,12,19, 22 14:7,8 15:18 17:4 18:14 19:5 23:23 27:15,16 28:12,13 31:6,22 32:8 34:12 35:5</p> <p>align 35:2</p> <p>allowing 11:4</p> <p>allows 9:17</p> <p>alterations 33:8,16</p> <p>alternative 11:4</p> <p>Alzheimer's 7:8</p> <p>ambient 27:16</p> <p>amendments 33:2</p> <p>ammonia 10:23 22:8, 24 23:6</p> <p>amount 9:17</p> <p>analysis 11:24 24:6, 15 27:1,2,5,19 28:4, 8 29:13 31:15 35:6, 21 36:9</p> <p>analyze 23:12</p> <p>analyzed 34:15 35:10,14</p> <p>and/or 4:1</p> <p>animal 12:10</p> <p>annual 5:8 6:12 7:13, 19 8:6,20 13:25 15:16 27:16</p>	<p>annually 5:24</p> <p>answer 25:14</p> <p>anticipate 30:10,11, 25</p> <p>anticipated 27:25</p> <p>anybody 36:10,22</p> <p>Apart 35:1</p> <p>apologize 17:18</p> <p>appendices 16:15</p> <p>appendix 28:4 29:11 33:12 35:21</p> <p>application 2:15 12:16</p> <p>applies 32:7 33:5</p> <p>apply 13:6,11 14:6,9</p> <p>appreciate 24:21 29:15,18 35:25 37:7</p> <p>approval 15:11</p> <p>approve 30:1</p> <p>approved 19:11 24:5 30:9,16 31:1 35:18</p> <p>approving 30:11</p> <p>AQMD 2:5 4:8,12 5:6 9:22 18:25 25:18 26:19 31:3,22 34:22</p> <p>AQMP 9:24 11:1 15:24,25 17:6 25:23 32:17,18 33:24,25 35:3 36:7</p> <p>AQMP/SIP 17:14</p> <p>AQMPS 27:24 32:8, 12</p> <p>Aqmpteam@aqmd. gov. 16:22</p> <p>area 7:16 8:10 15:19</p> <p>areas 9:14</p>	<p>Ariel 18:9,11,13 24:21 29:23 30:3 31:2</p> <p>asking 17:22 25:4,7</p> <p>assessed 27:23 34:9</p> <p>assessment 15:7 26:14,20 28:1 29:10 34:10 36:8</p> <p>assistant 2:4</p> <p>associated 9:7 10:8</p> <p>Association 25:25</p> <p>asterisk 20:1</p> <p>asthma 7:5 27:12 29:5</p> <p>attain 10:16 17:9</p> <p>attained 7:21</p> <p>attainment 5:7 6:13, 16 7:16,25 8:3,11, 12,22 9:18,23 10:3, 6,12 11:17,18,20 12:18,20,21 13:5,16, 20,21 14:10,13,16, 21 15:20 17:3 19:16, 22 22:1 23:2,8,11,20</p> <p>attains 7:21</p> <p>attend 36:22</p> <p>audio 3:3 4:9</p> <p>August 15:22</p> <p>authority 5:21 20:11 23:22 24:1 31:10</p> <p>authorization 30:8,25 31:10</p> <p>authorize 4:9</p> <p>automatically 3:25</p> <p>available 10:3 16:16 18:9 20:11 23:17,18</p> <p>avoid 10:10,13 32:2</p>	<p>avoided 29:5</p> <p>aware 4:6 6:1</p> <hr/> <p style="text-align: center;">B</p> <hr/> <p>back 16:9 17:16 22:7 33:25</p> <p>background 6:10 12:20</p> <p>BACM 23:18</p> <p>Barbara 16:25</p> <p>barrier 7:2</p> <p>base 13:2,3,10,11,24 14:7,14,19</p> <p>based 10:17 17:5 19:1</p> <p>baseline 22:14,16</p> <p>basically 19:14 28:7 30:19</p> <p>Basin 5:7,12 6:11 7:15,21 8:16 9:15 13:22 15:18 17:4 27:15 28:14</p> <p>beach 6:22 14:19</p> <p>began 14:23</p> <p>beginning 21:12 32:25</p> <p>begins 21:18</p> <p>believe 8:2</p> <p>benefit 27:1,2 29:10</p> <p>benefits 27:4,17,19, 22 28:3,7,9,25 29:4, 6,13 35:5</p> <p>Bernardino 2:12 5:14 16:7 17:23 25:5,18</p> <p>best 2:13 23:18</p>
---	---	---	---

Audio Transcription

beyond 21:4 24:2	call 37:3	challenges 9:6 10:8	come 3:7 5:3 14:11 31:18
billion 19:2	called 3:23	change 13:9 28:12,13 35:7	comes 31:6
bit 8:18 12:20	calling 3:21 13:15	changes 34:11 35:4	comment 3:20,22,24 15:3 16:20 36:6,13
blood-brain 7:2	camera 16:17	chapters 16:15	comments 3:17 16:22 37:4
bloodstream 7:2	cancer 7:6 29:5	charbroilers 12:8 32:24 34:1,3,15	commercial 12:6 33:23
blue 21:17	capacity 25:21	Check 12:2	Commission 28:19
board 4:13,14 15:8, 10 18:14 19:11,25 22:21 36:17	CARB 11:9 15:11 16:8 18:8,20 19:8,9, 20,25 22:21 23:1,6, 22 24:8,21 25:18 30:5 31:7	Chief 11:14	commit 30:18
Bobby 25:14	CARB's 18:25 24:15 31:10 36:8	chipped 12:15	commitment 23:7 30:17
body's 6:25 7:3	cardiovascular 27:12	choice 2:23 3:1	commitments 19:12 22:6 30:12,13
bottom 2:24 23:5 32:13 36:11	cargo 20:25	choose 15:10	committing 23:7
box 17:14 20:19 21:17 29:14 32:17, 18,22 36:2	carried 32:16	civility 4:3	communication 2:18
breathing 6:5	case 13:3,5 27:7 29:12 36:15	clarifying 3:16	communities 25:6
briefly 7:18 25:15,22 31:14	case 13:3,5 27:7 29:12 36:15	classifications 9:13	community 16:11 26:2
bring 18:12 36:17	catalytic 12:7 33:1 34:4,6,8	classified 7:15	compared 24:9
broad 11:2	category 24:12,17 30:21	Clean 20:3,6 21:4,5 23:23	comparison 6:22 35:13
broken 24:13	cause 27:11	cleaner 20:12	component 12:19 34:8
brought 27:17	causing 2:20	clearly 8:17	composting 12:14
built 25:17	cell 2:19	click 2:23 3:2,20 36:11,15	comprehensive 12:23
bulk 22:4	Center 16:11	closely 18:15 30:5,24	Compton 14:20 16:12
bunch 19:7	centers 25:16 28:18	Coachella 5:12 9:18, 19	concentration 28:20
Burn 12:2	CEQA 16:24 31:15, 23,25 32:7,20 33:15, 18 34:16 35:7,14,16, 18,21,25 36:9	Coast 2:5 4:8,12 5:6, 7,10,12 6:11 7:15,20 8:16 9:15,22 13:22 15:18 17:4 18:15 19:23 21:2 22:13 26:19 27:15 28:13 31:3,22 34:22	concentrations 13:2
businesses 5:23	certain 20:24	code 16:17	concerns 10:8
button 3:21 36:12	certified 32:11	cognitive 7:7	conclude 35:9 37:9
<hr/>	cetera 24:10	collect 18:2	concludes 17:15 29:16 35:22
<hr/>	chain-driven 12:8 32:24 34:3		
<hr/>			
C			
<hr/>			
California 5:16 9:8 18:14 24:9 25:25 28:17,19 31:15,25			

Audio Transcription

conclusion 24:15	cooking 12:6 33:23	deaths 29:4	developing 12:23 17:9 18:16 21:7
conclusions 35:7	corresponding 22:23 23:5	decade 19:10 20:9	development 5:5 18:18 20:16 21:15
conduct 12:21	cost 26:24	decades 6:4 8:17	devices 2:19
conducted 26:14	costs 7:10 27:21,24	December 7:16,25 10:5,13 11:19,25 27:17	dial 3:22
conference 4:7	counties 5:15	decision 32:4	diameter 6:20,23
consent 4:10	county 2:12 5:14 16:7,10,12 36:21	deck 24:19	direct 10:22 16:3 22:8,23
consider 25:23 29:2	couple 2:2 24:24	decreased 29:5	directly 16:17 37:1
consideration 10:3 15:9 36:17	course 20:5 22:3,25	deep 6:25	disapproval 10:10
considered 27:5	courtesy 4:3	deeper 33:9	disclose 32:4
consistent 24:7	cover 26:23,24 31:19	defenses 6:25 7:4	discuss 6:11 27:3
consultants 4:14	create 34:20	defined 6:19	discussed 23:11 35:2
contact 16:23,25	critical 31:5,8	demonstrate 6:14 11:20,21 13:21 17:3 24:4	discussing 6:16 7:13 9:11,19
contacts 27:7 29:14	cross 7:1,2	demonstration 6:14 10:4,6 12:19,21,22 22:1	disease 7:8 28:18
contained 12:10	cubic 7:14,20,23 8:7 9:1,2 14:3,12,15,17 15:17	department 28:17,19 29:7	diseases 7:7 27:12
contains 32:9,15	current 11:18 24:7,16	deputy 2:4	district 5:11 11:23
content 4:9	currently 8:8 15:3 16:6 20:15 21:11	design 13:24 14:2,4, 11,16	districts 9:7
continue 3:11	D	designate 8:10	dive 33:9
continued 10:17 15:1 17:5	dairy 12:11	designated 15:19	Division 2:5
continuing 11:10 21:3 30:24	dark 21:17	desk 2:19	docket 23:1
contribute 21:1	dashed 9:4	Despite 6:3	document 19:7,12 33:18
contributing 21:25	data 8:2 10:2 17:23 18:3 25:5,7 28:16	detailed 35:21	documents 16:14 32:20 34:16 35:7,14, 16,18
control 5:11 6:12,15 10:16,18,22 13:4,14 18:16,20 19:7 22:17 23:12,13,14,17,18 24:2,8,14,16 27:18, 22 28:18 30:21 32:9, 10,16,19,21,23 33:3, 4,6,10,12,16,20,22, 24 34:1,18 35:1,2,9	date 7:16,25 8:3,12 11:17,18 23:21	determine 14:8,9 33:17	Dollarhide 16:11
controls 13:6 16:2 17:7	day 13:18 37:12	develop 5:21 10:11 13:4 14:23 15:1	domain 4:11
convened 14:24	days 29:8	developed 9:22 11:24 17:3 19:3 28:8	Dr 16:24
	deadline 16:20		draft 15:1,2,6 31:16
	death 7:5 27:13		drives 7:9
			driving 19:8

Audio Transcription

dropped 4:5	enhancement 34:6	examples 29:6	feasible 11:4 32:3
due 7:10 10:8 28:2	ensure 2:20 30:7,22	exceed 13:25	federal 23:23,25 31:8
dust 33:6 34:20	entire 23:12	exceeded 14:19	feed 12:25
duty 20:7 21:5,6	environmental 28:7 31:15 32:2,5,10 33:17 34:24 35:5,11	exceeds 23:16	feedback 2:20 36:23, 24
<hr/> E <hr/>	EPA 8:5,10 9:25 10:4, 10,13,21 11:13 15:12,16,22 17:7 24:5 28:8 29:25 30:6,24 31:8	exchange 27:10	feel 18:4,9 36:25
e-mail 16:22	equipment 20:22,23, 25	executive 2:4	Fideldy 18:11,13 30:3
earlier 11:17 23:4 34:19 35:2	equipped 34:4	exemption 12:3,4	figure 19:19 32:13
Eastville 25:17	Eric 4:25 5:2,4 17:20 23:11,14 25:14,22, 24 32:25	exercise 34:23	final 32:12 34:9
easy 34:7	especially 16:2 30:9	expands 33:23	finally 4:17 10:4 27:6
effects 7:5 28:22 29:3 32:5 35:15	essentially 6:14 9:16 13:9 23:15 30:23	expansion 25:16	Finance 28:17
effort 26:15	establish 28:21	expect 8:9 21:19	fine 6:6,22
efforts 30:2	estimated 19:15	expected 14:16,21 34:13 35:4	first 2:10,11,18 4:23 12:1,19 16:6 20:5 25:6 26:24 28:12 33:20
EIRS 32:12	estimates 26:24	expecting 15:18	five-year 11:16,19 23:20
either 34:14	et 24:10	explaining 33:9	fleets 20:3,6,7 21:4
eligible 10:3	evaluate 33:15	exposure 7:8 28:22	focus 34:2 36:21
emergency 29:7	evaluated 32:11	extend 8:13	focused 2:12 19:2 33:25
emission 11:3,5 19:15 20:8,13,18,24 21:6,24 22:9,12,15, 24 23:7 28:14 30:18, 22 31:9 33:5 34:3,19	evaluating 23:10	extension 11:16,19 15:21 23:20	focuses 32:23 33:22
emissions 5:20 10:23 12:24,25 13:7,8,15, 17,20 22:14 26:4 27:15 30:14 32:24 33:3,22 34:13 35:11	event 4:10	<hr/> F <hr/>	Fontana 25:17
Empire 26:8	eventually 7:1	Fabian 29:25 30:4	form 30:12
encompasses 5:13	everybody 2:1,3 17:17,19 18:12 37:11	facilitate 2:13	format 16:8,10
encounter 9:6	evidence 7:6	facilities 12:10 25:20	formats 2:14
encourage 17:12	evident 9:4	facility-based 11:7	forth 30:19
engage 37:1	exacerbation 27:13	fact 6:21 25:19	forward 30:16
engine 24:14	example 26:8	factoring 22:15	four 2:10 4:21 11:24 16:5 36:7
		factors 26:3	fourth 12:14 31:13
		Failure 4:3	free 18:4,9 36:22,25
		fall 15:1	fuels 24:14
		far 4:17 8:11 24:2 31:17 36:4	
		farms 12:12	

Audio Transcription

<p>full 25:21</p> <p>fully 31:10</p> <p>fun 24:22</p> <p>function 28:21</p> <p>functions 28:20,23</p> <p>funding 5:24</p> <p>further 18:5 33:22</p> <p>future 13:10,11 14:7 25:7,10,12 33:2,10</p> <hr/> <p style="text-align: center;">G</p> <hr/> <p>gases 27:10</p> <p>general 2:17 5:7 36:13</p> <p>give 4:19 26:16 37:3, 5</p> <p>globe 2:24</p> <p>go 2:6 4:20,21,22,25 7:18 9:5 18:7,22 24:2 25:3,15 26:10, 16 29:22 30:15,19 31:12,14 36:20</p> <p>goes 8:11</p> <p>going 2:12 3:7 4:23 16:9 18:7,8,21 19:8, 22 20:7 21:1 22:12 23:1 25:3,14 26:10, 12,15 29:22,23 30:8 31:23 33:21 36:19 37:3,9</p> <p>gold 21:16</p> <p>good 2:1,3,9 8:1 26:18</p> <p>gotten 36:3</p> <p>government 23:25 31:7,8</p>	<p>Governments 26:1</p> <p>grain 6:22</p> <p>graph 8:15 9:5</p> <p>great 24:20 26:6 29:17 31:2 35:24 37:12</p> <p>greater 34:12</p> <p>green 12:15 32:18</p> <p>ground 12:15</p> <p>groups 14:24,25</p> <p>growth 25:23 26:1,3</p> <p>guidelines 2:17 35:18</p> <hr/> <p style="text-align: center;">H</p> <hr/> <p>hair 6:23</p> <p>hand 3:21 4:15 17:15 35:23 36:11</p> <p>handling 20:25</p> <p>hang 4:1</p> <p>happening 30:10</p> <p>happy 37:1</p> <p>headquarters 16:8 30:7</p> <p>health 7:5,10 19:6 27:1,2,4,11,17,19,22 28:2,9,22,25 29:10, 13</p> <p>Healthcare 28:19</p> <p>hear 3:1,5 17:19,20</p> <p>heard 8:4</p> <p>hearing 2:20 11:9 15:8 16:7,12 17:8 37:10</p> <p>hearings 2:11 15:5 16:6 25:11 36:18,23</p>	<p>heat 12:4</p> <p>heaters 20:19</p> <p>heavy 20:7 21:5,6</p> <p>held 15:9</p> <p>Hello 31:21</p> <p>help 19:16</p> <p>Hey 17:17</p> <p>Hi 18:12</p> <p>highest 14:1,14</p> <p>historically 6:2</p> <p>history 23:25</p> <p>hold 15:5</p> <p>holding 16:6 36:19</p> <p>Hopefully 17:19</p> <p>horizontal 8:20</p> <p>hospital 29:7</p> <p>host 3:13,24</p> <p>hosted 4:8</p> <p>housekeeping 2:7</p> <p>human 6:23</p> <hr/> <p style="text-align: center;">I</p> <hr/> <p>I.D. 3:6</p> <p>Ian 2:1,3 3:10 5:2,6 16:5 17:16,17,20,21 18:11 24:20 25:24 26:6 29:17 30:3 31:2,20 35:23,24</p> <p>icon 2:24</p> <p>identified 19:4,7 20:1</p> <p>identifies 19:19</p> <p>identify 30:19 32:1</p> <p>identifying 30:23 33:16</p>	<p>impact 15:6 26:14,20 28:1 36:8</p> <p>impacts 16:25 26:25 27:4,22,25 32:2,3,10 33:17 34:12,13,24 35:5,12</p> <p>implement 5:21 11:10,15</p> <p>implementation 5:5 6:15 10:18 15:13 17:5 21:12,18,19</p> <p>implemented 11:25 24:8</p> <p>important 17:25</p> <p>improve 19:6</p> <p>improving 34:11</p> <p>imputable 28:24</p> <p>in-person 16:8</p> <p>inaudible 27:1 28:2, 14,16,17 29:8,10,15</p> <p>incentive 5:24 11:7</p> <p>incidences 28:15</p> <p>include 11:6 22:2 25:7 26:7 29:4,6</p> <p>included 10:23 19:20 22:7</p> <p>including 7:5 20:12, 17,22 27:11 28:17</p> <p>income 12:3</p> <p>incorporate 26:4</p> <p>incorporation 15:12</p> <p>individual 36:21</p> <p>infeasible 11:6</p> <p>information 3:8 7:18 18:2,4 35:13</p> <p>initially 9:22</p>
--	---	--	--

Audio Transcription

Inland 26:8		levels 6:7 8:16,20,23 13:9,11	low 12:3
input 28:10	K		lower 12:6,11 27:14
inquiries 16:23,24	keep 31:12	limited 5:20 10:22 17:6	lowered 8:6 15:16
inspect 5:23	key 17:25 23:3	line 3:14,25 8:23,25 9:4 21:19	lowest 11:4
installation 34:7	kind 18:20 20:6 24:18 26:13	lines 8:20 21:17	lung 7:6 27:11 29:5
instructions 2:17	know 15:24 19:6,20 20:6 22:10 23:3,15, 16,22 24:1,3,6,10, 11,13 27:9 30:5,7, 13,15 36:20,22	link 7:6	lungs 7:1
interested 17:14 35:20	known 18:18 23:18	linked 7:4	M
Interpretation 2:24		links 28:21	Macmillan 2:1,4 3:10 17:17,21 24:20 26:6 29:17 31:2 35:24
interruption 2:21		list 19:19 21:10 22:7 33:11	macroeconomic 26:25 27:21
introduce 4:18 18:10 31:19	L	listed 20:14,19	main 32:3
introductions 4:17	L.A. 5:14 16:12	listen 2:22	maintenance 34:7
introductory 26:13	labeled 2:24	little 12:20 32:13 36:12	majority 7:9 32:10
inventory 12:24 13:7 22:14 34:20	land 12:15 26:9	live 4:10	makers 32:4
involves 12:1,9 33:6	language 2:23,25 3:1	local 5:11,15 31:6 32:1	making 33:2
item 3:15	languages 3:2	locations 13:21	makings 19:9
items 26:24	large 12:10	locomotive 20:3,9,12 30:1,9	management 5:10 9:24 10:20 32:8
J	largest 5:15	locomotives 20:13 30:20	manager 18:14
Jivar 31:18,20,21 35:25	lastly 4:6 28:20	logistic 25:16	manually 3:14
Joaquin 12:13	law 31:25	Loma 14:15	manufacturers 20:24
Joe 25:14	lead 6:15 18:17	Long 14:19	mapping 28:8
joining 37:6	leave 4:1	long-term 29:2,4	March 15:2
June 15:10 17:8 36:17	leaves 32:20	look 13:9 25:9,12 33:11	Mary 17:22 25:4
jurisdiction 5:13,18 12:25 34:22	Lee 16:24	looked 24:10	match 12:12
jurisdictions 24:9	left 32:17	looking 8:12 15:20 24:7 36:16	material 36:20
Jurupa 25:17	let's 4:20,21 26:20 31:12	lot 18:2 26:7	materials 37:8
	level 7:14 8:6 14:2,9 15:17 18:17 19:5 23:15 30:7,14	lots 34:21	matter 6:7,19
	leveling 8:19		maximized 24:1
			means 9:16 32:19

South Coast Air Basin Attainment Plan for the 2012 Annual PM_{2.5} Standard

Index: measure-part

Audio Transcription

<p>participants 3:11</p> <p>participated 37:8</p> <p>participating 2:10 3:4 4:7</p> <p>participation 2:14</p> <p>particulate 6:6,19</p> <p>parties 17:14</p> <p>parts 19:2</p> <p>pause 3:7 36:14</p> <p>peer-reviewed 28:24</p> <p>penetrate 6:25 7:3 27:10</p> <p>percent 13:15</p> <p>periodically 14:25</p> <p>permit 5:22</p> <p>permitting 10:14 12:10</p> <p>perspective 31:3,4</p> <p>phone 2:19 3:4,5,21, 23 36:12</p> <p>physical 33:7</p> <p>pick 37:10</p> <p>placed 3:12 4:15</p> <p>plan 2:11 4:24 5:5,8 8:11 9:23,24 10:1,5, 9,12,20,24 11:15,20 13:6 14:23 15:1,2,4, 9,11,13,21 16:15,21, 23 17:2,5,9 18:1,21 19:1,14 22:1,17 23:19 26:2,25 27:14, 18,23,24 28:5,9 29:12,14 30:18 31:16 32:7,9,15,21 33:5,13 34:2 35:6, 10,12,15,16,21</p> <p>planned 21:11,15</p>	<p>planning 2:5 8:8 26:9,15</p> <p>plans 5:22 24:22 27:6 32:8</p> <p>please 2:18 3:2,5,20 4:1,2,6,15 5:9,25 6:8,18 7:11 8:14 9:10 10:15,25 11:12 12:17 13:13,23 14:22 16:4,13,19,23, 25 17:1,11 18:23 26:22 27:8,20 28:6 29:1,9 32:6,14 33:14,19 34:17,25 35:8</p> <p>PM 19:14 22:1,17</p> <p>PM2.5 2:11 4:24 5:8 6:7,10,12,19,24 7:8, 13,17 8:5,6,15,21 9:11,13,19,23 10:17, 22 13:1,9,11,17,25 14:2,13 15:9,10,16 16:3,15,20,23 17:2, 4,5,10 18:1,3,21,25 19:16,23 22:8,23 23:2,5 26:15,25 27:10,14,16,18,23, 24 28:3,4,9,14,22,25 29:3,12,14 31:16 32:7,8,15,21 33:4,13 34:2,13 35:6,9,10, 12,15,21</p> <p>PM2.5. 6:21</p> <p>point 16:16</p> <p>pollution 5:11 7:10</p> <p>population 28:15</p> <p>portion 31:23</p> <p>portions 5:14</p> <p>ports 20:25</p> <p>posted 3:6</p>	<p>potential 8:13 10:10 15:21 32:5</p> <p>potentially 33:1</p> <p>poultry 12:12</p> <p>Praske 5:2,4 17:20 25:24</p> <p>premature 7:5 27:13 29:4</p> <p>prepare 27:25</p> <p>prepared 33:18 37:8</p> <p>present 27:6 35:12</p> <p>presentation 4:19 6:9 7:12 8:24 9:12,20 11:8 12:19 16:15 17:15 18:8 24:23,25 25:2 26:11,12,16,23 29:16,21 31:13,14, 24 32:25 35:22 36:1</p> <p>presentations 3:18 4:21 25:8,10 36:7</p> <p>presented 4:10 28:4</p> <p>presenter 4:18</p> <p>presenting 5:6</p> <p>press 36:12</p> <p>Prevention 28:18</p> <p>previous 29:21 33:23 34:15 35:7,16</p> <p>previously 32:11,20 33:11 34:9,14,23 35:10,14,17</p> <p>primarily 5:20</p> <p>prior 12:15 21:4 25:1 27:23 32:8</p> <p>process 6:4,17 13:2 14:23 19:4 20:16</p> <p>program 12:2 21:5,20 26:19 28:8 32:12</p>	<p>programs 20:4 22:10, 21 23:3,12,13 24:2, 3,5,7,16</p> <p>progress 8:17</p> <p>project 13:11 32:2</p> <p>projected 14:8</p> <p>projections 26:1,5 28:16</p> <p>projects 32:5</p> <p>proposed 6:11 10:16</p> <p>proposes 34:20</p> <p>proposing 11:6 12:2, 6,11</p> <p>provide 18:4 22:12 28:14 29:14 36:23, 25</p> <p>providing 6:9,13</p> <p>public 2:10,13 3:17, 20 4:11 6:17 7:9 15:3,4,5,8 16:6,12 17:8 19:4,6 25:11 32:4 36:5,18,23</p> <p>purple 21:14</p> <p>purpose 32:4,22 33:15</p> <p>purposes 7:18</p> <p>pursue 21:3</p> <p>pursuing 19:20 20:21</p> <hr/> <p style="text-align: center;">Q</p> <hr/> <p>QR 16:17</p> <p>qualifies 35:16</p> <p>quality 5:10,22 6:3,10 9:24 10:19 13:1,8, 12,19 14:7,8 19:5 27:16 28:12,13 31:6, 15,22 32:8 34:12</p>
---	---	--	---

Audio Transcription

<p>35:5</p> <p>quantification 28:11</p> <p>quantified 21:25 22:9 27:19</p> <p>quantify 28:9,25</p> <p>quantifying 22:14 27:3</p> <p>quantitative 28:21</p> <p>question 17:22 25:3, 13 29:19,24,25 30:4</p> <p>questions 3:16 18:5 24:24 27:7 29:13 36:2,6,10,14,25 37:4</p> <p>quick 29:23</p> <p>quit 17:18</p> <hr/> <p align="center">R</p> <hr/> <p>RACM 23:18</p> <p>Radlein 16:25</p> <p>raise 3:21 4:15 36:11</p> <p>ratio 13:10 14:6,9</p> <p>reach 18:5 36:25</p> <p>read 25:4,15 29:22</p> <p>really 18:15 19:6,10 20:5 21:1 23:3 30:5, 13,24 31:4,8 35:25 36:20 37:6</p> <p>reason 11:15 30:16</p> <p>reasonably 23:17</p> <p>recall 8:21 11:17 14:6 15:15</p> <p>received 26:3</p> <p>recorded 4:7</p> <p>recording 4:9,11 37:13</p>	<p>reduce 10:18,22 35:10</p> <p>reduced 13:8 29:7</p> <p>reducing 13:17 32:24 33:22</p> <p>reduction 13:15</p> <p>reductions 18:25 19:15 21:2,24 22:9, 10,12,15,24 23:4,6,7 28:3,15,25 29:3 30:14,18,22 33:5 34:3,12,19</p> <p>refer 33:12</p> <p>refine 28:2</p> <p>regard 29:13</p> <p>region 6:1 7:10</p> <p>regional 2:10 15:5 16:5 25:10 26:1 30:6 36:18,22</p> <p>regions 27:10</p> <p>regulate 5:19</p> <p>regulation 20:5,6,9 30:10</p> <p>regulations 19:25 20:3,14 22:21</p> <p>regulatory 20:16</p> <p>related 16:23</p> <p>released 15:2 29:11</p> <p>releasing 15:6</p> <p>relevant 3:8</p> <p>reliable 28:23</p> <p>rely 25:25 28:23</p> <p>remaining 22:20 35:2 36:6</p> <p>remarks 2:7</p> <p>remove 12:3</p>	<p>repeat 3:8</p> <p>represent 23:6</p> <p>represents 21:18</p> <p>request 15:21 31:11</p> <p>requested 10:6</p> <p>requesting 11:16,19 23:20</p> <p>require 12:7,14 16:2 20:7</p> <p>required 10:20 23:19</p> <p>requirement 11:21</p> <p>requirements 8:9 10:21 11:13 17:7 20:10,24 23:14 24:17 34:7</p> <p>requires 31:25</p> <p>rerun 13:7</p> <p>research 28:24</p> <p>reserve 3:16</p> <p>residents 5:17 6:5</p> <p>Resources 18:14</p> <p>respect 4:3</p> <p>respiratory 27:12</p> <p>response 28:20 29:24</p> <p>responsibilities 5:19</p> <p>responsible 5:12</p> <p>rest 5:16 9:8</p> <p>restaurants' 33:3</p> <p>result 4:4 33:7 34:11 35:11</p> <p>results 28:3 31:16</p> <p>retained 32:19</p> <p>retaining 12:3</p>	<p>retrofitting 33:1</p> <p>review 2:16 15:3,4</p> <p>reviewed 8:1</p> <p>revised 10:11</p> <p>right 3:7 4:19 5:4 8:25 17:12 18:22 20:16 32:18 36:3,14, 16 37:11</p> <p>risks 27:11</p> <p>Riverside 5:15 14:20 16:9 25:18</p> <p>road 14:20 20:21,23 21:6 33:5 34:20</p> <p>roads 34:21</p> <p>robust 19:4</p> <p>rule 12:1,5,6,9,10 19:9 30:1,11,15,25 33:2 34:10</p> <p>rules 11:22</p> <p>run 13:2,19</p> <hr/> <p align="center">S</p> <hr/> <p>San 2:12 5:14 12:13 16:7 17:23 25:5,18</p> <p>sanctions 10:14</p> <p>sand 6:22</p> <p>Sang-mi 16:24</p> <p>satisfy 10:20 17:7</p> <p>saw 21:11</p> <p>SCAG 26:3</p> <p>scale 19:9</p> <p>scenario 13:20</p> <p>schedules 21:11,16</p> <p>scope 35:17</p>
---	---	--	--

Audio Transcription

screen 2:25 3:20 36:11	sign 17:12	source 10:14 11:2,5, 7,8 12:4 24:12,16 30:21	23:24 24:14 27:16 31:6
second 27:2 33:4 34:18	signal 3:22	sources 5:20,21 12:24 13:7 16:3 20:25 23:24 31:9	star 3:22 36:12
secondly 28:15	significant 6:3 8:17 9:5 22:12 32:1		stars 21:14,16
Section 35:18	silence 2:18		started 2:2,6 4:20,22
see 6:21 8:17 13:14 23:4 24:12,24 29:19 32:13,17 36:2	simulate 13:1 28:13	South 2:5 4:8,12 5:5, 7,10,12 6:11 7:15,20 8:16 9:15,22 13:22 15:18 17:4 18:15 19:23 21:2 22:13 26:19 27:15 28:13 31:3,22 34:22	starting 10:4
seeing 13:24 36:16 37:5	SIP 11:11 18:18 19:1, 12,21 22:3,6,22 23:10 24:11		state 5:5 11:10,23 15:13 18:17,18 19:1, 11,12,21 22:3,6,22 23:10,23 24:11 31:7, 25 32:1
seek 11:3	SIPS 18:16		states 6:3 24:3,9
seen 26:20	site 14:14 16:16,18 17:13 18:3	Southern 25:25	stationary 5:20 10:13 11:2 12:24
segue 12:18	sites 17:25 18:2	space 20:18	statutory 11:18
select 2:25 3:1 13:6	size 27:9	Spanish 2:22 3:5,9	steps 6:17 27:7
selected 25:6	slide 5:9,25 6:8,18 7:11 8:14 9:10,21 10:15,25 11:12 12:17 13:13,23 14:22 15:14 16:4,13, 19 17:1,11 18:22 19:18,24 20:1,20 21:9,16,21 22:18 23:9 24:13,19 26:21, 22 27:8,20 28:6 29:1,9,15 32:6,14 33:14,19 34:17,25 35:8	speaking 3:9 29:20	strategies 18:16 22:22 30:20,23
September 19:13		specialist 31:22	strategy 6:12,15 10:16 11:11 13:4,14 15:24,25 17:6 18:18, 20 19:2,3,13,21 22:3,6,17 24:11 26:2 30:13
series 32:9		specific 11:9 16:23, 24 27:4 30:15 32:15 33:6,21	
serious 7:4,15,24 9:14,15 11:18		specifically 19:22 20:2,8,18 21:23 22:19 28:10	
set 8:5 11:18 23:24		spring 14:24,25	stringencies 23:17
sets 20:10	slides 5:3 17:24 18:13,20 25:11 33:10	staff 4:15 27:7 28:12, 23 29:14 37:1,7	stringency 10:21 11:13 17:7 23:16
setting 20:22		stage 15:4	stringent 11:14,22 23:13,24
severe 34:14	small 6:20,21,24 27:9	stakeholders 37:2,6	subcategories 24:13
share 31:4	smooth 2:13	standard 5:8 6:12 7:13,14,19,21,22,23, 24 8:3,5,6,9,21,22, 24 9:1,3,6,12,17,23 10:17 14:1,10,13,19 15:16 16:1 17:4,10 19:3,17,23 20:22,23 23:2,14	subject 8:23
shift 34:2	socioeconomic 15:6 16:25 26:14,20 28:1 36:8		submit 16:21
short-term 29:2,6	software 28:8	standards 5:22 7:17 8:21 9:19 19:5 20:18	submitted 9:25 10:9, 12 15:11,22
show 17:23	sole 12:3		subsequent 4:11 15:12 34:9
showing 8:15 17:25 21:11	sorry 17:21		substantial 9:6 16:2
shown 8:19,24 9:3 14:18 17:13 21:14, 16			
shows 21:22 22:19			
side 18:20			

Audio Transcription

35:13	terms 5:19	touched 23:14	28:7,10 30:1,9
suffer 6:5	thank 2:9 3:10 18:24	toxic 7:9	uses 20:10
suffered 6:2	24:20 26:6 29:16,17	transition 11:3	utility 24:1
sufficient 15:25	31:20,24 35:24 37:5,7,11	translated 2:22	utilization 34:6
sufficiently 35:15	thanks 5:2 18:11	translator 3:9	utilized 19:14
suggested 7:12	24:22 25:24 30:3	translators 3:7	
suite 21:22 22:19	31:2	transmittal 15:12	V
summary 17:2 24:18	thing 20:17	transportation 26:2	Valley 5:13 9:18,20
supervise 5:4	things 21:1	treat 4:2	12:13 25:17
supervisor 26:19	think 17:22,24 24:19,	trend 8:15	value 14:2,5,11,17
supplemental 10:6	25 26:10 29:20 31:4,	trends 6:10	values 13:25
support 19:16,22	13 36:3,4 37:9	triggered 10:11	various 8:20 28:22
23:1,8,11 31:10	third 12:9 26:12,17	truck 20:7 21:6	vast 25:16
supporting 16:14	three 28:10 31:5,9	trucks 21:5	vehicle 24:14
sure 17:13	36:18	trying 36:21	vehicles 20:8 21:6
sustainable 26:2	threshold 12:7	Tuesday 16:21	video 4:6
switching 16:8	thresholds 12:11,12	turn 3:24 20:8	virtual 16:9
	Thursday 16:10	two 2:14 8:16 9:13	visits 29:7
T	Tian 26:18,19	22:4 32:21 33:10,21	visual 4:9
	tic 17:14	typed 36:4	
table 21:22 22:19	tier 20:23	U	W
33:12	time 3:2 4:2,13 9:17		wait 5:2
take 4:25 18:10 25:9	10:1 21:19	U.S. 28:18 30:6,24	waivers 30:8
29:23 31:5 33:9,11	title 7:12	under-fired 34:1,15	walking 18:19
36:13	today 2:6 4:21 18:19	undergoing 20:15	want 2:6,16 4:25 20:2
taken 16:17 19:15	31:14 37:6,8,10	unique 23:22 24:1	22:2 25:22
talk 33:21	today's 8:24 9:12	United 6:3	wanted 20:17 31:14,
talked 24:10 34:19	tomorrow 16:7 37:10	unmute 3:13,25	18
targeted 33:25	tonnage 30:14	unpaved 33:5 34:20,	wants 36:15
team 18:15,17	tons 13:17,18	21	warehousing 26:7
technologies 20:12	Tony 26:16,18 29:18	updated 24:6	waste 12:15
technology 11:5	topic 31:19	use 3:5 4:11 13:10	watch 2:22
teleconference 2:15	total 23:4 30:14,17	20:3,9,10 24:14 26:9	water 20:19
tends 27:10	touch 25:22		

Audio Transcription

<p>ways 9:5</p> <p>we'll 2:1 9:6 14:10 15:6 17:8 21:7 25:9, 12 26:23,24 27:6 37:10</p> <p>we're 2:12,20 7:24 8:22,25 11:19 13:24 14:8 15:3,4 16:6 18:7,12 22:14 23:19 26:10 27:25 28:2 30:24 31:13 36:4,19 37:1,9</p> <p>we've 19:14 23:25 36:3</p> <p>web 2:15 16:16 17:13 18:3</p> <p>Wednesday 16:11</p> <p>week 15:5 36:19</p> <p>width 6:23</p> <p>wish 3:4</p> <p>withdrawal 10:11</p> <p>withdrawn 10:9</p> <p>work 24:21 30:24 35:25</p> <p>working 30:5</p> <p>workless 29:8</p> <p>works 18:15</p> <p>worst 6:2,5,6</p> <p>wrapping 6:17</p> <p>written 16:20,21</p> <hr/> <p>Y</p> <hr/> <p>Yeah 18:12 25:24</p> <p>year 7:25 8:2 10:13 13:3,5,10,11,16,18, 24 14:7,14,19,24 15:20 20:4</p>	<p>years 8:19 10:1 19:4 21:8 22:7</p> <p>yellow 9:4</p> <p>yield 35:4</p> <hr/> <p>Z</p> <hr/> <p>zero 11:3,5 20:8,12, 18,23 21:6</p> <p>Zoom 2:15 3:12,19,20 4:2 17:18</p>	
---	---	--

Summary of Public Comment Received at the PM2.5 Plan Regional Public Hearing for Riverside County April 24, 2024

The audio recording from this meeting was unsuitable for transcription. As such, a summary of public comment is provided below in lieu of the transcript.

Stacey Ramos, CCAEJ

Comment: Large growth in warehouses has resulted in an increase in truck trips to the Inland Empire. How does the air quality modeling account for this growth?

Response: Growth factors, including those for the logistics industry, are provided by the Southern California Association of Governments and these factors are used to project emissions in the future.

Oskar Zambrano

Comment: City councils approve development projects (resulting in businesses such as warehouses and marijuana facilities) which seem to bypass the CEQA process. Where can I find more information on a specific CEQA assessment?

Response: Land use decisions for development projects are subject to CEQA and are made by the local planning authority/government agency overseeing the approvals of these projects. To find out what CEQA determination was made for a specific project, please contact the local planning authority/government agency. In addition, the State Clearinghouse of the Governor's Office of Planning and Research at maintains a database of CEQA documents for a wide variety of projects throughout California which is accessible from the following website at: <https://ceqanet.opr.ca.gov>.

Comment: Which agency has land use authority?

Response: While the South Coast AQMD does not have land use authority, most local city and county planning departments are land use agencies with authority over development projects and land use decisions.

Comment: Which agency is responsible for enforcing mitigation measures such as limiting truck idling?

Response: A CEQA document associated with a land use development project may have adopted mitigation measures which are enforced through a Mitigation, Monitoring and Reporting Plan that will specify which government agency is responsible for enforcing the various mitigation measures. Truck idling is jointly enforced by CARB and South Coast AQMD.

Comment: Can truck traffic be curtailed?

Response: Most local city and county planning departments operate pursuant to a General Plan which contains a transportation element that sets the policy foundation for traffic, transportation and goods movement. In addition, while the South Coast AQMD does not have authority to limit truck traffic, warehouses that attract truck traffic are subject to South Coast AQMD's Rule 2305 – Warehouse Indirect Source Rule. Specifically, Rule 2305 requires owners and operators of applicable warehouses to take actions to reduce emissions or exposure to air pollution.

Comment: What is the timeframe for short-term and long-term health effects of PM2.5?

Response: Short-term health effects occur over a 24-hour period, while long-term effects are experienced over a year or more.

Audio Transcription
South Coast AQMD
Regional Public Hearing
April 25, 2024

South Coast Air Basin Attainment Plan
for the 2012 Annual PM_{2.5} Standard



www.aptusCR.com | 866.999.8310

Audio Transcription

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

AUDIO TRANSCRIPTION

SOUTH COAST AQMD
REGIONAL PUBLIC HEARING FOR
SOUTH COAST AIR BASIN ATTAINMENT PLAN
FOR THE 2012 ANNUAL PM2.5 STANDARD

APRIL 25, 2024

REQUESTED PORTIONS:

34:25 - 36:26

50:00 - 51:03

Transcribed by:
Diana Sasseen
CSR No. 13456
Job No. 10141371

Audio Transcription

1 (Begin 34:25 - 36:26.)

2 IAN MacMILLAN: I want to open it up again in
3 case there's any questions or comments on this agenda
4 item, on CARB's measures. Feel free to raise your hand.

5 I do see we have one hand raised. Laura
6 Hayter, do you have a question or comment?

7 LAURA HAYTER: Yes. Does the oil industry
8 have to have the most strict standards also? And what's
9 being done -- what are the emissions from the various
10 stationary oil facilities and pipelines?

11 IAN MacMILLAN: So I can maybe take the first
12 crack at this, and I'll see if any of my staff also
13 wants to weigh in.

14 So all controls or all sources need to have
15 Most Stringent Measures in place. It doesn't mean that
16 we aren't going to continue to regulate and continue to
17 find new reductions but we do need to demonstrate Most
18 Stringent Measures across all categories I believe.

19 And I see Eric has popped on. I'm not sure
20 if -- any clarification needed here?

21 ERIC PRASKE: I think you covered it well, Ian.

22 Yeah, Most Stringent Measures does not exempt
23 any category. We have to look at everything under our
24 authority.

25 IAN MacMILLAN: Great. And then you also have

Audio Transcription

1 a question about the level of emissions in that sector.

2 We do have in the PM2.5 Plan itself we have a
3 lot more information about emission inventory for all of
4 the different sectors of emissions. So feel free to go
5 ahead and look in there. And if you have questions, feel
6 free to reach out, and we can help maybe point you to
7 where you can find more specific information, but we
8 have a lot of detailed information in that plan itself.

9 Did that answer your question, Laura?

10 LAURA HAYTER: Thanks. Yeah.

11 IAM MacMILLAN: Great. Thank you for that
12 question.

13 (End of requested portion.)

14 (Begin 50:00 to 51:03.)

15 IAM MacMILLAN: I do see actually one hand just
16 came up. Laura Hayter.

17 LAURA HAYTER: The carbon dioxide pipeline, has
18 there been a leak, and did that affect the emissions
19 that much? What effect did it have in the total carbon
20 emissions?

21 IAM MacMILLAN: I'm not quite sure of the
22 question you're asking, but it sounds like you're asking
23 about a specific incident.

24 It might be better to take some of these
25 questions off line and we can make sure that we can try

Audio Transcription

1 to direct you to the right resources for information
2 you're looking for.

3 We had contact information here in the
4 presentation. I would -- maybe let's start with either
5 Eric or Sing-Mi. Their contact information is in the
6 slides, and maybe reach out to them. We an try to
7 direct you to the right resources. Does that okay?

8 IAN MacMILLAN: Great. Super.

9 (End of requested portion.)

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

Audio Transcription

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

REPORTER'S CERTIFICATE

I, the undersigned, a Certified Shorthand
Reporter of the State of California, do hereby certify:

That the foregoing electronically-recorded
proceedings were transcribed by me to the best of my
ability.

I further certify I am neither financially
interested in the action nor a relative or employee of
any attorney or party to this action.

IN WITNESS WHEREOF, I have this date
subscribed my name.

Dated: 05/07/2024



Diana Sasseen
CSR No. 13456

Audio Transcription

3	continue 2:16 controls 2:14 covered 2:21 crack 2:12	H	measures 2:4,15,18, 22
34:25 2:1 36:26 2:1		hand 2:4,5 3:15 Hayter 2:6,7 3:10,16, 17 help 3:6	N
5	D		need 2:14,17 needed 2:20 new 2:17
50:00 3:14 51:03 3:14	demonstrate 2:17 detailed 3:8 different 3:4 dioxide 3:17 direct 4:1,7	I	O
A		IAM 2:11,25 3:11,15, 21 lan 2:2,21 4:8 incident 3:23 industry 2:7 information 3:3,7,8 4:1,3,5 inventory 3:3 item 2:4	oil 2:7,10 okay 4:7 open 2:2
affect 3:18 agenda 2:3 ahead 3:5 answer 3:9 asking 3:22 authority 2:24	E		P
B	effect 3:19 either 4:4 emission 3:3 emissions 2:9 3:1,4, 18,20 Eric 2:19,21 4:5 exempt 2:22	L	pipeline 3:17 pipelines 2:10 place 2:15 plan 3:2,8 PM2.5 3:2 point 3:6 popped 2:19 portion 3:13 4:9 PRASKE 2:21 presentation 4:4
C	F	leak 3:18 let's 4:4 level 3:1 line 3:25 look 2:23 3:5 looking 4:2 lot 3:3,8	Q
CARB's 2:4 carbon 3:17,19 case 2:3 categories 2:18 category 2:23 clarification 2:20 comment 2:6 comments 2:3 contact 4:3,5	G	M	question 2:6 3:1,9, 12,22 questions 2:3 3:5,25 quite 3:21
	go 3:4 going 2:16 Great 2:25 3:11 4:8	Macmillan 2:2,11,25 3:11,15,21 4:8 mean 2:15	

Audio Transcription

R	Thanks 3:10	
raise 2:4	think 2:21	
raised 2:5	total 3:19	
reach 3:6 4:6	try 3:25 4:6	
reductions 2:17	V	
regulate 2:16	various 2:9	
requested 3:13 4:9	W	
resources 4:1,7	want 2:2	
right 4:1,7	wants 2:13	
S	weigh 2:13	
sector 3:1	Y	
sectors 3:4	Yeah 2:22 3:10	
see 2:5,12,19 3:15		
Sing-mi 4:5		
slides 4:6		
sounds 3:22		
sources 2:14		
specific 3:7,23		
staff 2:12		
standards 2:8		
start 4:4		
stationary 2:10		
strict 2:8		
Stringent 2:15,18,22		
Super 4:8		
sure 2:19 3:21,25		
T		
take 2:11 3:24		
Thank 3:11		

Audio Transcription
South Coast AQMD
Regional Public Hearing
May 01, 2024

South Coast Air Basin Attainment Plan
for the 2012 Annual PM_{2.5} Standard



www.aptusCR.com | 866.999.8310

Audio Transcription

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

AUDIO TRANSCRIPTION

SOUTH COAST AQMD
REGIONAL PUBLIC HEARING FOR
SOUTH COAST AIR BASIN ATTAINMENT PLAN
FOR THE 2012 ANNUAL PM2.5 STANDARD

MAY 1, 2024

REQUESTED PORTIONS:

4:12 - 4:21

12:50 - 15:57

22:37 - 27:57

31:12 - 34:35

37:53 - 38:23

40:09 - 53:20

Transcribed by:
Diana Sasseen
CSR No. 13456
Job No. 10141761

Audio Transcription

1 (Begin 4:12-4:21).

2 UNIDENTIFIED SPEAKER: Was that a voluntary
3 designation or --

4 ERIC PRASKE: We requested a reclassification
5 to serious.

6 UNIDENTIFIED SPEAKER: Okay. Got it. Okay.

7 (Begin 12:50-15:57)

8 UNIDENTIFIED SPEAKER: So I'm curious how this
9 plan --

10 UNIDENTIFIED SPEAKER: Can you be sure to speak
11 to the microphone, because we are required to record
12 this.

13 UNIDENTIFIED SPEAKER: Gotcha.

14 UNIDENTIFIED SPEAKER: Thank you.

15 UNIDENTIFIED SPEAKER: So I'm curious as far as
16 how this plan relates to the kind of brewing EPA action
17 to basically reject the South Coast -- I think it was
18 the PM plan. So I was wondering if you could go -- or
19 basically I know that US EPA is looking at possibly
20 rejecting a South Coast plan. Could you maybe talk
21 about how this plan interacts with that?

22 ERIC PRASKE: So I think you're referring to
23 the 1997 ozone standard --

24 UNIDENTIFIED SPEAKER: Okay. Gotcha.

25 ERIC PRASKE: -- contingency measure plan,

Audio Transcription

1 right, that was submitted in 2019?

2 UNIDENTIFIED SPEAKER: Yeah. Okay. Yeah, I
3 just wanted to make sure.

4 ERIC PRASKE: Yeah. So this is a different
5 standard, it's for PM2.5 Standard, so it's on a
6 completely separate track from that plan.

7 UNIDENTIFIED SPEAKER: Okay. Gotcha.

8 UNIDENTIFIED SPEAKER: On the monitoring data
9 here which is from 2018 you mentioned?

10 ERIC PRASKE: Yep. The monitoring data is
11 measured PM2.5 level in 2018, yes.

12 UNIDENTIFIED SPEAKER: 2016 through 2019
13 average.

14 UNIDENTIFIED SPEAKER: Okay. So it was
15 averaged through multiple, okay, so it wasn't just one
16 specific year.

17 UNIDENTIFIED SPEAKER: No, it was more year
18 average.

19 UNIDENTIFIED SPEAKER: Okay. Okay. And these
20 current stations as far as we know.

21 ERIC PRASKE: Yeah.

22 UNIDENTIFIED SPEAKER: Yeah, we still continue
23 to monitor at all of the stations, it's just I think we
24 were (inaudible) again, you have a base here that you
25 build off of on the plan (inaudible) monitoring data

Audio Transcription

1 (inaudible), but we continue to collect monitoring
2 data.

3 UNIDENTIFIED SPEAKER: Okay. Very good.

4 UNIDENTIFIED SPEAKER: I know on that section
5 that (inaudible) was just pointing out, that there is an
6 exemption for exceptional events which, you know,
7 obviously we know wildfires, 4th of July, things like
8 that. Do we have a detailing of how many exceptional
9 events there are in a particular year?

10 ERIC PRASKE: So -- go ahead.

11 UNIDENTIFIED SPEAKER: So it varies every year,
12 but then usually we flag the 4th of July, fireworks, and
13 then the New Year fireworks. And there are a few days,
14 maybe wildfire effects here and there, but then when it
15 comes to annual standards, it's limited numbers. But it
16 changes year to year.

17 UNIDENTIFIED SPEAKER: What's the limit?

18 UNIDENTIFIED SPEAKER: Limited numbers. Not
19 many days going into it.

20 UNIDENTIFIED SPEAKER: Okay.

21 UNIDENTIFIED SPEAKER: We can check how many
22 days actually reflected, but it's very few.

23 UNIDENTIFIED SPEAKER: Okay.

24 UNIDENTIFIED SPEAKER: These two events are
25 always.

Audio Transcription

1 UNIDENTIFIED SPEAKER: Yeah, 4th of July and
2 New Years is kind of well known, so sometimes the
3 fireworks show in the neighborhood is better than the
4 professional ones, so --

5 UNIDENTIFIED SPEAKER: That's right. You can
6 smell it too.

7 UNIDENTIFIED SPEAKER: Monitoring was difficult
8 during the 4th of July for (inaudible), I'll tell you
9 that.

10 UNIDENTIFIED SPEAKER: Those heavy metals.
11 It's nasty.

12 UNIDENTIFIED SPEAKER: I tell you those labs
13 came back; what's going on? Oh, fireworks. Yeah.
14 Thank you.

15 (Begin 22:37-27:57)

16 UNIDENTIFIED SPEAKER: CARB.

17 SYLVIA: Yes.

18 UNIDENTIFIED SPEAKER: In state level, I mean
19 we're looking at other air districts, so CARB's umbrella
20 covers all the air districts.

21 SYLVIA: Right. Right.

22 UNIDENTIFIED SPEAKER: So looking at other best
23 practices with them, is that incorporated in what
24 they've -- in their attainments, or are they all -- from
25 the CARB perspective, (inaudible) air district.

Audio Transcription

1 SYLVIA: Well, when we're looking at -- so I
2 mean, you know, AQMD did identify -- they looked at
3 other districts, but for mobile sources, I mean CARB is
4 the only one in the state that can regulate mobile
5 sources. And so we -- but we did look at other states.
6 We looked at other states that had different idling
7 requirements or different -- other types of measures and
8 things like that. And, you know, we did come to the
9 conclusion that we did, you know, meet these
10 requirements. You know, other states do have the
11 opportunity to, you know, adopt our regulations.

12 UNIDENTIFIED SPEAKER: But I think you also
13 with all of your measures that you report here --

14 SYLVIA: Yeah.

15 UNIDENTIFIED SPEAKER: -- you're looking at how
16 would that affect South Coast specifically --

17 SYLVIA: Yeah, I mean --

18 UNIDENTIFIED SPEAKER: -- and when you analyze
19 San Joaquin and you (inaudible) for them.

20 SYLVIA: I mean we would --

21 UNIDENTIFIED SPEAKER: Same regulation, but it
22 affects them differently, right?

23 SYLVIA: Well, I mean they have different
24 sources. And so when you're doing something like Most
25 Stringent Measure, like we're looking at what the

Audio Transcription

1 sources are in the South Coast, and we had some
2 difference -- like probably the biggest difference
3 between the two, you know, because San Joaquin is also
4 doing something right now, was for South Coast we looked
5 at OGV, you know, that's a big source, that's not a
6 source in San Joaquin for San Joaquin, we looked at
7 (inaudible) tractors. That's not really a big source
8 (inaudible).

9 UNIDENTIFIED SPEAKER: Okay.

10 UNIDENTIFIED SPEAKER: So looking at other
11 states though, if they're -- other states that don't
12 have, say, the -- I would say -- here our state
13 reference in controlling the measures in comparison --

14 SYLVIA: Right.

15 UNIDENTIFIED SPEAKER: -- what was looked at
16 there and seeing? Are we -- leaps and bounds we're
17 ahead of them since more of other states will have -- or
18 have struggled to implement versus where we're at, and
19 seen in comparison to where we are at now, are we above
20 that level? Right? That may be zero to no regulation
21 to say as an example to where we are now and how we
22 progress from there?

23 SYLVIA: I mean I will say that we did find
24 someone that had a more stringent idling requirement;
25 however, you know, CARB with the truck and bus rule

Audio Transcription

1 requires 2010 engines, so their idling requirement did
2 not -- was due to a different type of engine. And so
3 our engines were already cleaner. And so there was
4 just, you know, a handful of things.

5 I believe there was someone that required all
6 school busses to be electric. You know, and when we're
7 doing this, we're looking at this from the state
8 perspective; we are pushing, you know, where we can, and
9 everywhere to go electric. But overall when you're
10 looking at like, you know, all the requirements that we
11 have in general, we have the most stringent measures.

12 And it kind of goes to say, you know, with the
13 air quality problems that we have here in California
14 compared to the rest of the state; I mean, like even in
15 this 12 microgram standard there's only three areas that
16 don't meet it in the United States, and they're all in
17 California.

18 UNIDENTIFIED SPEAKER: One question I had was
19 regarding the measure schedule. So on the regulations
20 passed before 2024 --

21 SYLVIA: Right.

22 UNIDENTIFIED SPEAKER: -- the ones that have
23 already passed, the implementation date was -- of those
24 regulations were scheduled within a year or two from
25 passage of the ultimate regulation. But when you start

Audio Transcription

1 going down further into like 2025 and beyond, there
2 seems to be like a three- to four-, sometimes five-year
3 gap between the passage date and the implementation
4 deadline. Is that a facet more about kind of the
5 (inaudible) sort of nature of the regulation or is that
6 because those regulations are tougher nuts to crack or
7 will require more -- you know, longer time to implement?

8 SYLVIA: Yeah, I think it's, you know, it's a
9 matter of goals. You know, the Tier 5, that's a new
10 emission standard.

11 UNIDENTIFIED SPEAKER: Right.

12 SYLVIA: You know, manufacturers need time to
13 develop that. You know, that's I think something that,
14 you know, normally would have a lead time on that
15 process. The zero emission space and water heater,
16 again, it's pushing the boundaries, you know, on a
17 statewide basis.

18 But this is -- and part of these on these when
19 can it be implemented, and when we're talk in our
20 regulatory divisions, this is the information that they,
21 you know, have given us. And then the emission
22 reductions that are included in the plan are based on
23 that.

24 UNIDENTIFIED SPEAKER: Got it. So the rail
25 implementation, so we just start -- so what is -- what's

Audio Transcription

1 the phase-in for them at the moment, because I know
2 rails is kind of a touchy one.

3 SYLVIA: Right. I'd have to -- you know, I'm
4 not really the expert on that. It's my understanding,
5 you know, the spending account, I'd have to look to see
6 when that actual date start is.

7 UNIDENTIFIED SPEAKER: Okay.

8 UNIDENTIFIED SPEAKER: I think right now that's
9 still pending also at EPA for their consideration on
10 authorizing that rule too. That's another process
11 that's underway.

12 SYLVIA: Right. And they have had their public
13 hearing on that.

14 UNIDENTIFIED SPEAKER: Right.

15 (Begin 31:12-34:35)

16 UNIDENTIFIED SPEAKER: The data that was used
17 to do the calculation, what reference, when were the --
18 what's the age of the data (inaudible) the modeling?

19 UNIDENTIFIED SPEAKER: Which type of data I
20 guess?

21 UNIDENTIFIED SPEAKER: The health risks.

22 UNIDENTIFIED SPEAKER: Health risk data, it's
23 sort of a spread. So it's mostly -- I guess everything
24 is in a forecasted year, so when we look at 2030, we're
25 looking at what the forecast and like death rate is in

Audio Transcription

1 2030. That's from the California Department of Finance.

2 I think most of this we use the same data that
3 was collected in the 2022 AQMP, just since it's not that
4 much different or not that much updated and sort of a
5 large data-gathering effort to get fully updated on all
6 those things.

7 That being said, I believe everything from the
8 2022 AQMP was in the 2020 age range for data recency.
9 Some of those end points as far as like incidence rates
10 that aren't easily publicly available are taken from
11 like academic research that is basically just as most as
12 recent as we could find. I don't have specific numbers
13 off the top of my head for all of it, but I'm sure we
14 could dig all that up.

15 There's also a pretty detailed discussion in
16 the technical appendix or the technical discussion
17 portion of the report that will be up on May 7th. So
18 you can refer there, or definitely reach out and we can
19 answer specific questions that come up.

20 UNIDENTIFIED SPEAKER: I think that general,
21 it's we get as recent as we can --

22 UNIDENTIFIED SPEAKER: Yeah.

23 UNIDENTIFIED SPEAKER: -- that's, you know --
24 got to find the right adjective here. I was going to
25 say "validated," but it's, you know, peer-reviewed, you

Audio Transcription

1 know, kind of scrutinized and it's appropriate for use.
2 But we get as recent data as is available.

3 UNIDENTIFIED SPEAKER: So they used independent
4 like academic research, and also other agencies,
5 specifically OEHHA, Office of Environmental, I know they
6 collect a lot of data; is that being referenced or is
7 that being used? I know that they collect some like
8 detailed information --

9 UNIDENTIFIED SPEAKER: Right, I'm not sure --

10 UNIDENTIFIED SPEAKER: -- to get a little more
11 specific of the impact.

12 UNIDENTIFIED SPEAKER: I'm not sure we use
13 anything from OEHHA, but as far as academic research is
14 concerned for those like concentration response
15 functions, those are all specific to the L.A. region,
16 more California specific as we can get, it's all
17 peer-reviewed research, and all been sort of
18 collaborated on as far as what sort of end points we can
19 look at as far as the quality of the research that we're
20 pretty confident that there's a causal relationship
21 between the PM2.5 concentrations and health impacts, and
22 that's also something that we collaborated with an
23 external consultant on, Industrial Economics, which does
24 a lot of this type of health benefit work for a number
25 of agencies.

Audio Transcription

1 So yeah, OEHHA, I don't know if we use any data
2 from OEHHA in this health benefit analysis. Is there a
3 specific type of --

4 UNIDENTIFIED SPEAKER: We use them a lot in a
5 lot of our other processes, (inaudible) paramount with
6 all the Hexachrome and all that there. We rely very
7 heavily on what OEHHA does for the toxics assessments.
8 So it sort of depends on the purpose of the health
9 study, who develops the guidance and the, you know, the
10 technical supporting information.

11 UNIDENTIFIED SPEAKER: Thank you.

12 UNIDENTIFIED SPEAKER: No questions on my end.

13 UNIDENTIFIED SPEAKER: Great. Thank you.

14 (Begin 37:53-38:23)

15 UNIDENTIFIED SPEAKER: Could you maybe explain
16 what an administrative exercise is?

17 UNIDENTIFIED SPEAKER: So administrative
18 exercise is like creating an inventory. Basically
19 there's no physical change.

20 UNIDENTIFIED SPEAKER: Okay.

21 UNIDENTIFIED SPEAKER: We are not -- it's
22 just -- we're just gathering data at the moment. It's
23 not requiring like any equipment to install anything,
24 any -- so there's no physical change, so it's an
25 administrative exercise. It's not going to affect the

Audio Transcription

1 environment in any way.

2 (Begin 40:09-53:20)

3 UNIDENTIFIED SPEAKER: Any questions you might
4 have, now is a good time.

5 UNIDENTIFIED SPEAKER: So one thing I am
6 curious about, especially with the -- you know, with
7 South Coast AQMD currently considering the ports and
8 railyard ISR, how -- basically what would this -- what
9 would those rules mean for this particular plan?

10 UNIDENTIFIED SPEAKER: Maybe I'll take that
11 one.

12 So on the indirect source rules, they certainly
13 would help. I think as we're going through both those
14 rule makings, we're still -- rail is a little farther
15 along than ports --

16 UNIDENTIFIED SPEAKER: Right.

17 UNIDENTIFIED SPEAKER: -- but we're still
18 working through what exactly would those do; and
19 especially for the time line for this plan, for 2030, I
20 think both of those rules are looking at, you know,
21 potential implementation that would cross over through
22 2030 right before and after, so I don't think we have
23 specific numbers yet. I don't think we have anything in
24 this plan right now that is quantifying what the
25 benefits are.

Audio Transcription

1 But we do have those measures included in the
2 plan, same as the 2016 AQMP, the 2022 AQMP, and now for
3 this plan that are there, we're working on it; but the
4 specific numbers we're going to hold off on any
5 quantifying commitment on those and kind of push that
6 more to rule making. And in some ways for SIP purposes,
7 which is what this exercise really is, that often can
8 even come after rule making as well.

9 UNIDENTIFIED SPEAKER: Understood. Certainly
10 would restate our support for a strong rules in either
11 case, try to get those passed as expediently as
12 possible, but appreciate that response.

13 UNIDENTIFIED SPEAKER: (Inaudible) rules given
14 to the more detailed ground level community base as far
15 as seeing the impact. It's what the inspecting and also
16 enforcement, how do we know it's affecting -- I mean
17 we're going through this whole process, how are we
18 seeing, you know, some of these time lines we start
19 getting into 2025, 2026 forward. Maybe I'm getting too
20 deep into the weeds.

21 How are we going to start seeing the actual
22 effect of it, what are we -- is that cascading down into
23 more of the ground level? Are we going to be
24 inspecting, are we going to be doing inventory checks on
25 some of these different sources to see that we're

Audio Transcription

1 starting to see some of this going along to be
2 implemented? Maybe I'm --

3 UNIDENTIFIED SPEAKER: Maybe I can take a first
4 crack from the AQMD side of it, and then, Sylvia, I
5 don't know if you want to talk from the CARB side. We
6 don't have our enforcement folks here, so, you know, I
7 want to be careful about what I say for them because I
8 can feel a virtual kick anything I talk about
9 enforcement.

10 But yes we enforce our rules, of course, right.
11 And then can we have a inspector at every facility at
12 all times? No, right? Resources don't allow that.

13 There are, you know, a variety of mechanisms
14 that are in different rules, including a lot of these
15 control measures. One of the things that we do when we
16 craft our rules is we try to think about how do you
17 enforce it. So you imagine something like home heating.
18 Are we really thinking of enforcing on individual
19 homeowners? Boy, that is really -- there's a lot of
20 challenges there as opposed to is it a manufacturer's
21 mandate or distributor's mandate? Right? And so it
22 gets to enforceability. How do you enforce a provision?

23 A lot of that still is worked out in every
24 individual rule, but there are some, you know, things
25 that are being done. For example, you mentioned

Audio Transcription

1 inventory, emissions inventory. So if you look at AQMD,
2 we have an emissions reporting program that every year
3 large facilities need to report, CARB recently did a
4 rule. Criteria talks (inaudible) reporting regulation
5 that really expands the number of facilities that report
6 emissions every year. So a lot more granular data is
7 coming in from a lot more facilities, thousands and
8 thousands more, and that's being phased in. But that
9 gives us a lot more information about, oh, there's a
10 little spike in emissions that really helps our -- I
11 know, I've talked to plenty of inspectors, they look at
12 this data before they go on inspections, and it helps
13 inform them what to look for. So there's different ways
14 to try to get at it.

15 The last thing I'm going to say, because any
16 time enforcement comes up is if you see something, if
17 something smells funny and you aren't sure about it,
18 1800GotSmog, right? That really helps our inspectors.

19 So I don't know, Sylvia, if you want to add
20 anything from the CARB perspective on that.

21 SYLVIA: Yeah, I mean enforcement is something
22 that's critical for all of these rules, and so each of
23 the rules that CARB's, you know, adopting has, you know,
24 an enforcement element to it.

25 And, you know, we learn also from our rules. I

Audio Transcription

1 don't know if you remember, you know, the truck and bus
2 regulation, you know, we were out in the field looking
3 around and we realized that people were somehow getting
4 around the requirement for, you know, having a 2010
5 truck. And so then we worked with our legislatures and
6 stuff and so then we got a registration hold.

7 And so now, you know, we -- you know, when
8 you're developing these rules, you come up with
9 enforcement mechanisms, and sometimes you have to
10 reassess them and see if they're working, but
11 ultimately, you know, I mean when you look at emissions,
12 they are going down, you know, especially NOx emissions.
13 If you would get, you know, ambient NOx monitors, those
14 trends are on a downward.

15 And, you know, air quality, you know, we've had
16 some hiccups lately, but they are -- it is improving. I
17 mean last year was -- for across the state was a great
18 year for PM, it was one of the first years we had that
19 we didn't have a lot of wildfires over the summer, and
20 so you could actually see, you know, what air quality
21 should be when it's not -- when we don't have these
22 extensive wildfires.

23 UNIDENTIFIED SPEAKER: One other question I had
24 was relating to -- so when we look at the air quality
25 standards, you know, those are primarily looking at

Audio Transcription

1 averages at different monitoring sites at the basin,
2 it's kind of a district-wide average. What are some of
3 the things that can be done to make sure that the
4 communities with the highest levels are the ones
5 experiencing the benefits? I know in this case it might
6 be a little bit more limited since we are talking about
7 just a handful of, what, two new rules and two amended
8 rules, but just making sure that the communities that do
9 have higher levels of particulate matter counts, worse
10 air pollution are benefiting the most from these
11 proposals.

12 SYLVIA: I mean, I can just say from the CARB
13 side, when you look at what the sources we're targeting;
14 I mean we are really targeting sources that are near
15 disadvantaged communities, you know, trains, trucks, you
16 know, port sources. And so, you know, I think we are,
17 you know, listening to communities and trying to, you
18 know, target our controls there. And so, you know, you
19 can do, you know, some analysis and, you know, I don't
20 know if -- you guys have done some in the past.

21 UNIDENTIFIED SPEAKER: Yeah, we have.

22 So I think sort of two thoughts in addition to
23 what Sylvia just said.

24 So in our 2022 AQMP, that socioeconomic impact
25 assessment we did do an environmental justice analysis

Audio Transcription

1 looking at the geographic distribution of where the air
2 quality benefits are and, you know, mapping that
3 against, you know, where all the different communities
4 are, and found that overall all these strategies have a
5 net benefit for environmental justice communities in our
6 region. And so that's really important, right? That's
7 exactly to your point.

8 The other is I want to make sure it's clear; so
9 when we're showing the monitors, and there's averaging
10 that's done to compare against the standard, but not
11 across different monitors. You don't average
12 San Bernardino with Upland with Long Beach, right? You
13 look at each individual monitor and you average across
14 years at the same site, right? So you have to have
15 every community where there's monitoring, right, has to
16 meet that standard, right? So that's how we make sure
17 that every community sort of meets a minimum level of
18 air quality.

19 UNIDENTIFIED SPEAKER: Okay. Great.

20 UNIDENTIFIED SPEAKER: Maybe one final point.
21 Maybe it's getting into the weeds a little too much.
22 But we also look at areas that don't have a monitor too.
23 And we have to make sure that they are also in
24 attainment. So not every environmental justice
25 community has a PM2.5 monitor --

Audio Transcription

1 UNIDENTIFIED SPEAKER: Right.

2 UNIDENTIFIED SPEAKER: -- but our analysis
3 assures that they will be in attainment.

4 UNIDENTIFIED SPEAKER: How do you do that
5 modeling for communities that don't have a monitor?

6 SYLVIA: (Inaudible) is an unmonitored area
7 (inaudible) --

8 UNIDENTIFIED SPEAKER: Computer modeling. Very
9 detailed computer modeling.

10 SYLVIA: Mark.

11 UNIDENTIFIED SPEAKER: You have to come on
12 over.

13 UNIDENTIFIED SPEAKER: Yeah, maybe come over
14 here so you can be picked up.

15 UNIDENTIFIED SPEAKER: So we use these air
16 quality models (inaudible). We use these air quality
17 models that model the entire region. I mean, you can
18 think of these air quality models as when you look at
19 the weather forecast, there are no weather station
20 everywhere, right, but you have the model (inaudible),
21 okay, this is the weather (inaudible). So air quality
22 model is the same.

23 And so yeah, we don't have measurements
24 everywhere, but we have these models. And then so we
25 use these measurements where we have them to compare

Audio Transcription

1 them with the modeling, we see that the model does a
2 reasonably good job, so then we have some confidence
3 that the modeling is telling us -- it's telling us
4 whatever it is telling us in the regions that we don't
5 have measurements, we can also trust models to tell us
6 what the (inaudible) of air quality is in there.

7 UNIDENTIFIED SPEAKER: Got it. Understood.

8 UNIDENTIFIED SPEAKER: In the monitoring,
9 does -- is there engagement between, say, does CARB have
10 capacity or even EPA and have these -- we'll say if
11 there's regions where maybe we're monitoring here, are
12 there -- where maybe CARB is monitoring somewhere else,
13 and then we have building that up --

14 SYLVIA: Right.

15 UNIDENTIFIED SPEAKER: -- is that somewhere
16 over here because I -- I vaguely remember in 2016 that
17 we started having that conversation about
18 cross-referencing data and using equipment and all that.

19 SYLVIA: Yeah. There is a requirement that
20 every year by July 1st of the year that you submit an
21 annual network plan to EPA, and that annual network plan
22 actually has to go through a public review process where
23 you talk about, you know, changes to the network and
24 things like that. But also a new element of it is
25 addressing environmental justice communities. That's

Audio Transcription

1 part of the new thing.

2 And then every five years, and I think it's
3 next year, you actually have to do a network assessment
4 where you are -- are you meeting the monitoring
5 objectives, because EPA has some very strict like
6 monitoring objectives about what has to be monitored,
7 how -- what is a monitor, is it a high site. You know,
8 it's looking at MSAs and those kind of things. But, you
9 know, every five years then you do a reassessment on
10 that. And so that's happening next year.

11 And both of these documents are -- will be out
12 for public comment so people can comment on those. You
13 know, South Coast will be doing theirs shortly. And
14 CARB does one for the smaller districts and areas of the
15 state that don't have their own monitoring organization.

16 UNIDENTIFIED SPEAKER: And I think there's also
17 a difference sometimes in the toxics monitoring, that
18 you do get multiple agencies in some cases pulling
19 resources there for versus there's criteria pollutant
20 monitoring, I mean, you know, we actually get some
21 funding from -- from EPA, but largely it's up to the
22 district to deploy all those monitors, but we certainly
23 coordinate with, you know, the three agencies.

24 SYLVIA: Yeah, and there's, you know, quality
25 control requirements, there's a lot to it that is -- you

Audio Transcription

1 know, because you want make sure that the monitors are,
2 you know, accurate.

3 UNIDENTIFIED SPEAKER: And what you see in L.A.
4 is comparable to what you see in New York to what you
5 see in Florida, to what you see everywhere.

6 SYLVIA: Yeah, so that --

7 UNIDENTIFIED SPEAKER: Right, level the playing
8 field.

9 UNIDENTIFIED SPEAKER: And actually, as we get
10 into this, I mean that's how we're going to -- the
11 easiest to understand, if we go back to our communities,
12 if we start seeing the monitoring data, right, is what's
13 going to start checking all this work, that it's okay,
14 we're starting to see, as we've already seen, as you
15 mentioned, progress.

16 SYLVIA: Yeah. No, it's -- I mean monitoring
17 data is super important to look at. And looking at it
18 every day is very helpful. Then you can see changes and
19 you know when, you know, air quality is, you know, bad
20 or, you know, you shouldn't be outside and stuff. And
21 so I think it's important, you know, I think -- and
22 nowadays there's so much available air quality data out
23 there that you can look, you know, instantaneously, oh,
24 should I go outside or not. And so --

25 UNIDENTIFIED SPEAKER: You know, there are some

Audio Transcription

1 agencies who have an app. I hear South Coast AQMD has a
2 nice app with air quality alerts on there. Just saying.
3 It's award winning.

4 SYLVIA: Sorry about that.

5 UNIDENTIFIED SPEAKER: Yeah, it's good. It's a
6 good app, I use it quite a bit.

7 UNIDENTIFIED SPEAKER: There we go. Speak that
8 into the mic.

9 UNIDENTIFIED SPEAKER: I highly recommend
10 downloaded (inaudible) app.

11 UNIDENTIFIED SPEAKER: Thank you. That's good.

12 UNIDENTIFIED SPEAKER: So any other questions,
13 comments on any of this?

14 No? Well --

15 UNIDENTIFIED SPEAKER: Not on the record.

16 UNIDENTIFIED SPEAKER: Thank you very much.

17 UNIDENTIFIED SPEAKER: Thank you all for
18 coming, do appreciate it. All of our contact
19 information is in there, feel free to reach out any
20 time. So thanks a lot for coming out, and I think with
21 that we'll officially adjourn, but we'll be here to keep
22 talking.

23 (End of recording.)
24
25

Audio Transcription

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

REPORTER'S CERTIFICATE

I, the undersigned, a Certified Shorthand
Reporter of the State of California, do hereby certify:

That the foregoing electronically-recorded
proceedings were transcribed by me to the best of my
ability.

I further certify I am neither financially
interested in the action nor a relative or employee of
any attorney or party to this action.

IN WITNESS WHEREOF, I have this date
subscribed my name.

Dated: 05/13/2024



Diana Sasseen
CSR No. 13456

Audio Transcription

1	5	allow 16:12	award 25:3
12 8:15	5 9:9	ambient 18:13	B
12:50-15:57 2:7	7	amended 19:7	back 5:13 24:11
1800gotsmog 17:18	7th 11:17	analysis 13:2 19:19, 25 21:2	bad 24:19
1997 2:23	A	analyze 6:18	base 3:24 15:14
1st 22:20	academic 11:11 12:4, 13	annual 4:15 22:21	based 9:22
2	account 10:5	answer 11:19	basically 2:17,19 11:11 13:18 14:8
2010 8:1 18:4	accurate 24:2	app 25:1,2,6,10	basin 19:1
2016 3:12 15:2 22:16	action 2:16	appendix 11:16	basis 9:17
2018 3:9,11	actual 10:6 15:21	appreciate 15:12 25:18	Beach 20:12
2019 3:1,12	add 17:19	appropriate 12:1	believe 8:5 11:7
2020 11:8	addition 19:22	AQMD 6:2 14:7 16:4 17:1 25:1	benefit 12:24 13:2 20:5
2022 11:3,8 15:2 19:24	addressing 22:25	AQMP 11:3,8 15:2 19:24	benefiting 19:10
2024 8:20	adjective 11:24	area 21:6	benefits 14:25 19:5 20:2
2025 9:1 15:19	adjourn 25:21	areas 8:15 20:22 23:14	Bernardino 20:12
2026 15:19	administrative 13:16, 17,25	assessment 19:25 23:3	best 5:22
2030 10:24 11:1 14:19,22	adopt 6:11	assessments 13:7	better 5:3
22:37-27:57 5:15	adopting 17:23	assures 21:3	beyond 9:1
3	affect 6:16 13:25	attainment 20:24 21:3	big 7:5,7
31:12-34:35 10:15	age 10:18 11:8	attainments 5:24	biggest 7:2
37:53-38:23 13:14	agencies 12:4,25 23:18,23 25:1	authorizing 10:10	bit 19:6 25:6
4	ahead 4:10 7:17	available 11:10 12:2 24:22	boundaries 9:16
40:09-53:20 14:2	air 5:19,20,25 8:13 18:15,20,24 19:10 20:1,18 21:15,16,18, 21 22:6 24:19,22 25:2	average 3:13,18 19:2 20:11,13	bounds 7:16
4:12-4:21 2:1	alerts 25:2	averaged 3:15	Boy 16:19
4th 4:7,12 5:1,8		averages 19:1	brewing 2:16
		averaging 20:9	build 3:25
			building 22:13
			bus 7:25 18:1
			busses 8:6

Audio Transcription

C	<p>comes 4:15 17:16</p> <p>coming 17:7 25:18,20</p> <p>comment 23:12</p> <p>comments 25:13</p> <p>commitment 15:5</p> <p>communities 19:4,8, 15,17 20:3,5 21:5 22:25 24:11</p> <p>community 15:14 20:15,17,25</p> <p>comparable 24:4</p> <p>compare 20:10 21:25</p> <p>compared 8:14</p> <p>comparison 7:13,19</p> <p>completely 3:6</p> <p>computer 21:8,9</p> <p>concentration 12:14</p> <p>concentrations 12:21</p> <p>concerned 12:14</p> <p>conclusion 6:9</p> <p>confidence 22:2</p> <p>confident 12:20</p> <p>consideration 10:9</p> <p>considering 14:7</p> <p>consultant 12:23</p> <p>contact 25:18</p> <p>contingency 2:25</p> <p>continue 3:22 4:1</p> <p>control 16:15 23:25</p> <p>controlling 7:13</p> <p>controls 19:18</p> <p>conversation 22:17</p> <p>coordinate 23:23</p>	<p>counts 19:9</p> <p>course 16:10</p> <p>covers 5:20</p> <p>crack 9:6 16:4</p> <p>craft 16:16</p> <p>creating 13:18</p> <p>criteria 17:4 23:19</p> <p>critical 17:22</p> <p>cross 14:21</p> <p>cross-referencing 22:18</p> <p>curious 2:8,15 14:6</p> <p>current 3:20</p> <p>currently 14:7</p>	<p>detailed 11:15 12:8 15:14 21:9</p> <p>detailing 4:8</p> <p>develop 9:13</p> <p>developing 18:8</p> <p>develops 13:9</p> <p>difference 7:2 23:17</p> <p>different 3:4 6:6,7,23 8:2 11:4 15:25 16:14 17:13 19:1 20:3,11</p> <p>differently 6:22</p> <p>difficult 5:7</p> <p>dig 11:14</p> <p>disadvantaged 19:15</p> <p>discussion 11:15,16</p> <p>distribution 20:1</p> <p>distributor's 16:21</p> <p>district 5:25 23:22</p> <p>district-wide 19:2</p> <p>districts 5:19,20 6:3 23:14</p> <p>divisions 9:20</p> <p>documents 23:11</p> <p>doing 6:24 7:4 8:7 15:24 23:13</p> <p>downloaded 25:10</p> <p>downward 18:14</p> <p>due 8:2</p>
		D	
		<p>data 3:8,10,25 4:2 10:16,18,19,22 11:2, 8 12:2,6 13:1,22 17:6,12 22:18 24:12, 17,22</p> <p>data-gathering 11:5</p> <p>date 8:23 9:3 10:6</p> <p>day 24:18</p> <p>days 4:13,19,22</p> <p>deadline 9:4</p> <p>death 10:25</p> <p>deep 15:20</p> <p>definitely 11:18</p> <p>Department 11:1</p> <p>depends 13:8</p> <p>deploy 23:22</p> <p>designation 2:3</p>	
			E
			<p>easiest 24:11</p> <p>easily 11:10</p> <p>Economics 12:23</p>

Audio Transcription

effect 15:22	exercise 13:16,18,25 15:7	found 20:4	guess 10:20,23
effects 4:14	expands 17:5	four- 9:2	guidance 13:9
effort 11:5	expediently 15:11	free 25:19	guys 19:20
either 15:10	experiencing 19:5	fully 11:5	
electric 8:6,9	expert 10:4	functions 12:15	<hr/> H <hr/>
element 17:24 22:24	explain 13:15	funding 23:21	handful 8:4 19:7
emission 9:10,15,21	extensive 18:22	funny 17:17	happening 23:10
emissions 17:1,2,6, 10 18:11,12	external 12:23	further 9:1	head 11:13
enforce 16:10,17,22	<hr/> F <hr/>	<hr/> G <hr/>	health 10:21,22 12:21,24 13:2,8
enforceability 16:22	facet 9:4	gap 9:3	hear 25:1
enforcement 15:16 16:6,9 17:16,21,24 18:9	facilities 17:3,5,7	gathering 13:22	hearing 10:13
enforcing 16:18	facility 16:11	general 8:11 11:20	heater 9:15
engagement 22:9	far 2:15 3:20 11:9 12:13,18,19 15:14	geographic 20:1	heating 16:17
engine 8:2	farther 14:14	getting 15:19 18:3 20:21	heavily 13:7
engines 8:1,3	feel 16:8 25:19	given 9:21 15:13	heavy 5:10
entire 21:17	field 18:2 24:8	gives 17:9	help 14:13
environment 14:1	final 20:20	go 2:18 4:10 8:9 17:12 22:22 24:11, 24 25:7	helpful 24:18
environmental 12:5 19:25 20:5,24 22:25	Finance 11:1	goals 9:9	helps 17:10,12,18
EPA 2:16,19 10:9 22:10,21 23:5,21	find 7:23 11:12,24	goes 8:12	Hexachrome 13:6
equipment 13:23 22:18	fireworks 4:12,13 5:3,13	going 4:19 5:13 9:1 11:24 13:25 14:13 15:4,17,21,23,24 16:1 17:15 18:12 24:10,13	hiccups 18:16
ERIC 2:4,22,25 3:4, 10,21 4:10	first 16:3 18:18	good 4:3 14:4 22:2 25:5,6,11	high 23:7
especially 14:6,19 18:12	five 23:2,9	Gotcha 2:13,24 3:7	higher 19:9
events 4:6,9,24	five-year 9:2	granular 17:6	highest 19:4
exactly 14:18 20:7	flag 4:12	great 13:13 18:17 20:19	highly 25:9
example 7:21 16:25	Florida 24:5	ground 15:14,23	hold 15:4 18:6
exceptional 4:6,8	folks 16:6		home 16:17
exemption 4:6	forecast 10:25 21:19		homeowners 16:19
	forecasted 10:24		<hr/> I <hr/>
	forward 15:19		identify 6:2
			idling 6:6 7:24 8:1

Audio Transcription

imagine 16:17	interacts 2:21	labs 5:12	makings 14:14
impact 12:11 15:15 19:24	inventory 13:18 15:24 17:1	large 11:5 17:3	mandate 16:21
impacts 12:21	ISR 14:8	largely 23:21	manufacturer's 16:20
implement 7:18 9:7		lately 18:16	manufacturers 9:12
implementation 8:23 9:3,25 14:21	<hr/> J <hr/>	lead 9:14	mapping 20:2
implemented 9:19 16:2	Joaquin 6:19 7:3,6	leaps 7:16	Mark 21:10
important 20:6 24:17, 21	job 22:2	learn 17:25	matter 9:9 19:9
improving 18:16	July 4:7,12 5:1,8 22:20	legislatures 18:5	mean 5:18 6:2,3,17, 20,23 7:23 8:14 14:9 15:16 17:21 18:11, 17 19:12,14 21:17 23:20 24:10,16
inaudible 3:24,25 4:1, 5 5:8,25 6:19 7:7,8 9:5 10:18 13:5 15:13 17:4 21:6,7,16,20,21 22:6 25:10	justice 19:25 20:5,24 22:25	level 3:11 5:18 7:20 15:14,23 20:17 24:7	measure 2:25 6:25 8:19
incidence 11:9	<hr/> K <hr/>	levels 19:4,9	measured 3:11
included 9:22 15:1	keep 25:21	limit 4:17	measurements 21:23,25 22:5
including 16:14	kick 16:8	limited 4:15,18 19:6	measures 6:7,13 7:13 8:11 15:1 16:15
incorporated 5:23	kind 2:16 5:2 8:12 9:4 10:2 12:1 15:5 19:2 23:8	line 14:19	mechanisms 16:13 18:9
independent 12:3	know 2:19 3:20 4:4,6, 7 6:2,8,9,10,11 7:3, 5,25 8:4,6,8,10,12 9:7,8,9,12,13,14,16, 21 10:1,3,5 11:23,25 12:1,5,7 13:1,9 14:6, 20 15:16,18 16:5,6, 13,24 17:11,19,23, 25 18:1,2,4,7,11,12, 13,15,20,25 19:5,15, 16,17,18,19,20 20:2, 3 22:23 23:7,9,13, 20,23,24 24:1,2,19, 20,21,23,25	lines 15:18	meet 6:9 8:16 20:16
indirect 14:12	known 5:2	listening 19:17	meeting 23:4
individual 16:18,24 20:13	<hr/> L <hr/>	little 12:10 14:14 17:10 19:6 20:21	meets 20:17
Industrial 12:23	L.A. 12:15 24:3	Long 20:12	mentioned 3:9 16:25 24:15
inform 17:13		longer 9:7	metals 5:10
information 9:20 12:8 13:10 17:9 25:19		look 6:5 10:5,24 12:19 17:1,11,13 18:11,24 19:13 20:13,22 21:18 24:17,23	mic 25:8
inspecting 15:15,24		looked 6:2,6 7:4,6,15	microgram 8:15
inspections 17:12		looking 2:19 5:19,22 6:1,15,25 7:10 8:7, 10 10:25 14:20 18:2, 25 20:1 23:8 24:17	microphone 2:11
inspector 16:11		lot 12:6,24 13:4,5 16:14,19,23 17:6,7,9 18:19 23:25 25:20	minimum 20:17
inspectors 17:11,18	<hr/> M <hr/>		mobile 6:3,4
install 13:23		making 15:6,8 19:8	model 21:17,20,22 22:1
instantaneously 24:23			

Audio Transcription

modeling 10:18 21:5, 8,9 22:1,3 models 21:16,17,18, 24 22:5 moment 10:1 13:22 monitor 3:23 20:13, 22,25 21:5 23:7 monitored 23:6 monitoring 3:8,10,25 4:1 5:7 19:1 20:15 22:8,11,12 23:4,6, 15,17,20 24:12,16 monitors 18:13 20:9, 11 23:22 24:1 MSAS 23:8 multiple 3:15 23:18 <hr/> <p style="text-align: center;">N</p> <hr/> nasty 5:11 nature 9:5 near 19:14 need 9:12 17:3 neighborhood 5:3 net 20:5 network 22:21,23 23:3 new 4:13 5:2 9:9 19:7 22:24 23:1 24:4 nice 25:2 normally 9:14 nowadays 24:22 NOX 18:12,13 number 12:24 17:5 numbers 4:15,18 11:12 14:23 15:4	nuts 9:6 <hr/> <p style="text-align: center;">O</p> <hr/> objectives 23:5,6 obviously 4:7 OEHHA 12:5,13 13:1, 2,7 Office 12:5 officially 25:21 OGV 7:5 oh 5:13 17:9 24:23 okay 2:6,24 3:2,7,14, 15,19 4:3,20,23 7:9 10:7 13:20 20:19 21:21 24:13 ones 5:4 8:22 19:4 opportunity 6:11 opposed 16:20 organization 23:15 outside 24:20,24 overall 8:9 20:4 ozone 2:23 <hr/> <p style="text-align: center;">P</p> <hr/> paramount 13:5 part 9:18 23:1 particular 4:9 14:9 particulate 19:9 passage 8:25 9:3 passed 8:20,23 15:11 peer-reviewed 11:25 12:17 pending 10:9	people 18:3 23:12 perspective 5:25 8:8 17:20 phase-in 10:1 phased 17:8 physical 13:19,24 picked 21:14 plan 2:9,16,18,20,21, 25 3:6,25 9:22 14:9, 19,24 15:2,3 22:21 playing 24:7 plenty 17:11 PM 2:18 18:18 PM2.5 3:5,11 12:21 20:25 point 20:7,20 pointing 4:5 points 11:9 12:18 pollutant 23:19 pollution 19:10 port 19:16 portion 11:17 ports 14:7,15 possible 15:12 possibly 2:19 potential 14:21 practices 5:23 PRASKE 2:4,22,25 3:4,10,21 4:10 pretty 11:15 12:20 primarily 18:25 probably 7:2 problems 8:13 process 9:15 10:10	15:17 22:22 processes 13:5 professional 5:4 program 17:2 progress 7:22 24:15 proposals 19:11 provision 16:22 public 10:12 22:22 23:12 publicly 11:10 pulling 23:18 purpose 13:8 purposes 15:6 push 15:5 pushing 8:8 9:16 <hr/> <p style="text-align: center;">Q</p> <hr/> quality 8:13 12:19 18:15,20,24 20:2,18 21:16,18,21 22:6 23:24 24:19,22 25:2 quantifying 14:24 15:5 question 8:18 18:23 questions 11:19 13:12 14:3 25:12 quite 25:6 <hr/> <p style="text-align: center;">R</p> <hr/> rail 9:24 14:14 rails 10:2 railyard 14:8 range 11:8 rate 10:25
--	---	---	--

Audio Transcription

rates 11:9	relating 18:24	rules 14:9,12,20	sort 9:5 10:23 11:4
reach 11:18 25:19	relationship 12:20	15:10,13 16:10,14,	12:17,18 13:8 19:22
realized 18:3	rely 13:6	16 17:22,23,25 18:8	20:17
really 7:7 10:4 15:7	remember 18:1 22:16	19:7,8	source 7:5,6,7 14:12
16:18,19 17:5,10,18	report 6:13 11:17	S	sources 6:3,5,24 7:1
19:14 20:6	17:3,5		15:25 19:13,14,16
reasonably 22:2	reporting 17:2,4	San 6:19 7:3,6 20:12	South 2:17,20 6:16
reassess 18:10	requested 2:4	saying 25:2	7:1,4 14:7 23:13
reassessment 23:9	require 9:7	schedule 8:19	25:1
recency 11:8	required 2:11 8:5	scheduled 8:24	space 9:15
reclassification 2:4	requirement 7:24 8:1	school 8:6	speak 2:10 25:7
recommend 25:9	18:4 22:19	scrutinized 12:1	SPEAKER 2:2,6,8,10,
record 2:11 25:15	requirements 6:7,10	section 4:4	13,14,15,24 3:2,7,8,
recording 25:23	8:10 23:25	see 10:5 15:25 16:1	12,14,17,19,22 4:3,
reductions 9:22	requires 8:1	17:16 18:10,20 22:1	4,11,17,18,20,21,23,
refer 11:18	requiring 13:23	24:3,4,5,14,18	24 5:1,5,7,10,12,16,
reference 7:13 10:17	research 11:11 12:4,	seeing 7:16 15:15,18,	18,22 6:12,15,18,21
referenced 12:6	13,17,19	21 24:12	7:9,10,15 8:18,22
referring 2:22	resources 16:12	seen 7:19 24:14	9:11,24 10:7,8,14,
reflected 4:22	23:19	separate 3:6	16,19,21,22 11:20,
regarding 8:19	response 12:14	serious 2:5	22,23 12:3,9,10,12
region 12:15 20:6	15:12	shortly 23:13	13:4,11,12,13,15,17,
21:17	rest 8:14	show 5:3	20,21 14:3,5,10,16,
regions 22:4,11	restate 15:10	showing 20:9	17 15:9,13 16:3
registration 18:6	review 22:22	side 16:4,5 19:13	18:23 19:21 20:19,
regulate 6:4	right 3:1 5:5,21 6:22	SIP 15:6	20 21:1,2,4,8,11,13,
regulation 6:21 7:20	7:4,14,20 8:21 9:11	site 20:14 23:7	15 22:7,8,15 23:16
8:25 9:5 17:4 18:2	10:3,8,12,14 11:24	sites 19:1	24:3,7,9,25 25:5,7,9,
regulations 6:11	12:9 14:16,22,24	smaller 23:14	11,12,15,16,17
8:19,24 9:6	16:10,12,21 17:18	smell 5:6	specific 3:16 11:12,
regulatory 9:20	20:6,12,14,15,16	smells 17:17	19 12:11,15,16 13:3
reject 2:17	21:1,20 22:14 24:7,	socioeconomic	14:23 15:4
rejecting 2:20	12	19:24	specifically 6:16 12:5
relates 2:16	risk 10:22	Sorry 25:4	spending 10:5
	risks 10:21		spike 17:10
	rule 7:25 10:10 14:14		spread 10:23
	15:6,8 16:24 17:4		standard 2:23 3:5
			8:15 9:10 20:10,16
			standards 4:15 18:25

**South Coast Air Basin Attainment Plan
for the 2012 Annual PM2.5 Standard**

Audio Transcription

start 8:25 9:25 10:6 15:18,21 24:12,13		time 9:7,12,14 14:4, 19 15:18 17:16 25:20	3:2,7,8,12,14,17,19, 22 4:3,4,11,17,18, 20,21,23,24 5:1,5,7, 10,12,16,18,22 6:12, 15,18,21 7:9,10,15 8:18,22 9:11,24 10:7,8,14,16,19,21, 22 11:20,22,23 12:3, 9,10,12 13:4,11,12, 13,15,17,20,21 14:3, 5,10,16,17 15:9,13 16:3 18:23 19:21 20:19,20 21:1,2,4,8, 11,13,15 22:7,8,15 23:16 24:3,7,9,25 25:5,7,9,11,12,15, 16,17
started 22:17	T	times 16:12	
starting 16:1 24:14	take 14:10 16:3	top 11:13	
state 5:18 6:4 7:12 8:7,14 18:17 23:15	taken 11:10	touchy 10:2	
states 6:5,6,10 7:11, 17 8:16	talk 2:20 9:19 16:5,8 22:23	tougher 9:6	
statewide 9:17	talked 17:11	toxics 13:7 23:17	
station 21:19	talking 19:6 25:22	track 3:6	
stations 3:20,23	talks 17:4	tractors 7:7	
strategies 20:4	target 19:18	trains 19:15	
strict 23:5	targeting 19:13,14	trends 18:14	
stringent 6:25 7:24 8:11	technical 11:16 13:10	truck 7:25 18:1,5	
strong 15:10	tell 5:8,12 22:5	trucks 19:15	United 8:16
struggled 7:18	telling 22:3,4	trust 22:5	unmonitored 21:6
study 13:9	Thank 2:14 5:14 13:11,13 25:11,16, 17	try 15:11 16:16 17:14	updated 11:4,5
stuff 18:6 24:20	thanks 25:20	trying 19:17	Upland 20:12
submit 22:20	theirs 23:13	two 4:24 7:3 8:24 19:7,22	use 11:2 12:1,12 13:1,4 21:15,16,25 25:6
submitted 3:1	thing 14:5 17:15 23:1	type 8:2 10:19 12:24 13:3	usually 4:12
summer 18:19	things 4:7 6:8 8:4 11:6 16:15,24 19:3 22:24 23:8	types 6:7	
super 24:17		U	V
support 15:10	think 2:17,22 3:23 6:12 9:8,13 10:8 11:2,20 14:13,20,22, 23 16:16 19:16,22 21:18 23:2,16 24:21 25:20	ultimate 8:25	vaguely 22:16
supporting 13:10		ultimately 18:11	validated 11:25
sure 2:10 3:3 11:13 12:9,12 17:17 19:3,8 20:8,16,23 24:1	thinking 16:18	umbrella 5:19	varies 4:11
Sylvia 5:17,21 6:1,14, 17,20,23 7:14,23 8:21 9:8,12 10:3,12 16:4 17:19,21 19:12, 23 21:6,10 22:14,19 23:24 24:6,16 25:4	thoughts 19:22	understand 24:11	variety 16:13
	thousands 17:7,8	understanding 10:4	versus 7:18 23:19
	three 8:15 23:23	Understood 15:9 22:7	virtual 16:8
	three- 9:2	underway 10:11	voluntary 2:2
	Tier 9:9	UNIDENTIFIED 2:2,6, 8,10,13,14,15,24	W
			want 16:5,7 17:19 20:8 24:1

Index: start–want

Audio Transcription

wanted 3:3	23:2,9	
wasn't 3:15	Yep 3:10	
water 9:15	York 24:4	
way 14:1		
ways 15:6 17:13	Z	
we'll 22:10 25:21	zero 7:20 9:15	
we're 5:19 6:1,25 7:16,18 8:6,7 9:19 10:24 12:19 13:22 14:13,14,17 15:3,4, 17,25 19:13 20:9 22:11 24:10,14		
we've 18:15 24:14		
weather 21:19,21		
weeds 15:20 20:21		
wildfire 4:14		
wildfires 4:7 18:19,22		
winning 25:3		
wondering 2:18		
work 12:24 24:13		
worked 16:23 18:5		
working 14:18 15:3 18:10		
worse 19:9		
Y		
yeah 3:2,4,21,22 5:1, 13 6:14,17 9:8 11:22 13:1 17:21 19:21 21:13,23 22:19 23:24 24:6,16 25:5		
year 3:16,17 4:9,11, 13,16 8:24 10:24 17:2,6 18:17,18 22:20 23:3,10		
years 5:2 18:18 20:14		



South Coast Air Basin Attainment Plan for the 2012 Annual PM2.5 Standard

Board Meeting
June 7, 2024

Background - Annual PM2.5 Standard



U.S. EPA set an annual PM2.5 standard in 2012, set at $12 \mu\text{g}/\text{m}^3$



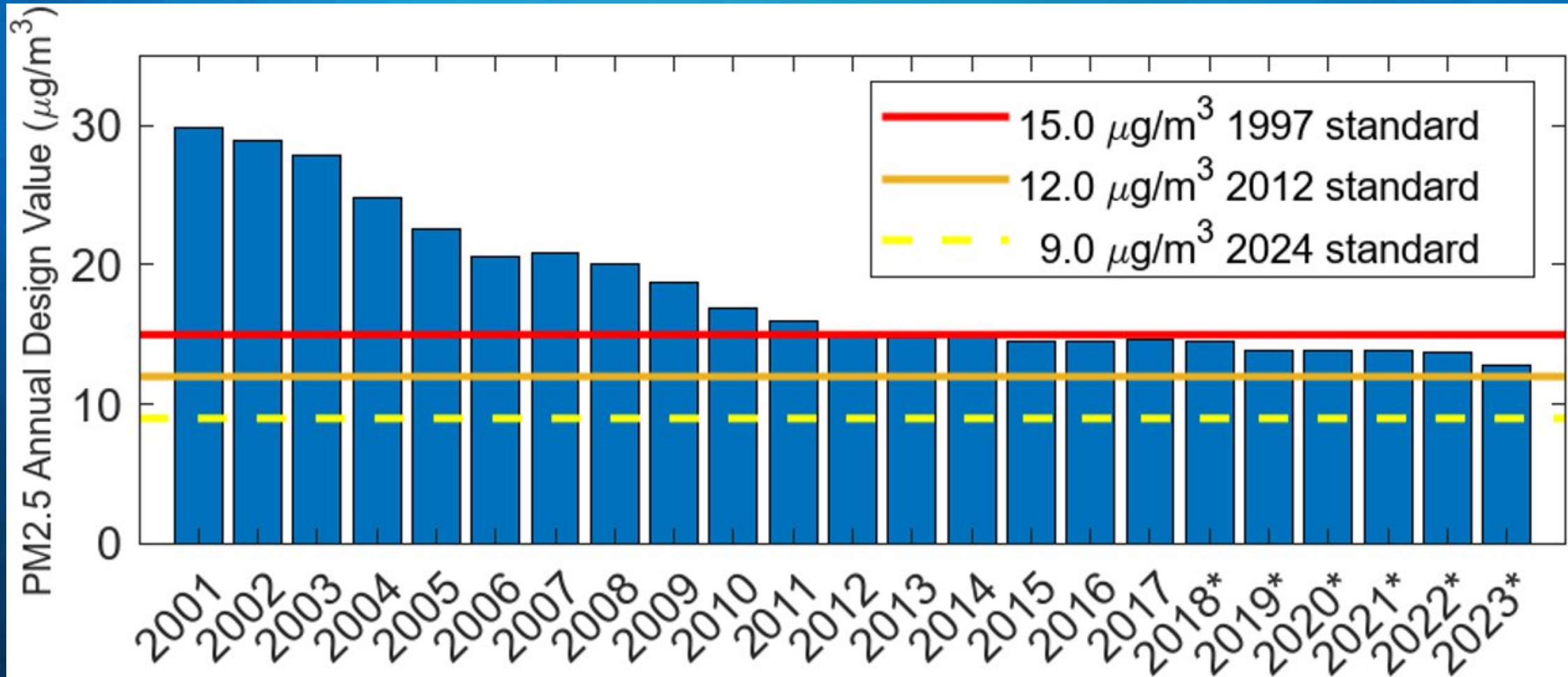
South Coast Air Basin is in “serious” nonattainment, which is the highest classification for PM2.5 standards¹



Coachella Valley is in attainment of this standard

¹ Reclassification from “moderate” to “serious” approved by U.S. EPA effective December 9, 2020 (85 FR 71264)

Annual PM2.5 Trend in the South Coast Air Basin



*Data likely to be approved as exceptional events by U.S. EPA were removed.

Overview of Previous SIP Actions for the 2012 Annual PM2.5 Standard

Attainment plan was included in the 2016 AQMP and submitted to U.S. EPA in 2017

Near roadway data became available in 2020 and showed the highest annual PM2.5 level in the Basin

U.S. EPA requested a supplemental attainment demonstration

The submitted plan was withdrawn in 2023 to avoid potential disapproval*

A revised attainment plan is due to U.S. EPA by December 23, 2024 to avoid sanctions

*U.S. EPA was sued by Center for Biological Diversity in 2023 for its failure to act on the submitted plan

SIP Development Public Process

Spring - Fall
2023

- AQMP & STMPR Advisory Group Meetings

March 2024

- Released Draft Plan for Public Review and Comments

April - May
2024

- Regional Public Hearings

May 2024

- Released Draft Socioeconomic Impact Assessment

June 7, 2024

- Public Hearing for Board consideration

Summer 2024

- CARB adoption and submittal to EPA

For more information, visit

[https://www.aqmd.gov/home/air-quality/air-quality-management-plans/other-state-implementation-plan-\(sip\)-revisions](https://www.aqmd.gov/home/air-quality/air-quality-management-plans/other-state-implementation-plan-(sip)-revisions)

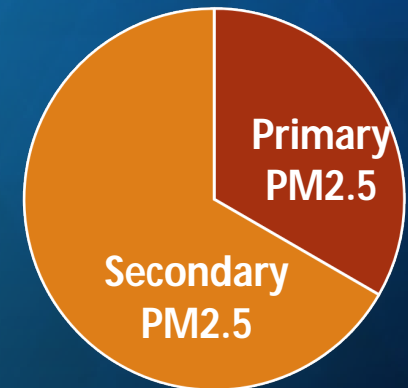
Strategy to Attain Annual PM_{2.5} Standard



NO_x strategy from the
2022 AQMP



Limited controls needed
for PM_{2.5} and precursors



Measures from the 2022 AQMP/SIP that can be Implemented by 2030

South Coast AQMD
stationary source
measures transition to
zero emission where
feasible, lower NO_x
where infeasible



South Coast AQMD
mobile source measures
include incentives and
facility-based measures



CARB will continue to
implement the 2022
State SIP Strategy



Control Measures Identified as Most Stringent Measures (MSM)

- MSM requires all South Coast AQMD rules to be at least as stringent as those in any other air district or state
- Four measures identified that need to be implemented by December 2029



Less residential burning allowed under Rule 445 (Check Before You Burn)



Lower permitting thresholds for confined animal facilities in Rule 223

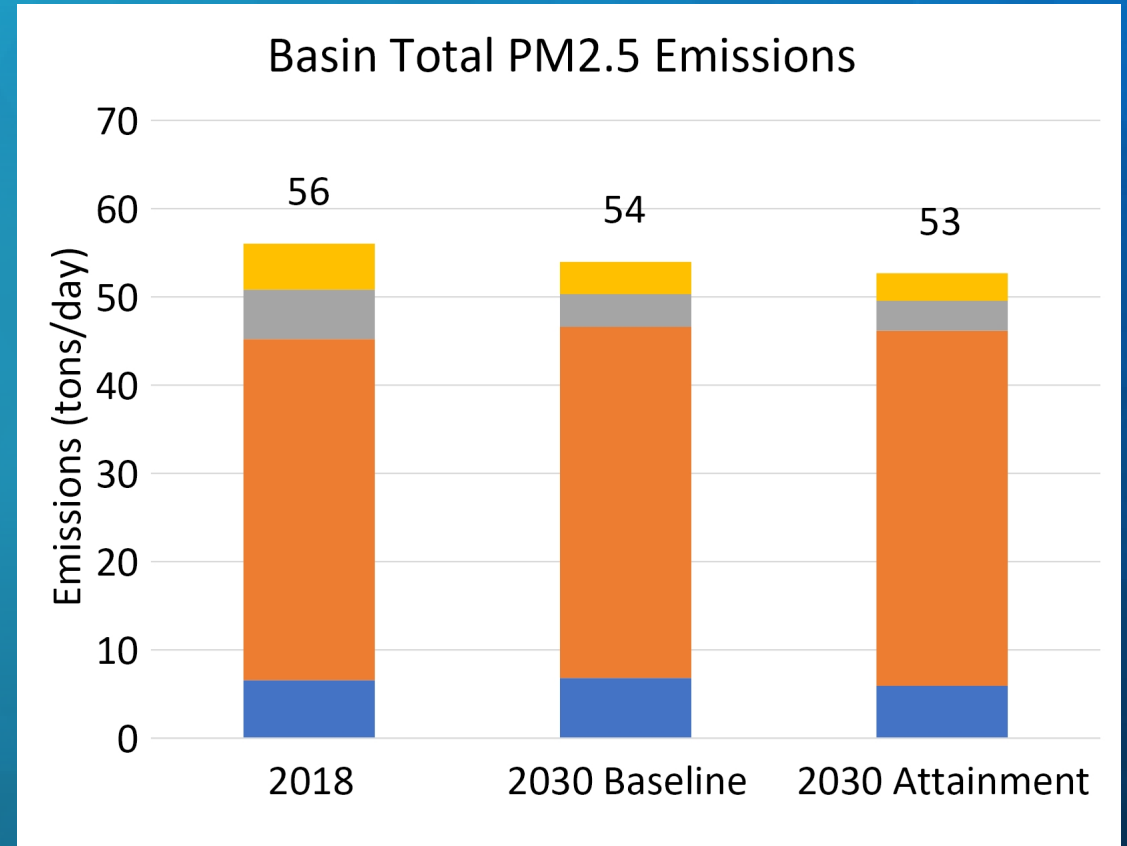
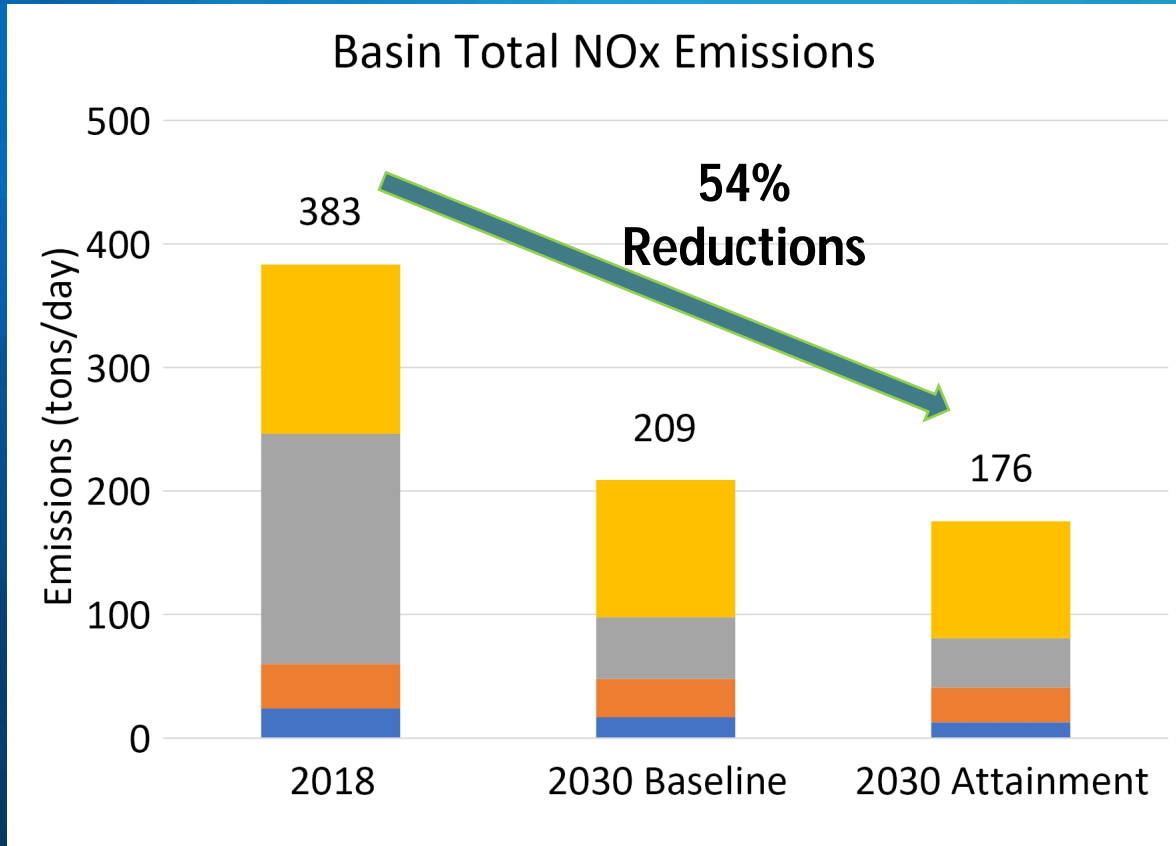


Lower threshold to require catalytic oxidizers for chain-driven charbroilers in Rule 1138

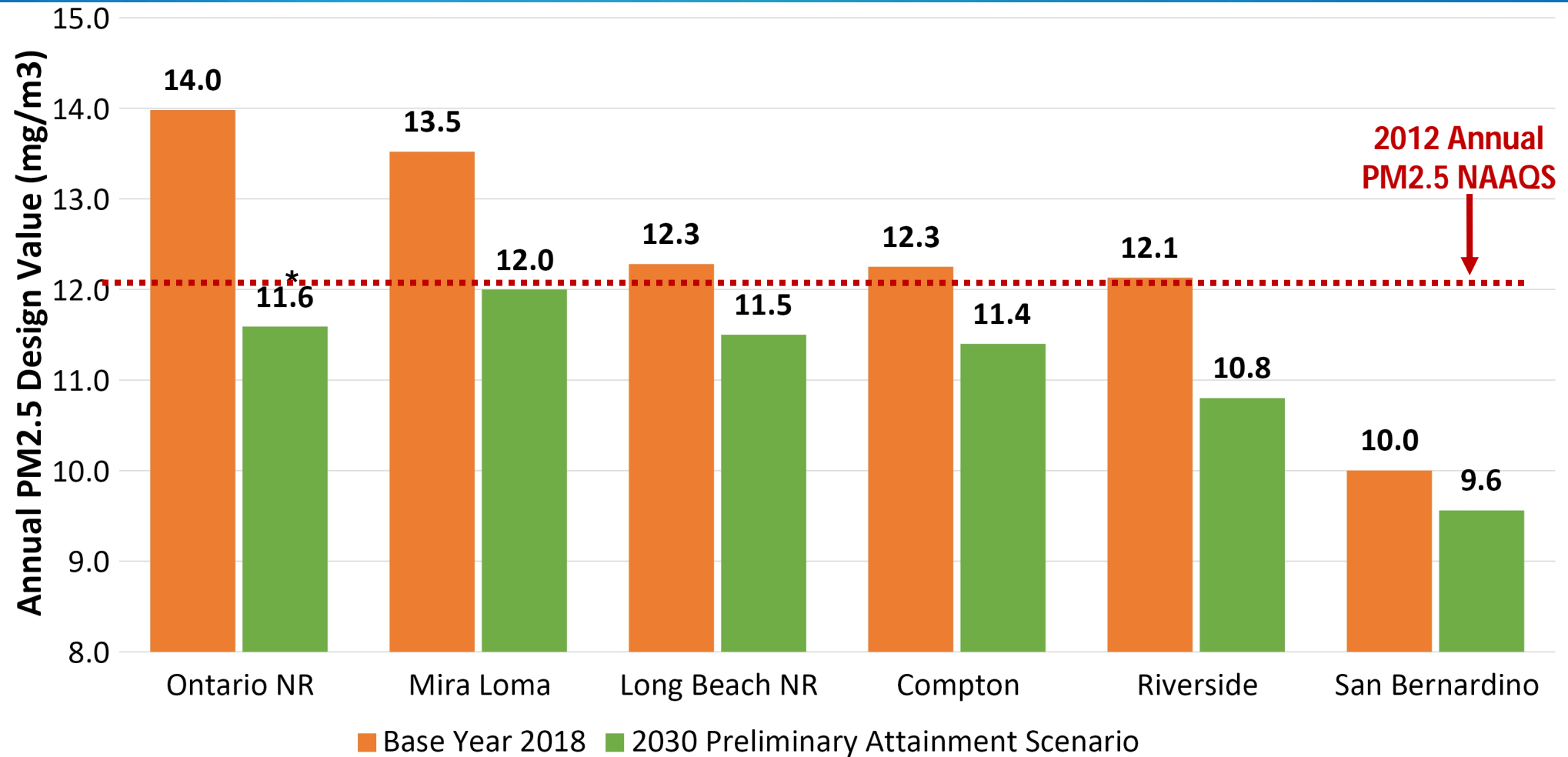


Require composting of chipped and ground greenwaste prior to land application

Future Emissions



Future Annual PM2.5 Concentrations



* Design value calculated using a hybrid modeling approach

Socioeconomic Impacts

Health Benefits in 2030

Health Outcome	Avoided Incidences	Monetized Value*
Long-Term PM 2.5 Exposure		
Premature deaths avoided, all causes	665	\$8,840
Asthma, New Onset	1,031	\$51
Incidence, Hay Fever/Rhinitis	4,867	\$3
Incidence, Lung Cancer (non-fatal)	57	\$1
Short-Term PM 2.5 Exposure		
Hospital Admission, All Cardiac Outcomes	24	\$1
HA, All Respiratory	69	\$2
Incidence, Ischemic Stroke	37	\$1
Minor Restricted Activity Days	230,393	\$21
Work Loss Days	39,204	\$7

*Millions of 2023 Dollars

- The costs and macroeconomic impacts of the PM2.5 Plan control measures have been analyzed in previous AQMPs
- No additional costs are anticipated in excess of previous analyses
- **\$9B total monetized health benefit annually by 2030**

Staff Recommendation

Adopt the Resolution:

- Determining that the PM2.5 Plan is a later activity within the scope of the Final Program Environmental Impact Report (EIR) for the 2022 AQMP and the Final Program EIR for the 2016 AQMP such that no new environmental document will be required.
- Adopting the PM2.5 Plan and directing staff to submit the adopted PM2.5 Plan to CARB for its approval and subsequent submittal to the U.S. EPA for inclusion into the SIP.



APPENDIX I

Base and Future Year Emission Inventory



CHAPTER 1 - INVENTORY DEVELOPMENT

Background	I-1-1
Air Contaminants	I-1-2
Inventory Source Categories	I-1-34
Stationary Sources.....	I-1-34
Mobile Sources.....	I-1-8

CHAPTER 2 - SUMMARY OF EMISSIONS

Baseline Emission Inventories	I-2-1
Base Year Emissions.....	I-2-1
Future Year Emissions.....	I-2-6
Emission Trend and Agency Responsibilities.....	I-2-54
Condensable and Filterable PM2.5 Emissions	I-2-68
Uncertainty in the Inventory	I-2-71
Controlled Emission Inventories.....	I-2-72
Emissions Reduction from the Proposed Control Measures.....	I-2-72
Emissions Reduction Calculations	I-2-74
CARB Emission Data Reports System	I-2-75

Attachment A: Annual Average Emissions by Source Category in South Coast Air Basin

Attachment B: Annual Average On-Road Mobile Source Emissions in South Coast Air Basin

Attachment C: Diesel Emissions in South Coast Air Basin

Attachment D: Road Construction Dust Emissions in South Coast Air Basin

Attachment E: Emissions of Primary, Condensable and Filterable PM2.5

Chapter 1

INVENTORY DEVELOPMENT

Background

Air Contaminants

Inventory Source Categories

Stationary Sources

Mobile Sources

Background

Federal and State standards limit concentration levels of air contaminants in ambient air to protect public health and welfare. An emission inventory of air pollutants and their sources is essential to identify the major contributors of air contaminants and to identify the measures necessary to reduce air pollution. This Draft PM2.5 Plan includes detailed emissions for base and future milestone years. 2018 is the base year used to project future year emissions for the 2024 PM2.5 Plan and 2030 is the attainment year for the 2012 annual PM2.5 National Ambient Air Quality Standard.

This appendix includes five attachments: Attachment A – Annual Average Emissions Summary by Major Source Category in the South Coast Air Basin (SCAB or Basin); Attachment B – On-Road Emissions by Vehicle Category; Attachment C – Emissions from Diesel Fuel Combustion by Major Source Category; Attachment D – Dust Emissions from Road Construction in SCAB, and Attachment E – Annual Average Emissions Summary for Condensable and Filterable PM2.5 in SCAB. Attachments A through E contain emissions and relevant data for the years of 2018, 2023, 2025, 2028, 2030 and 2031.

Information required to develop the emission inventory is obtained from various programs and rules by South Coast AQMD and other governmental agencies, including the California Air Resources Board (CARB), the California Department of Transportation (Caltrans), and the Southern California Association of Governments (SCAG). Each of these agencies is responsible for collecting data (e.g., industry growth factors, socio-economic projections, travel activity levels, emission factors, emission speciation profiles, and emissions) and developing methodologies (e.g., model and demographic forecast improvements) required to generate a comprehensive emissions inventory. Entire statewide emissions inventories are compiled and maintained by CARB in the California Emission Inventory Development and Reporting System (CEIDARS)¹ and the California Emission Forecasting and Planning Inventory System (CEFIS)². CARB has primary responsibility for developing the emissions inventory for all mobile sources in collaboration with local districts. CARB provides the tool for on-road inventories, the Emission FACTors (EMFAC) 2021³ model, and off-road inventories using models specific to each off-road category⁴. Caltrans provides SCAG with information related to highway projects. SCAG then incorporates these data into their Travel Demand Model for estimating/projecting vehicle miles traveled (VMT) and driving speeds for current and future years. SCAG's socio-economic and transportation activity projections in their 2020 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) are integrated in this Draft PM2.5 Plan. 2020 RTP/SCS is the

¹Bickett, C., California Air Resources Board, "Redesign of the California Emission Inventory System", paper presented at the Emission Inventory International Specialty Conference, October 1993

<https://www.arb.ca.gov/app/emsinv/dist/doc/transfmt.pdf>

² Rulemaking Information: Redesign Of California's Emission Forecasting System (CEFS)

https://ww3.arb.ca.gov/ei/pubs/cefs_mj.pdf.

³ https://ww2.arb.ca.gov/sites/default/files/2021-08/emfac2021_technical_documentation_april2021.pdf

⁴ More information about CARB's on-road and off-road models can be found at

<http://www.arb.ca.gov/msei/categories.htm>

latest approved RTP at the time of developing this PM plan. The EMFAC2021 was run with the SCAG custom activities to produce the on-road mobile source inventories.

Air Contaminants

Currently, National Ambient Air Quality Standards (NAAQS), or federal standards, are limited to the following criteria pollutants: ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), carbon monoxide (CO), fine suspended particulate matter less than 10 microns in diameter (PM₁₀), fine particulate matter less than 2.5 microns in diameter (PM_{2.5}), lead, and sulfate. This appendix presents emission levels for the criteria pollutants and their precursors in the South Coast Air Basin. Specifically, data are included for emissions of total organic gases (TOG), volatile organic compounds (VOCs), oxides of nitrogen (NO_x), oxides of sulfur (SO_x), CO, particulate matter (PM), PM₁₀, PM_{2.5}, and ammonia (NH_3).

TOG incorporates all gaseous compounds containing the element carbon, with the exception of the inorganic compounds, CO, carbon dioxide (CO_2), carbonic acid, carbonates, and metallic carbides. VOCs, a subset of TOG, includes all organic gases in TOG except acetone, ethane, methane, methylene chloride, methylchloroform, perchloroethylene, methyl acetate, para-Chlorobenzo trifluoride (pCBtF), and a number of Freon-type gases. The U.S. EPA definition of VOCs is different from the one used by CARB, which includes some compounds not considered as VOCs by the U.S. EPA. Table I-1-1 lists the compounds that are exempt in the U.S. EPA's VOCs list but are included in CARB's VOCs list. Certain chlorofluorocarbons (CFCs) are still included in CARB's VOCs list. According to CARB, the total VOC emission inventory difference between U.S. EPA and CARB is very small and the added compounds do not have a noticeable contribution to the VOC emission inventory; Those compounds do not impact regional tropospheric ozone and PM formation either.

PM represents all airborne particulate matter, also known as total suspended particles (TSP). PM₁₀ and PM_{2.5} are important subsets of PM. In this ~~Draft~~ PM_{2.5} Plan, the amount of VOC in TOG and the amount of PM₁₀ and PM_{2.5} in PM are calculated for each process primarily using speciation and size fraction profiles provided by CARB.⁵ PM_{2.5} sources include both primary and secondary PM_{2.5} sources. Primary PM_{2.5} is directly emitted from various sources, whereas secondary PM_{2.5} is formed in the atmosphere from chemical reactions involving PM_{2.5} precursor emissions. Potential precursors of secondary PM_{2.5} include NO_x , SO_x , VOC and NH_3 . Furthermore, while air quality standards for NO_x and SO_x are based on NO_2 and SO_2 , respectively, the emissions inventory includes emissions of NO_x and SO_x because multiple species of NO_x and SO_x contribute to the formation of particulate matter, and multiple species of NO_x react with VOCs to produce ozone.

⁵ <https://ww2.arb.ca.gov/speciation-profiles-used-carb-modeling>.

TABLE I-1-1

LIST OF COMPOUNDS EXEMPT IN U.S. EPA'S DEFINITION OF VOC; INCLUDED IN CARB'S DEFINITION OF VOC

COMPOUND	CAS*
3,3-dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca)	422-56-0
1,3-dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb)	507-55-1
1,1,1,2,3,4,4,5,5,5-decafluoropentane (HFC 43-10mee)	138495-42-8
difluoromethane (HFC-32)	75-10-5
ethylfluoride (HFC-161)	353-36-6
1,1,1,3,3,3-hexafluoropropane (HFC-236fa)	690-39-1
1,1,2,2,3-pentafluoropropane (HFC-245ca)	679-86-7
1,1,2,3,3-pentafluoropropane (HFC-245ea)	24270-66-4
1,1,1,2,3-pentafluoropropane (HFC-245eb)	431-31-2
1,1,1,3,3-pentafluoropropane (HFC-245fa)	460-73-1
1,1,1,2,3,3-hexafluoropropane (HFC-236ea)	431-63-0
1,1,1,3,3-pentafluorobutane (HFC-365mfc)	406-58-6
chlorofluoromethane (HCFC-31)	593-70-4
1 chloro-1-fluoroethane (HCFC-151a)	1615-75-4
1,2-dichloro-1,1,2-trifluoroethane (HCFC-123a)	354-23-4
1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy-butane (C4F9OCH3 or HFE-7100)	163702-07-6
2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoropropane ((CF3)2CFCF2OCH3)	163702-08-7
1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluorobutane (C4F9OC2H5 or HFE-7200) ⁽²⁾	163702-05-4
2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane ((CF3)2CFCF2OC2H5)	163702-06-5
1,1,1,2,2,3,3-heptafluoro-3-methoxy-propane (n-C3F7OCH3, HFE-7000)	375-03-1
3-ethoxy- 1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-(trifluoromethyl) hexane (HFE-7500)	297730-93-9
1,1,1,2,3,3,3-heptafluoropropane (HFC 227ea)	431-89-0
methyl formate (HCOOCH3) ⁽³⁾	107-31-3
1,1,1,2,2,3,4,5,5,5-decafluoro-3-methoxy-4-trifluoromethyl-pentane (HFE-7300) ⁽¹⁾	132182-92-4
propylene carbonate ⁽¹⁾	108-32-7
dimethyl carbonate ⁽¹⁾	616-38-6
trans-1,3,3,3-tetrafluoropropene ⁽¹⁾	29118-24-9
HCF2OCF2H (HFE-134) ⁽¹⁾	1691-17-4
HCF2OCF2OCF2H (HFE-236cal2) ⁽¹⁾	78522-47-1
HCF2OCF2CF2OCF2H (HFE-338pcc13) ⁽¹⁾	188690-78-0
HCF2OCF2OCF2CF2OCF2H (H-Galden 1040x or H-Galden ZT 130 (or 150 or 180)) ⁽¹⁾	188690-77-9
trans 1-chloro-3,3,3-trifluoroprop-1-ene ⁽¹⁾	102687-65-0
2,3,3,3-tetrafluoropropene ⁽¹⁾	754-12-1
2-amino-2-methyl-1-propanol ⁽¹⁾	124-68-5
Tertiary butyl acetate (tBAC)	540-88-5

Chemical Abstract Service (CAS) identification numbers have been included for convenience.

(1) Compounds are new since the 2012 AQMP.

(2) Exempt in the consumer product regulation not the architectural coatings suggested control measure.

(3) Recommend exemption for stationary source regulations under South Coast AQMD control.

Inventory Source Categories

Stationary Sources

Stationary sources of emissions are grouped into two categories - point sources and area sources. Point source emissions are from facilities having one or more pieces of equipment registered and permitted with the South Coast Air Quality Management District (AQMD). South Coast AQMD uses permits to collect facility emission-related information for those sources such as facility location in latitude and longitude, chimney stack height, and plume exit temperature. Area source emissions are from numerous small facilities or pieces of equipment, such as gasoline-dispensing facilities, residential water heaters, consumer products and architectural coatings, for which locations may not be specifically identified. For modeling purposes, area source emissions are spatially allocated to grid cells using demographic data as surrogates (e.g., population, housing, and land use).

Point Sources

The point source emission inventory for 2018 is based on the emissions data reported by facilities in the calendar year 2018 via the South Coast AQMD's Annual Emissions Reporting (AER) Program. This program applies to facilities emitting 4 tons per year (TPY) or more of VOCs, NO_x, SO_x, or PM or emitting more than 100 TPY of CO, as specified in Rule 301(e). Facilities subject to the AER Program calculate or measure their emissions and report them. If calculated, they are primarily based on their throughput data (e.g., fuel usage, material usage), appropriate emission factors or source tests, and control efficiency (if applicable). Under the calendar year 2018 AER Program, approximately, 1,596 facilities reported their annual emissions to the South Coast AQMD. Smaller industrial facilities with emissions below reporting thresholds are not subject to the AER program, but emissions from those facilities are included in the area source inventory.

In order to prepare the point source inventory, emissions data for each facility were categorized based on the U.S. EPA's Source Classification Codes (SCCs) for each emission source category. Since the AER program collects emissions data on an aggregate basis (i.e., similar equipment and processes with the same emission factor are grouped and reported together), facility's equipment permit data were used in conjunction with the reported data to assign the appropriate SCC codes and develop the inventory at the SCC level. Air quality modeling uses specific facility locations provided in latitude and longitude coordinates. Business operation activity profiles are also recorded to allocate the annual emission to finer time resolutions (e.g., hourly, day of the week, and monthly emission rates). The facility business type is assigned to facilities based on North American Industry Classification System (NAICS) Codes according to their primary activity. Growth projections are assigned by NAICS using socioeconomic indexes provided by the SCAG 2020 RTP/SCS.

Area Sources

The South Coast AQMD and CARB shared responsibility for developing the 2018 area source emissions inventory for approximately 400 area source categories. The South Coast AQMD developed the area source inventory for about 150 categories, while CARB developed the remaining area source categories such as consumer products and degreasing. For each area source category, a specific methodology is used to estimate emissions. Using revised data such as throughput, activity, consumption, various demographic data, and recently adopted regulations, the following categories were updated: consumer products, architectural coating, adhesive and

sealants, composting, natural gas and LPG combustion sources, LPG transfer dispensing fugitive loss, paved and unpaved road dust, and livestock.

Rule Implementation

The cutoff dates for regulations on stationary sources included in the baseline emissions are the same as in the 2022 AQMP. All rules adopted since the 2016 AQMP by October 2020 and Rule 1109.1 were included in the baseline and are listed in Table I-1-2A (NO_x regulations) and Table I-1-2B (VOC and PM regulations). Since the adoption of the 2016 AQMP and through the cutoff dates, a total of 14 source-specific rules were adopted or amended, that would achieve up to 6.6 tons per day NO_x reductions by the milestone year of 2025. Rule 1109.1, amended in November 2021, is expected to achieve 3.94 tons per day NO_x reductions by 2030 in addition to the reductions associated with declining RECLAIM allocation cap as defined in the Rule 2002. While the baseline emissions from the RECLAIM universe are the same as the baseline emissions included in the 2022 AQMP, this plan quantifies additional adjustments to RECLAIM sources as a result of recently approved regulations and their associated emission reductions are included in the attainment demonstration. NO_x emission reductions from RECLAIM sources and these additional adjustments are discussed in detail in Chapter 3 of this Plan and in Chapter 2 of this Appendix.

TABLE I-1-2A
2016 AQMP NOX EMISSION REDUCTIONS IN TONS PER DAY BY MEASURE/ADOPTION DATE FROM SOUTH COAST AQMD MEASURES

Measure	2016 AQMP Measure	Adopted	2025	
			Commitment ^c	Expected Reductions from the Implementation
Rule 1135 ^a – Electricity Generating Facilities	CMB-05	2018	5	0.36
Rules 1146, 1146.1, 1146.2 ^b – Industrial/Commercial Boilers, Steam Generator and Process Heaters	CMB-05	2018		0.39
Rule 1118.1 ^a – Non-Refinery Flares	CMB-05	2019		0.16
Rule 1134 ^a – Stationary Gas Turbine	CMB-05	2019		1.18
Rule 1110.2 ^a – Gaseous and Liquid-Fueled Engines	CMB-05	2019		0.15
Rule 1117 ^a – Glass Melting Furnaces	CMB-05	2020		0.14
Rule 1179.1 – Combustion Equipment at Publicly Owned Treatment Works Facility	CMB-05	2020		0.05
Rule 1109.1 ^a – NOx reduction from Refinery	CMB-05	2021		2.35
Rule 1111 ^d – Residential NG Heating Furnaces	CMB-02	2018	1.1	1.28
Total adopted/amended				6.6

^a Reductions are reflected in the RECLAIM allocation caps specified in South Coast AQMD's Rule 2002.

^b Net reduction excluding the portion reflected in the RECLAIM allocation caps specified in South Coast AQMD Rule 2002

^c Based on Table 4-8 of Final 2016 AQMP⁶

^d R1111 reduction reflects the March 2018 amendment, which amended the schedule to implement the rule, but led no additional reductions compared to the previous version

⁶ <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/chapter4.pdf?sfvrsn=4>

TABLE I-1-2C
2016 AQMP VOC/PM EMISSION REDUCTIONS IN TONS PER DAY BY MEASURE/ADOPTION DATE

Agency	Measure	2016 AQMP Measure	Adopted	2025	
				Commitment	Expected Reductions from the Implementation
South Coast AQMD	Rule 1113 – Architectural Coatings	CTS-01	2016	1	0.95
	Rule 1168 – Adhesive and Sealant Application	CTS-01	2017		0.79
	Total adopted/amended VOC control measures				1.8
	Rule 445 – Wood Burning Devices	Contingency Measure	2020		0.13

Mobile Sources

On-Road Mobile Sources

The Draft PM_{2.5} Plan emission estimates for on-road motor vehicles are derived by applying emission rates from CARB's EMFAC2021⁷ model to the transportation activity data provided by SCAG in its adopted 2020 RTP/SCS. The California Department of Transportation (Caltrans), the Department of Motor Vehicles (DMV), and SCAG supply CARB with necessary data to develop the on-road mobile source emissions inventory. The California DMV maintains a count of registered vehicles and Caltrans provides highway network, traffic counts, and road capacity data. SCAG maintains the regional transportation model containing the temporal and spatial distribution of motor vehicle activities (including travel time, travel speed, and volume of traffic for AM-peak, mid-day, PM-peak, evening and night hours). In addition, SCAG periodically conducts origin and destination surveys to validate the regional transportation model and updates the demographic database of population, housing, employment, and land use patterns within its jurisdiction.

Emission rate data in EMFAC2021 are collected from various sources, such as individual vehicles in a laboratory setting, tunnel studies and certification data, etc. Vehicle activity data are obtained from regional planning agencies, such as SCAG. The EMFAC2021 model calculates exhaust and evaporative emission rates by vehicle type under different vehicle speeds and environmental conditions (e.g., temperature and relative humidity). Temperature and humidity profiles are used to produce month specific, annual average, and episodic inventories.

Parameters considered by the EMFAC2021 include the type of emissions control technology, fuel type, distribution of operating speeds, speed and temperature correction factors, and the reduction in emissions resulting from the State's motor vehicle regulatory programs.

The EMFAC2021 Model includes the following mobile source data:

- (1) Thirteen vehicle classes (passenger cars, light-duty trucks under 3,750 pounds, light-duty trucks between 3,750 pounds and 5,750 pounds, medium-duty trucks between 5,751 pounds and 8,500 pounds, light-heavy-duty trucks between 8,501 pounds and 10,000 pounds, light-heavy-duty trucks between 10,001 pounds and 14,000 pounds, medium-heavy-duty trucks between 14,001 pounds and 33,000 pounds, heavy-heavy-duty-trucks for over 33,000 pounds, motor homes, motorcycles, school buses, urban buses, and other buses)
- (2) Five vehicle fuel types (gasoline, diesel, natural gas, electric and plug-in hybrid)
- (3) Truck types (ports, agriculture, construction, interstate, out-of-state, public fleet, utility fleet, power take off, and tractor)
- (4) In-state and out-of-state
- (5) Fifty calendar years (2000-2050)
- (6) Two vehicle exhaust processes (starts and running)

⁷ https://ww2.arb.ca.gov/sites/default/files/2021-08/emfac2021_technical_documentation_april2021.pdf

- (7) Four evaporative processes (diurnal, hot soak, running loss, and resting loss)
- (8) Twelve pollutants (TOG, ROG, CO, CO₂, CH₄, N₂O, NO_x, PM, PM₁₀, PM_{2.5}, NH₃, and SO_x)
- (9) Fuel consumption and energy consumption for electric VMT.

To develop the detailed emission inputs needed by air quality chemical transport models, such as the Community Multi-scale Air Quality model (CMAQ), emissions from on-road motor vehicles are estimated at the grid level using the emission processing tool Emissions Spatial and Temporal Allocator (ESTA). ESTA is a command-line tool for processing raw emissions data into spatially and temporally allocated emissions inventories, making them suitable for photochemical modeling or other analysis. ESTA is an open-source, Python-based tool designed by the Air Quality Planning and Science Division (AQPSD) branch of CARB.⁸

EMFAC2021 includes more subcategories for some of the major vehicle class categories (i.e., medium-heavy-duty diesel trucks and heavy-heavy diesel trucks) based on their weights (heavy or small), types (agricultural, construction, CA international registration plan), road type (in-state or out-of-state), etc. However, the on-road mobile sources emissions in the Draft PM2.5 Plan are reported by major vehicle class categories to compare with previous inventory reporting.

EMFAC2021 was the basis for on-road planning inventories, emission budgets, and rate-of-progress calculations. The EMFAC2021 model has undergone extensive revisions from the previous version (EMFAC2017) to make it more user-friendly and flexible as well as to allow incorporation of larger amounts of data demanded by the current regulatory and planning processes. In addition to the model structural changes, other updates include:

- New data and significant changes to the methodologies regarding calculation of motor vehicle emissions and revisions to implementation data for control measures;
- New methodologies for brake and tire wear and evaporative emissions;
- New approaches to light-duty activity forecasting, using up-to-date modeling approaches from academic and government agencies to assess historic trends in multiple economic indicators to forecast future vehicle activity, alongside novel forecasting frameworks for heavy duty VMT and light duty ZEV sales;
- Updated emissions factors and data on car and truck activities, and emissions reductions associated with new regulations supporting new estimates of emissions from heavy-heavy duty diesel trucks and buses. New emission factors were developed based on data from the U.S. EPA's In-Use Vehicle Program, CARB's Vehicle and Truck and Bus Surveillance Programs, CARB's Portable Emissions Measurement Systems (PEMS), and Transit Bus testing, dynamometer and Portable Emission Measurement Systems Data;
- Updated motor vehicle fleet age, vehicle types, and vehicle population based on 2013-2019 California Department of Motor Vehicle (DMV) data, International Registration Plan (IRP) data, Truck Regulation Upload, Compliance, and Reporting System (TRUCRS) data, Port Vehicle Identification Number (VIN) data, California

⁸ https://github.com/mmb-carb/ESTA_Documentation.

Highway Patrol School Bus Inspections, and National Transit Database information. Each of these changes affect emission factors for each area in California.⁹

Figure I-1-1 compares on-road baseline emissions estimated by EMFAC2017, which are used in the 2022 AQMP, with those estimated by EMFAC2021, which are used in the ~~Draft 2024 PM_{2.5} Plan~~ PM_{2.5} Plan. Both sets of emission estimates use the same travel activity data from the 2020 RTP/SCS. The figure includes emissions for base year 2018 and selected future milestone years: 2023, 2025, 2028, 2030, and 2031. The comparison of on-road emissions reflects changes due to the updated EMFAC model. EMFAC2021 is the most recent version of EMFAC that is approved by U.S. EPA, and it provides the basis of the ~~Draft 2024 PM_{2.5} Plan~~ PM_{2.5} Plan on-road emission estimates. The values shown in Figure I-1-1 reflects reductions from heavy-duty vehicle inspection and maintenance (HD I/M) regulation.

For year 2018, EMFAC2021 estimates notably higher VOC and NO_x emissions, and lower emissions of PM_{2.5} than EMFAC2017. Estimates of NO_x and VOC in EMFAC2021 are higher than in EMFAC2017 because newer vehicle test data show that light-duty vehicles have higher exhaust emissions, and updated DMV data for 2018 indicate that medium heavy-duty trucks are older than what was assumed in EMFAC2017. PM_{2.5} emissions are substantially reduced in EMFAC2021 with respect to EMFAC2017, as a result of updates on emissions and speed correction factors for brake wear obtained from newer emission testing. The differences in VOC and PM_{2.5} emissions are propagated through 2030, whereas NO_x emissions only differ slightly between EMFAC2017 and EMFAC2021.

Emissions in future milestone years are significantly lower than the base year 2018 emissions for all pollutants except for ammonia. These emission reductions in the future can be attributed to the ongoing implementation of regulations and programs, such as Advanced Clean Cars Program¹⁰, ICT Regulation, Zero Emission Airport Shuttle Bus Regulation¹¹, Clean Miles Standard¹², ACT, and HD Omnibus low NO_x requirements. Despite the growth in vehicular activities, emissions from on-road mobile sources are expected to decrease in future years, with NO_x and VOC emissions in 2030 projected to be 73 and 49 percent lower than those in 2018, respectively. Emissions of NH₃ from both gasoline and diesel vehicles are projected to increase in the future. NH₃ emissions from gasoline vehicles are produced as a reaction in the catalytic converter. NH₃ emitted by heavy-duty diesel trucks originates from the use of selective catalytic reactors (SCR) to control NO_x emissions from diesel vehicles. Ammonia emissions from SCR systems is generally referred to as *ammonia slip*. SCR technology reduces NO_x emissions by converting them into harmless nitrogen and water vapor through a reaction with ammonia. However, if the SCR system injects more ammonia than required for the NO_x reduction process, or if the catalyst becomes inefficient, unreacted ammonia can escape into the exhaust stream. The projected increase in vehicle activity for light-, medium- and heavy-duty vehicles leads to the increase in NH₃ emissions.

⁹ More detailed information on the changes incorporated in EMFAC2017 can be found at: <https://ww3.arb.ca.gov/msei/downloads/emfac2017-volume-iii-technical-documentation.pdf>

¹⁰ Advanced Clean Cars Program, <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program>

¹¹ Zero-Emission Airport Shuttle Regulation, <https://ww2.arb.ca.gov/our-work/programs/zero-emission-airport-shuttle>

¹² Clean Mile Standard, <https://ww2.arb.ca.gov/our-work/programs/clean-miles-standard>

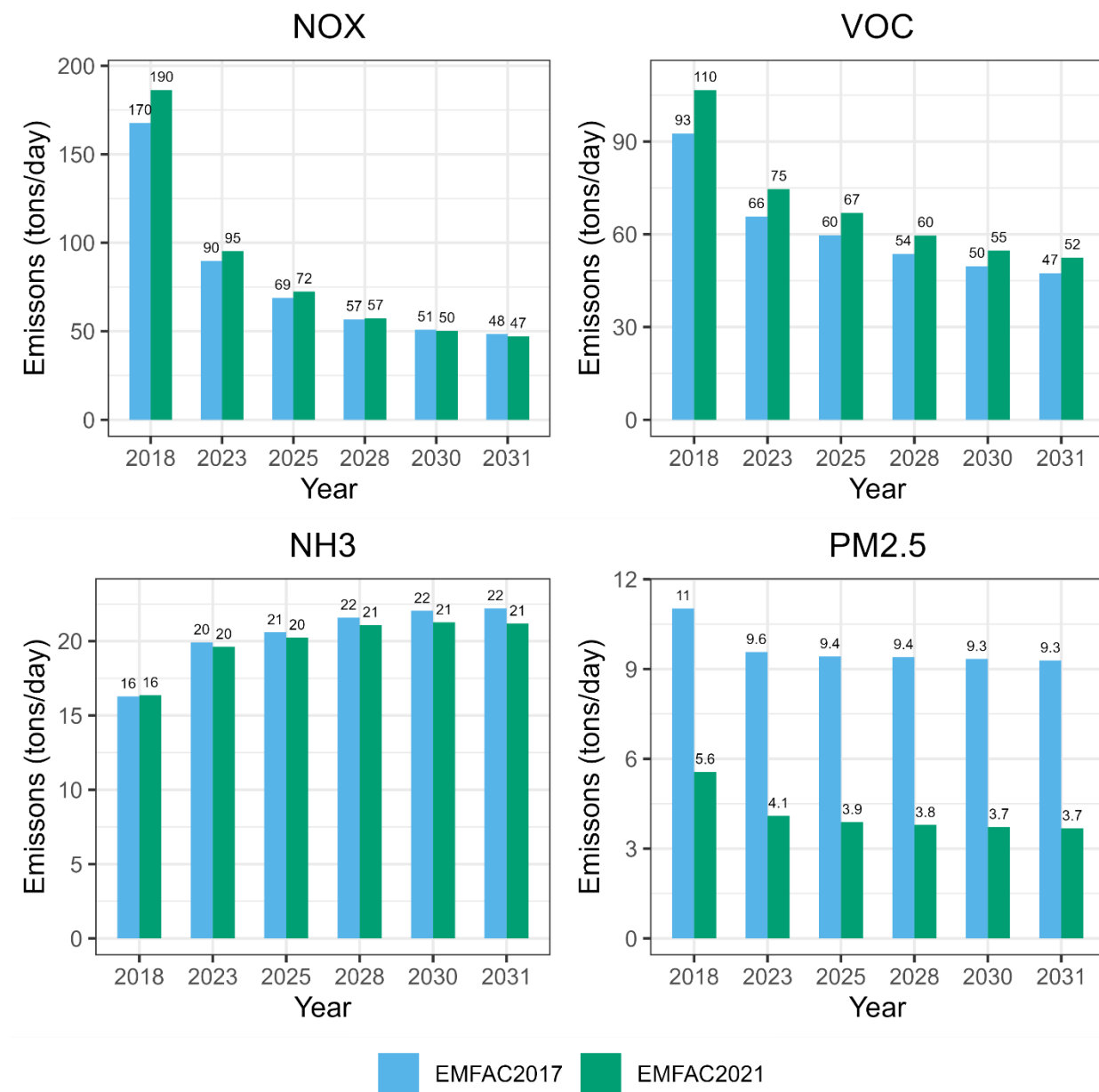


FIGURE I-1-1
COMPARISON OF ON-ROAD EMISSIONS OF BASE AND FUTURE MILESTONE YEARS USING EMFAC 2017 VERSUS
EMFAC 2021
(ANNUAL AVERAGES)

Off-Road Mobile Sources

Mobile sources not included in the on-road mobile source emissions inventory are classified as off-road mobile sources. CARB uses a number of models to estimate emissions for more than one hundred off-road equipment categories. The models account for the effects of various adopted regulations, technology types, and seasonal effects on emissions. The models combine population, equipment activity, horsepower, load factors, population growth, retirement factors, and emission factors to yield annual emissions by county, air basin, or Statewide. Temporal usage profiles are used to develop seasonal emission estimates, which are then spatially allocated to counties or air basins using surrogates such as population.¹³ The emissions presented here are consistent with the off-road emissions developed for the 2022 AQMP¹⁴, except for a small change in construction equipment emissions. After the development of the 2022 AQMP, an error was discovered in the emission allocations for in-use emissions from off-road construction equipment in Riverside County. This error only affected future year emissions and is now corrected in this Draft PM2.5 Plan.

¹³ More information about off-road models can be found at http://www.arb.ca.gov/msei/categories.htm#offroad_motor_vehicles

¹⁴ 2022 AQMP Appendix III: Base and Future Year Emission Inventory <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/appendix-iii.pdf?sfvrsn=6>

Chapter 2

SUMMARY OF EMISSIONS

Baseline Emission Inventories

Base Year Emissions

Future Year emissions

Emission Trend and Agency Responsibility

Condensable and Filterable PM2.5 Emissions

Uncertainty in the Inventory

Controlled Emission Inventories

Emission Reduction from the Proposed Control Measures

Emission Reduction Calculations

CARB Emission Data Reports System

Baseline Emission Inventories

Base Year Emissions

Table I-2-1A compares the annual average emissions in the 2022 AQMP base year inventory and the emissions estimated in the Draft PM2.5 Plan for all PM2.5 precursors. As described above, the differences between the 2022 AQMP and the Draft PM2.5 Plan are from on-road sources due to the transition from EMFAC2017 to EMFAC2021. Overall, the base year 2018 emissions of VOC, NOx, and SOx in the Draft PM2.5 Plan are higher than those in the 2022 AQMP by 4%, 5% and 1%, respectively. In contrast, direct PM2.5 emissions in the Draft PM2.5 Plan are 9% lower than the 2022 AQMP.

Table I-2-1B shows the 2018 annual average emissions inventory by major source category. Stationary sources are further divided into point sources (e.g., petroleum production and electric utilities) and area sources (e.g., architectural coatings, residential water heaters, consumer products, and permitted sources smaller than the emission reporting threshold – generally 4 tons per year). Mobile sources consist of on-road (e.g., passenger cars and heavy-duty trucks) and off-road sources (e.g., locomotives and ships).

Figure I-2-1 illustrates the relative contribution of each source category to the 2018 inventory. VOC and NH3 emissions are both largely driven by area sources, although specific area sources differ for the two pollutants. Area sources account for half of the total VOC emissions, with consumer products alone accounting for 27% of total VOC emissions. For NH3 emissions, humans and pets contribute to half of the total area source emissions, and overall, area sources contribute to 70% of the total NH3 emissions. Mobile sources are the top contributor to NOx emissions, whereas area sources are the top contributor to PM2.5 emissions. Overall, total mobile source emissions account for almost 45% of VOC emissions and 85% of NOx emissions. The on-road mobile category alone contributes over 23% and 49% of VOC and NOx emissions, respectively. For directly emitted PM2.5, mobile sources represent 18% of total emissions, with an additional 15% from vehicle-related entrained dust from paved and unpaved roads. Non-vehicle related area sources, such as commercial cooking and residential fuel combustion, are the predominant source of directly emitted PM2.5 emissions, contributing 46% of total emissions. Stationary sources are responsible for most of the SOx emissions in the Basin, with the point source category (larger facilities subject to AER requirements) contributing 49% of total SOx emissions, whereas off-road mobile sources, mainly ocean-going vessels (OGV) and aircraft, contribute to 26% of total SOx emissions.

Figure I-2-2 shows the fraction of the 2018 inventory by responsible agency. The U.S. EPA, CARB, and South Coast AQMD split regulatory authority over these pollutants, with the U.S. EPA and CARB primarily responsible for mobile sources. Specifically, the U.S. EPA's authority applies to aircraft, locomotives, OGVs, military harbor craft, and other mobile categories, including California international registration plan (CAIRP) and out-of-state (OOS) medium- and heavy-duty trucks and pre-empt off-road equipment with less than 175 horsepower. CARB regulates other mobile sources, consumer products, and portions of area sources related to fuel combustion, and petroleum production and marketing. The South Coast AQMD has limited authority over mobile sources, which it exercises via fleet rules and facility-based mobile source measurements. On the other hand, it exercises authority over most area sources and all point sources. The same figure also illustrates agency responsibility as it pertains to VOC, NOx, SOx, NH3, and directly emitted PM2.5 emissions. NOx and VOCs are

important precursors to ozone and PM_{2.5} formation, and SO_x, NH₃ and directly emitted PM_{2.5}. As shown, most NO_x and VOC emissions in the Basin are from sources that fall under the primary jurisdiction of the U.S. EPA or CARB. For example, 84% of NO_x and 74% of VOC emissions are from sources primarily under CARB and the U.S. EPA control. Conversely, 61% of SO_x emissions, 76% of NH₃ emissions, and 81% of directly emitted PM_{2.5} emissions are from sources under the South Coast AQMD control. This underscores the need for coordinated actions at the local, state, and federal levels to ensure that the region attains the federal ambient air quality standards.

TABLE I-2-1A
COMPARISON OF 2018 EMISSIONS
BETWEEN THE 2022 AQMP AND THE DRAFT 2024 PM_{2.5} PLAN (TONS PER DAY)

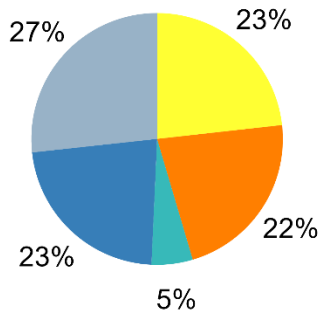
	On-Road Vehicles	Total Emissions
VOC		
2022 AQMP	78.5	387
Draft PM _{2.5} Plan	93.4	401.9
% Change	+19.0%	+3.9%
NO_x		
2022 AQMP	167.7	364.7
Draft PM _{2.5} Plan	186.3	383.2
% Change	+11.1%	+5.1%
SO_x		
2022 AQMP	1.7	14.3
Draft PM _{2.5} Plan	1.8	14.4
% Change	+5.9%	+0.7%
PM_{2.5}		
2022 AQMP	11	61.5
Draft PM _{2.5} Plan	5.6	56
% Change	-49.1%	-8.9%
NH₃		
2022 AQMP	16.3	74.5
Draft PM _{2.5} Plan	16.4	74.6
% Change	+0.6%	+0.1%

**TABLE I-2-1B
SUMMARY OF 2018 EMISSIONS BY MAJOR SOURCE CATEGORY
(TONS PER DAY*)**

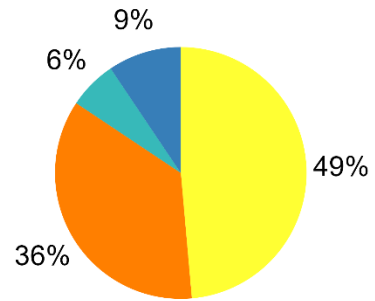
Source Category	PM2.5 PLAN				
	VOC	NOx	SOx	PM2.5	NH3
Fuel Combustion	5.4	21.1	2.1	5.3	7.8
Waste Disposal	14.7	1.4	0.4	0.3	5.7
Cleaning and Surface Coatings	36.9	0.0	0.0	1.4	0.1
Petroleum Production and Marketing	19.6	0.3	0.3	0.9	0.1
Industrial Processes	10.2	0.1	0.1	4.7	8.7
Misc. Processes					
Residential fuel combustion	8.9	19.1	0.3	6.8	0.1
Cooking	1.1	0.0	0.0	11.4	0.0
Paved & Unpaved Road Dust	0.0	0.0	0.0	10.3	0.0
Others	2.6	0.2	0.1	4.1	34.3
Solvent Evaporation	120.0	0.0	0.0	0.0	1.2
RECLAIM Sources		17.8	5.5		
Total Stationary Sources	219.4	59.9	8.8	45.2	58.0
On-Road Vehicles	93.4	186.3	1.8	5.6	16.4
Off-Road Vehicles	89.2	137.1	3.8	5.2	0.2
Total Mobile Sources	182.6	323.3	5.6	10.8	16.5
TOTAL	401.9	383.3	14.4	56.0	74.6

*Values may not sum due to rounding error.

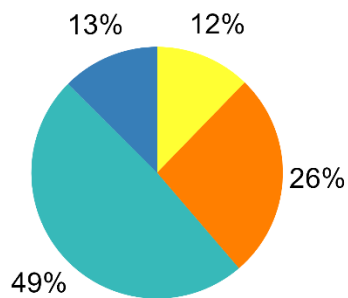
VOC Emissions: 402 tons/day



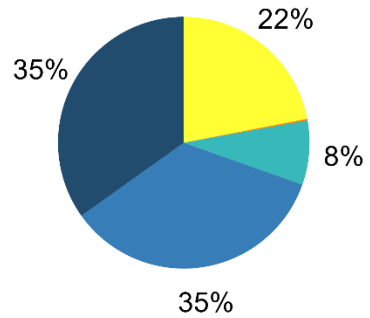
NOx Emissions: 383 tons/day



SOx Emissions: 14 tons/day



NH3 Emissions: 75 tons/day



PM2.5 Emissions: 56 tons/day

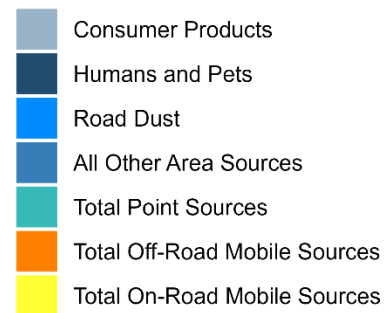
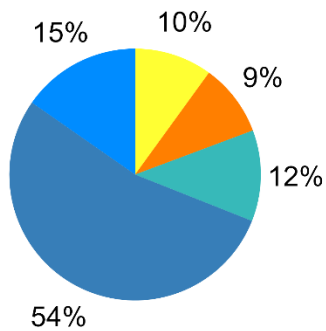
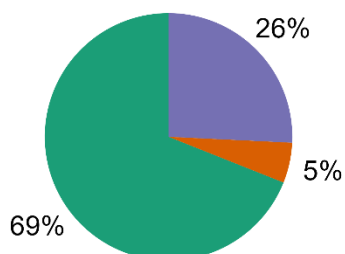
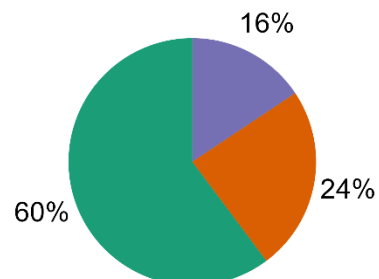


FIGURE I-2-1
2018 EMISSIONS BY MAJOR SOURCES
(Annual Average)

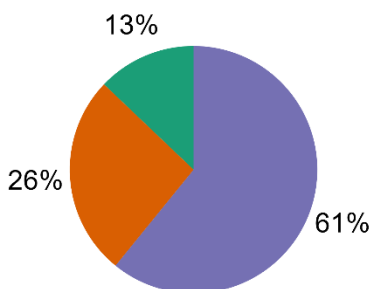
VOC Emissions: 402 tons/day



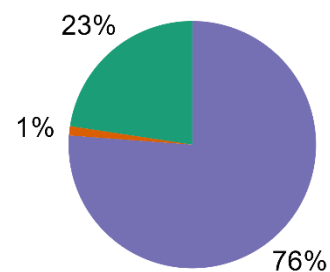
NOx Emissions: 383 tons/day



SOx Emissions: 14 tons/day



NH3 Emissions: 75 tons/day



PM2.5 Emissions: 56 tons/day

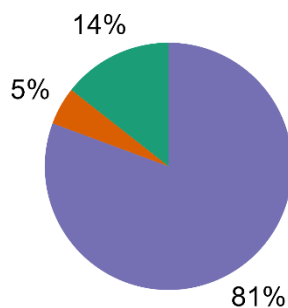


FIGURE I-2-2
2018 EMISSION INVENTORY AGENCY RESPONSIBILITY
(Annual Average)

Future Year Emissions

Future baseline emissions, which assume no additional air quality regulations introduced beyond those already adopted regulations and programs, are presented in this appendix. The future years include the attainment year and other milestone years significant to demonstrate progress toward attainment. They are 2023, 2025, 2028, 2030 and 2031. Emissions by major source category are provided in Attachment A. These emissions are forecasted from the 2018 base year by incorporating the controls implemented under South Coast AQMD rules and programs adopted as of October 2020, CARB rules adopted by December 2021, and a specific set of growth rates from SCAG for population, industry, and motor vehicle activity. South Coast AQMD's Rule 1109.1- Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Operations, which was adopted in November 2021, is also reflected in this Draft PM2.5 Plan emissions inventory. Emission reductions from CARB's Heavy-Duty Inspection and Maintenance (HD I/M)¹⁵ adopted in December 2021 are not embedded in EMFAC2021 but were reflected in the baseline emissions using an off-EMFAC model adjustment. Growth projections from SCAG were replaced in certain categories where more specific information was available to improve emission forecasts. For example, District-wide natural gas consumption forecasts, consistent with the 2020 California Gas Report,¹⁶ were used to estimate the area source emissions associated with natural gas combustion.

The methodology used to forecast emissions for non-RECLAIM sources is described in the following sections. Baseline emissions for future years are obtained using the following equation:

$$FY_i = BY \times CF_i \times GF_i$$

where FY_i is the forecasted emissions of an air pollutant in the Basin for a future year i . BY refers to the base year (2018) emissions of the air pollutant. The control factor, CF_i , is an indicator of the level of control on a specific source category as a result of adopted state and local air quality regulations in year i . GF_i is a growth factor determined for different categories of industry with socioeconomic data for year i with respect to base year. Both CF_i and GF_i are unitless factors that reflect a change with respect to the base year 2018.

For RECLAIM sources, baseline emissions are the same as the baseline emissions included in the 2022 AQMP. The RECLAIM allocation cap defined in the South Coast AQMD's rule 2002 was used for years prior to the conversion to a traditional command and control structure. After the sunset year, sources belonging to the RECLAIM universe, referred to as "former-RECLAIM", are then scaled using growth and control factors normalized by the growth and control factors of the sunset year. Baseline emissions for years after sunset are projected as follows:

$$FY_i = SY \times CF_i/CF_s \times GF_i/GF_s$$

¹⁵ Heavy-Duty Inspection and Maintenance Program, <https://ww2.arb.ca.gov/our-work/programs/heavy-duty-inspection-and-maintenance-program>

¹⁶ https://www.socalgas.com/sites/default/files/2020-10/2020_California_Gas_Report_Joint_Utility_Biennial_Comprehensive_Filing.pdf.

where FY_i is the forecasted emissions for year i . SY is the emissions in the sunset year. CF_i is the control factor for year i , and CF_S is the control factor in the sunset year. GF_i is the growth factor for year i and GF_S is the growth factor in the sunset year.

In the 2022 AQMP, it was assumed that 2025 and 2026 would mark the initial years without RECLAIM programs for NOx and SOx, respectively, based on the best available information at the time of plan development. However, during the development of the RECLAIM landing rules, the sunset timeline was revised, delaying the sunset of the NOx RECLAIM program by one year to 2026, and placing the sunset of the SOx RECLAIM program on hold to accommodate operational requirements and stakeholder feedback. The change in the sunset year for NOx is not expected to affect the attainment demonstration, because landing rules are effectively implemented prior to 2030 and the reductions anticipated for 2030 are not impacted by the change of the sunset schedule. The change in sunset for SOx will ensure that the SOx emissions remain below the cap, and thus, does not affect the PM2.5 attainment strategy.

Control Factors

The impacts of South Coast AQMD rules and programs adopted or amended with compliance dates after 2018 are included in the baseline emission forecasts using control factors. Control factors were developed with reference to 2018 and applied to source categories and/or specific industries affected by the adopted rules/amendments. For industrial sources, the standard industrial codes (SIC) system is used. The U.S. EPA's SCC system is used for equipment. A control factor, CF_i , is calculated with the following equation for each individual source category:

$$CF_i = 1 - \text{Control Efficiency}$$

Control efficiency is mostly based on estimates projected during rulemaking. Control factors represent the remaining emissions after a rule or regulation is implemented after 2018. Table I-2-2A lists control factors for the year 2025 and the attainment year 2030 for South Coast AQMD rules for non-RECLAIM sources amended or adopted between the adoption of the 2016 AQMP and the cutoff dates for this Plan, and that have post-2018 compliance dates. Table I-2-2B lists the resulting future accumulated annual average emission reductions in 2025 and 2030. In total, eleven regulations and a Facility Based Mobile Source Measure for Commercial Airports were amended or adopted by South Coast AQMD since the development of the 2016 AQMP, and they are reflected in the baseline emissions inventory of this Draft PM2.5 Plan.

Table I-2-2C lists the South Coast AQMD's regulations to convert the RECLAIM program to a traditional command-and-control structure. As of September of 2023, South Coast AQMD has adopted eleven so-called 'landing' rules to transition out of RECLAIM program to a traditional command-and-control structure. A portion of R1109.1 (2.35 tons per day NOx reduction) implements Rule 2002, therefore it was counted toward the RECLAIM cap "shave". The reductions attributed to the non-shave portion of Rule 1109.1, which amount to 3.94 and 4.65 tons per day by 2030 and 2037, respectively, are already reflected in the baseline emissions (and not included in Table I-2-2C). In contrast, the remaining landing rules were not included in the baseline. At the time of the 2022 AQMP development, many of these rules were still in progress, and it was uncertain whether

the reductions would be considered part of the RECLAIM shave. To prevent double counting, the reductions from the landing rules were assumed to be included in the RECLAIM shave in the 2022 AQMP. Subsequently, the majority of the landing rules have been adopted, and they are expected to achieve reductions exceeding the requirements of the RECLAIM shave over a longer timeframe. Given the maturity of the RECLAIM shave in 2022, any reductions in excess of the 2022 reductions are considered new reductions. Consequently, the net NO_x reductions from landing rules beyond the shave are projected to be 2.86 tons per day by 2030, as shown in Table I-2-2C.

Figure I-2-3 shows the (former-) RECLAIM universe NO_x emission trend in the baseline for the Draft PM_{2.5} Plan SIP inventory for future years (which is the same as in the 2022 AQMP) and the adjusted future RECLAIM emissions that result from the quantification of all landing rules. The latest amendment of the Rule 2002 in December 2015 reduces NO_x allocation cap for RECLAIM facilities from 26.5 tons per day in 2015 to 14.5 tons per day in 2022. The 2018 emissions are reported emissions which are smaller than the allocation cap, 23.5 tons per day, for that year. In the RECLAIM baseline emissions for this Plan, the NO_x emissions under former-RECLAIM undergo a steady decrease with the implementation of R1109.1 from 2025 to future years. With the additional adjustment to the RECLAIM universe, RECLAIM NO_x emissions in 2030 are reduced by 2.86 tons per day with respect to the baseline (consistent with Table I-2-2C). This adjustment to RECLAIM emissions is not included in the baseline, but it is included in the attainment strategy in this Plan for 2030.

There are several stationary rules for non-RECLAIM sources adopted or amended after the cut-off date of this Plan (October 2020 except for R1109.1). Table I-2-2D lists the resulting future accumulated annual average emission reductions in 2030. R1111 was amended in January 2023 to update the implementation schedule with the full implementation year revised to 2048 with the same net reductions. R1168 was amended in November 2022 to revise the emission reductions. R1147, R1147.2 and R1150.3 are newly adopted or amended rules that have quantified emission reductions in milestone years for this plan, although those reductions were not reflected into the baseline emissions. As in the case of the RECLAIM adjustment, the emission reductions from these newly adopted or amended rules are included in the attainment strategy in this Plan for 2030.

TABLE I-2-2A
CONTROL FACTORS[±] BY SOUTH COAST AQMD RULES APPLYING TO NON-RECLAIM SOURCES
WITH POST-2018 COMPLIANCE DATES

RULES	DESCRIPTION	Adoption /Amend Date	2025			2030		
			VOC	NO _x	PM	VOC	NO _x	PM
445	Wood Burning Devices	3-Oct-20	-	-	0.97	-	-	0.97
1109.1	NO _x reduction from refinery	5-Nov-21	-	0.89	-	-	0.64	-
1111 ^a	Residential NG Heating Furnaces (<175k btu/hr)	2-Mar-18	-	0.82	-	-	0.68	-
1113	Architectural Coatings	5-Feb-16	0.92	-	-	0.92	-	-
1118.1	Non-Refinery Flares	4-Jan-19	0.97	0.81	-	0.97	0.81	-
1134	Stationary Gas Turbine	5-Apr-19	-	0.58	-	-	0.36	-
1135	Electricity Generating Facilities	2-Nov-18	-	0.09	-	-	0.09	-
1146 & 1146.1	Industrial /Commercial Boilers, Steam Generator, & Process Heaters	7-Dec-18	-	0.35	-	-	0.34	-
1168	Adhesive and Sealant Applications	6-Oct-17	0.87	-	-	0.82	-	-
1179.1	Combustion Equipment at Publicly Owned Treatment Works Facility	2-Oct-20	0.75	-	-	0.75	-	-
Airport	FBMSM – Commercial Airports	6-Dec-19	0.46	0.46	-	0.34	0.34	-

[±] The control factors in this table indicate the implementation schedule of rules and their anticipated percentage reductions in the total emissions subject to the rule. However, these figures do not represent rule effectiveness.

^aR1111 reduction reflect the implementation schedule for the March 2018 amendment.

TABLE I-2-2B
ACCUMULATED EMISSION REDUCTIONS IN TONS PER DAY BY SOUTH COAST AQMD RULES
APPLYING TO NON-RECLAIM SOURCES

RULES	DESCRIPTION	Adoption /Amend Date	2025			2030		
			VOC	NOx	PM	VOC	NOx	PM
445	Wood Burning Devices	27-Oct-20	-	-	0.13	-	-	0.13
1109.1	NOx reduction from refinery	5-Nov-21	-	1.17	-	-	4.65	-
1111 ^a	Residential NG Heating Furnaces	2-Mar-18		2.38	-	-	4.12	-
1113	Architectural Coatings	5-Feb-16	0.95	-	-	0.95	-	-
1118.1 (non-RECLAIM) ^b	Non-Refinery Flares	4-Jan-19	-	0.12	-	-	0.12	-
1134 (non-RECLAIM) ^b	Stationary Gas Turbine	5-Apr-19	-	0.11	-	-	0.17	-
1135 (non-RECLAIM) ^b	Electricity Generating Facilities	2-Nov-18	-	0.04	-	-	0.04	-
1146 & 1146.1 (non-RECLAIM) ^b	Industrial /Commercial Boilers, Steam Generator, & Process Heaters	7-Dec-18	-	-	-	-	0.06	-
1168	Adhesive and Sealant Applications	6-Oct-17	0.79	-	-	0.79	-	-
1179.1	Combustion Equipment at Publicly Owned Treatment Works Facility	2-Oct-20	0.05	-	-	0.05	-	-
Airport	FBMSM – Commercial Airports	6-Dec-19	-	0.5	-	-	0.5	-

^aR1111 reduction reflect the implementation schedule for the March 2018 amendment.

^bThe emission reductions for RECLAIM portion are not included to avoid double counting.

TABLE I-2-2C
REDUCTIONS IN TONS PER DAY FROM SOUTH COAST AQMD'S REGULATIONS TO CONVERT THE RECLAIM PROGRAM TO A COMMAND-AND-CONTROL STRUCTURE

Adopted/Amended Date	District Rule	Implementation Schedule		Total Reductions from RECLAIM Sources in 2030 (tpd)	2030 Reduction in excess of 2022 reductions (tpd)
		Start Year	End Year		
11/1/2019	Rule 1110.2 – Control of Emissions from Gaseous- and Liquid-fueled Engines	2020	2029	0.25	0.21
1/4/2019	Rule 1118.1 – Control of Emissions from Non-Refinery Flares	2022	2025	0.03	0.03
4/5/2019	Rule 1134 – Emissions of Oxides of Nitrogen from Stationary Gas Turbines	2024	2027	1.66	1.66
11/2/2018	Rule 1135 – Electricity Generating Facilities	2020	2025	0.30	0.18
12/7/2018	Rule 1146 & 1146.1 – Emissions of Oxides of Nitrogen from Industrial, Institutional, Commercial Boilers, Steam Generators, and Process Heaters	2019	2033	0.36	0.08
12/7/2018	Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Heaters and Small Boilers and Process Heaters	2022	2023	0.002	0.002
5/6/2022	Rule 1147 – NOx Reductions from Miscellaneous Sources	2024	2059	0.40	0.40
8/6/2021	Rule 1147.1 – NOx Reductions from Aggregate Dryers	2025	2057	0.01	0.01
4/1/2022	Rule 1147.2 – NOx Reductions from Metal Melting and Heating Furnaces	2026	2057	0.49	0.36
8/4/2023	Rule 1153.1 – Emissions of Oxides of Nitrogen from Commercial Food Ovens	2024	2036	0.02	0.02
Cumulative reductions from the landing rules listed above*				3.47	2.86

* Reductions are calculated for each rule individually. Because some sources are affected by more than one rule, the compounded emission reductions are slightly lower than the sum of reductions from individual rules.

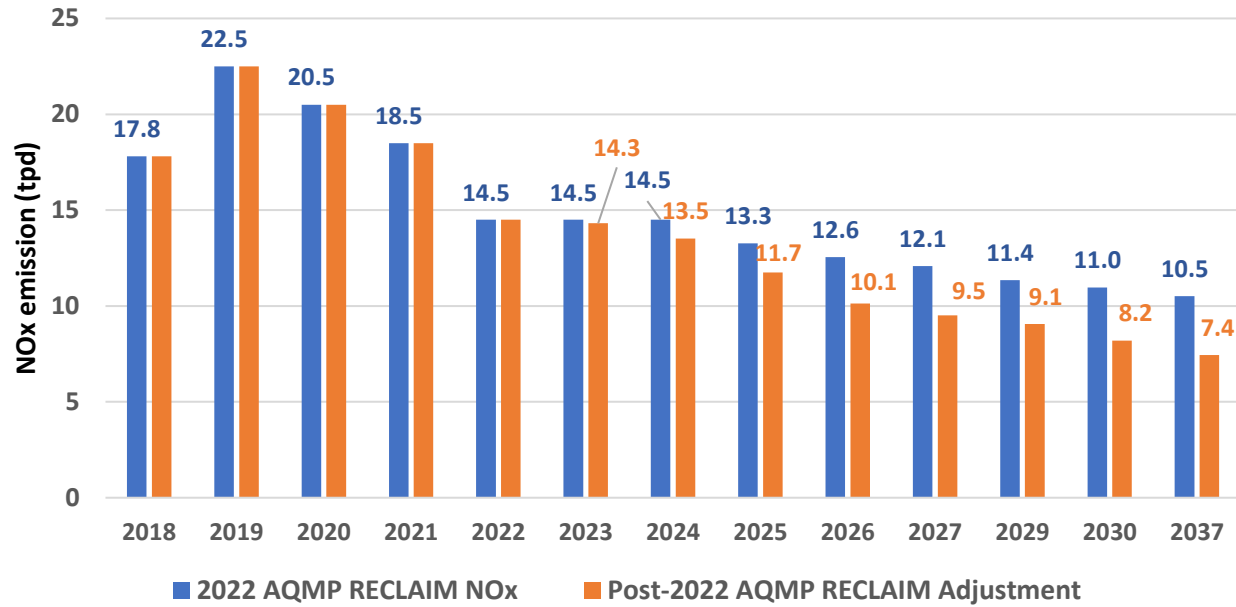


FIGURE I-2-3
NOX EMISSION OF (FORMER-) RECLAIM SOURCES FOR FUTURE YEARS IN THE DRAFT PM_{2.5} BASELINE AND ADJUSTED RECLAIM EMISSIONS AS A RESULT OF QUANTIFIED LANDING RULES

**TABLE I-2-2D
ACCUMULATED EMISSION REDUCTIONS IN TONS PER DAY BY POST-2022 AQMP SOUTH COAST AQMD
RULES FOR NON-RECLAIM SOURCES**

Adoption Date	District Rule	Implementation Schedule		Net SIP Reduction by 2030* (tpd)
		Start Year	End Year	
9/1/2023	Rule 1111 – Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces	2012	2050	-0.07**
5/6/2022	Rule 1147 – NOx Reductions from Miscellaneous Sources	2024	2059	0.28
8/6/2021	Rule 1147.1 – NOx Reductions from Aggregate Dryers	2025	2057	0.01
4/1/2022	Rule 1147.2 – NOx Reductions from Metal Melting and Heating Furnaces	2026	2057	0.06
2/5/2021	Rule 1150.3 – Emissions of Oxides of Nitrogen from Combustion Equipment at Landfills	2021	2031	0.04
8/4/2023	Rule 1153.1 – Emissions of Oxides of Nitrogen from Commercial Food Ovens	2024	2036	0.02
11/4/2022	Rule 1168 – VOC reductions from adhesive and sealant applications	2017	2028	-0.14**

*Reductions by 2030 for each rule are calculated with SIP baseline inventory and associated control factors based on rule-specific implementation schedules.

**The amendment allowed more time to comply with the rule requirements, which resulted in less reductions in 2030 than the earlier version. Negative values indicate the changes from the previous version reflected in the 2022 AQMP.

Growth Factors

To quantify growth, a facility business type is assigned to each facility based on the North American Industry Classification System (NAICS) Code according to their primary activity. Growth projections by NAICS are based on SCAG's 2020 RTP/SCS. The growth scalars were developed using the most recent data from Energy Information Administration (EIA), Southern California Gas Company, Bureau of Land Management (BLM), and South Coast AQMD rule compliance records.

Each emission inventory source grows based on its growth surrogate. These growth surrogates include industry output growth, employment growth, demographic growth, vehicle miles traveled (VMT) growth, and others. The demographic forecasts from the year 2018 through 2031 for population, housing, employment, and motor vehicle activity are shown in Table I-2-3. Current forecasts indicate that this region will experience a 7.9 percent population growth by the year 2030 with a 1.8 percent increase in vehicle miles traveled (VMT) from the 2018 levels. Housing units and total employment are projected to grow by 11.7 percent and 7.3 percent, respectively. Table I-2-4 shows the relative distribution of population by county in the Basin for the years 2018, 2023, 2025, 2028, 2030 and 2031. By 2031 the populations in Los Angeles and Orange counties are projected

to increase by 9 percent from the 2018 levels, compared with the increases for Riverside and San Bernardino counties of 23 percent and 19 percent, respectively, indicating faster growth in inland counties than Los Angeles and Orange counties.

The selection of the surrogate by which emission growth is projected depends on the type of activity. For instance, manufacturing sectors use output growth as a surrogate. Output growth is the product of employment and productivity. Employment growth is chosen for labor intensive sectors, such as construction and laundering. Certain emission sources use demographic data as their surrogate; for example, the number of housing units is used to project emissions from architectural coatings, and population growth is used for the composting waste disposal category. Some growth projections are from SoCalGas 2020 Gas Data Report for natural gas combustion related categories. Growth factors for specified ranges of NAICS categories were projected by SCAG and are based on predictions of growth for different industrial sectors in each county. SCAG has provided growth factors for future milestone years such as 2023, 2025, 2028, 2030, and 2031. Table I-2-5 lists the point sources growth surrogate by NAICS. Table I-2-6 shows the area sources growth surrogate by source category. Tables I-2-7 through Table I-2-11 illustrate the growth factors for point sources by NAICS for years of 2023, 2025, 2028, 2030, and 2031 in the Draft PM2.5 Plan. Tables I-2-12 through Table I-2-16 contain the growth factors for years of 2023, 2025, 2028, 2030, and 2031 in the Draft PM2.5 Plan for the area sources by source category.

TABLE I-2-3
BASELINE DEMOGRAPHIC FORECASTS IN THE DRAFT 2024 PM2.5 PLAN

CATEGORY		2018	2023	2025	2030	2031
Population	Millions	16.7	17.3	17.5	18	18.1
	Growth (%)		3.5	4.8	7.9	8.5
Housing Units	Millions	5.3	5.7	5.7	6	6
	Growth (%)	-	5.9	7.7	11.7	12.5
Total Employment	Millions	7.7	8	8.1	8.3	8.4
	Growth (%)	-	3	4.4	7.3	7.9
Daily VMT	Millions	388	394	394	395	397
	Growth (%)	-	1.7	1.6	1.8	2.5

TABLE I-2-4
POPULATION DISTRIBUTION BY COUNTY IN SCAB (IN THOUSANDS)

YEAR	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO	BASIN TOTAL
2018	9,869	3,232	1,937	1,634	16,672
2023	10,149	3,324	2,067	1,724	17,263
2025	10,239	3,361	2,124	1,753	17,477
2028	10,373	3,409	2,202	1,797	17,781
2030	10,463	3,441	2,254	1,827	17,985
2031	10,513	3,453	2,273	1,844	18,082

**TABLE I-2-5
POINT SOURCES GROWTH SURROGATE BY SOURCE CATEGORY**

NAICS	SOURCE DESCRIPTION	GROWTH SURROGATE
111	Crop Production	111-115 Output
112	Animal Production	111-115 Output
113	Forestry and Logging	111-115 Output
114	Fishing Hunting and Trapping	111-115 Output
115	Support Activities for Agriculture and Forestry	111-115 Output
211	Oil and Gas Extraction	211 Output
212	Mining (except Oil and Gas)	212-213 Output
213	Support Activities for Mining	212-213 Output
221111	Hydroelectric Power Generation	SCG-Electricity Power
221112	Fossil Fuel Electric Generation	SCG-Electricity Power
221113	Nuclear Electric Generation	SCG-Electricity Power
221119	Other Electric Generation	SCG-Electricity Power
221121	Electric Bulk Transmission and Control	SCG-Electricity Power
221122	Electric Power Distribution	SCG-Electricity Power
221	Utilities - Except Electricity	Total Employment
236	Construction of Buildings	236-238 Employment
237	Heavy and Civil Engineering Construction	236-238 Employment
238	Specialty Trade Contractors	236-238 Employment
311	Food Manufacturing	311 Output
312	Beverage and Tobacco Product Manufacturing	312 Output
313	Textile Mills	313 Output
314	Textile Product Mills	314 Output
315	Apparel Manufacturing	315 Output
316	Leather and Allied Product Manufacturing	316 Output
321	Wood Product Manufacturing	321 Output
322	Paper Manufacturing	322 Output
323	Printing and Related Support Activities	323 Output
324	Petroleum and Coal Products Manufacturing	No Growth
325	Chemical Manufacturing	325 Output
326	Plastics and Rubber Products Manufacturing	326 Output
327	Nonmetallic Mineral Product Manufacturing	327 Output
331	Primary Metal Manufacturing	331 Output
332	Fabricated Metal Product Manufacturing	332 Output

TABLE I-2-5 (CONTINUED)
POINT SOURCES GROWTH SURROGATE BY SOURCE CATEGORY

NAICS	SOURCE DESCRIPTION	GROWTH SURROGATE
333	Machinery Manufacturing	333 Output
334	Computer and Electronic Product Manufacturing	334 Output
335	Electrical Equipment -Appliance-Component Manufacturing	335 Output
336	Transportation Equipment Manufacturing	336 Output
337	Furniture and Related Product Manufacturing	337 Output
339	Miscellaneous Manufacturing	339 Output
423	Merchant Wholesalers-Durable Goods	423 Employment
424	Merchant Wholesalers - Nondurable Goods	424 Employment
425	Wholesale Electronic Markets and Agents and Brokers	425 Employment
441	Motor Vehicle and Parts Dealers	441 Employment
442	Furniture and Home Furniture Stores	442 Employment
443	Electronics and Appliance Stores	443 Employment
444	Building Material-Garden Equipment-Supplies Dealers	444 Employment
445	Food and Beverage Stores	445-6 Employment
446	Health and Personal Care Stores	445-6 Employment
447	Gasoline Stations	447 Output
448	Clothing and Clothing Accessories Stores	448 Output
451	Sporting Goods-Hobby-Book- Music Stores	451-454 Output
452	General Merchandise Stores	451-454 Output
453	Miscellaneous Store Retailers	451-454 Output
454	Nonstore Retailers	451-454 Output
481	Air Transportation	481 Output
482	Rail Transportation	482 Output
483	Water Transportation	483 Output
484	Truck Transportation	484 Output
485	Transit and Ground Passenger Transportation	485 Output
486	Pipeline Transportation	486 Output
487	Scenic and Sightseeing Transportation	487 Output
488	Support Activities for Transportation	488 Output
491	Postal Service	491-493 Employment
492	Couriers and Messengers	491-493 Employment
493	Warehousing and Storage	491-493 Output
511	Publishing Industries (except Internet)	511-519 Output

TABLE I-2-5 (CONTINUED)
POINT SOURCES GROWTH SURROGATE BY SOURCE CATEGORY

NAICS	SOURCE DESCRIPTION	GROWTH SURROGATE
512	Motion Picture and Sound Recording Industries	511-519 Output
515	Broadcasting (except Internet)	511-519 Output
517	Telecommunications	511-519 Output
518	Data Processing- Hosting and Related Services	511-519 Output
519	Other Information Services	511-519 Output
521	Monetary Authorities-Central Bank	521-525 Employment
522	Credit Intermediation and Related Activities	521-525 Employment
523	Securities-Commodity-Other Financial Investments	521-525 Employment
524	Insurance Carriers and Related Activities	521-525 Employment
525	Funds-Trusts-and Other Financial Vehicles	521-525 Employment
531	Real Estate	531-533 Employment
532	Rental and Leasing Services	531-533 Employment
533	Lessors of Nonfinancial Intangible Assets (no Copyright)	531-533 Employment
541	Professional-Scientific-and Technical Services	541 Employment
551	Management of Companies and Enterprises	551 Employment
561	Administrative and Support Services	561-562 Employment
562	Waste Management and Remediation Services	561-562 Employment
611	Educational Services	Pop 5 to 24
621	Ambulatory Health Care Services	Population
622	Hospitals	Pop 0 to 4 and 65 up
623	Nursing and Residential Care Facilities	Pop 65 up
624	Social Assistance	621-624 Employment
711	Performing Arts-Spectator Sports-and Related Industries	711-713 Output
712	Museums-Historical Sites-and Similar Institutions	711-713 Output
713	Amusement-Gambling-and Recreation Industries	711-713 Output
721	Accommodation	Total Employment
722	Food Services and Drinking Places	Total Employment
811	Repair and Maintenance	Total Employment
812	Personal and Laundry Services	Total Employment
813	Religious-Grant-Civic-Professional-and Similar Org	811-814 Employment
814	Private Households	811-814 Employment
921	Executive-Legislative-and Other General Govt Support	921-928 Employment
922	Justice-Public Order-and Safety Activities	921-928 Employment

TABLE I-2-5 (CONCLUDED)
POINT SOURCES GROWTH SURROGATE BY SOURCE CATEGORY

NAICS	SOURCE DESCRIPTION	GROWTH SURROGATE
923	Administration of Human Resource Programs	921-928 Employment
924	Administration of Environmental Quality Programs	921-928 Employment
925	Admin of Housing Pgms-Urban-Community Development	921-928 Employment
926	Administration of Economic Programs	921-928 Employment
927	Space Research and Technology	921-928 Employment
928	National Security and International Affairs	921-928 Employment

TABLE I-2-6
AREA SOURCES GROWTH SURROGATE BY SOURCE CATEGORY

SOURCE DESCRIPTION	SURROGATE
Cogen	SCG-Cogen*
Gaseous Fuel	NAICS 211 Output
Ind. Stationary IC Engines - Natural Gas	SCG - Industrial Combustion*
Industrial Natural Gas (Unspecified)	SCG - Industrial Combustion*
Industrial LPG Combustion	Manufacturing Output
Industrial Distillate Oil Combustion	Manufacturing Output
Ind. Stationary IC Engines - Other Fuel	Manufacturing Output
Ag Irrigation IC Engines-Stationary	CARB Growth Data
Ag Irrigation IC Engines-Portable	CARB Growth Data
Commercial Space Heating	SCG - Commercial Space*
Commercial Water Heating	SCG - Commercial Water*
Commercial Combustion – Internal	SCG - Commercial Combustion*
Commercial Combustion – External	SCG - Commercial Combustion*
Commercial LPG Combustion	Service Output
Stationary Engines – Diesel	CARB Growth Data
Resource Recovery	SCG-Cogen*
Sewage Treatment Plants - POTWs - Ammonia	Population
Municipal Waste Disposal	Population
Composting – Ammonia	No Growth
Biological Waste – Composting	Population
Laundering	Total Employment
Degreasing	Manufacturing Output
Auto Refinishing	Misc. Services Employment
Marine Coating	Water Transportation Output
Paper Coating	Paper Manufacturing Output
Fabric Coatings	Textile Output
Can and Coil Coatings	Fabricated Metal Output
Metal Part and Products Coatings	Fabricated Metal Output
Wood and Fabricated Furniture Coatings	Furniture Output
Plastic Parts Coatings	Plastic Output
Semiconductor Coatings	Computer Output
Aircraft and Aerospace Coatings	Air Transportation Output
Thinning and Cleanup Solvent Use	Manufacturing Output

TABLE I-2-6 (CONTINUED)
AREA SOURCES GROWTH SURROGATE BY SOURCE CATEGORY

SOURCE DESCRIPTION	SURROGATE
Printing	Printing Output
Adhesive and Sealants (Solvent Based)	Manufacturing Output
Adhesive and Sealants (Water Based)	Manufacturing Output
Miscellaneous Industrial Solvents	Manufacturing Output
Oil Production Fugitive	NAICS 211 Output
Natural Gas Transmission Losses	SCG - Total - Natural Gas*
LPG Transfer and Dispensing - Fugitive Losses	Households
Gasoline Dispensing Tank-Working Losses	Gasoline Consumption
Gasoline Dispensing Tank-Breathing Losses	Gasoline Consumption
Vehicle Refueling-Vapor Displacement Losses	Gasoline Consumption
Vehicle Refueling-Spillage	Gasoline Consumption
Storage Tank and Pipeline Cleaning	Gasoline Consumption
Tank Cargo-Pressure Related Fug. Losses	Gasoline Consumption
Tank Cargo-Vapor Hose Fugitive Losses	Gasoline Consumption
Tank Cargo-Product Hose Fugitive Losses	Gasoline Consumption
Bulk Gasoline Storage and Transfer (Unspec)	Gasoline Consumption
Rubber and Rubber Products	Plastic Output
Fiberglass and Fiberglass Products	Plastic Output
Plastic and Plastic Products	Plastic Output
Wine Fermentation	Beverage Manufacturing Output
Wine Aging	CARB Growth Data
Bakeries	Food Output
Agricultural Products Processing Losses	Agriculture Output
Agricultural Crop Processing Losses	Agriculture Output
Sand and Gravel Excavation	Mineral Product Output
Asphaltic Concrete Production	Construction Employment
Grinding/Crushing of Aggregates	Mineral Product Output
Surface Blasting	Mining Extraction Output
Cement Concrete Manufacturing and Fabrication	Mineral Product Output
Open Pile Storage	No Growth
Other Mineral Processes	Mineral Product Output
Secondary Metal Production	Primary Metal Output
Wood Product Losses	Furniture Output

TABLE I-2-6 (CONTINUED)
AREA SOURCES GROWTH SURROGATE BY SOURCE CATEGORY

SOURCE DESCRIPTION	SURROGATE
Industrial Lubricant	Population
Industrial Process Losses (Unspecified)	No Growth
Consumer Products (Except Aerosol)	Population
Aerosol Consumer Product – Aerosol	No Growth
Architectural Coatings	Households
Ag Pesticides Methyl Bromide	CARB Growth Data
Ag Pesticides non-Methyl Bromide	CARB Growth Data
non-Ag Pesticides-Methyl Bromide	CARB Growth Data
non-Ag Pesticides-non-Methyl Bromide	CARB Growth Data
Agricultural Fertilizer – Ammonia	CARB Growth Data
Asphalt Paving	Construction Employment
Residential Wood Stoves	No Growth
Residential Wood Fireplaces	No Growth
Residential Natural Gas Space Heating	SCG - Residential Space*
Residential Distillate Oil Combustion	Households
Residential Natural Gas Water Heating	SCG - Residential Water*
Residential Natural Gas Cooking	SCG - Residential Cooking*
Residential Natural Gas Comb – Other	SCG - Residential Combustion*
Residential LPG Combustion	Households
Farming Operations	CARB Growth Data
Residential Building Construction - Dust	Construction Employment
Commercial Building Construction - Dust	Construction Employment
Industrial Building Construction – Dust	Construction Employment
Institutional Building Construction - Dust	Construction Employment
Road Construction – Dust	Construction Employment
Paved Road Travel – Freeways	VMT (freeway)
Paved Road Travel (Unspecified)	No Growth
Paved Road Travel-Major	VMT (major)
Paved Road Travel-Collector	VMT (other)
Paved Road Travel-Local	VMT (other)
Unpaved Road Travel -City and County Roads	No Growth
Unpaved Road Travel - US Forest and Park Roads	No Growth
Unpaved Road Travel -BLM Roads	No Growth

TABLE I-2-6 (CONCLUDED)
AREA SOURCES GROWTH SURROGATE BY SOURCE CATEGORY

SOURCE DESCRIPTION	SURROGATE
Unpaved Road Travel -Farm Roads	CARB Growth Data
Unpaved Roads (Unspecified)	No Growth
Ag Land (Non-Pasture) - Wind Dust	CARB Growth Data
Ag Land (Pasture) - Wind Dust	CARB Growth Data
Unpaved Roads - Wind Dust	No Growth
Fires	No Growth
Ag Burning – Pruning	CARB Growth Data
Agricultural Burning - Field Crops	CARB Growth Data
Range Improvement	Agriculture Output
Forest Management	Forest Management Services Data**
Wildland Fire Use (WFU)	CARB Growth Data
Weed Abatement	No Growth
Waste Burning (Unspecified)	CARB Growth Data
Cooking	Total Employment
Domestic Activity – Ammonia	Population

* These projections by SCG incorporate the energy efficiency programs/standards.¹⁷

** FRAP provided burn perimeters and ignition dates which is used in FOOEM model to estimate prescribed burning emissions; future year estimates are based on a 10-year average, held flat in the forecast.

¹⁷ https://www.socalgas.com/sites/default/files/2020-10/2020_California_Gas_Report_Joint_Utility_Biennial_Comprehensive_Filing.pdf

**TABLE I-2-7
NAIC EMISSION GROWTH FACTORS BY COUNTY FOR THE YEAR 2023**

NAIC SECTOR	NAIC	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
Agriculture, Forestry, Animal, Fishing and Hunting	11	1.078	0.987	1.111	1.032
Oil and Gas Extraction	211	1.276	1.168	1.315	1.221
Mining (except Oil and Gas)	212	1.009	0.923	1.039	0.966
Support Activities for Mining	213	1.009	0.923	1.039	0.966
Utilities - Except Electricity	221	1.039	1.024	1.081	1.000
Utilities – Electricity	221	1.027	1.043	1.164	1.061
Construction	23	1.022	1.027	1.108	1.026
Food Manufacturing	311	1.037	1.060	1.124	1.071
Beverage and Tobacco Product Manufacturing	312	0.939	0.959	1.018	0.970
Textile Mills	313	1.130	1.155	1.225	1.167
Textile Product Mills	314	1.130	1.155	1.225	1.167
Apparel Manufacturing	315	1.127	1.151	1.221	1.163
Leather and Allied Product Manufacturing	316	1.127	1.151	1.221	1.163
Wood Product Manufacturing	321	1.032	1.054	1.118	1.065
Paper Manufacturing	322	1.033	1.056	1.120	1.067
Printing and Related Support Activities	323	1.104	1.128	1.196	1.140
Petroleum and Coal Products Manufacturing	324	1.000	1.000	1.000	1.000
Chemical Manufacturing	325	1.047	1.069	1.134	1.081
Plastics and Rubber Products Manufacturing	326	1.003	1.025	1.087	1.036
Nonmetallic Mineral Product Manufacturing	327	1.026	1.048	1.112	1.059
Primary Metal Manufacturing	331	1.097	1.121	1.189	1.133
Fabricated Metal Product Manufacturing	332	1.032	1.054	1.118	1.066
Machinery Manufacturing	333	1.053	1.076	1.141	1.087
Computer and Electronic Product Manufacturing	334	1.108	1.132	1.200	1.144
Electrical Equipment -Appliance-Component Manufacturing	335	1.049	1.072	1.137	1.083
Transportation Equipment Manufacturing	336	1.052	1.075	1.140	1.086
Furniture and Related Product Manufacturing	337	1.079	1.103	1.169	1.114

TABLE I-2-7 (CONTINUED)
NAIC EMISSION GROWTH FACTORS BY COUNTY FOR THE YEAR 2023

NAIC SECTOR	NAIC	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
Miscellaneous Manufacturing	339	1.071	1.095	1.161	1.106
Wholesale Trade	42	1.000	0.997	1.055	0.994
Motor Vehicle and Parts Dealers	441	1.077	1.152	1.143	1.119
Furniture and Home Furniture Stores	442	1.120	1.198	1.188	1.164
Electronics and Appliance Stores	443	1.120	1.198	1.188	1.164
Building Material-Garden Equipment-Supplies Dealers	444	1.120	1.198	1.188	1.164
Food and Beverage Stores	445	0.990	1.059	1.050	1.029
Health and Personal Care Stores	446	0.990	1.059	1.050	1.029
Gasoline Stations	447	1.120	1.198	1.188	1.164
Clothing and Clothing Accessories Stores	448	1.120	1.198	1.188	1.164
Sporting Goods-Hobby-Book- Music Stores	451	1.120	1.198	1.188	1.164
General Merchandise Stores	452	1.120	1.198	1.188	1.164
Miscellaneous Store Retailers	453	1.120	1.198	1.188	1.164
Nonstore Retailers	454	1.120	1.198	1.188	1.164
Air Transportation	481	1.084	1.101	1.229	1.120
Rail Transportation	482	1.043	1.060	1.000	1.077
Water Transportation	483	1.179	1.198	1.336	1.218
Truck Transportation	484	1.115	1.133	1.264	1.152
Transit and Ground Passenger Transportation	485	1.105	1.123	1.253	1.142
Pipeline Transportation	486	1.097	1.115	1.243	1.133
Scenic and Sightseeing Transportation	487	1.052	1.069	1.192	1.087
Support Activities for Transportation	488	1.052	1.069	1.192	1.087
Postal Service	491	1.012	1.028	1.147	1.045
Couriers and Messengers	492	1.012	1.028	1.147	1.045
Warehousing and Storage	493	1.079	1.097	1.223	1.115
Information	51	1.165	1.150	1.207	1.155
Finance and Insurance	52	1.105	1.109	1.167	1.113
Real Estate and Rental and Leasing	53	1.106	1.110	1.168	1.113
Professional-Scientific-and Technical Services	541	1.064	1.076	1.156	1.064
Management of Companies and Enterprises	551	1.084	1.097	1.178	1.084

TABLE I-2-7 (CONCLUDED)
NAIC EMISSION GROWTH FACTORS BY COUNTY FOR THE YEAR 2023

NAIC SECTOR	NAIC	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
Administrative and Support Services	561	1.014	1.027	1.103	1.014
Waste Management and Remediation Services	562	1.014	1.027	1.103	1.014
Educational Services	611	1.063	1.069	1.150	1.064
Ambulatory Health Care Services	621	1.028	1.028	1.067	1.054
Hospitals	622	1.121	1.120	1.160	1.140
Nursing and Residential Care Facilities	623	1.175	1.160	1.226	1.222
Social Assistance	624	1.060	1.065	1.146	1.061
Arts, Entertainment, Museums, and Recreation	71	1.104	1.119	1.191	1.204
Accommodation and Food Services	72	1.065	1.079	1.149	1.161
Repair and Maintenance	811	1.019	1.030	1.101	1.039
Personal and Laundry Services	812	1.019	1.030	1.101	1.039
Religious-Grant-Civic-Professional-and Similar Org	813	1.015	1.024	1.057	1.024
Private Households	814	1.015	1.024	1.057	1.024
Public Administration	92	1.057	1.050	1.151	1.053

**TABLE I-2-8
NAIC EMISSION GROWTH FACTORS BY COUNTY FOR THE YEAR 2025**

NAIC SECTOR	NAIC	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
Agriculture, Forestry, Animal, Fishing and Hunting	11	1.102	0.992	1.157	1.050
Oil and Gas Extraction	211	1.396	1.255	1.465	1.329
Mining (except Oil and Gas)	212	1.004	0.904	1.054	0.957
Support Activities for Mining	213	1.004	0.904	1.054	0.957
Utilities - Except Electricity	221	1.058	1.035	1.122	1.000
Utilities - Electricity	221	0.940	0.965	1.126	0.984
Construction	23	1.032	1.039	1.167	1.043
Food Manufacturing	311	1.052	1.086	1.187	1.105
Beverage and Tobacco Product Manufacturing	312	0.915	0.945	1.032	0.961
Textile Mills	313	1.186	1.225	1.338	1.246
Textile Product Mills	314	1.186	1.225	1.338	1.246
Apparel Manufacturing	315	1.181	1.219	1.332	1.240
Leather and Allied Product Manufacturing	316	1.181	1.219	1.332	1.240
Wood Product Manufacturing	321	1.044	1.078	1.178	1.097
Paper Manufacturing	322	1.047	1.080	1.181	1.099
Printing and Related Support Activities	323	1.148	1.185	1.295	1.206
Petroleum and Coal Products Manufacturing	324	1.000	1.000	1.000	1.000
Chemical Manufacturing	325	1.065	1.100	1.202	1.119
Plastics and Rubber Products Manufacturing	326	1.004	1.036	1.132	1.054
Nonmetallic Mineral Product Manufacturing	327	1.036	1.070	1.169	1.088
Primary Metal Manufacturing	331	1.138	1.175	1.284	1.195
Fabricated Metal Product Manufacturing	332	1.044	1.078	1.178	1.097
Machinery Manufacturing	333	1.074	1.109	1.212	1.128
Computer and Electronic Product Manufacturing	334	1.154	1.191	1.301	1.211
Electrical Equipment -Appliance-Component Manufacturing	335	1.069	1.103	1.206	1.122
Transportation Equipment Manufacturing	336	1.073	1.108	1.210	1.127
Furniture and Related Product Manufacturing	337	1.112	1.148	1.254	1.168

TABLE I-2-8 (CONTINUED)
NAIC EMISSION GROWTH FACTORS BY COUNTY FOR THE YEAR 2025

NAIC SECTOR	NAIC	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
Miscellaneous Manufacturing	339	1.100	1.136	1.241	1.156
Wholesale Trade	42	1.000	0.997	1.088	0.995
Motor Vehicle and Parts Dealers	441	1.112	1.212	1.211	1.171
Furniture and Home Furniture Stores	442	1.174	1.281	1.279	1.237
Electronics and Appliance Stores	443	1.174	1.281	1.279	1.237
Building Material-Garden Equipment-Supplies Dealers	444	1.174	1.281	1.279	1.237
Food and Beverage Stores	445	0.988	1.077	1.076	1.040
Health and Personal Care Stores	446	0.988	1.077	1.076	1.040
Gasoline Stations	447	1.174	1.281	1.279	1.237
Clothing and Clothing Accessories Stores	448	1.174	1.281	1.279	1.237
Sporting Goods-Hobby-Book- Music Stores	451	1.174	1.281	1.279	1.237
General Merchandise Stores	452	1.174	1.281	1.279	1.237
Miscellaneous Store Retailers	453	1.174	1.281	1.279	1.237
Nonstore Retailers	454	1.174	1.281	1.279	1.237
Air Transportation	481	1.119	1.149	1.341	1.171
Rail Transportation	482	1.060	1.089	0.000	1.110
Water Transportation	483	1.259	1.293	1.509	1.317
Truck Transportation	484	1.164	1.196	1.396	1.219
Transit and Ground Passenger Transportation	485	1.150	1.181	1.379	1.204
Pipeline Transportation	486	1.138	1.168	1.364	1.191
Scenic and Sightseeing Transportation	487	1.073	1.102	1.286	1.123
Support Activities for Transportation	488	1.073	1.102	1.286	1.123
Postal Service	491	1.016	1.044	1.218	1.064
Couriers and Messengers	492	1.016	1.044	1.218	1.064
Warehousing and Storage	493	1.112	1.142	1.333	1.164
Information	51	1.241	1.215	1.315	1.215
Finance and Insurance	52	1.151	1.159	1.247	1.174
Real Estate and Rental and Leasing	53	1.153	1.161	1.248	1.175
Professional-Scientific-and Technical Services	541	1.093	1.111	1.236	1.096
Management of Companies and Enterprises	551	1.122	1.141	1.269	1.126

TABLE I-2-8 (CONCLUDED)
NAIC EMISSION GROWTH FACTORS BY COUNTY FOR THE YEAR 2025

NAIC SECTOR	NAIC	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
Administrative and Support Services	561	1.022	1.040	1.157	1.026
Waste Management and Remediation Services	562	1.022	1.040	1.157	1.026
Educational Services	611	1.090	1.099	1.221	1.092
Ambulatory Health Care Services	621	1.038	1.040	1.097	1.073
Hospitals	622	1.168	1.169	1.229	1.193
Nursing and Residential Care Facilities	623	1.244	1.227	1.324	1.308
Social Assistance	624	1.086	1.095	1.216	1.087
Arts, Entertainment, Museums, and Recreation	71	1.152	1.173	1.282	1.296
Accommodation and Food Services	72	1.095	1.115	1.219	1.231
Repair and Maintenance	811	1.028	1.044	1.152	1.058
Personal and Laundry Services	812	1.028	1.044	1.152	1.058
Religious-Grant-Civic-Professional-and Similar Org	813	1.023	1.038	1.095	1.041
Private Households	814	1.023	1.038	1.095	1.041
Public Administration	92	1.082	1.073	1.229	1.084

**TABLE I-2-9
NAIC EMISSION GROWTH FACTORS BY COUNTY FOR THE YEAR 2028**

NAIC SECTOR	NAIC	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
Agriculture, Forestry, Animal, Fishing and Hunting	11	1.147	0.988	1.189	1.095
Oil and Gas Extraction	211	1.598	1.375	1.656	1.526
Mining (except Oil and Gas)	212	1.008	0.868	1.045	0.962
Support Activities for Mining	213	1.008	0.868	1.045	0.962
Utilities - Except Electricity	221	1.086	1.050	1.182	0.991
Utilities - Electricity	221	0.820	0.849	1.022	0.877
Construction	23	1.047	1.056	1.212	1.068
Food Manufacturing	311	1.070	1.118	1.240	1.153
Beverage and Tobacco Product Manufacturing	312	0.882	0.921	1.022	0.950
Textile Mills	313	1.263	1.320	1.465	1.362
Textile Product Mills	314	1.263	1.320	1.465	1.362
Apparel Manufacturing	315	1.259	1.315	1.459	1.357
Leather and Allied Product Manufacturing	316	1.259	1.315	1.459	1.357
Wood Product Manufacturing	321	1.059	1.107	1.228	1.142
Paper Manufacturing	322	1.062	1.110	1.232	1.145
Printing and Related Support Activities	323	1.207	1.261	1.400	1.302
Petroleum and Coal Products Manufacturing	324	1.000	1.000	1.000	1.000
Chemical Manufacturing	325	1.088	1.137	1.262	1.173
Plastics and Rubber Products Manufacturing	326	1.002	1.047	1.162	1.080
Nonmetallic Mineral Product Manufacturing	327	1.048	1.095	1.215	1.129
Primary Metal Manufacturing	331	1.192	1.246	1.382	1.285
Fabricated Metal Product Manufacturing	332	1.059	1.106	1.228	1.141
Machinery Manufacturing	333	1.101	1.150	1.276	1.187
Computer and Electronic Product Manufacturing	334	1.216	1.270	1.410	1.310
Electrical Equipment -Appliance-Component Manufacturing	335	1.093	1.142	1.268	1.179
Transportation Equipment Manufacturing	336	1.100	1.149	1.276	1.186
Furniture and Related Product Manufacturing	337	1.155	1.206	1.339	1.245

TABLE I-2-9 (CONTINUED)
NAIC EMISSION GROWTH FACTORS BY COUNTY FOR THE YEAR 2028

NAIC SECTOR	NAIC	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
Miscellaneous Manufacturing	339	1.138	1.189	1.320	1.227
Wholesale Trade	42	1.003	0.996	1.100	1.000
Motor Vehicle and Parts Dealers	441	1.161	1.295	1.276	1.248
Furniture and Home Furniture Stores	442	1.252	1.396	1.375	1.346
Electronics and Appliance Stores	443	1.252	1.396	1.375	1.346
Building Material-Garden Equipment-Supplies Dealers	444	1.252	1.396	1.375	1.346
Food and Beverage Stores	445	0.984	1.098	1.081	1.058
Health and Personal Care Stores	446	0.984	1.098	1.081	1.058
Gasoline Stations	447	1.252	1.396	1.375	1.346
Clothing and Clothing Accessories Stores	448	1.252	1.396	1.375	1.346
Sporting Goods-Hobby-Book- Music Stores	451	1.252	1.396	1.375	1.346
General Merchandise Stores	452	1.252	1.396	1.375	1.346
Miscellaneous Store Retailers	453	1.252	1.396	1.375	1.346
Nonstore Retailers	454	1.252	1.396	1.375	1.346
Air Transportation	481	1.171	1.211	1.455	1.252
Rail Transportation	482	1.087	1.124	1.000	1.162
Water Transportation	483	1.377	1.425	1.711	1.473
Truck Transportation	484	1.237	1.280	1.537	1.323
Transit and Ground Passenger Transportation	485	1.217	1.260	1.513	1.302
Pipeline Transportation	486	1.197	1.239	1.488	1.280
Scenic and Sightseeing Transportation	487	1.104	1.143	1.372	1.181
Support Activities for Transportation	488	1.104	1.143	1.372	1.181
Postal Service	491	1.025	1.061	1.274	1.096
Couriers and Messengers	492	1.025	1.061	1.274	1.096
Warehousing and Storage	493	1.161	1.201	1.442	1.241
Information	51	1.353	1.315	1.432	1.322
Finance and Insurance	52	1.217	1.228	1.327	1.254
Real Estate and Rental and Leasing	53	1.219	1.230	1.329	1.256
Professional-Scientific-and Technical Services	541	1.133	1.158	1.308	1.142
Management of Companies and Enterprises	551	1.174	1.200	1.356	1.184

TABLE I-2-9 (CONCLUDED)
NAIC EMISSION GROWTH FACTORS BY COUNTY FOR THE YEAR 2028

NAIC SECTOR	NAIC	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
Administrative and Support Services	561	1.033	1.056	1.193	1.042
Waste Management and Remediation Services	562	1.033	1.056	1.193	1.042
Educational Services	611	1.048	1.043	1.121	1.429
Ambulatory Health Care Services	621	1.100	1.092	1.148	1.528
Hospitals	622	1.231	1.230	1.319	1.262
Nursing and Residential Care Facilities	623	1.420	1.357	1.409	2.212
Social Assistance	624	1.124	1.135	1.277	1.126
Arts, Entertainment, Museums, and Recreation	71	1.218	1.248	1.370	1.429
Accommodation and Food Services	72	1.136	1.164	1.277	1.332
Repair and Maintenance	811	1.086	1.050	1.182	0.991
Personal and Laundry Services	812	1.086	1.050	1.182	0.991
Religious-Grant-Civic-Professional-and Similar Org	813	1.034	1.052	1.117	1.064
Private Households	814	1.034	1.052	1.117	1.064
Public Administration	92	1.082	1.073	1.229	1.084

(Base year is 2018)

TABLE I-2-10
NAIC EMISSION GROWTH FACTORS BY COUNTY FOR THE YEAR 2030

NAIC SECTOR	NAIC	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
Agriculture, Forestry, Animal, Fishing and Hunting	11	1.154	0.958	1.188	1.093
Oil and Gas Extraction	211	1.687	1.401	1.736	1.598
Mining (except Oil and Gas)	212	0.998	0.828	1.027	0.945
Support Activities for Mining	213	0.998	0.828	1.027	0.945
Utilities - Except Electricity	221	1.105	1.062	1.223	1.000
Utilities - Electricity	221	0.750	0.781	0.958	0.812
Construction	23	1.057	1.066	1.242	1.084
Food Manufacturing	311	1.066	1.123	1.260	1.171
Beverage and Tobacco Product Manufacturing	312	0.858	0.904	1.015	0.943
Textile Mills	313	1.282	1.351	1.516	1.408
Textile Product Mills	314	1.282	1.351	1.516	1.408
Apparel Manufacturing	315	1.285	1.354	1.519	1.411
Leather and Allied Product Manufacturing	316	1.285	1.354	1.519	1.411
Wood Product Manufacturing	321	1.056	1.112	1.248	1.159
Paper Manufacturing	322	1.058	1.115	1.251	1.162
Printing and Related Support Activities	323	1.219	1.284	1.441	1.339
Petroleum and Coal Products Manufacturing	324	1.000	1.000	1.000	1.000
Chemical Manufacturing	325	1.086	1.144	1.284	1.192
Plastics and Rubber Products Manufacturing	326	0.991	1.045	1.172	1.089
Nonmetallic Mineral Product Manufacturing	327	1.042	1.098	1.232	1.145
Primary Metal Manufacturing	331	1.202	1.266	1.421	1.320
Fabricated Metal Product Manufacturing	332	1.053	1.110	1.245	1.157
Machinery Manufacturing	333	1.100	1.159	1.300	1.208
Computer and Electronic Product Manufacturing	334	1.229	1.295	1.453	1.350
Electrical Equipment -Appliance-Component Manufacturing	335	1.091	1.150	1.290	1.199
Transportation Equipment Manufacturing	336	1.102	1.161	1.303	1.211
Furniture and Related Product Manufacturing	337	1.160	1.222	1.371	1.274

TABLE I-2-10 (CONTINUED)
NAIC EMISSION GROWTH FACTORS BY COUNTY FOR THE YEAR 2030

NAIC SECTOR	NAIC	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
Miscellaneous Manufacturing	339	1.141	1.202	1.349	1.253
Wholesale Trade	42	1.003	0.993	1.107	1.001
Motor Vehicle and Parts Dealers	441	1.185	1.342	1.309	1.291
Furniture and Home Furniture Stores	442	1.284	1.455	1.419	1.400
Electronics and Appliance Stores	443	1.284	1.455	1.419	1.400
Building Material-Garden Equipment-Supplies Dealers	444	1.284	1.455	1.419	1.400
Food and Beverage Stores	445	0.981	1.112	1.084	1.070
Health and Personal Care Stores	446	0.981	1.112	1.084	1.070
Gasoline Stations	447	1.284	1.455	1.419	1.400
Clothing and Clothing Accessories Stores	448	1.284	1.455	1.419	1.400
Sporting Goods-Hobby-Book- Music Stores	451	1.284	1.455	1.419	1.400
General Merchandise Stores	452	1.284	1.455	1.419	1.400
Miscellaneous Store Retailers	453	1.284	1.455	1.419	1.400
Nonstore Retailers	454	1.284	1.455	1.419	1.400
Air Transportation	481	1.194	1.244	1.526	1.293
Rail Transportation	482	1.099	1.145	1.000	1.190
Water Transportation	483	1.426	1.485	1.822	1.544
Truck Transportation	484	1.268	1.320	1.620	1.373
Transit and Ground Passenger Transportation	485	1.249	1.301	1.596	1.353
Pipeline Transportation	486	1.220	1.271	1.559	1.322
Scenic and Sightseeing Transportation	487	1.118	1.165	1.429	1.211
Support Activities for Transportation	488	1.118	1.165	1.429	1.211
Postal Service	491	1.031	1.074	1.317	1.116
Couriers and Messengers	492	1.031	1.074	1.317	1.116
Warehousing and Storage	493	1.180	1.229	1.507	1.278
Information	51	1.410	1.358	1.490	1.365
Finance and Insurance	52	1.245	1.257	1.361	1.294
Real Estate and Rental and Leasing	53	1.249	1.260	1.365	1.298
Professional-Scientific-and Technical Services	541	1.152	1.182	1.350	1.167
Management of Companies and Enterprises	551	1.195	1.225	1.400	1.209

TABLE I-2-10 (CONCLUDED)
NAIC EMISSION GROWTH FACTORS BY COUNTY FOR THE YEAR 2030

NAIC SECTOR	NAIC	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
Administrative and Support Services	561	1.041	1.067	1.219	1.053
Waste Management and Remediation Services	562	1.041	1.067	1.219	1.053
Educational Services	611	1.153	1.167	1.322	1.156
Ambulatory Health Care Services	621	1.060	1.065	1.164	1.118
Hospitals	622	1.273	1.271	1.379	1.310
Nursing and Residential Care Facilities	623	1.403	1.372	1.534	1.498
Social Assistance	624	1.149	1.163	1.317	1.152
Arts, Entertainment, Museums, and Recreation	71	1.249	1.285	1.414	1.506
Accommodation and Food Services	72	1.156	1.190	1.309	1.394
Repair and Maintenance	811	1.051	1.073	1.211	1.105
Personal and Laundry Services	812	1.051	1.073	1.211	1.105
Religious-Grant-Civic-Professional-and Similar Org	813	1.041	1.063	1.133	1.080
Private Households	814	1.041	1.063	1.133	1.080
Public Administration	92	1.137	1.121	1.327	1.149

(Base year is 2018)

TABLE I-2-11
NAIC EMISSION GROWTH FACTORS BY COUNTY FOR THE YEAR 2031

NAIC SECTOR	NAIC	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
Agriculture, Forestry, Animal, Fishing and Hunting	11	1.155	0.955	1.192	1.100
Oil and Gas Extraction	211	1.725	1.425	1.779	1.641
Mining (except Oil and Gas)	212	0.992	0.820	1.024	0.944
Support Activities for Mining	213	0.992	0.820	1.024	0.944
Utilities - Except Electricity	221	1.114	1.068	1.243	1.000
Utilities - Electricity	221	0.745	0.776	0.963	0.812
Construction	23	1.062	1.071	1.258	1.093
Food Manufacturing	311	1.063	1.123	1.269	1.178
Beverage and Tobacco Product Manufacturing	312	0.848	0.896	1.013	0.940
Textile Mills	313	1.287	1.360	1.537	1.426
Textile Product Mills	314	1.287	1.360	1.537	1.426
Apparel Manufacturing	315	1.295	1.368	1.547	1.435
Leather and Allied Product Manufacturing	316	1.295	1.368	1.547	1.435
Wood Product Manufacturing	321	1.053	1.112	1.257	1.167
Paper Manufacturing	322	1.055	1.115	1.260	1.169
Printing and Related Support Activities	323	1.221	1.290	1.458	1.353
Petroleum and Coal Products Manufacturing	324	1.000	1.000	1.000	1.000
Chemical Manufacturing	325	1.083	1.144	1.293	1.200
Plastics and Rubber Products Manufacturing	326	0.986	1.041	1.177	1.092
Nonmetallic Mineral Product Manufacturing	327	1.039	1.097	1.240	1.151
Primary Metal Manufacturing	331	1.203	1.271	1.436	1.333
Fabricated Metal Product Manufacturing	332	1.049	1.108	1.253	1.162
Machinery Manufacturing	333	1.097	1.159	1.310	1.216
Computer and Electronic Product Manufacturing	334	1.232	1.302	1.471	1.365
Electrical Equipment -Appliance-Component Manufacturing	335	1.089	1.150	1.300	1.206
Transportation Equipment Manufacturing	336	1.102	1.164	1.316	1.221
Furniture and Related Product Manufacturing	337	1.160	1.225	1.385	1.285

TABLE I-2-11 (CONTINUED)
NAIC EMISSION GROWTH FACTORS BY COUNTY FOR THE YEAR 2031

NAIC SECTOR	NAIC	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
Miscellaneous Manufacturing	339	1.139	1.203	1.360	1.262
Wholesale Trade	42	1.005	0.993	1.112	1.004
Motor Vehicle and Parts Dealers	441	1.195	1.362	1.325	1.310
Furniture and Home Furniture Stores	442	1.298	1.479	1.439	1.422
Electronics and Appliance Stores	443	1.298	1.479	1.439	1.422
Building Material-Garden Equipment-Supplies Dealers	444	1.298	1.479	1.439	1.422
Food and Beverage Stores	445	0.981	1.118	1.088	1.075
Health and Personal Care Stores	446	0.981	1.118	1.088	1.075
Gasoline Stations	447	1.298	1.479	1.439	1.422
Clothing and Clothing Accessories Stores	448	1.298	1.479	1.439	1.422
Sporting Goods-Hobby-Book- Music Stores	451	1.298	1.479	1.439	1.422
General Merchandise Stores	452	1.298	1.479	1.439	1.422
Miscellaneous Store Retailers	453	1.298	1.479	1.439	1.422
Nonstore Retailers	454	1.298	1.479	1.439	1.422
Air Transportation	481	1.204	1.254	1.557	1.312
Rail Transportation	482	1.105	1.150	1.000	1.204
Water Transportation	483	1.444	1.504	1.868	1.574
Truck Transportation	484	1.280	1.333	1.655	1.395
Transit and Ground Passenger Transportation	485	1.263	1.315	1.633	1.376
Pipeline Transportation	486	1.229	1.280	1.589	1.340
Scenic and Sightseeing Transportation	487	1.124	1.171	1.453	1.225
Support Activities for Transportation	488	1.124	1.171	1.453	1.225
Postal Service	491	1.034	1.077	1.337	1.127
Couriers and Messengers	492	1.034	1.077	1.337	1.127
Warehousing and Storage	493	1.187	1.237	1.535	1.294
Information	51	1.434	1.378	1.515	1.386
Finance and Insurance	52	1.255	1.267	1.377	1.308
Real Estate and Rental and Leasing	53	1.259	1.271	1.382	1.312
Professional-Scientific-and Technical Services	541	1.161	1.191	1.369	1.177
Management of Companies and Enterprises	551	1.202	1.233	1.418	1.219

TABLE I-2-11 (CONCLUDED)
NAIC EMISSION GROWTH FACTORS BY COUNTY FOR THE YEAR 2031

NAIC SECTOR	NAIC	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
Administrative and Support Services	561	1.044	1.071	1.232	1.059
Waste Management and Remediation Services	562	1.044	1.071	1.232	1.059
Educational Services	611	1.165	1.178	1.341	1.167
Ambulatory Health Care Services	621	1.065	1.068	1.174	1.128
Hospitals	622	1.291	1.286	1.399	1.329
Nursing and Residential Care Facilities	623	1.430	1.393	1.563	1.528
Social Assistance	624	1.162	1.175	1.338	1.164
Arts, Entertainment, Museums, and Recreation	71	1.261	1.298	1.434	1.539
Accommodation and Food Services	72	1.165	1.199	1.324	1.421
Repair and Maintenance	811	1.055	1.078	1.224	1.114
Personal and Laundry Services	812	1.055	1.078	1.224	1.114
Religious-Grant-Civic-Professional-and Similar Org	813	1.045	1.066	1.142	1.087
Private Households	814	1.045	1.066	1.142	1.087
Public Administration	92	1.145	1.125	1.345	1.160

TABLE I-2-12
STATIONARY AREA SOURCE EMISSION GROWTH FACTORS FOR THE YEAR 2023

EIC3	CATEGORY DESCRIPTION	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
020	Cogeneration	1.059	1.076	1.200	1.094
030	Petroleum Production Fuel Combustion - Gaseous Fuel	1.276	1.168	1.315	1.221
050	Industrial Stationary I.C. Engines - Natural Gas	1.276	1.168	1.315	1.221
050	Industrial Combustion - L.P.G./Distillate Oil/Other Fuel	1.008	1.030	1.092	1.041
060	Commercial Natural Gas Combustion - Space Heating	0.951	1.017	1.009	0.988
060	Commercial Natural Gas Combustion - Water Heating	0.938	1.003	0.995	0.975
060	Commercial Natural Gas Ice/Ext. Comb (Others)	0.939	1.004	0.996	0.976
060	Commercial L.P.G. Combustion	1.058	1.064	1.130	1.059
099	Resource Recovery	1.059	1.076	1.200	1.094
110	Sewage Treatment Plants-Potws - Ammonia	1.028	1.028	1.067	1.054
120	Landfills - Municipal Solid Waste Disposal (Biodegradation)	1.028	1.028	1.067	1.054
199	Composting - Ammonia	1.000	1.000	1.000	1.000
199	Composting Waste Disposal	1.028	1.028	1.067	1.054
210	Dry Cleaning	1.019	1.030	1.101	1.039
220	Degreasing	1.008	1.030	1.092	1.041
230	Auto Refinishing - Coatings	1.015	1.024	1.057	1.024
230	Marine Coatings	1.179	1.198	1.336	1.218
230	Paper Coatings	1.033	1.056	1.120	1.067
230	Can And Coil, Metal Parts And Products Coatings	1.032	1.054	1.118	1.066
230	Wood Furniture And Fabricated Products Coatings	1.079	1.103	1.169	1.114
230	Plastic Parts	1.003	1.025	1.087	1.036
230	Semiconductor Coatings	1.108	1.132	1.200	1.144
230	Aircraft And Aerospace Coatings	1.084	1.101	1.229	1.120
240	Printing	1.104	1.128	1.196	1.140
250	Adhesives And Sealants	1.008	1.030	1.092	1.041
299	Miscellaneous Industrial Solvent Uses	1.008	1.030	1.092	1.041
310	Oil & Gas Production	1.276	1.168	1.315	1.221

TABLE I-2-12 (CONTINUED)
STATIONARY AREA SOURCE EMISSION GROWTH FACTORS FOR THE YEAR 2023

EIC3	CATEGORY DESCRIPTION	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
330	Petroleum Marketing - Natural Gas Transmission Losses	1.002	1.009	1.065	1.033
330	LPG Transfer And Dispensing - Fugitive Losses	1.052	1.036	1.131	1.065
330	Gasoline Dispensing & Transfers/Storage/Cargo Tanks	0.876	0.878	0.921	0.900
330	Bulk Gasoline Storage & Transfer (Unspecified)	0.876	0.878	0.921	0.900
410	Chemical	1.047	1.069	1.134	1.081
420	Wine Fermentation / Aging	0.990	1.059	1.050	1.029
420	Bakeries	1.037	1.060	1.124	1.071
430	Asphaltic Concrete Production	1.022	1.027	1.108	1.026
430	Surface Blasting	1.009	0.923	1.039	0.966
430	Open Storage Piles	1.000	1.000	1.000	1.000
430	Mineral Processes - Sand/Gravel/Cement Concrete	1.026	1.048	1.112	1.059
440	Secondary Metal Production	1.097	1.121	1.189	1.133
450	Wood Processing Losses	1.079	1.103	1.169	1.114
499	Industrial Lubricant	1.028	1.028	1.067	1.054
499	Industrial Process Losses (Unspecified Material)	1.000	1.000	1.000	1.000
510	Consumer Products - Aerosol	1.000	1.000	1.000	1.000
510	Consumer Products - Non Aerosol	1.028	1.028	1.067	1.054
520	Architectural Coatings	1.052	1.036	1.131	1.065
540	Asphalt Paving And Roofing Operations	1.022	1.027	1.108	1.026
610	Residential Wood Combustion	1.000	1.000	1.000	1.000
610	Residential Distillate Oil Combustion - Space Heating	1.052	1.036	1.131	1.065
610	Residential Natural Gas Combustion - Space Heating	1.068	1.068	1.109	1.095
610	Residential Natural Gas Combustion - Water Heating	1.063	1.063	1.103	1.090
610	Residential Natural Gas Combustion - Cooking/Other	1.067	1.067	1.108	1.094
610	Residential L.P.G. Combustion (Unspecified)	1.052	1.036	1.131	1.065
620	Tilling/Harvest Operations - Dust	1.000	1.000	1.000	1.000

TABLE I-2-12 (CONCLUDED)
STATIONARY AREA SOURCE EMISSION GROWTH FACTORS FOR THE YEAR 2023

EIC3	CATEGORY DESCRIPTION	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
620	Livestock Husbandry - Dairy Cattle	1.000	1.000	1.000	1.000
620	Livestock Husbandry - Layers	1.000	1.000	0.819	0.864
620	Livestock Husbandry - Others	1.000	1.000	1.037	0.858
630	Building And Road Construction - Dust	1.022	1.027	1.108	1.026
640	Paved Road Travel - Freeways - Dust	0.993	1.006	1.040	1.042
640	Paved Road Travel - (Unspecified) - Dust	0.993	1.006	1.040	1.042
640	Paved Road Travel - Major Streets - Dust	1.017	1.037	1.075	1.028
640	Paved Road Travel - Collector/Local Streets - Dust	1.014	1.025	1.068	1.029
645	Unpaved Road Travel - Farm Roads - Dust	1.000	0.933	0.982	0.883
645	Unpaved Road Travel - Others - Dust	1.000	1.000	1.000	1.000
650	Agricultural Lands - Windblown Dust	0.995	0.933	0.982	0.883
650	Unpaved Roads And Associated Areas - Windblown Dust	1.000	1.000	1.000	1.000
660	Structural/Automobile Fires	1.000	1.000	1.000	1.000
670	Agricultural Burning - Pruning/Field Crops	1.000	1.000	0.982	0.883
670	Agricultural Burning - Forest Management*	----	----	----	----
670	Agricultural Burning - Weed Abatement	1.000	1.000	1.000	1.000
670	Wildland Fire Use And Waste Burning (Unspecified)	1.000	1.000	1.000	1.000
690	Cooking	1.019	1.030	1.101	1.039
699	Domestic Activity - Ammonia	1.028	1.028	1.067	1.054

* 2018 emissions based on information provided by Forest Management Services and special handling for future year emissions.

TABLE I-2-13
STATIONARY AREA SOURCE EMISSION GROWTH FACTORS FOR THE YEAR 2025

EIC3	CATEGORY DESCRIPTION	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
020	Cogeneration	1.046	1.074	1.253	1.094
030	Petroleum Production Fuel Combustion - Gaseous Fuel	1.396	1.255	1.465	1.329
050	Industrial Stationary I.C. Engines - Natural Gas	1.396	1.255	1.465	1.329
050	Industrial Combustion - L.P.G./Distillate Oil/Other Fuel	1.012	1.045	1.142	1.063
060	Commercial Natural Gas Combustion - Space Heating	0.913	0.996	0.994	0.961
060	Commercial Natural Gas Combustion - Water Heating	0.895	0.976	0.975	0.943
060	Commercial Natural Gas Ice/Ext. Comb (Others)	0.891	0.972	0.971	0.939
060	Commercial L.P.G. Combustion	1.085	1.093	1.197	1.090
099	Resource Recovery	1.046	1.074	1.253	1.094
110	Sewage Treatment Plants-Potws - Ammonia	1.038	1.040	1.097	1.073
120	Landfills - Municipal Solid Waste Disposal (Biodegradation)	1.038	1.040	1.097	1.073
199	Composting - Ammonia	1.000	1.000	1.000	1.000
199	Composting Waste Disposal	1.038	1.040	1.097	1.073
210	Dry Cleaning	1.028	1.044	1.152	1.058
220	Degreasing	1.012	1.045	1.142	1.063
230	Auto Refinishing - Coatings	1.023	1.038	1.095	1.041
230	Marine Coatings	1.259	1.293	1.509	1.317
230	Paper Coatings	1.047	1.080	1.181	1.099
230	Can And Coil, Metal Parts And Products Coatings	1.044	1.078	1.178	1.097
230	Wood Furniture And Fabricated Products Coatings	1.112	1.148	1.254	1.168
230	Plastic Parts	1.004	1.036	1.132	1.054
230	Semiconductor Coatings	1.154	1.191	1.301	1.211
230	Aircraft And Aerospace Coatings	1.119	1.149	1.341	1.171
240	Printing	1.148	1.185	1.295	1.206
250	Adhesives And Sealants	1.012	1.045	1.142	1.063
299	Miscellaneous Industrial Solvent Uses	1.012	1.045	1.142	1.063
310	Oil & Gas Production	1.396	1.255	1.465	1.329

TABLE I-2-13 (CONTINUED)
STATIONARY AREA SOURCE EMISSION GROWTH FACTORS FOR THE YEAR 2025

EIC3	CATEGORY DESCRIPTION	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
330	Petroleum Marketing - Natural Gas Transmission Losses	0.976	0.996	1.061	1.017
330	LPG Transfer And Dispensing - Fugitive Losses	1.069	1.045	1.172	1.088
330	Gasoline Dispensing & Transfers/Storage/Cargo Tanks	0.829	0.828	0.884	0.864
330	Bulk Gasoline Storage & Transfer (Unspecified)	0.829	0.828	0.884	0.864
410	Chemical	1.065	1.100	1.202	1.119
420	Wine Fermentation / Aging	0.988	1.077	1.076	1.040
420	Bakeries	1.052	1.086	1.187	1.105
430	Asphaltic Concrete Production	1.032	1.039	1.167	1.043
430	Surface Blasting	1.004	0.904	1.054	0.957
430	Open Storage Piles	1.000	1.000	1.000	1.000
430	Mineral Processes - Sand/Gravel/Cement Concrete	1.036	1.070	1.169	1.088
440	Secondary Metal Production	1.138	1.175	1.284	1.195
450	Wood Processing Losses	1.112	1.148	1.254	1.168
499	Industrial Lubricant	1.038	1.040	1.097	1.073
499	Industrial Process Losses (Unspecified Material)	1.000	1.000	1.000	1.000
510	Consumer Products - Aerosol	1.000	1.000	1.000	1.000
510	Consumer Products - Non Aerosol	1.038	1.040	1.097	1.073
520	Architectural Coatings	1.069	1.045	1.172	1.088
540	Asphalt Paving And Roofing Operations	1.032	1.039	1.167	1.043
610	Residential Wood Combustion	1.000	1.000	1.000	1.000
610	Residential Distillate Oil Combustion - Space Heating	1.069	1.045	1.172	1.088
610	Residential Natural Gas Combustion - Space Heating	1.034	1.036	1.093	1.069
610	Residential Natural Gas Combustion - Water Heating	1.027	1.029	1.086	1.061
610	Residential Natural Gas Combustion - Cooking/Other	1.033	1.035	1.092	1.068
610	Residential L.P.G. Combustion (Unspecified)	1.069	1.045	1.172	1.088
620	Tilling/Harvest Operations - Dust	1.000	1.000	1.000	1.000

TABLE I-2-13 (CONCLUDED)
STATIONARY AREA SOURCE EMISSION GROWTH FACTORS FOR THE YEAR 2025

EIC3	CATEGORY DESCRIPTION	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
620	Livestock Husbandry - Dairy Cattle	1.000	1.000	1.056	1.000
620	Livestock Husbandry - Layers	0.762	1.000	0.762	0.820
620	Livestock Husbandry - Others	1.000	1.000	1.050	0.811
630	Building And Road Construction - Dust	1.032	1.039	1.167	1.043
640	Paved Road Travel - Freeways - Dust	0.982	1.014	1.046	1.022
640	Paved Road Travel - (Unspecified) - Dust	0.982	1.014	1.046	1.022
640	Paved Road Travel - Major Streets - Dust	1.011	1.035	1.121	1.043
640	Paved Road Travel - Collector/Local Streets - Dust	1.009	1.025	1.105	1.049
645	Unpaved Road Travel - Farm Roads - Dust	1.000	0.978	0.994	0.955
645	Unpaved Road Travel - Others - Dust	1.000	1.000	1.000	1.000
650	Agricultural Lands - Windblown Dust	0.999	0.978	0.994	0.955
650	Unpaved Roads And Associated Areas - Windblown Dust	1.000	1.000	1.000	1.000
660	Structural/Automobile Fires	1.000	1.000	1.000	1.000
670	Agricultural Burning - Prunings/Field Crops	1.000	1.000	0.975	0.843
670	Agricultural Burning - Forest Management*	----	----	----	----
670	Agricultural Burning - Weed Abatement	1.000	1.000	1.000	1.000
670	Wildland Fire Use And Waste Burning (Unspecified)	1.000	1.000	1.000	1.000
690	Cooking	1.028	1.044	1.152	1.058
699	Domestic Activity - Ammonia	1.038	1.040	1.097	1.073

* 2018 emissions based on information provided by Forest Management Services and special handling for future year emissions.

**TABLE I-2-14
STATIONARY AREA SOURCE EMISSION GROWTH FACTORS FOR THE YEAR 2028**

EIC3	CATEGORY DESCRIPTION	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
020	Cogeneration	1.018	1.053	1.268	1.088
030	Petroleum Production Fuel Combustion - Gaseous Fuel	1.598	1.375	1.656	1.526
050	Industrial Stationary I.C. Engines - Natural Gas	0.090	0.950	1.054	0.981
050	Industrial Combustion - L.P.G./Distillate Oil/Other Fuel	1.016	1.053	1.156	1.076
060	Commercial Natural Gas Combustion - Space Heating	0.891	0.978	0.973	0.944
060	Commercial Natural Gas Combustion - Water Heating	0.873	0.958	0.953	0.925
060	Commercial Natural Gas Ice/Ext. Comb (Others)	0.866	0.951	0.945	0.917
060	Commercial L.P.G. Combustion	1.098	1.107	1.216	1.105
099	Resource Recovery	1.040	1.069	1.262	1.097
110	Sewage Treatment Plants-Potws - Ammonia	1.042	1.045	1.110	1.082
120	Landfills - Municipal Solid Waste Disposal (Biodegradation)	1.042	1.045	1.110	1.082
199	Composting - Ammonia	1.000	1.000	1.000	1.000
199	Composting Waste Disposal	1.042	1.045	1.110	1.082
210	Dry Cleaning	1.033	1.050	1.164	1.067
220	Degreasing	1.016	1.053	1.156	1.076
230	Auto Refinishing - Coatings	1.026	1.041	1.103	1.048
230	Marine Coatings	1.301	1.338	1.579	1.373
230	Paper Coatings	1.055	1.093	1.200	1.117
230	Can And Coil, Metal Parts And Products Coatings	1.053	1.090	1.198	1.115
230	Wood Furniture And Fabricated Products Coatings	1.130	1.171	1.286	1.197
230	Plastic Parts	1.006	1.042	1.144	1.065
230	Semiconductor Coatings	1.179	1.222	1.342	1.249
230	Aircraft And Aerospace Coatings	1.138	1.170	1.380	1.200
240	Printing	1.173	1.215	1.334	1.242
250	Adhesives And Sealants	1.016	1.053	1.156	1.076
299	Miscellaneous Industrial Solvent Uses	1.016	1.053	1.156	1.076
310	Oil & Gas Production	1.459	1.309	1.535	1.399

TABLE I-2-14 (CONTINUED)
STATIONARY AREA SOURCE EMISSION GROWTH FACTORS FOR THE YEAR 2028

EIC3	CATEGORY DESCRIPTION	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
330	Petroleum Marketing - Natural Gas Transmission Losses	0.962	0.986	1.052	1.008
330	LPG Transfer And Dispensing - Fugitive Losses	1.077	1.048	1.191	1.099
330	Gasoline Dispensing & Transfers/Storage/Cargo Tanks	0.806	0.804	0.865	0.844
330	Bulk Gasoline Storage & Transfer (Unspecified)	0.806	0.804	0.865	0.844
410	Chemical	1.077	1.115	1.225	1.140
420	Wine Fermentation / Aging	0.987	1.084	1.078	1.046
420	Bakeries	1.061	1.099	1.207	1.124
430	Asphaltic Concrete Production	1.037	1.045	1.182	1.052
430	Surface Blasting	1.002	0.899	1.054	0.961
430	Open Storage Piles	1.000	1.000	1.000	1.000
430	Mineral Processes - Sand/Gravel/Cement Concrete	1.043	1.081	1.187	1.105
440	Secondary Metal Production	1.161	1.202	1.321	1.229
450	Wood Processing Losses	1.130	1.171	1.286	1.197
499	Industrial Lubricant	1.042	1.045	1.110	1.082
499	Industrial Process Losses (Unspecified Material)	1.000	1.000	1.000	1.000
510	Consumer Products - Aerosol	1.000	1.000	1.000	1.000
510	Consumer Products - Non Aerosol	1.042	1.045	1.110	1.082
520	Architectural Coatings	1.077	1.048	1.191	1.099
540	Asphalt Paving And Roofing Operations	1.037	1.045	1.182	1.052
610	Residential Wood Combustion	1.000	1.000	1.000	1.000
610	Residential Distillate Oil Combustion - Space Heating	1.077	1.048	1.191	1.099
610	Residential Natural Gas Combustion - Space Heating	1.016	1.019	1.083	1.055
610	Residential Natural Gas Combustion - Water Heating	1.009	1.012	1.075	1.047
610	Residential Natural Gas Combustion - Cooking/Other	1.015	1.018	1.082	1.054
610	Residential L.P.G. Combustion (Unspecified)	1.077	1.048	1.191	1.099
620	Tilling/Harvest Operations - Dust	1.000	1.000	1.000	1.000

TABLE I-2-14 (CONCLUDED)
STATIONARY AREA SOURCE EMISSION GROWTH FACTORS FOR THE YEAR 2028

EIC3	CATEGORY DESCRIPTION	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
620	Livestock Husbandry - Dairy Cattle	1.000	1.000	1.086	1.000
620	Livestock Husbandry - Layers	0.736	1.000	0.736	0.800
620	Livestock Husbandry - Others	1.000	1.000	1.056	0.79
630	Building And Road Construction - Dust	1.037	1.045	1.182	1.052
640	Paved Road Travel - Freeways - Dust	0.984	1.032	1.059	1.035
640	Paved Road Travel - (Unspecified) - Dust	0.984	1.032	1.059	1.035
640	Paved Road Travel - Major Streets - Dust	1.009	1.038	1.153	1.050
640	Paved Road Travel - Collector/Local Streets - Dust	1.009	1.015	1.122	1.062
645	Unpaved Road Travel - Farm Roads - Dust	1.000	0.957	0.988	0.915
645	Unpaved Road Travel - Others - Dust	1.000	1.000	1.000	1.000
650	Agricultural Lands - Windblown Dust				
650	Unpaved Roads And Associated Areas - Windblown Dust	1.000	1.000	1.000	1.000
660	Structural/Automobile Fires	1.000	1.000	1.000	1.000
670	Agricultural Burning - Prunings/Field Crops	1.000	1.000	0.973	0.824
670	Agricultural Burning - Forest Management*	--	--	--	--
670	Agricultural Burning - Weed Abatement	1.000	1.000	1.000	1.000
670	Wildland Fire Use And Waste Burning (Unspecified)	1.000	1.000	1.000	1.000
690	Cooking	1.033	1.050	1.164	1.067
699	Domestic Activity - Ammonia	1.042	1.045	1.110	1.082

TABLE I-2-15
STATIONARY AREA SOURCE EMISSION GROWTH FACTORS FOR THE YEAR 2030

EIC3	CATEGORY DESCRIPTION	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
020	Cogeneration	1.004	1.045	1.283	1.087
030	Petroleum Production Fuel Combustion - Gaseous Fuel	1.687	1.401	1.736	1.598
050	Industrial Stationary I.C. Engines - Natural Gas	1.687	1.401	1.736	1.598
050	Industrial Combustion - L.P.G./Distillate Oil/Other Fuel	1.009	1.063	1.193	1.108
060	Commercial Natural Gas Combustion - Space Heating	0.822	0.932	0.909	0.896
060	Commercial Natural Gas Combustion - Water Heating	0.804	0.911	0.888	0.876
060	Commercial Natural Gas Ice/Ext. Comb (Others)	0.794	0.899	0.877	0.865
060	Commercial L.P.G. Combustion	1.142	1.152	1.285	1.157
099	Resource Recovery	1.004	1.045	1.283	1.087
110	Sewage Treatment Plants-Potws - Ammonia	1.060	1.065	1.164	1.118
120	Landfills - Municipal Solid Waste Disposal (Biodegradation)	1.060	1.065	1.164	1.118
199	Composting - Ammonia	1.000	1.000	1.000	1.000
199	Composting Waste Disposal	1.060	1.065	1.164	1.118
210	Dry Cleaning	1.051	1.073	1.211	1.105
220	Degreasing	1.009	1.063	1.193	1.108
230	Auto Refinishing - Coatings	1.041	1.063	1.133	1.080
230	Marine Coatings	1.426	1.485	1.822	1.544
230	Paper Coatings	1.058	1.115	1.251	1.162
230	Can And Coil, Metal Parts And Products Coatings	1.053	1.110	1.245	1.157
230	Wood Furniture And Fabricated Products Coatings	1.160	1.222	1.371	1.274
230	Plastic Parts	0.991	1.045	1.172	1.089
230	Semiconductor Coatings	1.229	1.295	1.453	1.350
230	Aircraft And Aerospace Coatings	1.194	1.244	1.526	1.293
240	Printing	1.219	1.284	1.441	1.339
250	Adhesives And Sealants	1.009	1.063	1.193	1.108
299	Miscellaneous Industrial Solvent Uses	1.009	1.063	1.193	1.108
310	Oil & Gas Production	1.687	1.401	1.736	1.598

TABLE I-2-15 (CONTINUED)
STATIONARY AREA SOURCE EMISSION GROWTH FACTORS FOR THE YEAR 2030

EIC3	CATEGORY DESCRIPTION	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
330	Petroleum Marketing - Natural Gas Transmission Losses	0.898	0.934	1.010	0.964
330	LPG Transfer And Dispensing - Fugitive Losses	1.106	1.060	1.263	1.144
330	Gasoline Dispensing & Transfers/Storage/Cargo Tanks	0.741	0.737	0.818	0.790
330	Bulk Gasoline Storage & Transfer (Unspecified)	0.741	0.737	0.818	0.790
410	Chemical	1.086	1.144	1.284	1.192
420	Wine Fermentation / Aging	0.981	1.112	1.084	1.070
420	Bakeries	1.066	1.123	1.260	1.171
430	Asphaltic Concrete Production	1.057	1.066	1.242	1.084
430	Surface Blasting	0.998	0.828	1.027	0.945
430	Open Storage Piles	1.000	1.000	1.000	1.000
430	Mineral Processes - Sand/Gravel/Cement Concrete	1.042	1.098	1.232	1.145
440	Secondary Metal Production	1.202	1.266	1.421	1.320
450	Wood Processing Losses	1.160	1.222	1.371	1.274
499	Industrial Lubricant	1.060	1.065	1.164	1.118
499	Industrial Process Losses (Unspecified Material)	1.000	1.000	1.000	1.000
510	Consumer Products - Aerosol	1.000	1.000	1.000	1.000
510	Consumer Products - Non Aerosol	1.060	1.065	1.164	1.118
520	Architectural Coatings	1.106	1.060	1.263	1.144
540	Asphalt Paving And Roofing Operations	1.057	1.066	1.242	1.084
610	Residential Wood Combustion	1.000	1.000	1.000	1.000
610	Residential Distillate Oil Combustion - Space Heating	1.106	1.060	1.263	1.144
610	Residential Natural Gas Combustion - Space Heating	0.951	0.954	1.043	1.002
610	Residential Natural Gas Combustion - Water Heating	0.942	0.946	1.034	0.993
610	Residential Natural Gas Combustion - Cooking/Other	0.950	0.953	1.042	1.001
610	Residential L.P.G. Combustion (Unspecified)	1.106	1.060	1.263	1.144
620	Tilling/Harvest Operations - Dust	1.000	1.000	1.000	1.000

TABLE I-2-15 (CONCLUDED)
STATIONARY AREA SOURCE EMISSION GROWTH FACTORS FOR THE YEAR 2030

EIC3	CATEGORY DESCRIPTION	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
620	Livestock Husbandry - Dairy Cattle	1.000	1.000	1.094	1.000
620	Livestock Husbandry - Layers	0.648	1.000	0.648	0.728
620	Livestock Husbandry - Others	1.000	1.000	1.08	0.716
630	Building And Road Construction - Dust	1.057	1.066	1.242	1.084
640	Paved Road Travel - Freeways - Dust	1.015	1.031	1.124	1.037
640	Paved Road Travel - (Unspecified) - Dust	1.000	1.000	1.000	1.000
640	Paved Road Travel - Major Streets - Dust	1.005	1.040	1.225	1.083
640	Paved Road Travel - Collector/Local Streets - Dust	0.975	1.019	1.135	1.079
645	Unpaved Road Travel - Farm Roads - Dust	1.000	0.872	0.962	0.756
645	Unpaved Road Travel - Others - Dust	1.000	1.000	1.000	1.000
650	Agricultural Lands - Windblown Dust				
650	Unpaved Roads And Associated Areas - Windblown Dust	1.000	1.000	1.000	1.000
660	Structural/Automobile Fires	1.000	1.000	1.000	1.000
670	Agricultural Burning - Pruning/Field Crops	1.000	1.000	0.963	0.756
670	Agricultural Burning - Forest Management*	----	----	----	----
670	Agricultural Burning - Weed Abatement	1.000	1.000	1.000	1.000
670	Wildland Fire Use And Waste Burning (Unspecified)	1.000	1.000	1.000	1.000
690	Cooking	1.051	1.073	1.211	1.105
699	Domestic Activity - Ammonia	1.060	1.065	1.164	1.118

* 2018 emissions based on information provided by Forest Management Services and special handling for future year emissions.

**TABLE I-2-16
STATIONARY AREA SOURCE EMISSION GROWTH FACTORS FOR THE YEAR 2031**

EIC3	CATEGORY DESCRIPTION	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
020	Cogeneration	0.993	1.034	1.284	1.082
030	Petroleum Production Fuel Combustion - Gaseous Fuel	1.725	1.425	1.779	1.641
050	Industrial Stationary I.C. Engines - Natural Gas	1.725	1.425	1.779	1.641
050	Industrial Combustion - L.P.G./Distillate Oil/Other Fuel	1.005	1.062	1.200	1.113
060	Commercial Natural Gas Combustion - Space Heating	0.809	0.922	0.897	0.887
060	Commercial Natural Gas Combustion - Water Heating	0.792	0.902	0.878	0.868
060	Commercial Natural Gas Ice/Ext. Comb (Others)	0.782	0.891	0.867	0.857
060	Commercial L.P.G. Combustion	1.150	1.160	1.300	1.167
099	Resource Recovery	0.993	1.034	1.284	1.082
110	Sewage Treatment Plants-Potws - Ammonia	1.065	1.068	1.174	1.128
120	Landfills - Municipal Solid Waste Disposal (Biodegradation)	1.065	1.068	1.174	1.128
199	Composting - Ammonia	1.000	1.000	1.000	1.000
199	Composting Waste Disposal	1.065	1.068	1.174	1.128
210	Dry Cleaning	1.055	1.078	1.224	1.114
220	Degreasing	1.005	1.062	1.200	1.113
230	Auto Refinishing - Coatings	1.045	1.066	1.142	1.087
230	Marine Coatings	1.444	1.504	1.868	1.574
230	Paper Coatings	1.055	1.115	1.260	1.169
230	Can And Coil, Metal Parts And Products Coatings	1.049	1.108	1.253	1.162
230	Wood Furniture And Fabricated Products Coatings	1.160	1.225	1.385	1.285
230	Plastic Parts	0.986	1.041	1.177	1.092
230	Semiconductor Coatings	1.232	1.302	1.471	1.365
230	Aircraft And Aerospace Coatings	1.204	1.254	1.557	1.312
240	Printing	1.221	1.290	1.458	1.353
250	Adhesives And Sealants	1.005	1.062	1.200	1.113
299	Miscellaneous Industrial Solvent Uses	1.005	1.062	1.200	1.113
310	Oil & Gas Production	1.725	1.425	1.779	1.641

TABLE I-2-16 (CONTINUED)
STATIONARY AREA SOURCE EMISSION GROWTH FACTORS FOR THE YEAR 2031

EIC3	CATEGORY DESCRIPTION	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
330	Petroleum Marketing - Natural Gas Transmission Losses	0.892	0.928	1.009	0.963
330	LPG Transfer And Dispensing - Fugitive Losses	1.114	1.064	1.277	1.156
330	Gasoline Dispensing & Transfers/Storage/Cargo Tanks	0.730	0.724	0.810	0.784
330	Bulk Gasoline Storage & Transfer (Unspecified)	0.730	0.724	0.810	0.784
410	Chemical	1.083	1.144	1.293	1.200
420	Wine Fermentation / Aging	0.981	1.118	1.088	1.075
420	Bakeries	1.063	1.123	1.269	1.178
430	Asphaltic Concrete Production	1.062	1.071	1.258	1.093
430	Surface Blasting	0.992	0.820	1.024	0.944
430	Open Storage Piles	1.000	1.000	1.000	1.000
430	Mineral Processes - Sand/Gravel/Cement Concrete	1.039	1.097	1.240	1.151
440	Secondary Metal Production	1.203	1.271	1.436	1.333
450	Wood Processing Losses	1.160	1.225	1.385	1.285
499	Industrial Lubricant	1.065	1.068	1.174	1.128
499	Industrial Process Losses (Unspecified Material)	1.000	1.000	1.000	1.000
510	Consumer Products - Aerosol	1.000	1.000	1.000	1.000
510	Consumer Products - Non Aerosol	1.065	1.068	1.174	1.128
520	Architectural Coatings	1.114	1.064	1.277	1.156
540	Asphalt Paving And Roofing Operations	1.062	1.071	1.258	1.093
610	Residential Wood Combustion	1.000	1.000	1.000	1.000
610	Residential Distillate Oil Combustion - Space Heating	1.114	1.064	1.277	1.156
610	Residential Natural Gas Combustion - Space Heating	0.948	0.951	1.045	1.004
610	Residential Natural Gas Combustion - Water Heating	0.939	0.942	1.035	0.994
610	Residential Natural Gas Combustion - Cooking/Other	0.947	0.949	1.043	1.002
610	Residential L.P.G. Combustion (Unspecified)	1.114	1.064	1.277	1.156
620	Tilling/Harvest Operations - Dust	1.000	1.000	1.000	1.000

TABLE I-2-16 (CONCLUDED)
STATIONARY AREA SOURCE EMISSION GROWTH FACTORS FOR THE YEAR 2031

EIC3	CATEGORY DESCRIPTION	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO
620	Livestock Husbandry - Dairy Cattle	1.000	1.000	1.069	1.000
620	Livestock Husbandry - Layers	0.629	1.000	0.629	0.713
620	Livestock Husbandry - Others	1.000	1.000	1.085	0.700
630	Building And Road Construction - Dust	1.062	1.071	1.258	1.093
640	Paved Road Travel - Freeways - Dust	1.015	1.031	1.124	1.057
640	Paved Road Travel - (Unspecified) - Dust	1.015	1.031	1.124	1.057
640	Paved Road Travel - Major Streets - Dust	1.005	1.040	1.225	1.083
640	Paved Road Travel - Collector/Local Streets - Dust	0.975	1.019	1.135	1.079
645	Unpaved Road Travel - Farm Roads - Dust	1.000	0.865	0.960	0.741
645	Unpaved Road Travel - Others - Dust	1.000	1.000	1.000	1.000
650	Agricultural Lands - Windblown Dust	0.991	0.865	0.960	0.741
650	Unpaved Roads And Associated Areas - Windblown Dust	1.000	1.000	1.000	1.000
660	Structural/Automobile Fires	1.000	1.000	1.000	1.000
670	Agricultural Burning - Prunings/Field Crops	1.000	1.000	0.960	0.741
670	Agricultural Burning - Forest Management*	----	----	----	----
670	Agricultural Burning - Weed Abatement	1.000	1.000	1.000	1.000
670	Wildland Fire Use And Waste Burning (Unspecified)	1.000	1.000	1.000	1.000
690	Cooking	1.055	1.078	1.224	1.114
699	Domestic Activity - Ammonia	1.065	1.068	1.174	1.128

* 2018 emissions based on information provided by Forest Management Services and special handling for future year emissions.

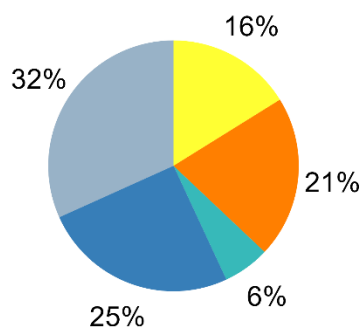
Future Emission Trends and Agency Responsibilities

Even- and odd-numbered figures from Figures I-2-4 through I-2-11 present the relative contributions by source categories (i.e., point, area, on-road, and off-road) and the agency with primary authority to regulate emissions from the source category, respectively, for the years 2025, 2028, 2030 and 2031. These figures present total annual average emission levels for VOC, NO_x, NH₃, SO_x, and PM_{2.5}.

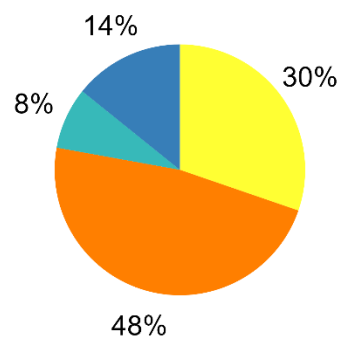
Odd-numbered figures from Figure I-2-5 to Figure I-2-11 show the emissions coming from sources under the primary regulatory purview of each of the three agencies – U.S. EPA, CARB, and South Coast AQMD – for all the milestone years. South Coast AQMD primarily oversees stationary sources via permitting, while CARB is responsible for selected area sources such as consumer products and pesticide/fertilizer and on-road and off-road mobile sources. Among off-road mobile sources, locomotive, OGVs, aircraft, selected heavy-duty trucks such as out-of-state, international registration, and interstate trucks are subject to federal and international regulations. Preempted off-road equipment with horsepower less than 175 are federally regulated as well.

NO_x emissions are one of the important precursors for ozone and PM_{2.5} formation, and majority of NO_x emissions fall under the authority of CARB and U.S. EPA. In 2030, 77 percent of the NO_x emissions fall under U.S. EPA and CARB control. Conversely, most SO_x, NH₃, and PM_{2.5} emissions are from sources under South Coast AQMD authority. Given the relationship between a growing population and economic activity, emissions regulations, and air pollution, the projections discussed in this chapter suggest that meeting the district's ozone and PM_{2.5} attainment obligations will require collaboration and efforts from all three agencies.

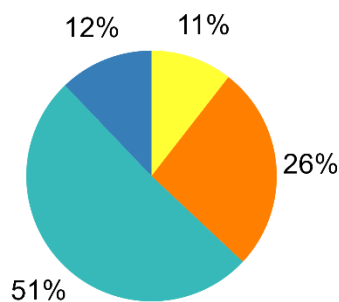
VOC Emissions: 364 tons/day



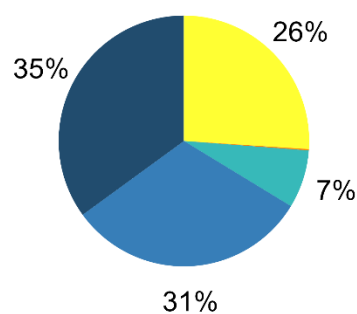
NOx Emissions: 239 tons/day



SOx Emissions: 15 tons/day



NH3 Emissions: 78 tons/day



PM2.5 Emissions: 54 tons/day

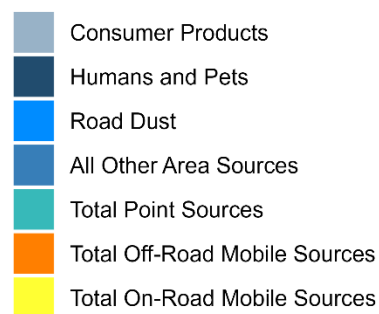
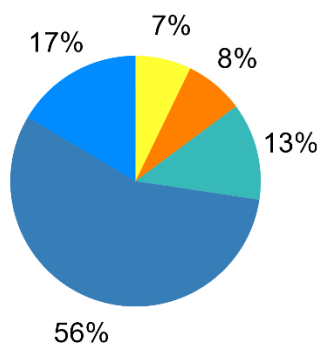
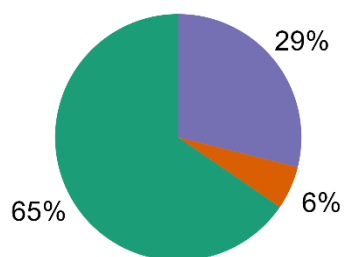
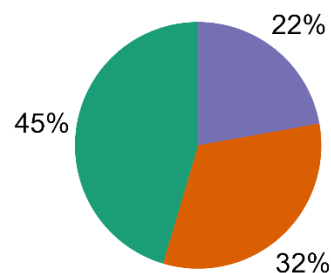


FIGURE I-2-4
RELATIVE CONTRIBUTION BY SOURCE CATEGORY TO 2025 EMISSION INVENTORY
(Annual Average)

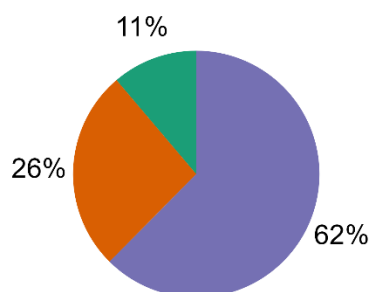
VOC Emissions: 364 tons/day



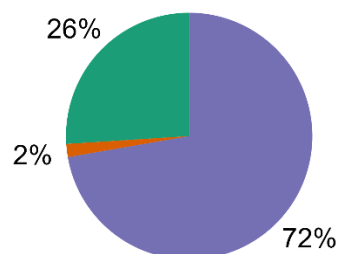
NOx Emissions: 239 tons/day



SOx Emissions: 15 tons/day



NH3 Emissions: 78 tons/day



PM2.5 Emissions: 54 tons/day

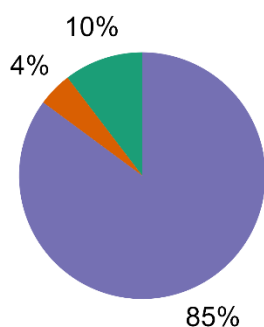
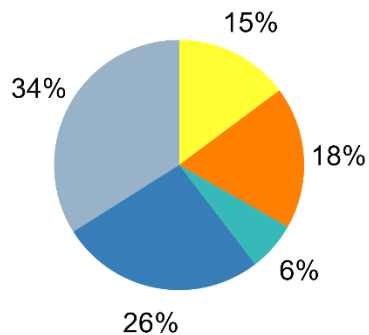
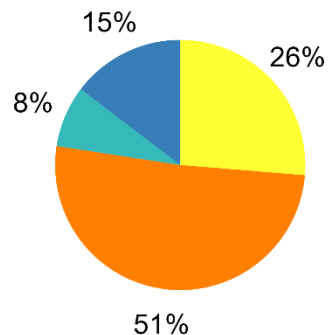


FIGURE I-2-5
2025 EMISSION INVENTORY AGENCY RESPONSIBILITY
(Annual Average)

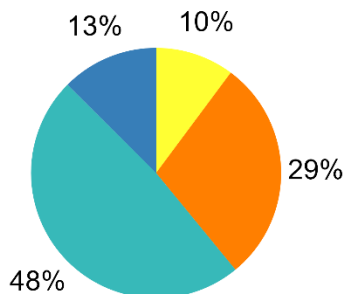
VOC Emissions: 351 tons/day



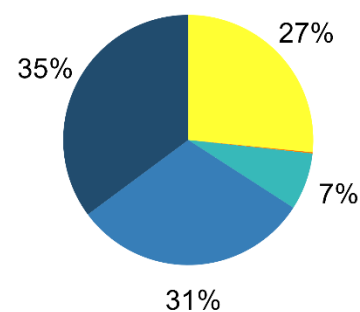
NOx Emissions: 220 tons/day



SOx Emissions: 15 tons/day



NH3 Emissions: 79 tons/day



PM2.5 Emissions: 54 tons/day

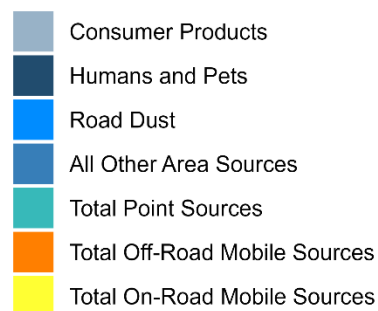
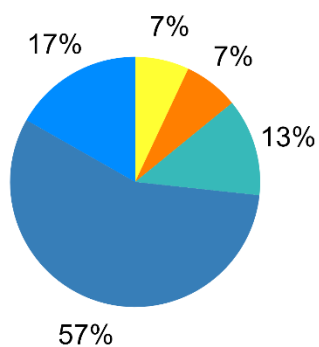
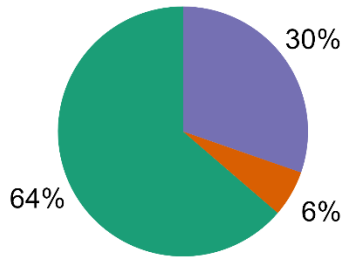
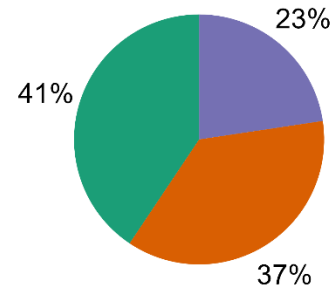


FIGURE I-2-6
RELATIVE CONTRIBUTION BY SOURCE CATEGORY TO 2028 EMISSION INVENTORY
(Annual Average)

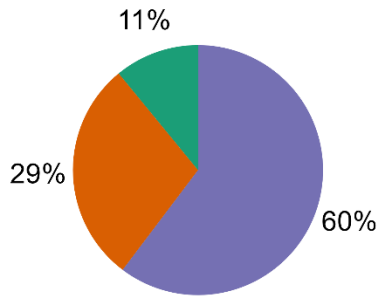
VOC Emissions: 351 tons/day



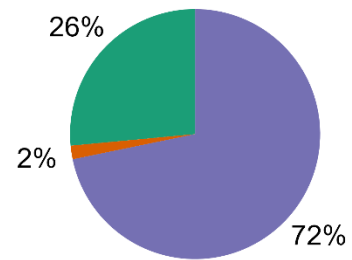
NOx Emissions: 220 tons/day



SOx Emissions: 15 tons/day



NH3 Emissions: 79 tons/day



PM2.5 Emissions: 54 tons/day

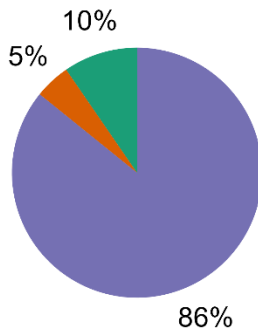
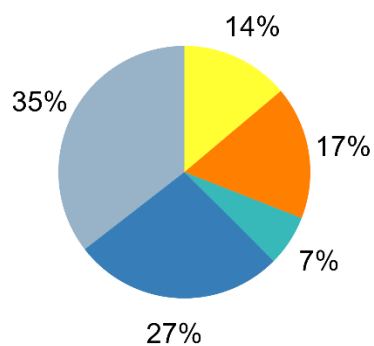
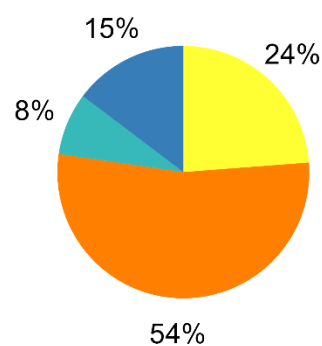


FIGURE I-2-7
2028 EMISSION INVENTORY AGENCY RESPONSIBILITY
(Annual Average)

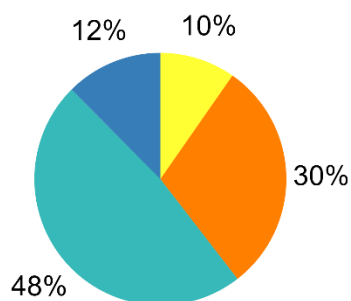
VOC Emissions: 344 tons/day



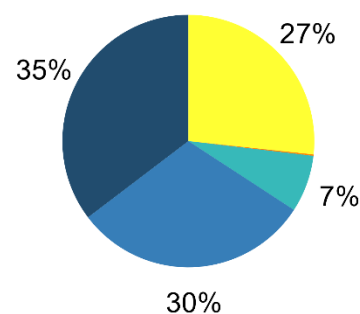
NOx Emissions: 210 tons/day



SOx Emissions: 15 tons/day



NH3 Emissions: 79 tons/day



PM2.5 Emissions: 54 tons/day

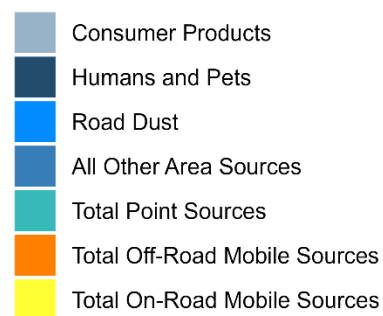
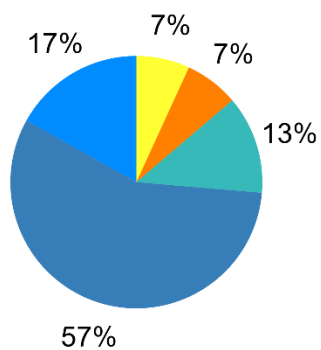
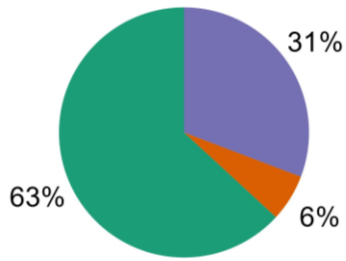
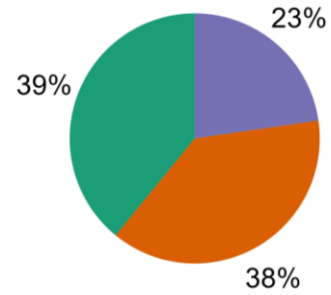


FIGURE I-2-8
RELATIVE CONTRIBUTION BY SOURCE CATEGORY TO 2030 EMISSION INVENTORY
(Annual Average)

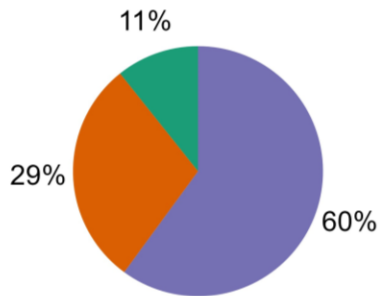
VOC Emissions: 347 tons/day



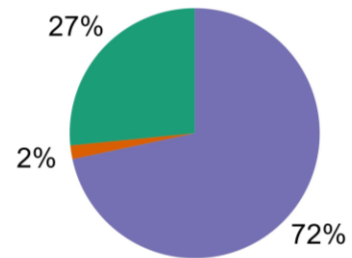
NOx Emissions: 214 tons/day



SOx Emissions: 15 tons/day



NH3 Emissions: 79 tons/day



PM2.5 Emissions: 54 tons/day

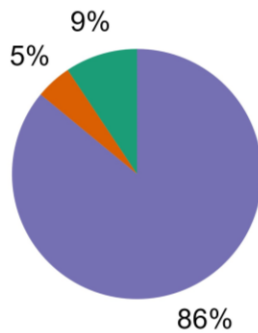
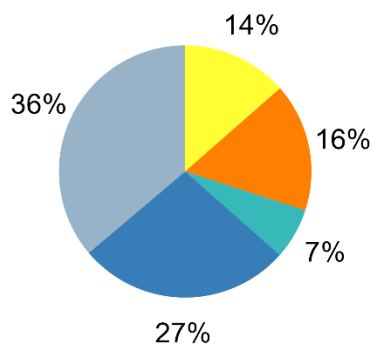
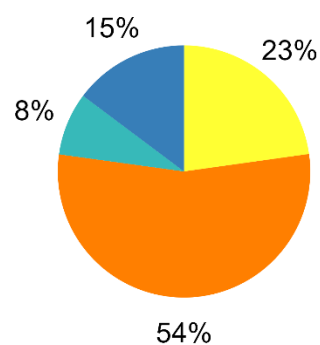


FIGURE I-2-9
2030 EMISSION INVENTORY AGENCY RESPONSIBILITY
(Annual Average)

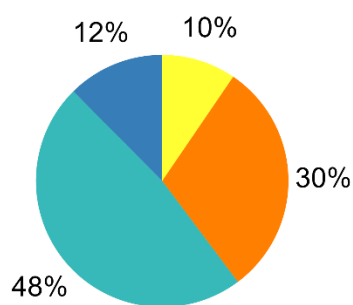
VOC Emissions: 342 tons/day



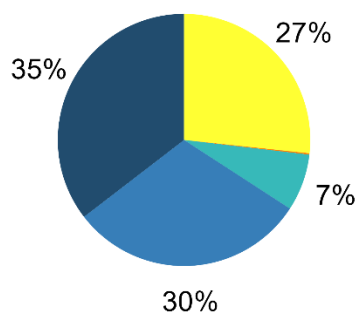
NOx Emissions: 207 tons/day



SOx Emissions: 15 tons/day



NH3 Emissions: 80 tons/day



PM2.5 Emissions: 54 tons/day

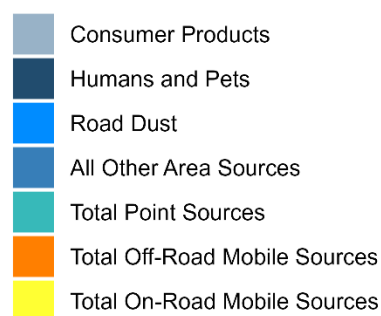
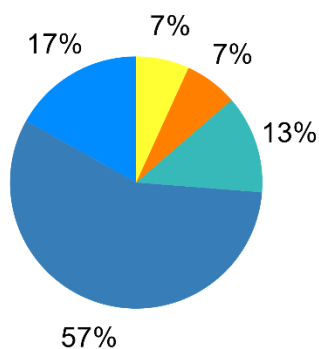
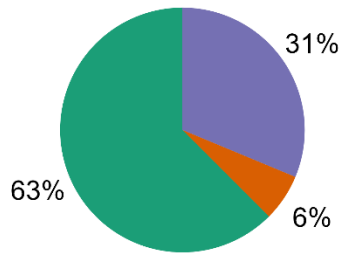
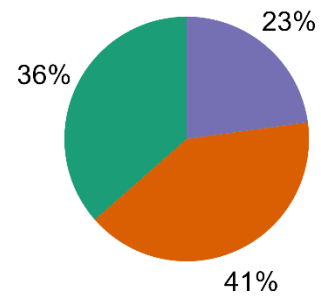


FIGURE I-2-10
RELATIVE CONTRIBUTION BY SOURCE CATEGORY TO 2031 EMISSION INVENTORY
(Annual Average)

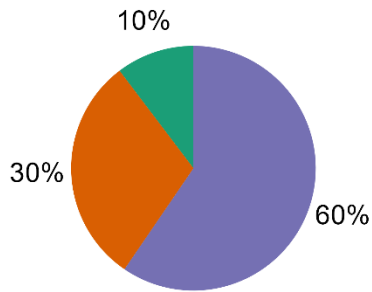
VOC Emissions: 342 tons/day



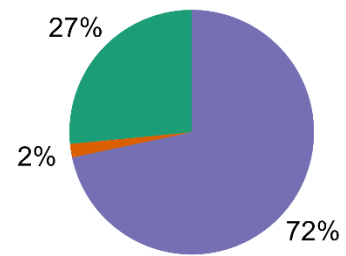
NOx Emissions: 207 tons/day



SOx Emissions: 15 tons/day



NH3 Emissions: 80 tons/day



PM2.5 Emissions: 54 tons/day

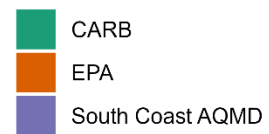
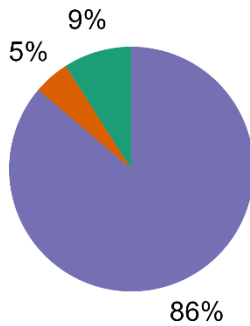


FIGURE I-2-11
2031 EMISSION INVENTORY AGENCY RESPONSIBILITY
(Annual Average)

Figures I-2-12 through I-2-16 illustrate the emission trends by pollutant (NO_x, VOC, SO_x, PM_{2.5}, and NH₃) for the same milestone years in the Draft 2024 PM_{2.5} plan: 2018, 2023, 2025, 2028, 2030, and 2031. Starting with Figure I-2-12 and Figure I-2-13, significant reductions in NO_x and VOC emissions are evident, particularly for the mobile source categories. As seen in Figures I-2-14 and I-2-15, PM_{2.5} and SO_x emissions experience little to no change from 2018 to 2031. NH₃ emissions are expected to increase through 2031 as shown in Figure I-2-16.

NO_x Emissions

Figure I-2-12 illustrates the NO_x emissions trend by major source category. Mobile sources are the major contributor to total NO_x emissions in the base year and future year inventories. NO_x emissions are projected to decrease in all major source categories with on-road mobile, off-road mobile, point, and area sources drop by 135, 24, 7, and 6 tons per day, respectively, between 2018 and 2031. Reductions in NO_x emissions primarily come from recently implemented regulations from CARB, such as Truck and Bus regulations, Advanced Clean Cars, Heavy Duty Low NO_x Omnibus,¹⁸ and Heavy-Duty Inspection and Maintenance¹⁹ regulations. These regulations result in corresponding declines in on-road NO_x emissions by 75 percent, respectively between 2018 and 2031, amidst overall respective reductions of 45 percent. Most of the anticipated on-road NO_x emission reductions are expected between 2018 and 2023, when Truck and Bus regulations are expected to take effect. On the other hand, beyond 2025, reductions are expected from regulations such as Advanced Clean Cars, Heavy Duty Inspection and Maintenance, and NO_x omnibus regulations. Off-road sources show a slight increase from 2025 to 2031 driven by an increase in aircraft emissions (from 19.6 to 25.7 tons per day) and OGV emissions (from 28.4 to 30.3 tons per day). Point and area sources decline by 30 and 15 percent, respectively from 2018 to 2031 due to regulation implementation from South Coast AQMD stationary sources rules such as R1109.1 for NO_x reduction from refinery and R1111 for NO_x reduction from residential natural gas heating furnaces.

¹⁸ Heavy-Duty Engine and Vehicle Omnibus Regulations, <https://ww2.arb.ca.gov/rulemaking/2020/hdomnibuslownox>

¹⁹ Heavy-Duty Inspection and Maintenance Program, <https://ww2.arb.ca.gov/our-work/programs/heavy-duty-inspection-and-maintenance-program>

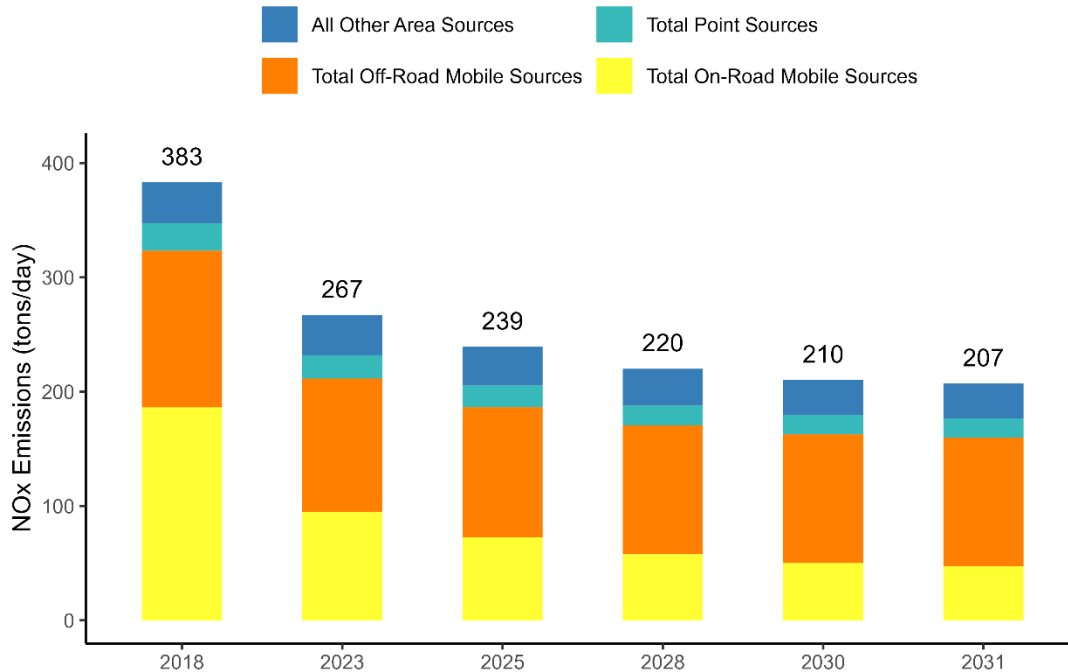


FIGURE I-2-12
NOX EMISSION TREND BY SOURCE CATEGORY – ANNUAL AVERAGE

VOC Emissions

As shown in Figure I-2-13, area sources are major contributors to base and future years' VOC emissions. VOC emissions from area sources increase over time from 198 to 203 tons per day between 2018 and 2023 and increase to 217 tons per day in 2031. Within area sources, the main source of VOC emissions is consumer products. In 2018, VOC emissions from consumer products accounted for 27% of the total VOC emissions baseline, and this is expected to increase to 35% by 2030. Following population growth, VOC emissions from consumer products are set to increase over time, from 107 tons per day in 2018 to 124 tons per day in 2031. Coatings and related processes are the second-largest contributor to VOC emissions among area sources. Emissions from on-road mobile sources are set to decrease over time, with the largest decreases occurring prior to 2025, from 93 tons per day in 2018 to 65 tons per day in 2023. On-road emissions are expected to fall from 65 tons per day to 46 tons per day from 2023 to 2031. Off-road emissions show a similar trend dropping from 89 to 82 tons per day between 2018 and 2023; the rate of reduction is much more modest over the years between 2023 and 2031 (82 down to 56 tons per day) compared to the sharp reduction from base year 2018 to 2023. The amount of reduction from 2018 to 2031 for VOC emissions from on-road and off-road sources is expected to be 47 tons per day (50 percent) and 33 tons per day (37 percent), respectively; total VOC emissions reduction is 60 tons per day (15 percent). Because of increased activity due to demographic and economic growth, both point and area sources are expected to increase from 21 and 198 tons per day in 2018 to 22 and 217 tons per day in 2031, respectively. The increase of consumer products-related VOC emissions contribute 85 percent of the increase from point and area VOC emissions from 2018 to 2031.

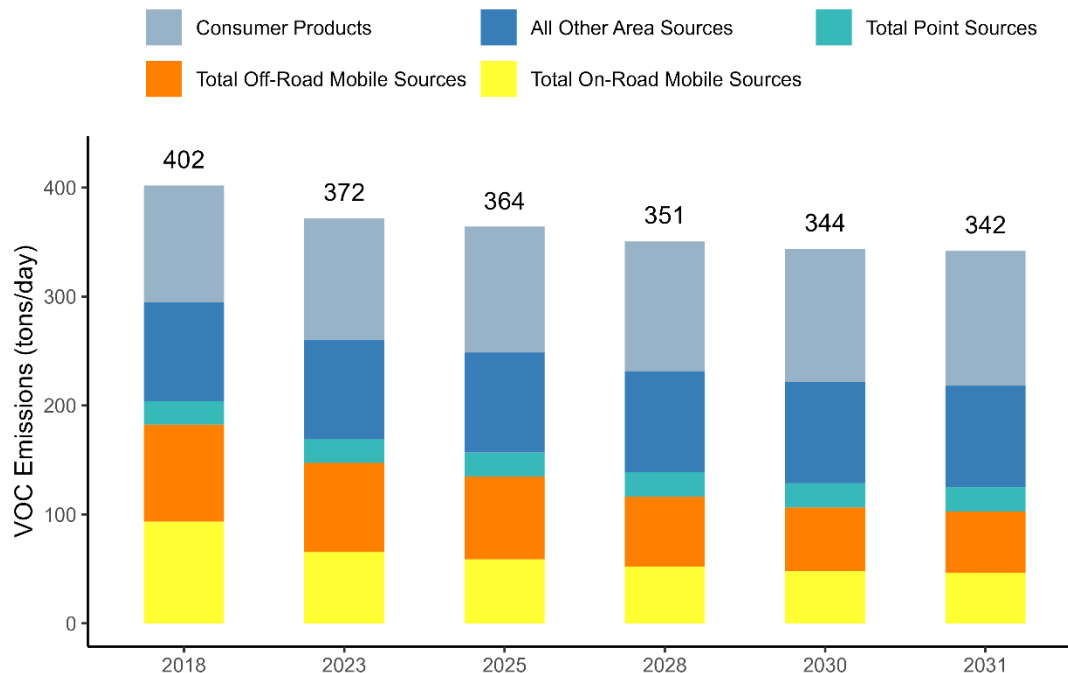


FIGURE I-2-13
VOC EMISSION TREND BY SOURCE CATEGORY – ANNUAL AVERAGE

SOx Emissions

Figure I-2-14 illustrates the SOx emissions trend. Total SOx emissions show a slight increase from 2018 to 2031 due to marginal growth in point and off-road categories. Among off-road sources, OGVs are the primary source of SOx emissions which are expected to grow in future due to the increased ports activities. SOx emissions from on-road mobile sources are expected to slightly decrease from 2018 to 2023 and plateau beyond 2023; area sources plateau for all years (2018 through 2031). The overall 3 percent increase for total SOx emissions from 2018 to 2031 is mainly driven by the increase of aircraft and OGVs in the future.

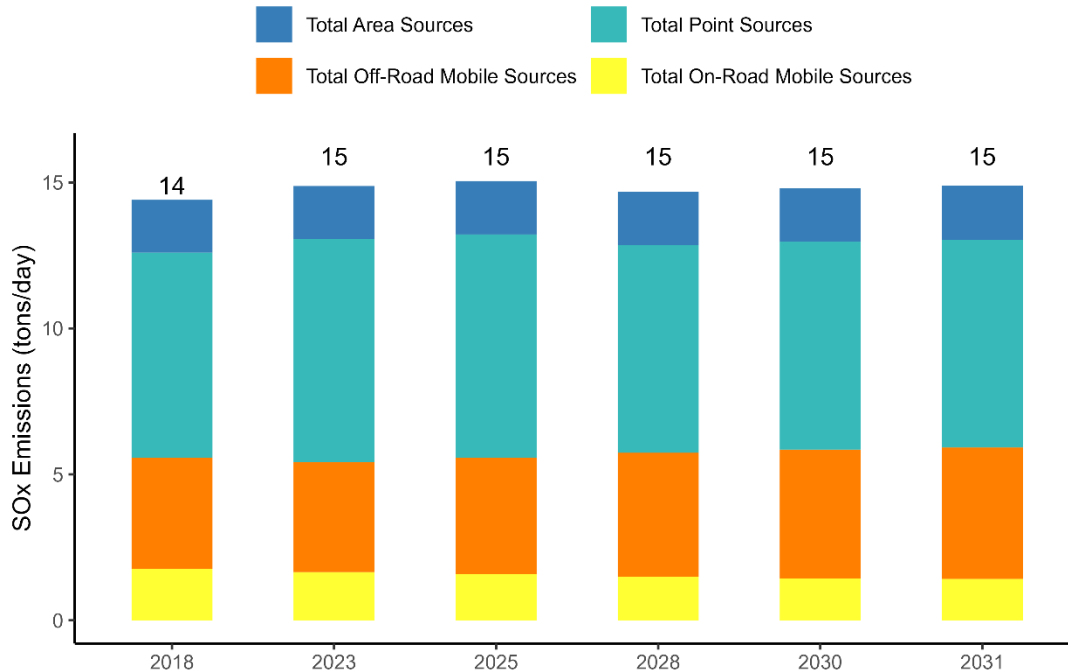


FIGURE I-2-14
SOX EMISSION TREND BY SOURCE CATEGORY – ANNUAL AVERAGE

PM2.5 Emissions

Figure I-2-15 shows the PM2.5 emissions trend. Area sources, including entrained road dust, are projected to remain the largest contributor to PM2.5 emissions. Point and area sources are projected to increase from 2018 to 2031 due to increased activity driven by growth, resulting in higher emissions from commercial cooking, paved road dust, wood and paper production, as well as construction and demolition. The increase in vehicle miles traveled is the main cause of the increasing trend in paved road dust, while PM2.5 emissions from on-road mobile tail pipe emissions decrease due to the fleet turnover to cleaner vehicles. Off-road emissions slightly drop from 5.2 to 3.7 tons per day between 2018 and 2031. Overall, PM2.5 emissions are projected to decline by 4 percent from 2018 (56 tons per day) to 2031 (54 tons per day).

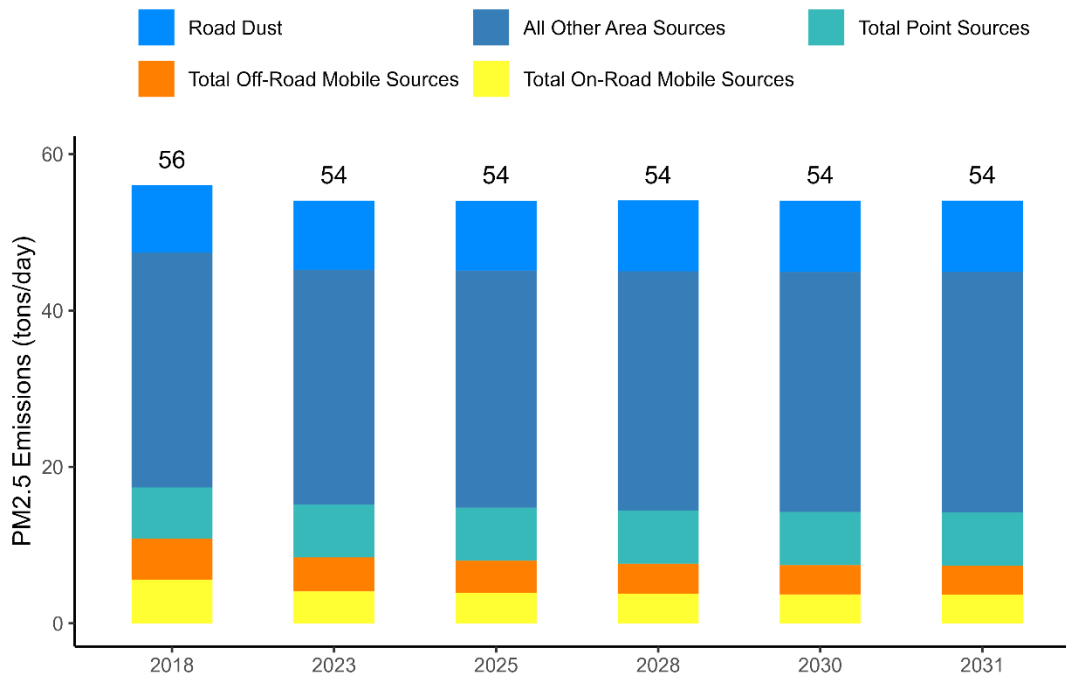


FIGURE I-2-15
PM2.5 EMISSION TREND BY SOURCE CATEGORY – ANNUAL AVERAGE

NH3 Emissions

Figure I-2-16 shows the NH3 emissions trend. Area sources are the largest contributor to NH3 emissions. Among area sources, emissions from human and pet perspiration are the largest source of NH3. Because this source is uncontrolled, emissions from this source are expected to increase over time as population increases. Another large contributor to NH3 is vehicle emissions. NH3 emissions from gasoline vehicles are a byproduct of the catalytic conversion of NOx in the three-way catalysts, whereas NH3 emissions from diesel vehicles are caused by the ammonia slip from SCR systems used in heavy-duty diesel vehicles. Because VMT in gasoline and diesel vehicles are expected to increase, NH3 emissions from vehicles is also projected to increase. Other NH3 sources in the basin include emissions from manufacturing, which are expected to remain relatively constant, and emissions from farming, which are projected to decline over time. Overall, NH3 emissions in the basin is projected to increase 7 percent from 75 tons per day in 2018 to 80 tons per day in 2031. NH3 emissions from human and pet perspiration alone contribute 44 percent of the total NH3 emission increase from 2018 to 2031.

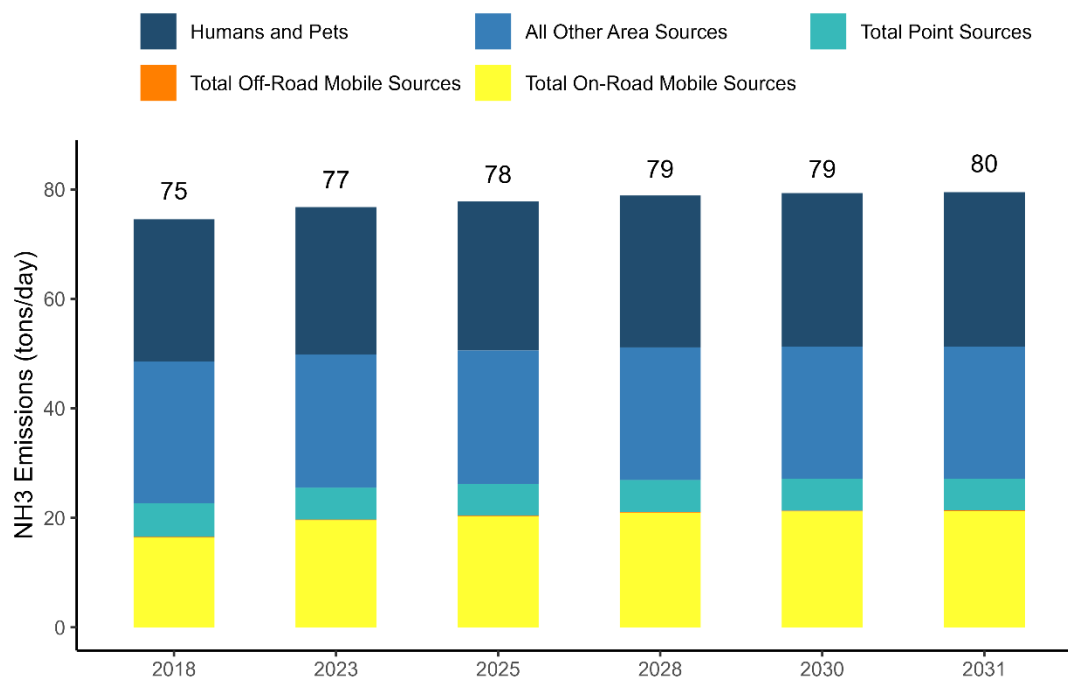


FIGURE I-2-16
NH3 EMISSION TREND BY SOURCE CATEGORY – ANNUAL AVERAGE

Condensable and Filterable PM_{2.5} Emissions

Per PM_{2.5} NAAQS final implementation rule,²⁰ the SIP emissions inventory is required to separately identify condensable and filterable portions of PM_{2.5} within primary PM_{2.5} emissions. Primary PM emissions consist of condensable and filterable portions. Condensable PM is the material that is in vapor phase in stack conditions. The U.S. EPA's Air Emissions Reporting Requirements (AERR) requires states to report annual emissions of filterable and condensable components of PM_{2.5} and PM₁₀, "as applicable," for large sources for every inventory year and for all sources every third inventory year, beginning with 2011.²¹ Subsequent emissions inventory guidance²² from the U.S. EPA clarifies the meaning of the phrase "as applicable" by providing a list of source types "for which condensable PM is expected by the AERR." Filterable PM comprises "particles that are directly emitted by a source as a solid or liquid [aerosol] at stack or release conditions." Primary PM_{2.5} is the sum of condensable and filterable PM_{2.5} emissions. Category specific conversion factors

²⁰ 40 CFR 51.1008(a)(1)(iv).

²¹ 40 CFR §51.15(a)(1) and §51.30(b)(1).

²² USEPA. 2017. Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations. Available at: https://www.epa.gov/sites/production/files/2017-7/documents/ei_guidance_may_2017_final_rev.pdf.

developed by CARB and used in the Imperial County 2018 SIP²³ were applied in the current analysis to estimate condensable PM and then filterable PM was calculated by subtracting the condensable from the total PM2.5 primary emissions. The baseline 2018, future attainment year 2030, and the RFP milestone years 2023, 2025, 2028, and 2031 are included in the analysis. Figure I-2-15 shows the annual average emissions of primary (or direct), condensable, and filterable PM2.5 emissions for those years.

As shown in Figure I-2-19, total primary PM2.5 emissions increase between the base and future years, rising from 45.2 tpd in 2018 to 46.6 tpd in 2030. This increase in total primary PM2.5 is due to both condensable and filterable portions, which experience respective increases of 0.8 and 0.6 tpd between 2018 and 2031. The condensable portion shows a sharper increase than the filterable portion in the initial interim years from 2018 through 2023, with a 0.4 tpd increase versus little to no change. These increases can be attributed to the growth in population and economic activities in the Basin.

Table I-2-17 presents the top five source categories for condensable PM2.5 in 2018 and future milestone years. Most condensable PM2.5 is emitted from cooking, which accounts for 75.1% and 76.8% of the total condensable PM2.5 in 2018 and 2030, respectively. The sum of the top five condensable PM2.5 categories represents 95.7% and 95.9% of the total condensable PM2.5 both in 2018 and 2030, respectively. Table I-2-18 shows the top five categories for filterable PM2.5. Paved road dust is the greatest source of filterable PM2.5. The top five filterable PM2.5 emissions categories account for approximately 70.7% (2018) and 72.9% (2030) of the total filterable PM2.5 emissions. This points to a marginally higher contribution of the top five filterable categories to total filterable PM2.5 emissions in future years.

List of Category Specific Conversion Factors (Developed by CARB and Used in the Imperial County 2018 SIP) to Estimate Condensable PM2.5 from Primary PM2.5 as well as detailed emissions by major source category for condensable and filterable PM2.5 are included in Appendix I Attachment E of this Plan.

²³ Imperial County 2018 Annual Particulate Matter less than 2.5 microns in Diameter State Implementation Plan, April 2018. Available at https://ww3.arb.ca.gov/planning/sip/planarea/imperial/final_2018_ic_pm25_sip.pdf.

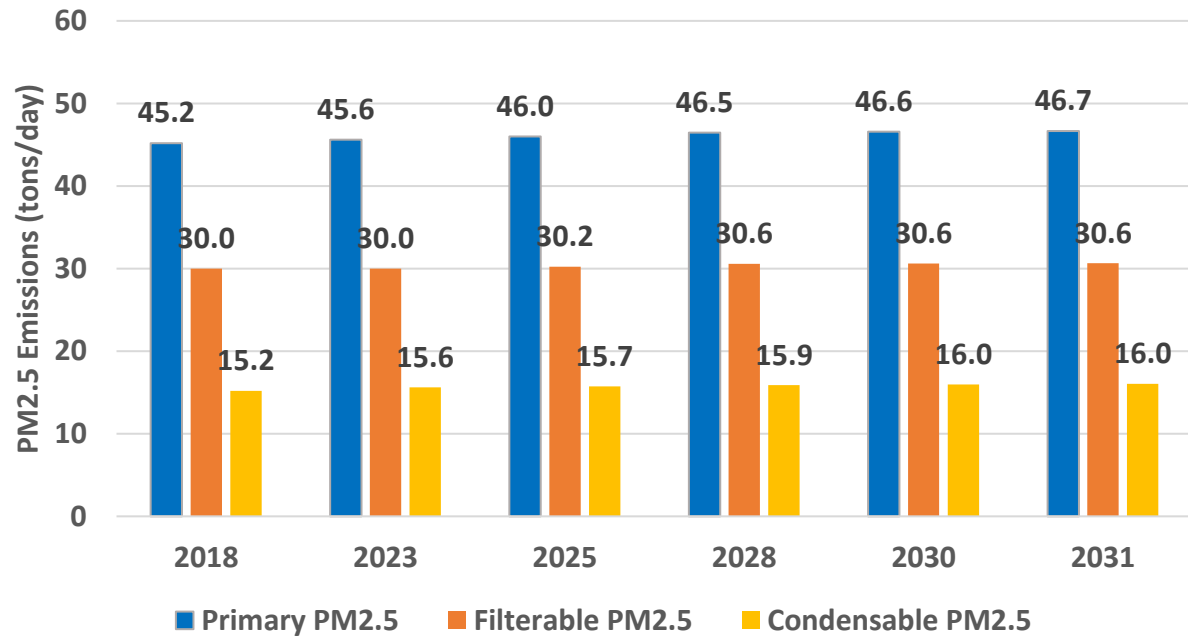


FIGURE I-2-17

ANNUAL AVERAGE PRIMARY, FILTERABLE AND CONDENSABLE PM2.5 EMISSIONS

TABLE I-2-17

TOP 5 CATEGORIES EMITTING CONDENSABLE PM2.5 (TONS PER DAY)

Category	2018	2023	2025	2028	2030	2031
Cooking	11.41	11.76	11.93	12.13	12.27	12.33
Petroleum Refining (Combustion)	1.00	1.00	1.00	1.00	1.00	1.00
Residential Fuel Combustion	0.79	0.82	0.81	0.78	0.77	0.77
Manufacturing and Industrial	0.75	0.73	0.74	0.73	0.72	0.71
Service and Commercial	0.61	0.61	0.60	0.58	0.57	0.57

TABLE I-2-18

TOP 5 CATEGORIES EMITTING FILTERABLE PM2.5 (TONS PER DAY)

Category	2018	2023	2025	2028	2030	2031
Paved Road Dust	8.59	8.83	8.91	9.08	9.11	9.11
Residential Fuel Combustion	5.98	5.95	5.92	5.86	5.82	5.82
Wood and Paper	2.7	2.95	3.06	3.2	3.23	3.23
Construction and Demolition	2.27	2.36	2.41	2.46	2.49	2.51
Unpaved Road Dust	1.67	1.67	1.67	1.67	1.67	1.67

Uncertainty in the Inventory

An effective PM Plan relies on a robust emission inventory. Over the years, significant improvements have been made to quantify emission sources for which control measures are developed. Increased use of continuous monitoring and source tests has contributed to the improvement in point source inventories. Technical assistance to facilities and auditing of reported emissions by South Coast AQMD also have improved the accuracy of the emissions inventory. CARB inventory staff collaborates with the South Coast AQMD to ensure the accuracy of these data. The locations of point sources, including stacks, are checked for validity. Area source inventories that rely on average emission factors and regional activities have inherent uncertainty. Area source emissions estimates are developed by both CARB and South Coast AQMD staff, and the methodologies are reviewed by both agencies before their inclusion in the emissions inventory. Industry-specific surveys and source-specific studies during rule development have provided much-needed refinement to the emissions estimates. Many sectors in area sources were revised extensively as well based on the best available emission factors and activity data. As described earlier, many improvements are included in the on-road mobile source model EMFAC2021 which estimates emissions from trucks, automobiles, and buses. Improvements and updates are included in the off-road models for locomotives, OGVs, commercial harbor craft, pleasure craft and off-road recreational vehicles, cargo handling equipment, and farm equipment. Mobile categories are verified with CARB mobile source staff for consistency with the on-road and off-road emission models.

CARB maintains and assembles base year emissions in the California Emission Inventory Development and Reporting System (CEIDARS), which is designed with automatic system checks to prevent errors, such as double counting of emission sources. At the final stage, California Emissions Projection Analysis Model (CEPAM), a tool designed and maintained by CARB to model emissions inventory for the 2022 State SIP Strategy is thoroughly reviewed by CARB staff as well as South Coast AQMD staff to validate the accuracy of growth and control application, and the output emissions are compared against prior approved versions of CEPAM to identify data anomalies.

Overall, the ~~Draft~~ PM2.5 Plan inventory is based on the most current information and estimation methodologies, resulting in the most accurate inventory available. However, there are still areas that could be improved if better data were available. Technology changes and improvements in the area of electric, hybrid, flexible fuel, and fuel cell vehicles, or the change in future gasoline prices, all add uncertainty to the future on-road emissions inventory.

Relative to future growth, there are many challenges involved with making accurate projections, such as where vehicle trips will occur, the distribution between various modes of transportation (such as trucks and trains), as well as estimates for population growth and changes to the number and type of jobs. Forecasts are made with the best information available; nevertheless, they contribute to the overall uncertainty in emission projections. Fortunately, AQMP updates are generally performed every three to five years; thereby allowing for frequent improvements and adjustments to the inventories.

Controlled Emission Inventories

This section describes the methodology used to estimate the controlled and remaining emissions after the proposed control measures in the Draft PM2.5 Plan are implemented for the year 2030. Emission reductions are derived by applying the control efficiency of a control measure to the projected baseline inventories.

The methodology used in this Draft PM2.5 Plan to calculate emission reductions from the implementation of the proposed control measures and remaining emissions is the same methodology used in the 2022 AQMP.²⁴ The in-house algorithm calculates remaining emissions as well as reductions for each control measure using the control factors specified at the Emission Inventory Codes (EIC) level for a given year and pollutant. It is not unusual to have more than one control factors targeting the same EIC when multiple rules exist. To avoid double counting of reductions, the composite control factor is used by multiplying the individual control factors for the same EIC. Details of the steps taken in the calculation are discussed in the “Emission Reduction Calculations” section of this document.

Emission Reductions from the Proposed Control Measures

To assess emission reduction potential and remaining emissions from proposed control measures, a control factor profile needs to be developed identifying the source category targeted by each measure, its control efficiency, and the implementation schedule.

Control Efficiency/Control Factor

One factor that determines the effectiveness of a control measure is its control efficiency (CE), expressed in percentage. Control efficiency is dependent on the specific control technologies proposed, and each control measure may have one or more technology options available. If there is only one feasible control technology in a control measure, its control efficiency is primarily based on an engineering evaluation of the proposed technology. However, if several control technologies are available to control an emission source, the average control efficiency is used. If multiple control technologies are proposed to reduce emissions from various steps of an operation, a weighted average control efficiency is developed to represent an overall control of the emission sources. Once the control efficiency of a control measure is determined, it is used to estimate emission reductions of the proposed measure. Control efficiencies for the proposed control measures are identified and discussed in detail in Appendix IV of the Draft PM2.5 Plan.

The control factor (CF) is used to estimate remaining emissions once a proposed control measure is implemented. A control factor equal to 0 indicates complete emission control or 100 percent efficiency. A control factor equal to 1 indicates no emission control or emissions remain unchanged. A high control factor value indicates a low control efficiency. As the control efficiency goes up, the control factor value goes down. The equation to calculate a control factor follows:

²⁴ 2022 AQMP Appendix III: Base and Future Year Emission Inventory <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/appendix-iii.pdf?sfvrsn=6>

$$CF = 1 - (CE/100)$$

The remaining emissions can be calculated as:

$$REM = BE \times CF$$

Where REM is Remaining Emissions, and BE is Baseline Emissions.

To assess the influence of control measures on future PM2.5 levels, control factors for 2030 were developed. The control factor profile for each measure is developed considering the following factors:

- proposed adoption date;
- implementation lead time; and
- phase-in period, if any.

The adoption date as proposed in the ~~Draft~~ PM2.5 Plan is the date South Coast AQMD or another agency is expected to adopt the control measure as a rule. The implementation lead time reflects the time allowed for the emission sources to install controls. When a rule is implemented, it is not unusual that it may have multiple interim implementation dates prior to full implementation. This is because the requirements in a rule may require two or three phases to include such as technology-forcing regulation to reach the final emission target. Sometime, a particular rule may regulate such a large population of equipment that it is impractical to implement it all at once, then, it becomes administratively necessary break down the implementation into different phases. In either case, a control profile would indicate an initial implementation date and an ending implementation date. The adoption and implementation schedule of the proposed control measures is presented in Chapter 4 of the ~~Draft~~ PM2.5 Plan.

Impact Factors

Each proposed control measure describes specific emission sources subject to potential controls. Based on the description of these sources, corresponding sources as tracked in the emission inventory are identified. In general, emission sources are grouped by major source category, which can be further subcategorized into point sources denoted by Source Classification Codes (SCC) and area sources denoted by Category Emission Source (CES) Codes. To track emission reductions more accurately, the control factors at the SCC/CES level become necessary.

An SCC, an 8-digit EPA code, is used to identify emissions from a point source at the equipment level. A CES, a 5-digit CARB code, is used to describe an area source for which emissions are distributed across the region with no specific locations.

For some measures, the controls apply not only to the type of equipment but also to the industries engaged in a particular activity. In those cases, control factors will be developed by pairing SCCs with Standard Industrial Classification (SIC) Codes to clearly and specifically point out the emission sources in the inventory that the measure is designed to reduce. Such SCC/SIC pairs significantly enhance the ability to quantify emissions closely following the intent of a proposed control measure.

There are instances where an SCC or CES category is not fully impacted by a control measure. As a result, an impact factor (IF) is developed as a weighing factor for such an adjustment. The following equation illustrates how the impact factor (IF) is included in the CF calculation.

$$CF = 1 - ((CE / 100) \times IF)$$

Impact factors will accurately track the measure's baseline emissions and calculate more accurate reductions from the proposed control measures.

Emission reductions for the attainment year 2030 for South Coast Air Basin are estimated from the control measures provided in Chapter 4 and Appendix IV of this Draft PM2.5 Plan.

Emission Reduction Calculations

An in-house algorithm (in MATLAB programming language) is developed to calculate the emission reductions from controlled emission scenarios. A brief description of the steps taken in the algorithm is as follows:

- I. Compile baseline emissions by EIC:
Compile the annual baseline emissions (BE) by EIC for each pollutant and year. Attachment A in Appendix I present the annual average emission summary tables for the South Coast Air Basin by major source categories.

Baseline Emissions by year, pollutant and EIC: $BE_{year,pol,EIC}$

- II. Compile composite control factors for all measures by EIC:
The control factors by pollutant and year are provided by South Coast AQMD rule writers or CARB staff for each proposed control measure. The composite control factors by EIC and pollutant are obtained by multiplying all control factors applied to the same EIC to reflect the overall reduction resulting from the application of all control and incentive measures to the baseline emissions.

Example: Assume there are 2 control measures applying to 3 EIC codes

Control factors for measure 1 applies to EIC1 and EIC2:

$$CF1_{year,pol,EIC1} \text{ and } CF1_{year,pol,EIC2}$$

Control factors for measure 2 applies to EIC1 and EIC3:

$$CF2_{year,pol,EIC1} \text{ and } CF2_{year,pol,EIC3}$$

Composite control factors for the 3 EIC are:

$$CCF_{year,pol,EIC1} = CF1_{year,pol,EIC1} \times CF2_{year,pol,EIC1}$$

$$CCF_{year,pol,EIC2} = CF1_{year,pol,EIC2}$$

$$CCF_{year,pol,EIC3} = CF2_{year,pol,EIC3}$$

III. Calculate remaining Emissions:

Calculate the remaining emissions after multiplying the composite control factors by baseline emissions, by EIC, pollutant, and year. The result is the remaining emissions after applying all defined measures and South Coast AQMD incentive programs for mobile and stationary sources.

Example: Apply the control factors of measures 1 and 2 to baseline emissions of EIC1, EIC2 and EIC3 to calculate controlled emissions (CE)

$$CE_{year,pol,EIC1} = CCF_{year,pol,EIC1} \times BE_{year,pol,EIC1}$$

$$CE_{year,pol,EIC2} = CCF_{year,pol,EIC2} \times BE_{year,pol,EIC2}$$

$$CE_{year,pol,EIC3} = CCF_{year,pol,EIC3} \times BE_{year,pol,EIC3}$$

IV. Add back set-aside account emissions to remaining basin total for the controlled emissions scenario.

The result of emission reductions from the proposed control measures for 2025 and 2030 are presented in Appendix II of the ~~Draft~~ PM2.5 Plan.

CARB Emission Data Reports System

As mentioned in Chapter 1 of this Appendix, the entire emission inventories are compiled and maintained by CARB in its statewide emission related information databases, namely the California Emission Inventory Development and Reporting System (CEIDARS) and the California Emission Forecasting and Planning Inventory System (CEFIS).

In both systems, emissions are tracked by EIC codes. The EIC code is a 14-digit number arranged into four fields: major category, source category, material description, and emission sub-category. For example, EIC 210-200-3300-0000 is for dry cleaning using perchloroethylene. 210 indicates that this source is under the laundering group. 200 means the source category is dry cleaning. 3300 refers to the material perchloroethylene. 0000 implies there is no sub-category for this particular source. EIC codes separate emission sources into four major divisions: stationary, area, non-anthropogenic, and mobile source. This coding system allows flexibility in how sources are selected, sorted, and grouped to fit users' needs. EIC codes link area sources and point sources together to allow a computer program to automatically reconcile point and area source emissions. In the ~~Draft~~ PM2.5 Plan, all the emission summary reports are based on CARB's EIC codes. Because only anthropogenic sources are included in this document, all summary reports in the appendices include three major divisions: stationary, area, and mobile sources.

The California Emissions Projection Analysis Model (CEPAM)²⁵ was created to support SIP development, air quality modeling efforts, and SIP progress tracking. CEPAM starts with a base year, which is pulled from CEIDARS, and forecasts emissions for point and area sources using the most current growth and control data available at the time of the development of the model version. For mobile sources, CEPAM integrates the

²⁵ <https://ww2.arb.ca.gov/criteria-pollutant-emission-inventory-data#:~:text=California%20Emissions%20Projection%20Analysis%20Model&text=CEPAM%20starts%20with%20a%20base,development%20of%20the%20model%20version.>

emission estimates from EMFAC and OFFROAD²⁶ mobile source emission models to provide a comprehensive anthropogenic emission inventory. CEPAM2022 projected from 2018 using control and growth factors employed for this PM plan will be released and hosted on CARB's website for public review.

²⁶ <https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/msei-road-documentation-0>.

Attachment A:

Annual Average Emissions by Source Category in
South Coast Air Basin

Attachment A

2018 Annual Average Emissions by Source Category in South Coast Air Basin (Tons/Day)

MSC	DESC	TOG	VOC	NOX	CO	SOX	PM	PM10	PM25	NH3
Fuel Combustion										
10	Electric Utilities	2.72	0.32	0.64	4.31	0.23	0.54	0.53	0.53	0.69
20	Cogeneration	0.03	0.01	0.02	0.11	0.00	0.02	0.01	0.01	0.17
30	Oil and Gas Production (combustion)	1.01	0.12	0.58	0.57	0.01	0.09	0.09	0.09	0.17
40	Petroleum Refining (Combustion)	6.55	1.38	0.00	5.17	0.01	1.80	1.80	1.79	1.54
50	Manufacturing and Industrial	4.29	0.91	6.41	48.46	1.04	1.45	1.37	1.33	2.30
52	Food and Agricultural Processing	0.09	0.04	0.20	0.49	0.00	0.05	0.05	0.05	0.06
60	Service and Commercial	4.96	1.95	10.48	20.67	0.77	1.17	1.17	1.16	2.61
99	Other (Fuel Combustion)	0.74	0.61	2.77	1.27	0.01	0.42	0.39	0.37	0.25
	Total Fuel Combustion	20.40	5.34	21.10	81.04	2.08	5.54	5.42	5.34	7.79
Waste Disposal										
110	Sewage Treatment	0.39	0.28	0.00	0.00	0.00	0.02	0.00	0.00	0.21
120	Landfills	621.84	8.63	0.45	0.39	0.37	0.20	0.20	0.20	3.97
130	Incineration	0.19	0.04	0.98	0.25	0.07	0.12	0.06	0.05	0.23
140	Soil Remediation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
199	Other (Waste Disposal)	71.22	5.72	0.01	0.01	0.00	0.00	0.00	0.00	1.33
	Total Waste Disposal	693.64	14.67	1.44	0.65	0.44	0.34	0.26	0.25	5.74
Cleaning and Surface Coatings										
210	Laundrying	3.41	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	Degreasing	66.82	12.71	0.00	0.00	0.00	0.02	0.02	0.02	0.01
230	Coatings and Related Processes	18.07	17.68	0.00	0.00	0.00	1.51	1.45	1.40	0.09
240	Printing	0.67	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.04
250	Adhesives and Sealants	5.79	5.12	0.00	0.00	0.00	0.02	0.02	0.02	0.00
299	Other (Cleaning and Surface Coatings)	0.63	0.62	0.01	0.11	0.00	0.01	0.00	0.00	0.00
	Total Cleaning and Surface Coatings	95.39	36.93	0.01	0.11	0.00	1.56	1.50	1.44	0.14
Petroleum Production and Marketing										
310	Oil and Gas Production	5.10	2.34	0.01	0.02	0.06	0.04	0.03	0.02	0.00
320	Petroleum Refining	6.35	4.43	0.23	2.39	0.24	1.87	1.25	0.88	0.07
330	Petroleum Marketing	53.80	12.80	0.00	0.23	0.00	0.01	0.00	0.00	0.00
399	Other (Petroleum Production and Marketing)	0.04	0.04	0.01	0.01	0.00	0.00	0.00	0.00	0.00
	Total Petroleum Production and Marketing	65.29	19.61	0.25	2.65	0.30	1.91	1.28	0.91	0.07
Industrial Processes										
410	Chemical	4.25	4.14	0.03	0.12	0.05	0.46	0.40	0.38	0.01
420	Food and Agriculture	0.53	0.51	0.00	0.01	0.01	0.25	0.12	0.05	0.00
430	Mineral Processes	0.35	0.31	0.02	0.29	0.04	8.43	3.57	0.94	0.06
440	Metal Processes	0.11	0.09	0.05	0.25	0.03	0.35	0.27	0.21	0.00
450	Wood and Paper	0.23	0.23	0.00	0.00	0.00	6.43	4.50	2.70	0.01
460	Glass and Related Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
470	Electronics	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00
499	Other (Industrial Processes)	5.40	4.85	0.01	0.01	0.00	1.03	0.71	0.45	8.59
	Total Industrial Processes	10.89	10.16	0.11	0.67	0.14	16.95	9.58	4.74	8.67
Solvent Evaporation										
510	Consumer Products	135.77	107.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings and Related Solvent	10.62	10.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00
530	Pesticides/Fertilizers	1.09	1.09	0.00	0.00	0.00	0.00	0.00	0.00	1.23
540	Asphalt Paving/Roofing	1.06	0.98	0.00	0.00	0.00	0.03	0.02	0.02	0.00
	Total Solvent Evaporation	148.53	120.06	0.00	0.00	0.00	0.03	0.02	0.02	1.23

Attachment A

(Continued)

2018 Annual Average Emissions by Source Category in South Coast Air Basin (Tons/Day)

MSC	DESC	TOG	VOC	NOX	CO	SOX	PM	PM10	PM25	NH3
Miscellaneous Processes										
610	Residential Fuel Combustion	19.57	8.88	19.10	47.62	0.33	7.32	6.96	6.77	0.11
620	Farming Operations	17.80	1.48	0.00	0.00	0.00	1.66	0.81	0.17	8.17
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	46.32	22.66	2.27	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	125.15	57.22	8.59	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	28.17	16.74	1.67	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	3.20	1.62	0.23	0.00
660	Fires	0.34	0.29	0.08	3.02	0.00	0.45	0.44	0.41	0.00
670	Waste Burning and Disposal	1.03	0.85	0.10	12.00	0.06	1.18	1.14	0.97	0.12
690	Cooking	2.73	1.08	0.00	0.00	0.00	11.44	11.44	11.44	0.00
699	Other (Miscellaneous Processes)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.98
	RECLAIM	0	0	17.77	0	5.48	0	0	0	0
	Total Miscellaneous Processes	41.47	12.59	37.04	62.65	5.87	224.89	119.04	32.52	34.39
On-Road Motor Vehicles										
710	Passenger Cars (P)	42.05	38.58	28.22	394.54	0.73	4.38	4.33	1.61	6.98
722	Light Duty Trucks 1 (T1)	8.84	8.03	6.73	76.33	0.07	0.45	0.44	0.18	0.71
723	Light Duty Trucks 2 (T2)	18.52	16.75	20.54	190.38	0.34	1.70	1.68	0.63	2.65
724	Medium Duty Vehicles (T3)	17.28	15.51	20.13	163.73	0.29	1.21	1.19	0.45	1.85
725	Light Heavy Duty Trucks 1 (T4)	2.33	2.12	8.90	14.81	0.04	0.70	0.70	0.30	0.49
726	Light Heavy Duty Trucks 2 (T5)	0.42	0.38	2.50	2.24	0.01	0.19	0.19	0.08	0.15
727	Medium Heavy Duty Trucks (T6)	2.22	1.91	29.85	14.78	0.08	1.12	1.11	0.83	0.79
728	Heavy Heavy Duty Trucks (T7)	3.47	1.98	61.67	16.33	0.17	2.30	2.29	1.36	1.94
750	Motorcycles (MCY)	7.60	7.17	1.01	25.98	0.00	0.03	0.03	0.01	0.01
775	Buses	3.26	0.61	5.70	22.73	0.01	0.23	0.23	0.13	0.76
780	Motor Homes (MH)	0.41	0.38	0.78	1.97	0.01	0.04	0.04	0.03	0.03
	Total On-Road Motor Vehicles	106.40	93.42	186.03	923.81	1.77	12.35	12.23	5.60	16.36
Other Mobile Sources										
810	Aircraft	3.66	3.52	17.11	36.58	1.64	0.79	0.76	0.68	0.00
820	Trains	0.82	0.69	15.10	3.55	0.02	0.37	0.37	0.34	0.01
833	Ocean Going Vessels	10.93	9.36	32.21	4.32	2.04	0.69	0.69	0.64	0.02
835	Commercial Harbor Crafts	0.39	0.33	5.86	1.25	0.00	0.25	0.25	0.23	0.00
840	Recreational Boats	17.12	15.92	3.00	51.77	0.00	1.00	0.90	0.68	0.01
850	Off-Road Recreational Vehicles	1.32	1.29	0.04	2.12	0.00	0.01	0.01	0.01	0.00
860	Off-Road Equipment	55.86	51.48	54.24	603.92	0.09	2.69	2.62	2.30	0.09
861	Off-Road Equipment (PERP)	0.90	0.76	8.83	4.80	0.01	0.34	0.34	0.31	0.01
870	Farm Equipment	0.34	0.31	0.67	4.18	0.00	0.05	0.05	0.04	0.00
890	Fuel Storage and Handling	5.48	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Other Mobile Sources	96.83	89.15	137.05	712.49	3.81	6.17	5.97	5.21	0.15
Natural Sources										
910	Biogenic Sources	135.14	132.07	5.28	0.00	0.00	0.00	0.00	0.00	0.00
920	Geogenic Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73
930	Wildfires	84.50	69.80	14.81	352.16	4.13	40.33	38.76	32.84	0.00
	Total Natural Sources Category	219.64	201.87	20.09	352.16	4.13	40.33	38.76	32.84	1.73
Total Stationary and Area Sources		1075.62	219.36	59.94	147.78	8.83	251.23	137.09	45.23	58.03
Total On-Road Vehicles		106.40	93.42	186.03	923.81	1.77	12.35	12.23	5.60	16.36
Total Other Mobile		96.83	89.15	137.05	712.49	3.81	6.17	5.97	5.21	0.15
Total Anthropogenic		1278.86	401.93	383.02	1784.07	14.40	269.75	155.29	56.04	74.54
Total Natural Sources		219.64	201.87	20.09	352.16	4.13	40.33	38.76	32.84	1.73
Grand Total		1498.50	603.80	403.11	2136.24	18.53	310.08	194.05	88.87	76.27

Attachment A

2023 Annual Average Emissions by Source Category in South Coast Air Basin (Tons/Day)

MSC	DESC	TOG	VOC	NOX	CO	SOX	PM	PM10	PM25	NH3
Fuel Combustion										
10	Electric Utilities	2.83	0.33	0.66	4.45	0.23	0.56	0.56	0.55	0.72
20	Cogeneration	0.04	0.01	0.02	0.12	0.00	0.02	0.01	0.01	0.18
30	Oil and Gas Production (combustion)	1.22	0.14	0.67	0.66	0.01	0.10	0.10	0.10	0.21
40	Petroleum Refining (Combustion)	6.55	1.38	0.00	5.17	0.01	1.80	1.80	1.79	1.54
50	Manufacturing and Industrial	4.20	0.91	6.23	47.03	1.04	1.43	1.35	1.32	2.25
52	Food and Agricultural Processing	0.09	0.04	0.21	0.49	0.00	0.05	0.05	0.05	0.06
60	Service and Commercial	5.09	2.01	10.32	20.41	0.80	1.17	1.17	1.16	2.50
99	Other (Fuel Combustion)	0.73	0.60	2.38	1.17	0.01	0.43	0.40	0.38	0.27
	Total Fuel Combustion	20.76	5.42	20.51	79.50	2.11	5.57	5.44	5.36	7.73
Waste Disposal										
110	Sewage Treatment	0.40	0.28	0.00	0.01	0.00	0.02	0.00	0.00	0.21
120	Landfills	645.49	8.96	0.42	0.40	0.37	0.21	0.20	0.20	4.11
130	Incineration	0.20	0.04	0.99	0.26	0.07	0.12	0.06	0.05	0.23
140	Soil Remediation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
199	Other (Waste Disposal)	72.70	5.84	0.01	0.01	0.00	0.00	0.00	0.00	1.47
	Total Waste Disposal	718.80	15.12	1.41	0.67	0.45	0.34	0.27	0.25	6.02
Cleaning and Surface Coatings										
210	Laundrying	3.52	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	Degreasing	68.38	13.05	0.00	0.00	0.00	0.02	0.02	0.02	0.01
230	Coatings and Related Processes	18.94	18.53	0.00	0.00	0.00	1.59	1.52	1.47	0.10
240	Printing	0.72	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.04
250	Adhesives and Sealants	5.15	4.55	0.00	0.00	0.00	0.02	0.02	0.02	0.00
299	Other (Cleaning and Surface Coatings)	0.64	0.64	0.01	0.11	0.00	0.01	0.01	0.00	0.00
	Total Cleaning and Surface Coatings	97.36	37.64	0.01	0.12	0.00	1.64	1.57	1.51	0.15
Petroleum Production and Marketing										
310	Oil and Gas Production	6.42	2.94	0.01	0.02	0.08	0.04	0.03	0.02	0.00
320	Petroleum Refining	6.35	4.43	0.22	2.39	0.24	1.87	1.25	0.88	0.07
330	Petroleum Marketing	52.97	11.61	0.00	0.21	0.00	0.01	0.00	0.00	0.00
399	Other (Petroleum Production and Marketing)	0.04	0.04	0.01	0.01	0.00	0.00	0.00	0.00	0.00
	Total Petroleum Production and Marketing	65.78	19.01	0.24	2.63	0.31	1.92	1.28	0.91	0.07
Industrial Processes										
410	Chemical	4.37	4.25	0.03	0.12	0.05	0.47	0.41	0.39	0.01
420	Food and Agriculture	0.55	0.53	0.00	0.01	0.01	0.25	0.12	0.06	0.00
430	Mineral Processes	0.37	0.33	0.02	0.30	0.05	8.54	3.63	0.96	0.06
440	Metal Processes	0.11	0.10	0.05	0.27	0.03	0.39	0.31	0.23	0.00
450	Wood and Paper	0.24	0.24	0.00	0.00	0.00	7.03	4.92	2.95	0.01
460	Glass and Related Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
470	Electronics	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00
499	Other (Industrial Processes)	5.49	4.94	0.01	0.01	0.00	1.07	0.73	0.47	8.59
	Total Industrial Processes	11.15	10.41	0.11	0.71	0.14	17.75	10.12	5.07	8.68
Solvent Evaporation										
510	Consumer Products	141.43	111.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings and Related Solvent	11.23	11.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00
530	Pesticides/Fertilizers	1.12	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.20
540	Asphalt Paving/Roofing	1.11	1.02	0.00	0.00	0.00	0.03	0.03	0.02	0.00
	Total Solvent Evaporation	154.89	125.34	0.00	0.00	0.00	0.03	0.03	0.02	1.20

Attachment A

(Continued)

2023 Annual Average Emissions by Source Category in South Coast Air Basin (Tons/Day)

MSC	DESC	TOG	VOC	NOX	CO	SOX	PM	PM10	PM25	NH3
Miscellaneous Processes										
610	Residential Fuel Combustion	19.77	8.97	18.99	48.34	0.34	7.31	6.96	6.78	0.11
620	Farming Operations	13.55	1.13	0.00	0.00	0.00	1.46	0.71	0.15	6.19
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	48.22	23.59	2.36	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	128.76	58.87	8.83	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	28.16	16.74	1.67	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	3.07	1.56	0.22	0.00
660	Fires	0.34	0.29	0.08	3.02	0.00	0.45	0.44	0.41	0.00
670	Waste Burning and Disposal	0.24	0.21	0.09	2.85	0.03	0.33	0.32	0.28	0.03
690	Cooking	2.82	1.12	0.00	0.00	0.00	11.79	11.79	11.79	0.00
699	Other (Miscellaneous Processes)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.90
	RECLAIM	0	0	14.28	0	6.08	0	0	0	0
	Total Miscellaneous Processes	36.72	11.72	33.44	54.22	6.45	229.56	120.99	32.49	33.24
On-Road Motor Vehicles										
710	Passenger Cars (P)	28.07	26.23	15.85	253.69	0.63	4.07	4.02	1.45	7.25
722	Light Duty Trucks 1 (T1)	6.12	5.62	4.23	48.48	0.06	0.38	0.37	0.15	0.65
723	Light Duty Trucks 2 (T2)	13.70	12.63	11.64	135.98	0.35	1.94	1.92	0.69	3.52
724	Medium Duty Vehicles (T3)	12.09	11.07	11.24	103.41	0.27	1.21	1.20	0.44	2.10
725	Light Heavy Duty Trucks 1 (T4)	1.57	1.44	5.10	9.92	0.04	0.59	0.59	0.24	0.54
726	Light Heavy Duty Trucks 2 (T5)	0.29	0.27	1.48	1.48	0.01	0.18	0.18	0.07	0.19
727	Medium Heavy Duty Trucks (T6)	0.87	0.70	11.40	8.00	0.09	0.51	0.51	0.22	1.46
728	Heavy Heavy Duty Trucks (T7)	2.04	0.68	30.61	14.33	0.19	1.75	1.74	0.74	3.03
750	Motorcycles (MCY)	7.07	6.68	0.90	22.81	0.00	0.03	0.03	0.01	0.01
775	Buses	2.48	0.21	2.15	28.88	0.01	0.17	0.17	0.07	0.84
780	Motor Homes (MH)	0.24	0.23	0.60	0.63	0.01	0.04	0.04	0.02	0.03
	Total On-Road Motor Vehicles	74.54	65.75	95.20	627.62	1.66	10.86	10.77	4.09	19.63
Other Mobile Sources										
810	Aircraft	3.51	3.35	17.77	34.15	1.54	0.76	0.73	0.65	0.00
820	Trains	0.83	0.69	16.13	3.90	0.02	0.37	0.37	0.34	0.01
833	Ocean Going Vessels	11.07	9.47	31.12	4.42	2.08	0.70	0.70	0.65	0.03
835	Commercial Harbor Crafts	0.39	0.33	5.77	1.22	0.00	0.25	0.25	0.23	0.00
840	Recreational Boats	13.76	12.81	2.82	51.47	0.00	0.80	0.72	0.55	0.01
850	Off-Road Recreational Vehicles	1.14	1.12	0.04	2.25	0.00	0.01	0.01	0.01	0.00
860	Off-Road Equipment	52.72	48.64	37.22	656.46	0.09	2.08	2.01	1.74	0.07
861	Off-Road Equipment (PERP)	0.63	0.53	5.16	4.72	0.01	0.18	0.18	0.16	0.01
870	Farm Equipment	0.26	0.23	0.51	4.20	0.00	0.04	0.04	0.03	0.00
890	Fuel Storage and Handling	4.62	4.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Other Mobile Sources	88.92	81.81	116.55	762.79	3.76	5.18	5.00	4.36	0.12
Natural Sources										
910	Biogenic Sources	135.14	132.07	5.28	0.00	0.00	0.00	0.00	0.00	0.00
920	Geogenic Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73
930	Wildfires	58.09	47.98	6.55	245.39	2.12	26.10	25.08	21.25	2.45
	Total Natural Sources Category	193.24	180.06	11.83	245.39	2.12	26.10	25.08	21.25	4.19
Total Stationary and Area Sources										
		1105.46	224.67	55.71	137.84	9.47	256.80	139.69	45.63	57.08
Total On-Road Vehicles										
		74.54	65.75	95.20	627.62	1.66	10.86	10.77	4.09	19.63
Total Other Mobile										
		88.92	81.81	116.55	762.79	3.76	5.18	5.00	4.36	0.12
	Total Anthropogenic	1268.92	372.22	267.46	1528.26	14.88	272.83	155.46	54.08	76.83
Total Natural Sources										
		193.24	180.06	11.83	245.39	2.12	26.10	25.08	21.25	4.19
	Grand Total	1462.15	552.28	279.29	1773.65	17.01	298.93	180.54	75.32	81.02

Attachment A

2025 Annual Average Emissions by Source Category in South Coast Air Basin (Tons/Day)

MSC	DESC	TOG	VOC	NOX	CO	SOX	PM	PM10	PM25	NH3
Fuel Combustion										
10	Electric Utilities	2.64	0.31	0.57	4.18	0.22	0.52	0.52	0.52	0.66
20	Cogeneration	0.04	0.01	0.01	0.12	0.00	0.02	0.01	0.01	0.18
30	Oil and Gas Production (combustion)	1.30	0.15	0.72	0.69	0.01	0.11	0.11	0.11	0.22
40	Petroleum Refining (Combustion)	6.55	1.38	0.00	5.17	0.01	1.80	1.80	1.79	1.54
50	Manufacturing and Industrial	4.23	0.92	6.25	47.21	1.04	1.44	1.36	1.33	2.27
52	Food and Agricultural Processing	0.09	0.04	0.21	0.50	0.00	0.05	0.05	0.05	0.06
60	Service and Commercial	5.11	2.02	10.25	19.93	0.81	1.16	1.16	1.15	2.41
99	Other (Fuel Combustion)	0.74	0.60	2.31	1.18	0.01	0.44	0.41	0.39	0.28
	Total Fuel Combustion	20.71	5.44	20.32	78.99	2.12	5.54	5.42	5.34	7.61
Waste Disposal										
110	Sewage Treatment	0.40	0.28	0.00	0.01	0.00	0.02	0.00	0.00	0.22
120	Landfills	655.04	9.09	0.38	0.40	0.38	0.21	0.20	0.20	4.16
130	Incineration	0.20	0.04	0.99	0.26	0.07	0.12	0.06	0.05	0.23
140	Soil Remediation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
199	Other (Waste Disposal)	73.38	5.90	0.01	0.01	0.00	0.00	0.00	0.00	1.54
	Total Waste Disposal	729.03	15.31	1.38	0.67	0.45	0.35	0.27	0.26	6.14
Cleaning and Surface Coatings										
210	Laundrying	3.58	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	Degreasing	69.16	13.22	0.00	0.00	0.00	0.02	0.02	0.02	0.01
230	Coatings and Related Processes	19.38	18.96	0.00	0.00	0.00	1.62	1.56	1.50	0.10
240	Printing	0.74	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.04
250	Adhesives and Sealants	5.22	4.61	0.00	0.00	0.00	0.02	0.02	0.02	0.00
299	Other (Cleaning and Surface Coatings)	0.65	0.64	0.01	0.11	0.00	0.01	0.01	0.00	0.00
	Total Cleaning and Surface Coatings	98.73	38.33	0.01	0.12	0.00	1.67	1.61	1.55	0.15
Petroleum Production and Marketing										
310	Oil and Gas Production	7.00	3.21	0.01	0.03	0.08	0.04	0.03	0.02	0.00
320	Petroleum Refining	6.35	4.43	0.21	2.39	0.24	1.87	1.25	0.88	0.07
330	Petroleum Marketing	51.63	11.17	0.00	0.20	0.00	0.01	0.00	0.00	0.00
399	Other (Petroleum Production and Marketing)	0.04	0.04	0.01	0.01	0.00	0.00	0.00	0.00	0.00
	Total Petroleum Production and Marketing	65.02	18.85	0.23	2.63	0.32	1.92	1.28	0.91	0.07
Industrial Processes										
410	Chemical	4.42	4.30	0.03	0.12	0.05	0.48	0.42	0.39	0.01
420	Food and Agriculture	0.57	0.55	0.00	0.01	0.01	0.26	0.12	0.06	0.00
430	Mineral Processes	0.38	0.34	0.02	0.31	0.05	8.59	3.65	0.97	0.06
440	Metal Processes	0.12	0.10	0.06	0.29	0.03	0.41	0.32	0.24	0.00
450	Wood and Paper	0.24	0.24	0.00	0.00	0.00	7.29	5.10	3.06	0.01
460	Glass and Related Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
470	Electronics	0.02	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00
499	Other (Industrial Processes)	5.53	4.98	0.01	0.01	0.00	1.07	0.74	0.47	8.59
	Total Industrial Processes	11.28	10.52	0.11	0.73	0.15	18.10	10.35	5.21	8.68
Solvent Evaporation										
510	Consumer Products	145.79	115.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings and Related Solvent	11.43	11.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00
530	Pesticides/Fertilizers	1.12	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.19
540	Asphalt Paving/Roofing	1.14	1.04	0.00	0.00	0.00	0.03	0.03	0.02	0.00
	Total Solvent Evaporation	159.49	129.17	0.00	0.00	0.00	0.03	0.03	0.02	1.19

Attachment A

(Continued)

2025 Annual Average Emissions by Source Category in South Coast Air Basin (Tons/Day)

MSC	DESC	TOG	VOC	NOX	CO	SOX	PM	PM10	PM25	NH3
Miscellaneous Processes										
610	Residential Fuel Combustion	19.70	8.94	17.85	48.07	0.33	7.26	6.91	6.72	0.11
620	Farming Operations	13.42	1.12	0.00	0.00	0.00	1.46	0.70	0.14	6.19
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	49.19	24.07	2.41	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	129.93	59.41	8.91	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	28.16	16.74	1.67	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	3.02	1.54	0.22	0.00
660	Fires	0.34	0.29	0.08	3.02	0.00	0.45	0.44	0.41	0.00
670	Waste Burning and Disposal	0.24	0.21	0.09	2.85	0.03	0.33	0.32	0.28	0.03
690	Cooking	2.86	1.13	0.00	0.00	0.00	11.96	11.96	11.96	0.00
699	Other (Miscellaneous Processes)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.25
	RECLAIM	0	0	0	0	6.08	0	0	0	0
	Total Miscellaneous Processes	36.55	11.69	18.02	53.94	6.44	231.77	122.09	32.73	33.58
On-Road Motor Vehicles										
710	Passenger Cars (P)	24.62	23.15	13.07	217.26	0.58	3.92	3.88	1.38	7.30
722	Light Duty Trucks 1 (T1)	5.04	4.65	3.36	39.31	0.06	0.35	0.35	0.13	0.63
723	Light Duty Trucks 2 (T2)	12.49	11.58	9.75	121.99	0.34	1.97	1.95	0.70	3.76
724	Medium Duty Vehicles (T3)	10.55	9.75	8.78	86.86	0.25	1.20	1.19	0.43	2.19
725	Light Heavy Duty Trucks 1 (T4)	1.30	1.20	4.02	8.74	0.03	0.57	0.57	0.22	0.56
726	Light Heavy Duty Trucks 2 (T5)	0.25	0.23	1.19	1.31	0.01	0.17	0.17	0.07	0.20
727	Medium Heavy Duty Trucks (T6)	0.77	0.61	9.00	6.92	0.09	0.50	0.50	0.19	1.53
728	Heavy Heavy Duty Trucks (T7)	2.03	0.71	19.97	14.74	0.19	1.71	1.71	0.67	3.20
750	Motorcycles (MCY)	6.99	6.60	0.86	21.95	0.00	0.03	0.03	0.01	0.01
775	Buses	2.61	0.21	1.83	29.42	0.01	0.16	0.16	0.06	0.83
780	Motor Homes (MH)	0.20	0.19	0.54	0.42	0.01	0.04	0.04	0.02	0.03
	Total On-Road Motor Vehicles	66.84	58.87	72.38	548.91	1.58	10.63	10.55	3.89	20.24
Other Mobile Sources										
810	Aircraft	3.65	3.49	19.69	35.30	1.65	0.77	0.75	0.67	0.00
820	Trains	0.81	0.68	16.43	4.05	0.02	0.37	0.37	0.34	0.01
833	Ocean Going Vessels	11.14	9.54	31.09	4.50	2.19	0.72	0.72	0.66	0.03
835	Commercial Harbor Crafts	0.39	0.33	5.79	1.22	0.00	0.25	0.25	0.23	0.00
840	Recreational Boats	12.68	11.81	2.77	51.68	0.00	0.74	0.67	0.50	0.01
850	Off-Road Recreational Vehicles	1.07	1.05	0.05	2.32	0.00	0.01	0.01	0.01	0.00
860	Off-Road Equipment	47.80	44.10	33.41	625.72	0.09	1.87	1.80	1.56	0.07
861	Off-Road Equipment (PERP)	0.59	0.49	4.25	4.90	0.02	0.13	0.13	0.12	0.01
870	Farm Equipment	0.23	0.21	0.45	3.80	0.00	0.03	0.03	0.03	0.00
890	Fuel Storage and Handling	4.37	4.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Other Mobile Sources	82.72	76.06	113.94	733.50	3.98	4.88	4.72	4.12	0.13
Natural Sources										
910	Biogenic Sources	135.14	132.07	5.28	0.00	0.00	0.00	0.00	0.00	0.00
920	Geogenic Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73
930	Wildfires	58.09	47.98	6.55	245.39	2.12	26.10	25.08	21.25	2.45
	Total Natural Sources Category	193.24	180.06	11.83	245.39	2.12	26.10	25.08	21.25	4.19
Total Stationary and Area Sources		1120.81	229.30	53.08	137.08	9.48	259.37	141.03	46.01	57.43
Total On-Road Vehicles		66.84	58.87	72.38	548.91	1.58	10.63	10.55	3.89	20.24
Total Other Mobile		82.72	76.06	113.94	733.50	3.98	4.88	4.72	4.12	0.13
Total Anthropogenic		1270.37	364.24	239.40	1419.48	15.05	274.89	156.30	54.01	77.79
Total Natural Sources		193.24	180.06	11.83	245.39	2.12	26.10	25.08	21.25	4.19
Grand Total		1463.61	544.30	251.23	1664.87	17.17	300.99	181.39	75.26	81.98

Attachment A

2028 Annual Average Emissions by Source Category in South Coast Air Basin (Tons/Day)

MSC	DESC	TOG	VOC	NOX	CO	SOX	PM	PM10	PM25	NH3
Fuel Combustion										
10	Electric Utilities	2.36	0.27	2.70	3.81	0.22	0.46	0.46	0.46	0.58
20	Cogeneration	0.04	0.01	0.02	0.12	0.00	0.02	0.01	0.01	0.18
30	Oil and Gas Production (combustion)	1.44	0.17	0.92	0.75	0.01	0.11	0.11	0.11	0.24
40	Petroleum Refining (Combustion)	6.55	1.38	4.76	5.17	3.14	1.80	1.80	1.79	1.54
50	Manufacturing and Industrial	4.17	0.92	7.73	46.16	1.82	1.43	1.35	1.31	2.24
52	Food and Agricultural Processing	0.09	0.04	0.39	0.50	0.01	0.05	0.05	0.05	0.06
60	Service and Commercial	5.14	2.04	11.30	19.21	0.83	1.14	1.13	1.13	2.28
99	Other (Fuel Combustion)	0.76	0.62	2.40	1.19	0.02	0.45	0.43	0.40	0.28
	Total Fuel Combustion	20.55	5.45	30.22	76.91	6.06	5.46	5.34	5.26	7.39
Waste Disposal										
110	Sewage Treatment	0.41	0.29	0.00	0.01	0.00	0.02	0.00	0.00	0.22
120	Landfills	667.80	9.26	0.38	0.41	0.38	0.21	0.21	0.20	4.22
130	Incineration	0.21	0.04	1.17	0.26	0.08	0.12	0.06	0.05	0.24
140	Soil Remediation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
199	Other (Waste Disposal)	74.19	5.96	0.01	0.01	0.00	0.00	0.00	0.00	1.61
	Total Waste Disposal	742.60	15.55	1.57	0.68	0.46	0.35	0.27	0.26	6.29
Cleaning and Surface Coatings										
210	Laundrying	3.64	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	Degreasing	70.05	13.42	0.00	0.00	0.00	0.02	0.02	0.02	0.01
230	Coatings and Related Processes	19.84	19.42	0.00	0.00	0.00	1.66	1.59	1.53	0.10
240	Printing	0.77	0.77	0.00	0.00	0.00	0.00	0.00	0.00	0.04
250	Adhesives and Sealants	5.29	4.67	0.00	0.00	0.00	0.02	0.02	0.02	0.00
299	Other (Cleaning and Surface Coatings)	0.66	0.65	0.04	0.11	0.01	0.01	0.01	0.00	0.00
	Total Cleaning and Surface Coatings	100.25	39.08	0.04	0.12	0.01	1.71	1.64	1.58	0.16
Petroleum Production and Marketing										
310	Oil and Gas Production	7.96	3.65	0.01	0.03	0.10	0.04	0.03	0.02	0.00
320	Petroleum Refining	6.35	4.43	0.63	2.39	1.43	1.87	1.25	0.88	0.07
330	Petroleum Marketing	49.31	10.63	0.02	0.19	0.00	0.00	0.00	0.00	0.00
399	Other (Petroleum Production and Marketing)	0.04	0.04	0.01	0.01	0.00	0.00	0.00	0.00	0.00
	Total Petroleum Production and Marketing	63.67	18.75	0.67	2.62	1.52	1.92	1.28	0.91	0.07
Industrial Processes										
410	Chemical	4.47	4.35	0.07	0.12	0.09	0.48	0.42	0.40	0.01
420	Food and Agriculture	0.58	0.56	0.03	0.01	0.01	0.26	0.13	0.06	0.00
430	Mineral Processes	0.39	0.34	0.38	0.31	0.21	8.64	3.68	0.98	0.07
440	Metal Processes	0.12	0.11	0.28	0.30	0.23	0.43	0.34	0.26	0.00
450	Wood and Paper	0.24	0.24	0.00	0.00	0.00	7.62	5.33	3.20	0.01
460	Glass and Related Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
470	Electronics	0.02	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00
499	Other (Industrial Processes)	5.58	5.03	0.02	0.01	0.00	1.08	0.74	0.47	8.59
	Total Industrial Processes	11.41	10.65	0.79	0.75	0.54	18.53	10.64	5.38	8.68
Solvent Evaporation										
510	Consumer Products	150.08	119.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings and Related Solvent	11.70	11.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00
530	Pesticides/Fertilizers	1.13	1.13	0.00	0.00	0.00	0.00	0.00	0.00	1.17
540	Asphalt Paving/Roofing	1.16	1.07	0.00	0.00	0.00	0.03	0.03	0.03	0.00
	Total Solvent Evaporation	164.07	132.98	0.00	0.00	0.00	0.03	0.03	0.03	1.17

Attachment A

(Continued)

2028 Annual Average Emissions by Source Category in South Coast Air Basin (Tons/Day)

MSC	DESC	TOG	VOC	NOX	CO	SOX	PM	PM10	PM25	NH3
Miscellaneous Processes										
610	Residential Fuel Combustion	19.58	8.89	16.20	47.64	0.33	7.18	6.83	6.64	0.11
620	Farming Operations	13.22	1.10	0.00	0.00	0.00	1.44	0.69	0.14	6.16
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	50.23	24.58	2.46	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	132.29	60.48	9.08	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	28.16	16.73	1.67	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	2.96	1.52	0.21	0.00
660	Fires	0.34	0.29	0.08	3.02	0.00	0.45	0.44	0.41	0.00
670	Waste Burning and Disposal	0.24	0.21	0.09	2.85	0.03	0.33	0.32	0.28	0.03
690	Cooking	2.91	1.15	0.00	0.00	0.00	12.17	12.17	12.17	0.00
699	Other (Miscellaneous Processes)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.73
	Total Miscellaneous Processes	36.29	11.64	16.36	53.51	0.36	235.22	123.77	33.06	34.04
On-Road Motor Vehicles										
710	Passenger Cars (P)	21.34	20.22	10.61	182.59	0.53	3.77	3.73	1.29	7.45
722	Light Duty Trucks 1 (T1)	3.96	3.69	2.43	29.74	0.05	0.33	0.32	0.12	0.61
723	Light Duty Trucks 2 (T2)	11.30	10.55	8.13	110.59	0.34	2.04	2.02	0.71	4.08
724	Medium Duty Vehicles (T3)	8.86	8.27	6.48	73.27	0.24	1.21	1.19	0.42	2.31
725	Light Heavy Duty Trucks 1 (T4)	1.02	0.95	2.82	7.44	0.03	0.53	0.53	0.21	0.56
726	Light Heavy Duty Trucks 2 (T5)	0.21	0.19	0.88	1.10	0.01	0.16	0.16	0.07	0.21
727	Medium Heavy Duty Trucks (T6)	0.65	0.50	6.90	5.74	0.09	0.49	0.49	0.18	1.57
728	Heavy Heavy Duty Trucks (T7)	1.94	0.72	16.14	14.83	0.19	1.80	1.80	0.69	3.35
750	Motorcycles (MCY)	7.02	6.63	0.83	21.27	0.00	0.03	0.03	0.01	0.01
775	Buses	2.73	0.20	1.47	29.28	0.01	0.16	0.16	0.06	0.80
780	Motor Homes (MH)	0.15	0.15	0.47	0.23	0.01	0.03	0.03	0.02	0.03
	Total On-Road Motor Vehicles	59.20	52.07	57.17	476.07	1.49	10.55	10.48	3.78	20.98
Other Mobile Sources										
810	Aircraft	3.85	3.69	22.56	37.01	1.83	0.80	0.78	0.69	0.00
820	Trains	0.84	0.71	17.23	4.29	0.03	0.38	0.38	0.35	0.01
833	Ocean Going Vessels	11.31	9.68	31.91	4.70	2.28	0.75	0.75	0.69	0.03
835	Commercial Harbor Crafts	0.38	0.32	5.75	1.20	0.00	0.24	0.24	0.23	0.00
840	Recreational Boats	11.28	10.52	2.70	52.35	0.00	0.66	0.60	0.45	0.01
850	Off-Road Recreational Vehicles	0.93	0.91	0.05	2.38	0.00	0.01	0.01	0.01	0.00
860	Off-Road Equipment	36.91	34.00	28.24	551.85	0.08	1.59	1.53	1.32	0.06
861	Off-Road Equipment (PERP)	0.57	0.48	3.64	5.20	0.02	0.10	0.10	0.09	0.01
870	Farm Equipment	0.19	0.17	0.38	3.14	0.00	0.03	0.03	0.03	0.00
890	Fuel Storage and Handling	4.09	4.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Other Mobile Sources	70.35	64.56	112.47	662.11	4.24	4.56	4.41	3.85	0.12
Natural Sources										
910	Biogenic Sources	135.14	132.07	5.28	0.00	0.00	0.00	0.00	0.00	0.00
920	Geogenic Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73
930	Wildfires	58.09	47.98	6.55	245.39	2.12	26.10	25.08	21.25	2.45
	Total Natural Sources Category	193.24	180.06	11.83	245.39	2.12	26.10	25.08	21.25	4.19
Total Stationary and Area Sources		1138.84	234.10	49.65	134.60	8.95	263.21	142.97	46.48	57.81
Total On-Road Vehicles		59.20	52.07	57.17	476.07	1.49	10.55	10.48	3.78	20.98
Total Other Mobile		70.35	64.56	112.47	662.11	4.24	4.56	4.41	3.85	0.12
Total Anthropogenic		1268.40	350.73	219.29	1272.78	14.68	278.32	157.85	54.11	78.91
Total Natural Sources		193.24	180.06	11.83	245.39	2.12	26.10	25.08	21.25	4.19
Grand Total		1461.63	530.78	231.12	1518.17	16.81	304.42	182.94	75.36	83.10

Attachment A

2030 Annual Average Emissions by Source Category in South Coast Air Basin (Tons/Day)

MSC	DESC	TOG	VOC	NOX	CO	SOX	PM	PM10	PM25	NH3
Fuel Combustion										
10	Electric Utilities	2.19	0.25	2.49	3.59	0.21	0.43	0.43	0.43	0.53
20	Cogeneration	0.04	0.01	0.02	0.12	0.00	0.02	0.01	0.01	0.17
30	Oil and Gas Production (combustion)	1.49	0.17	0.93	0.77	0.01	0.11	0.11	0.11	0.25
40	Petroleum Refining (Combustion)	6.55	1.38	4.27	5.17	3.14	1.80	1.80	1.79	1.54
50	Manufacturing and Industrial	4.09	0.91	7.62	45.13	1.82	1.41	1.33	1.29	2.20
52	Food and Agricultural Processing	0.09	0.04	0.39	0.50	0.01	0.05	0.05	0.05	0.06
60	Service and Commercial	5.16	2.04	11.27	18.84	0.84	1.12	1.12	1.12	2.21
99	Other (Fuel Combustion)	0.76	0.62	2.40	1.19	0.02	0.46	0.43	0.40	0.28
	Total Fuel Combustion	20.38	5.43	29.39	75.31	6.06	5.40	5.28	5.20	7.25
Waste Disposal										
110	Sewage Treatment	0.41	0.29	0.00	0.01	0.00	0.02	0.00	0.00	0.22
120	Landfills	675.98	9.38	0.39	0.41	0.38	0.21	0.21	0.21	4.26
130	Incineration	0.21	0.04	1.18	0.27	0.08	0.12	0.06	0.05	0.24
140	Soil Remediation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
199	Other (Waste Disposal)	74.73	6.01	0.01	0.01	0.00	0.00	0.00	0.00	1.67
	Total Waste Disposal	751.34	15.71	1.58	0.69	0.46	0.35	0.27	0.26	6.39
Cleaning and Surface Coatings										
210	Laundering	3.68	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	Degreasing	69.91	13.41	0.00	0.00	0.00	0.02	0.02	0.02	0.01
230	Coatings and Related Processes	20.01	19.57	0.00	0.00	0.00	1.66	1.60	1.54	0.10
240	Printing	0.78	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.04
250	Adhesives and Sealants	5.28	4.67	0.00	0.00	0.00	0.02	0.02	0.02	0.00
299	Other (Cleaning and Surface Coatings)	0.66	0.65	0.04	0.11	0.01	0.01	0.01	0.00	0.00
	Total Cleaning and Surface Coatings	100.31	39.23	0.04	0.12	0.01	1.72	1.65	1.59	0.16
Petroleum Production and Marketing										
310	Oil and Gas Production	8.37	3.83	0.01	0.03	0.10	0.04	0.03	0.02	0.00
320	Petroleum Refining	6.35	4.43	0.59	2.39	1.43	1.87	1.25	0.88	0.07
330	Petroleum Marketing	47.90	10.39	0.02	0.18	0.00	0.00	0.00	0.00	0.00
399	Other (Petroleum Production and Marketing)	0.04	0.04	0.01	0.01	0.00	0.00	0.00	0.00	0.00
	Total Petroleum Production and Marketing	62.66	18.68	0.63	2.61	1.53	1.92	1.28	0.91	0.07
Industrial Processes										
410	Chemical	4.46	4.34	0.07	0.12	0.09	0.48	0.42	0.40	0.01
420	Food and Agriculture	0.58	0.56	0.03	0.01	0.01	0.26	0.13	0.06	0.00
430	Mineral Processes	0.39	0.35	0.38	0.31	0.21	8.65	3.68	0.99	0.07
440	Metal Processes	0.12	0.11	0.29	0.31	0.24	0.44	0.35	0.26	0.00
450	Wood and Paper	0.25	0.25	0.00	0.00	0.00	7.69	5.38	3.23	0.01
460	Glass and Related Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
470	Electronics	0.02	0.02	0.00	0.00	0.00	0.01	0.01	0.00	0.00
499	Other (Industrial Processes)	5.61	5.06	0.02	0.01	0.00	1.08	0.74	0.47	8.59
	Total Industrial Processes	11.44	10.67	0.79	0.76	0.55	18.61	10.70	5.42	8.68
Solvent Evaporation										
510	Consumer Products	153.55	121.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings and Related Solvent	11.87	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00
530	Pesticides/Fertilizers	1.14	1.14	0.00	0.00	0.00	0.00	0.00	0.00	1.17
540	Asphalt Paving/Roofing	1.18	1.08	0.00	0.00	0.00	0.03	0.03	0.03	0.00
	Total Solvent Evaporation	167.74	136.03	0.00	0.00	0.00	0.03	0.03	0.03	1.17

Attachment A

(Continued)

2030 Annual Average Emissions by Source Category in South Coast Air Basin (Tons/Day)

MSC	DESC	TOG	VOC	NOX	CO	SOX	PM	PM10	PM25	NH3
Miscellaneous Processes										
610	Residential Fuel Combustion	19.51	8.86	15.17	47.37	0.32	7.13	6.78	6.59	0.11
620	Farming Operations	13.08	1.08	0.00	0.00	0.00	1.44	0.69	0.13	6.13
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	50.91	24.91	2.49	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	132.87	60.75	9.11	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	28.16	16.73	1.67	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	2.93	1.50	0.21	0.00
660	Fires	0.34	0.29	0.08	3.02	0.00	0.45	0.44	0.41	0.00
670	Waste Burning and Disposal	0.24	0.21	0.09	2.85	0.03	0.33	0.32	0.28	0.03
690	Cooking	2.94	1.16	0.00	0.00	0.00	12.30	12.30	12.30	0.00
699	Other (Miscellaneous Processes)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.03
	Total Miscellaneous Processes	36.10	11.61	15.33	53.24	0.35	236.51	124.42	33.21	34.31
On-Road Motor Vehicles										
710	Passenger Cars (P)	19.34	18.37	9.52	165.82	0.50	3.66	3.63	1.24	7.49
722	Light Duty Trucks 1 (T1)	3.36	3.14	1.93	24.71	0.05	0.31	0.31	0.11	0.60
723	Light Duty Trucks 2 (T2)	10.53	9.84	7.41	105.71	0.33	2.06	2.04	0.71	4.23
724	Medium Duty Vehicles (T3)	7.87	7.37	5.51	67.26	0.23	1.20	1.19	0.41	2.37
725	Light Heavy Duty Trucks 1 (T4)	0.83	0.77	2.24	6.50	0.03	0.51	0.51	0.19	0.54
726	Light Heavy Duty Trucks 2 (T5)	0.18	0.16	0.73	0.99	0.01	0.16	0.16	0.06	0.20
727	Medium Heavy Duty Trucks (T6)	0.58	0.44	5.73	5.08	0.09	0.49	0.48	0.18	1.55
728	Heavy Heavy Duty Trucks (T7)	1.87	0.73	14.47	14.69	0.19	1.86	1.86	0.71	3.41
750	Motorcycles (MCY)	7.00	6.61	0.82	20.87	0.00	0.03	0.03	0.01	0.01
775	Buses	2.64	0.20	1.18	26.68	0.01	0.15	0.15	0.05	0.71
780	Motor Homes (MH)	0.12	0.12	0.43	0.13	0.01	0.03	0.03	0.02	0.04
	Total On-Road Motor Vehicles	54.33	47.76	49.98	438.45	1.44	10.46	10.40	3.70	21.15
Other Mobile Sources										
810	Aircraft	3.98	3.82	24.48	38.16	1.95	0.82	0.79	0.71	0.00
820	Trains	0.86	0.72	17.66	4.45	0.03	0.38	0.38	0.35	0.01
833	Ocean Going Vessels	11.38	9.74	32.57	4.83	2.34	0.77	0.77	0.71	0.03
835	Commercial Harbor Crafts	0.37	0.31	5.70	1.18	0.00	0.24	0.24	0.23	0.00
840	Recreational Boats	10.48	9.77	2.66	52.96	0.00	0.62	0.56	0.42	0.01
850	Off-Road Recreational Vehicles	0.84	0.83	0.05	2.43	0.00	0.01	0.01	0.01	0.00
860	Off-Road Equipment	31.40	28.82	25.56	483.55	0.08	1.46	1.40	1.21	0.07
861	Off-Road Equipment (PERP)	0.58	0.49	3.55	5.41	0.02	0.09	0.09	0.08	0.01
870	Farm Equipment	0.16	0.15	0.34	2.73	0.00	0.03	0.03	0.02	0.00
890	Fuel Storage and Handling	3.96	3.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Other Mobile Sources	64.02	58.61	112.57	595.70	4.41	4.41	4.27	3.74	0.14
Natural Sources										
910	Biogenic Sources	135.14	132.07	5.28	0.00	0.00	0.00	0.00	0.00	0.00
920	Geogenic Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73
930	Wildfires	58.09	47.98	6.55	245.39	2.12	26.10	25.08	21.25	2.45
	Total Natural Sources Category	193.24	180.06	11.83	245.39	2.12	26.10	25.08	21.25	4.19
Total Stationary and Area Sources										
Total Stationary and Area Sources		1149.96	237.37	47.76	132.74	8.96	264.54	143.63	46.61	58.02
Total On-Road Vehicles		54.33	47.76	49.98	438.45	1.44	10.46	10.40	3.70	21.15
Total Other Mobile		64.02	58.61	112.57	595.70	4.41	4.41	4.27	3.74	0.14
Total Anthropogenic		1268.31	343.74	210.31	1166.89	14.81	279.41	158.30	54.05	79.31
Total Natural Sources		193.24	180.06	11.83	245.39	2.12	26.10	25.08	21.25	4.19
Grand Total		1461.54	523.80	222.14	1412.28	16.93	305.51	183.38	75.30	83.50

Attachment A

2031 Annual Average Emissions by Source Category in South Coast Air Basin (Tons/Day)

MSC	DESC	TOG	VOC	NOX	CO	SOX	PM	PM10	PM25	NH3
Fuel Combustion										
10	Electric Utilities	2.19	0.25	2.48	3.58	0.21	0.43	0.43	0.43	0.53
20	Cogeneration	0.04	0.01	0.02	0.12	0.00	0.02	0.01	0.01	0.17
30	Oil and Gas Production (combustion)	1.52	0.17	0.95	0.78	0.01	0.11	0.11	0.11	0.25
40	Petroleum Refining (Combustion)	6.55	1.38	4.18	5.17	3.14	1.80	1.80	1.79	1.54
50	Manufacturing and Industrial	4.07	0.91	7.59	44.82	1.82	1.40	1.32	1.28	2.19
52	Food and Agricultural Processing	0.09	0.04	0.39	0.50	0.01	0.05	0.05	0.05	0.06
60	Service and Commercial	5.17	2.05	11.27	18.71	0.84	1.12	1.12	1.11	2.18
99	Other (Fuel Combustion)	0.76	0.62	2.40	1.19	0.02	0.46	0.43	0.40	0.28
	Total Fuel Combustion	20.39	5.44	29.27	74.88	6.06	5.39	5.27	5.19	7.21
Waste Disposal										
110	Sewage Treatment	0.41	0.30	0.00	0.01	0.00	0.02	0.00	0.00	0.22
120	Landfills	679.57	9.42	0.39	0.41	0.38	0.21	0.21	0.21	4.29
130	Incineration	0.21	0.04	1.19	0.27	0.08	0.12	0.06	0.05	0.24
140	Soil Remediation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
199	Other (Waste Disposal)	74.86	6.02	0.01	0.01	0.00	0.00	0.00	0.00	1.68
	Total Waste Disposal	755.05	15.78	1.58	0.69	0.46	0.36	0.27	0.26	6.42
Cleaning and Surface Coatings										
210	Laundering	3.70	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	Degreasing	69.79	13.39	0.00	0.00	0.00	0.02	0.02	0.02	0.01
230	Coatings and Related Processes	20.07	19.63	0.00	0.00	0.00	1.67	1.60	1.54	0.10
240	Printing	0.78	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.04
250	Adhesives and Sealants	5.28	4.66	0.00	0.00	0.00	0.02	0.02	0.02	0.00
299	Other (Cleaning and Surface Coatings)	0.65	0.65	0.04	0.11	0.01	0.01	0.01	0.00	0.00
	Total Cleaning and Surface Coatings	100.28	39.27	0.04	0.12	0.01	1.72	1.65	1.59	0.16
Petroleum Production and Marketing										
310	Oil and Gas Production	8.55	3.91	0.01	0.03	0.10	0.04	0.03	0.02	0.00
320	Petroleum Refining	6.35	4.43	0.58	2.39	1.43	1.87	1.25	0.88	0.07
330	Petroleum Marketing	47.59	10.30	0.02	0.18	0.00	0.00	0.00	0.00	0.00
399	Other (Petroleum Production and Marketing)	0.04	0.04	0.01	0.01	0.00	0.00	0.00	0.00	0.00
	Total Petroleum Production and Marketing	62.54	18.68	0.62	2.61	1.53	1.92	1.28	0.91	0.07
Industrial Processes										
410	Chemical	4.45	4.33	0.07	0.12	0.09	0.48	0.42	0.40	0.01
420	Food and Agriculture	0.59	0.57	0.03	0.01	0.01	0.26	0.13	0.06	0.00
430	Mineral Processes	0.39	0.35	0.38	0.31	0.21	8.65	3.68	0.99	0.07
440	Metal Processes	0.12	0.11	0.29	0.31	0.24	0.44	0.35	0.27	0.00
450	Wood and Paper	0.25	0.25	0.00	0.00	0.00	7.71	5.40	3.24	0.01
460	Glass and Related Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
470	Electronics	0.02	0.02	0.00	0.00	0.00	0.01	0.01	0.00	0.00
499	Other (Industrial Processes)	5.63	5.07	0.02	0.01	0.00	1.09	0.74	0.48	8.59
	Total Industrial Processes	11.45	10.68	0.79	0.76	0.55	18.64	10.72	5.43	8.68
Solvent Evaporation										
510	Consumer Products	155.69	123.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00
520	Architectural Coatings and Related Solvent	11.96	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00
530	Pesticides/Fertilizers	1.14	1.14	0.00	0.00	0.00	0.00	0.00	0.00	1.16
540	Asphalt Paving/Roofing	1.19	1.09	0.00	0.00	0.00	0.03	0.03	0.03	0.00
	Total Solvent Evaporation	169.98	137.90	0.00	0.00	0.00	0.03	0.03	0.03	1.16

Attachment A

(Continued)

2031 Annual Average Emissions by Source Category in South Coast Air Basin (Tons/Day)

MSC	DESC	TOG	VOC	NOX	CO	SOX	PM	PM10	PM25	NH3
Miscellaneous Processes										
610	Residential Fuel Combustion	19.51	8.86	14.85	47.36	0.32	7.12	6.77	6.59	0.11
620	Farming Operations	13.02	1.08	0.00	0.00	0.00	1.43	0.69	0.13	6.12
630	Construction and Demolition	0.00	0.00	0.00	0.00	0.00	51.26	25.08	2.51	0.00
640	Paved Road Dust	0.00	0.00	0.00	0.00	0.00	132.82	60.72	9.11	0.00
645	Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	28.16	16.73	1.67	0.00
650	Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	2.91	1.49	0.21	0.00
660	Fires	0.34	0.29	0.08	3.02	0.00	0.45	0.44	0.41	0.00
670	Waste Burning and Disposal	0.24	0.21	0.09	2.85	0.03	0.33	0.32	0.28	0.03
690	Cooking	2.95	1.17	0.00	0.00	0.00	12.37	12.37	12.37	0.00
699	Other (Miscellaneous Processes)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.18
	Total Miscellaneous Processes	36.06	11.61	15.01	53.23	0.35	236.85	124.62	33.28	34.44
On-Road Motor Vehicles										
710	Passenger Cars (P)	18.58	17.68	9.14	159.87	0.49	3.63	3.61	1.22	7.54
722	Light Duty Trucks 1 (T1)	3.09	2.90	1.70	22.59	0.05	0.31	0.30	0.11	0.60
723	Light Duty Trucks 2 (T2)	10.32	9.67	7.16	104.31	0.33	2.08	2.06	0.71	4.31
724	Medium Duty Vehicles (T3)	7.56	7.09	5.18	65.49	0.23	1.21	1.20	0.41	2.41
725	Light Heavy Duty Trucks 1 (T4)	0.77	0.71	2.02	6.10	0.03	0.50	0.50	0.19	0.53
726	Light Heavy Duty Trucks 2 (T5)	0.17	0.15	0.67	0.95	0.01	0.16	0.16	0.06	0.20
727	Medium Heavy Duty Trucks (T6)	0.55	0.41	5.22	4.79	0.08	0.48	0.48	0.18	1.52
728	Heavy Heavy Duty Trucks (T7)	1.82	0.73	13.81	14.51	0.19	1.89	1.89	0.72	3.43
750	Motorcycles (MCY)	7.02	6.63	0.81	20.82	0.00	0.03	0.03	0.01	0.01
775	Buses	2.41	0.19	1.00	22.73	0.01	0.15	0.15	0.05	0.60
780	Motor Homes (MH)	0.11	0.11	0.42	0.12	0.01	0.03	0.03	0.02	0.04
	Total On-Road Motor Vehicles	52.41	46.26	47.13	422.27	1.42	10.46	10.40	3.68	21.19
Other Mobile Sources										
810	Aircraft	4.05	3.89	25.44	38.73	2.01	0.83	0.80	0.72	0.00
820	Trains	0.85	0.72	17.78	4.54	0.03	0.38	0.38	0.35	0.01
833	Ocean Going Vessels	11.41	9.76	32.84	4.90	2.37	0.78	0.78	0.72	0.03
835	Commercial Harbor Crafts	0.37	0.31	5.67	1.17	0.00	0.24	0.24	0.23	0.00
840	Recreational Boats	10.10	9.42	2.65	53.28	0.00	0.60	0.54	0.41	0.01
850	Off-Road Recreational Vehicles	0.81	0.79	0.05	2.46	0.00	0.01	0.01	0.01	0.00
860	Off-Road Equipment	29.29	26.85	24.46	451.80	0.08	1.41	1.36	1.17	0.07
861	Off-Road Equipment (PERP)	0.59	0.49	3.51	5.52	0.02	0.09	0.09	0.08	0.02
870	Farm Equipment	0.15	0.14	0.32	2.54	0.00	0.03	0.03	0.02	0.00
890	Fuel Storage and Handling	3.91	3.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Other Mobile Sources	61.53	56.28	112.73	564.93	4.50	4.35	4.21	3.69	0.13
Natural Sources										
910	Biogenic Sources	135.14	132.07	5.28	0.00	0.00	0.00	0.00	0.00	0.00
920	Geogenic Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73
930	Wildfires	58.09	47.98	6.55	245.39	2.12	26.10	25.08	21.25	2.45
	Total Natural Sources Category	193.24	180.06	11.83	245.39	2.12	26.10	25.08	21.25	4.19
Total Stationary and Area Sources		1155.74	239.36	47.31	132.29	8.97	264.90	143.84	46.69	58.15
Total On-Road Vehicles		52.41	46.26	47.13	422.27	1.42	10.46	10.40	3.68	21.19
Total Other Mobile		61.53	56.28	112.73	564.93	4.50	4.35	4.21	3.69	0.13
Total Anthropogenic		1269.68	341.90	207.17	1119.49	14.89	279.71	158.46	54.06	79.48
Total Natural Sources		193.24	180.06	11.83	245.39	2.12	26.10	25.08	21.25	4.19
Grand Total		1462.92	521.96	219.01	1364.88	17.01	305.82	183.54	75.31	83.66

Attachment B:

Annual Average

On-Road Mobile Source Emissions in South Coast Air Basin

Attachment B

Table B-1

2018 Annual Average On-Road Mobile Source Emissions (tons per day) in the South Coast Air Basin

	Light and Medium		Light Heavy		Medium Heavy		Heavy Heavy		Other Buses		Urban Buses		School Buses		Motor Homes		All Vehicles		
	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Grand Total
Vehicles	9,713,377	38,622	134,357	75,709	28,310	119,072	5,701	74,910	6,807	3,634	5,855	106	5,180	3,943	38,401	10,996	9,937,988	326,992	10,264,981
VMT	360,796,926	1,432,071	4,858,047	2,866,683	1,412,856	4,802,967	414,379	9,134,357	294,022	237,321	655,319	11,408	173,752	81,563	335,222	107,773	368,940,523	18,674,143	387,614,668
Reactive Organic Gas Emissions																			
Run Exhaust	14.33	0.06	0.27	0.46	0.22	1.00	0.05	1.50	0.03	0.12	0.22	0.00	0.07	0.02	0.06	0.01	15.25	3.17	18.41
Idle Exhaust	0.00	0.00	0.07	0.01	0.03	0.08	0.00	0.41	0.01	0.01	0.00	0.00	0.03	0.00	0.00	0.00	0.14	0.51	0.66
Start Exhaust	27.92	0.00	0.46	0.00	0.23	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.01	0.00	0.00	0.00	28.65	0.00	28.65
Total Exhaust	42.25	0.06	0.80	0.47	0.47	1.08	0.06	1.92	0.07	0.13	0.23	0.00	0.11	0.02	0.06	0.01	44.04	3.68	47.72
Diurnal	20.25	0.00	0.46	0.00	0.11	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.24	0.00	21.08	0.00	21.08
Hot Soak	7.56	0.00	0.14	0.00	0.03	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.08	0.00	7.81	0.00	7.81
Running	15.92	0.00	0.64	0.00	0.21	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	16.81	0.00	16.81
Total	85.98	0.06	2.04	0.47	0.82	1.08	0.06	1.92	0.11	0.13	0.23	0.00	0.13	0.02	0.37	0.01	89.74	3.68	93.42
Carbon Monoxide Emissions																			
Run Exhaust	609.60	0.55	8.23	1.46	5.97	3.35	5.81	5.69	0.81	0.38	17.76	0.02	2.55	0.04	1.91	0.04	652.63	11.53	664.17
Idle Exhaust	0.00	0.00	0.56	0.07	0.45	1.04	0.41	4.40	0.04	0.07	0.00	0.00	0.29	0.01	0.00	0.00	1.76	5.60	7.36
Start Exhaust	240.80	0.00	6.72	0.00	3.97	0.00	0.01	0.00	0.60	0.00	0.03	0.00	0.13	0.00	0.02	0.00	252.28	0.00	252.28
Total Exhaust	850.40	0.55	15.51	1.54	10.39	4.39	6.23	10.10	1.45	0.45	17.79	0.02	2.98	0.05	1.92	0.04	906.68	17.13	923.81
Oxides of Nitrogen Emissions																			
Run Exhaust	54.52	0.36	1.53	8.08	1.35	23.22	0.86	53.06	0.22	1.75	1.95	0.23	0.19	0.94	0.25	0.53	60.88	88.16	149.04
Idle Exhaust	0.00	0.00	0.01	0.20	0.01	3.80	0.07	5.85	0.00	0.13	0.00	0.00	0.02	0.15	0.00	0.00	0.11	10.14	10.25
Start Exhaust	21.75	0.00	1.59	0.00	0.29	1.18	0.00	1.82	0.06	0.04	0.00	0.00	0.01	0.01	0.00	0.00	23.70	3.04	26.75
Total Exhaust	76.27	0.36	3.13	8.28	1.64	28.21	0.94	60.73	0.28	1.92	1.95	0.23	0.22	1.10	0.26	0.53	84.69	101.34	186.03
PM2.5 Emissions																			
Run Exhaust	0.68	0.03	0.01	0.11	0.00	0.68	0.00	0.92	0.00	0.06	0.00	0.00	0.00	0.01	0.00	0.02	0.69	1.83	2.52
Idle Exhaust	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04
Start Exhaust	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.12
Total Exhaust	0.80	0.03	0.01	0.11	0.00	0.70	0.00	0.94	0.00	0.06	0.00	0.00	0.00	0.01	0.00	0.02	0.82	1.87	2.69
Tire Wear	0.79	0.00	0.01	0.01	0.00	0.02	0.00	0.09	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.82	0.12	0.94
Brake Wear	1.24	0.00	0.15	0.09	0.02	0.08	0.02	0.31	0.00	0.01	0.03	0.00	0.00	0.00	0.01	0.00	1.48	0.49	1.97
Total	2.84	0.04	0.17	0.21	0.03	0.79	0.03	1.33	0.01	0.07	0.03	0.00	0.00	0.01	0.01	0.02	3.12	2.48	5.60
NH3 Emissions																			
Total Exhaust	12.21	0.00	0.25	0.39	0.12	0.67	0.37	1.57	0.04	0.03	0.61	0.00	0.08	0.01	0.02	0.01	13.68	2.68	16.36
Fuel Consumption (1000 gallons) and SO2																			
Fuel	15267.93	50.03	417.18	155.24	284.08	550.14	77.55	1590.94	59.14	34.36	195.08	2.32	28.69	11.33	69.13	10.66	16398.80	2405.03	18803.83
SOx	1.43	0.01	0.04	0.02	0.03	0.06	0.00	0.17	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	1.51	0.25	1.77

Attachment B

Table B-2

2023 Annual Average On-Road Mobile Source Emissions (tons per day) in the South Coast Air Basin

	Light and Medium		Light Heavy		Medium Heavy		Heavy Heavy		Other Buses		Urban Buses		School Buses		Motor Homes		All Vehicles		
	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Grand Total
Vehicles	9,187,356	38,078	101,979	70,591	29,655	128,764	8,906	82,918	5,924	2,949	5,910	15	5,688	3,377	30,469	11,533	9,375,887	338,225	9,714,245
VMT	364,057,423	1,429,040	3,923,726	2,936,059	1,574,008	5,520,250	582,895	10,611,348	248,836	233,227	693,093	1,749	193,919	69,272	287,688	114,142	371,561,586	20,915,087	392,482,215
Reactive Organic Gas Emissions																			
Run Exhaust	7.78	0.04	0.13	0.32	0.10	0.12	0.03	0.16	0.01	0.02	0.03	0.00	0.02	0.01	0.02	0.01	8.11	0.68	8.79
Idle Exhaust	0.00	0.00	0.05	0.01	0.03	0.03	0.00	0.48	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.12	0.53	0.65
Start Exhaust	17.97	0.00	0.29	0.00	0.15	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.44	0.00	18.44
Total Exhaust	25.75	0.04	0.47	0.32	0.28	0.16	0.04	0.64	0.04	0.02	0.03	0.00	0.05	0.01	0.02	0.01	26.68	1.20	27.88
Diurnal	17.07	0.00	0.35	0.00	0.09	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.16	0.00	17.69	0.00	17.69
Hot Soak	6.12	0.00	0.09	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	6.27	0.00	6.27
Running	13.25	0.00	0.47	0.00	0.16	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.90	0.00	13.90
Total	62.18	0.04	1.38	0.32	0.55	0.16	0.04	0.64	0.08	0.02	0.03	0.00	0.06	0.01	0.22	0.01	64.54	1.20	65.75
Carbon Monoxide Emissions																			
Run Exhaust	402.77	0.48	4.79	0.90	2.66	0.50	5.79	0.93	0.46	0.06	25.80	0.00	1.51	0.03	0.58	0.04	444.35	2.92	447.27
Idle Exhaust	0.00	0.00	0.44	0.07	0.50	1.06	0.63	6.98	0.04	0.06	0.00	0.00	0.32	0.01	0.00	0.00	1.92	8.18	10.10
Start Exhaust	161.13	0.00	5.21	0.00	3.28	0.00	0.01	0.00	0.46	0.00	0.03	0.00	0.11	0.00	0.01	0.00	170.24	0.00	170.24
Total Exhaust	563.90	0.48	10.44	0.97	6.44	1.56	6.42	7.91	0.96	0.11	25.83	0.00	1.94	0.04	0.59	0.04	616.52	11.10	627.62
Oxides of Nitrogen Emissions																			
Run Exhaust	29.37	0.23	0.81	4.50	0.73	5.91	0.66	20.62	0.12	0.45	0.43	0.00	0.14	0.68	0.13	0.47	32.40	32.86	65.26
Idle Exhaust	0.00	0.00	0.00	0.15	0.01	1.77	0.09	5.61	0.00	0.05	0.00	0.00	0.02	0.12	0.00	0.00	0.13	7.69	7.82
Start Exhaust	14.25	0.00	1.11	0.00	0.26	2.72	0.00	3.63	0.05	0.06	0.00	0.00	0.01	0.01	0.00	0.00	15.69	6.43	22.12
Total Exhaust	43.63	0.23	1.92	4.65	1.00	10.40	0.75	29.86	0.17	0.56	0.44	0.00	0.17	0.81	0.13	0.47	48.22	46.99	95.20
PM2.5 Emissions																			
Run Exhaust	0.56	0.02	0.00	0.07	0.00	0.07	0.00	0.27	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.57	0.46	1.03
Idle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
Start Exhaust	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.10
Total Exhaust	0.66	0.02	0.01	0.07	0.00	0.07	0.00	0.28	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.67	0.47	1.14
Tire Wear	0.80	0.00	0.01	0.01	0.01	0.02	0.01	0.10	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.83	0.14	0.97
Brake Wear	1.24	0.01	0.13	0.09	0.03	0.09	0.03	0.32	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00	1.47	0.51	1.99
Total	2.71	0.03	0.14	0.17	0.03	0.18	0.04	0.70	0.01	0.02	0.04	0.00	0.00	0.01	0.01	0.01	2.97	1.12	4.09
NH3 Emissions																			
Total Exhaust	13.53	0.00	0.20	0.54	0.17	1.29	0.50	2.53	0.04	0.05	0.64	0.00	0.09	0.01	0.01	0.02	15.19	4.44	19.63
Fuel Consumption (1000 gallons) and SO2																			
Fuel	13913.63	50.17	303.41	155.17	301.49	620.26	99.24	1778.61	48.08	32.86	204.45	0.26	31.76	9.53	59.25	11.34	14961.31	2658.22	17619.53
SOx	1.31	0.01	0.03	0.02	0.03	0.07	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	1.38	0.28	1.66

Attachment B

Table B-3

2025 Annual Average On-Road Mobile Source Emissions (tons per day) in the South Coast Air Basin

	Light and Medium		Light Heavy		Medium Heavy		Heavy Heavy		Other Buses		Urban Buses		School Buses		Motor Homes		All Vehicles		Grand Total
	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	
Vehicles	9,173,598	36,641	94,465	71,733	29,381	137,312	9,890	90,110	5,636	3,079	5,937	11	6,023	3,182	28,223	11,854	9,353,153	353,921	9,710,077
VMT	364,335,570	1,363,418	3,676,629	2,981,538	1,542,077	5,772,183	633,665	11,137,852	229,573	233,905	696,210	1,417	202,584	64,277	271,714	116,909	371,588,023	21,671,498	393,469,640
Reactive Organic Gas Emissions																			
Run Exhaust	6.33	0.03	0.09	0.27	0.07	0.10	0.03	0.16	0.01	0.01	0.03	0.00	0.01	0.01	0.01	0.01	6.58	0.60	7.18
Idle Exhaust	0.00	0.00	0.04	0.01	0.03	0.03	0.00	0.52	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.12	0.56	0.68
Start Exhaust	15.33	0.00	0.24	0.00	0.14	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	15.74	0.00	15.74
Total Exhaust	21.66	0.03	0.38	0.28	0.24	0.13	0.03	0.68	0.04	0.02	0.03	0.00	0.05	0.01	0.01	0.01	22.44	1.16	23.60
Diurnal																			
Hot Soak	5.74	0.00	0.07	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	5.87	0.00	5.87
Running	12.41	0.00	0.40	0.00	0.14	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.97	0.00	12.97
Total	55.70	0.03	1.15	0.28	0.47	0.13	0.03	0.68	0.08	0.02	0.03	0.00	0.07	0.01	0.18	0.01	57.71	1.16	58.87
Carbon Monoxide Emissions																			
Run Exhaust	346.29	0.42	3.89	0.73	1.90	0.44	5.64	0.86	0.37	0.06	26.45	0.00	1.51	0.03	0.38	0.03	386.42	2.56	388.98
Idle Exhaust	0.00	0.00	0.41	0.07	0.51	1.12	0.69	7.54	0.04	0.06	0.00	0.00	0.34	0.01	0.00	0.00	1.98	8.80	10.78
Start Exhaust	140.66	0.00	4.94	0.00	2.96	0.00	0.01	0.00	0.43	0.00	0.03	0.00	0.11	0.00	0.01	0.00	149.15	0.00	149.15
Total Exhaust	486.95	0.42	9.24	0.80	5.36	1.56	6.34	8.40	0.83	0.12	26.48	0.00	1.97	0.04	0.39	0.03	537.55	11.36	548.91
Oxides of Nitrogen Emissions																			
Run Exhaust	23.26	0.17	0.59	3.51	0.53	4.40	0.58	13.26	0.10	0.35	0.38	0.00	0.14	0.57	0.10	0.44	25.68	22.71	48.39
Idle Exhaust	0.00	0.00	0.00	0.13	0.02	1.45	0.09	3.50	0.00	0.03	0.00	0.00	0.02	0.11	0.00	0.00	0.14	5.24	5.37
Start Exhaust	12.39	0.00	0.97	0.00	0.24	2.36	0.00	2.53	0.04	0.05	0.00	0.00	0.01	0.01	0.00	0.00	13.65	4.96	18.62
Total Exhaust	35.65	0.17	1.56	3.65	0.79	8.21	0.67	19.30	0.14	0.44	0.38	0.00	0.17	0.70	0.10	0.44	39.47	32.91	72.38
PM2.5 Emissions																			
Run Exhaust	0.51	0.02	0.00	0.06	0.00	0.04	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.52	0.32	0.84
Idle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
Start Exhaust	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.09
Total Exhaust	0.60	0.02	0.00	0.06	0.00	0.05	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.61	0.33	0.93
Tire Wear																			
Brake Wear	1.23	0.00	0.12	0.09	0.03	0.10	0.04	0.33	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00	1.45	0.53	1.98
Total	2.63	0.02	0.13	0.16	0.03	0.16	0.05	0.62	0.00	0.01	0.03	0.00	0.00	0.00	0.01	0.01	2.89	1.00	3.88
NH3 Emissions																			
Total Exhaust	13.88	0.00	0.19	0.57	0.17	1.36	0.54	2.65	0.04	0.05	0.63	0.00	0.10	0.01	0.01	0.02	15.57	4.67	20.24
Fuel Consumption (1000 gallons) and SO2																			
Fuel	13161.45	46.83	270.70	155.48	288.74	643.36	104.27	1819.73	43.32	33.40	198.79	0.21	32.95	8.81	55.99	11.63	14156.21	2719.44	16875.65
SOx	1.23	0.00	0.03	0.02	0.03	0.07	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	1.30	0.29	1.58

Attachment B

Table B-4

2028 Annual Average On-Road Mobile Source Emissions (tons per day) in the South Coast Air Basin

	Light and Medium		Light Heavy		Medium Heavy		Heavy Heavy		Other Buses		Urban Buses		School Buses		Motor Homes		All Vehicles		
	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Grand Total
Vehicles	9,325,858	27,576	41,188	41,652	7,856	76,164	5,394	72,076	2,333	3,350	12,251	0	3,189	916	21,515	12,141	9,419,585	233,874	9,810,464
VMT	367,575,705	1,066,953	1,595,334	1,697,756	396,269	3,193,573	578,197	10,043,085	98,759	247,726	1,168,543	0	99,471	18,300	215,851	121,052	371,728,129	16,388,445	397,599,316
Reactive Organic Gas Emissions																			
Run Exhaust	5.02	0.02	0.05	0.22	0.04	0.07	0.02	0.15	0.01	0.01	0.03	0.00	0.01	0.01	0.01	0.01	5.19	0.50	5.69
Idle Exhaust	0.00	0.00	0.04	0.01	0.03	0.03	0.00	0.54	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.11	0.59	0.70
Start Exhaust	12.64	0.00	0.19	0.00	0.12	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	12.98	0.00	12.98
Total Exhaust	17.66	0.02	0.28	0.23	0.19	0.10	0.02	0.70	0.03	0.02	0.03	0.00	0.05	0.01	0.01	0.01	18.28	1.09	19.36
Diurnal	14.70	0.00	0.24	0.00	0.07	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.11	0.00	15.14	0.00	15.14
Hot Soak	5.31	0.00	0.06	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	5.41	0.00	5.41
Running	11.67	0.00	0.33	0.00	0.12	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	12.15	0.00	12.15
Total	49.33	0.02	0.91	0.23	0.40	0.10	0.03	0.70	0.07	0.02	0.03	0.00	0.07	0.01	0.14	0.01	50.98	1.09	52.07
Carbon Monoxide Emissions																			
Run Exhaust	296.14	0.34	2.96	0.55	1.19	0.35	5.30	0.78	0.28	0.05	26.44	0.00	1.50	0.02	0.19	0.03	334.00	2.13	336.12
Idle Exhaust	0.00	0.00	0.37	0.07	0.50	1.17	0.75	7.99	0.03	0.07	0.00	0.00	0.36	0.01	0.00	0.00	2.02	9.31	11.33
Start Exhaust	120.98	0.00	4.59	0.00	2.51	0.00	0.00	0.00	0.37	0.00	0.03	0.00	0.11	0.00	0.01	0.00	128.62	0.00	128.62
Total Exhaust	417.12	0.34	7.92	0.62	4.21	1.53	6.06	8.77	0.68	0.12	26.47	0.00	1.98	0.03	0.20	0.03	464.63	11.43	476.07
Oxides of Nitrogen Emissions																			
Run Exhaust	17.71	0.10	0.37	2.42	0.34	3.04	0.46	10.49	0.07	0.30	0.29	0.00	0.13	0.42	0.06	0.41	19.43	17.17	36.60
Idle Exhaust	0.00	0.00	0.00	0.12	0.02	1.17	0.10	2.87	0.00	0.03	0.00	0.00	0.02	0.09	0.00	0.00	0.14	4.28	4.42
Start Exhaust	10.68	0.00	0.79	0.00	0.21	2.12	0.00	2.24	0.04	0.05	0.00	0.00	0.01	0.01	0.00	0.00	11.73	4.42	16.15
Total Exhaust	28.38	0.10	1.17	2.53	0.56	6.34	0.56	15.59	0.11	0.38	0.29	0.00	0.16	0.53	0.07	0.41	31.30	25.87	57.17
PM2.5 Emissions																			
Run Exhaust	0.43	0.01	0.00	0.05	0.00	0.03	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.44	0.28	0.72
Idle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Start Exhaust	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.08
Total Exhaust	0.51	0.01	0.00	0.05	0.00	0.03	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.52	0.28	0.80
Tire Wear	0.80	0.00	0.01	0.01	0.01	0.02	0.01	0.11	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.84	0.14	0.98
Brake Wear	1.22	0.00	0.11	0.09	0.03	0.10	0.04	0.35	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00	1.45	0.55	1.99
Total	2.54	0.02	0.12	0.15	0.03	0.15	0.06	0.64	0.00	0.01	0.03	0.00	0.01	0.00	0.01	0.01	2.80	0.97	3.77
NH3 Emissions																			
Total Exhaust	14.46	0.00	0.17	0.59	0.18	1.39	0.58	2.77	0.05	0.05	0.59	0.00	0.10	0.01	0.01	0.02	16.14	4.84	20.98
Fuel Consumption (1000 gallons) and SO2																			
Fuel	12052.96	36.49	110.95	87.55	69.85	348.97	57.26	1535.60	15.80	34.21	14.07	0.00	16.96	2.47	44.37	12.09	12382.22	2057.37	14439.59
SOx	1.15	0.00	0.02	0.01	0.02	0.07	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.21	0.28	1.49

Attachment B

Table B-5

2030 Annual Average On-Road Mobile Source Emissions (tons per day) in the South Coast Air Basin

	Light and Medium		Light Heavy		Medium Heavy		Heavy Heavy		Other Buses		Urban Buses		School Buses		Motor Homes		All Vehicles		
	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Grand Total
Vehicles	9,336,249	32,083	79,033	70,640	26,667	144,514	11,084	96,360	4,956	3,347	6,005	4	6,659	2,508	24,254	12,405	9,494,908	361,862	9,885,730
VMT	364,906,675	1,207,516	3,026,814	2,793,391	1,322,422	5,731,859	709,120	11,749,647	186,359	236,851	704,281	368	214,539	50,230	244,095	120,500	371,314,304	21,890,360	395,049,835
Reactive Organic Gas Emissions																			
Run Exhaust	4.42	0.02	0.03	0.19	0.03	0.06	0.02	0.15	0.01	0.01	0.03	0.00	0.01	0.01	0.00	0.01	4.55	0.44	4.99
Idle Exhaust	0.00	0.00	0.03	0.01	0.03	0.03	0.00	0.56	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.10	0.60	0.70
Start Exhaust	11.27	0.00	0.16	0.00	0.11	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	11.56	0.00	11.56
Total Exhaust	15.68	0.02	0.23	0.20	0.17	0.09	0.02	0.71	0.03	0.02	0.03	0.00	0.05	0.01	0.00	0.01	16.22	1.04	17.26
Diurnal	13.68	0.00	0.20	0.00	0.06	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.09	0.00	14.05	0.00	14.05
Hot Soak	5.00	0.00	0.05	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	5.08	0.00	5.08
Running	10.96	0.00	0.27	0.00	0.11	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	11.36	0.00	11.36
Total	45.32	0.02	0.74	0.20	0.35	0.09	0.02	0.71	0.07	0.02	0.03	0.00	0.07	0.01	0.11	0.01	46.72	1.04	47.76
Carbon Monoxide Emissions																			
Run Exhaust	272.92	0.29	2.34	0.46	0.88	0.31	5.02	0.73	0.23	0.05	23.96	0.00	1.47	0.02	0.09	0.03	306.91	1.89	308.80
Idle Exhaust	0.00	0.00	0.34	0.07	0.49	1.18	0.78	8.16	0.03	0.07	0.00	0.00	0.37	0.01	0.00	0.00	2.01	9.48	11.49
Start Exhaust	111.16	0.00	4.28	0.00	2.23	0.00	0.00	0.00	0.34	0.00	0.03	0.00	0.11	0.00	0.01	0.00	118.16	0.00	118.16
Total Exhaust	384.08	0.29	6.97	0.53	3.60	1.49	5.80	8.89	0.60	0.12	23.98	0.00	1.95	0.03	0.10	0.03	427.08	11.37	438.45
Oxides of Nitrogen Emissions																			
Run Exhaust	15.22	0.07	0.26	1.91	0.24	2.38	0.39	9.29	0.05	0.28	0.17	0.00	0.12	0.32	0.05	0.38	16.52	14.62	31.14
Idle Exhaust	0.00	0.00	0.00	0.10	0.02	1.01	0.10	2.63	0.00	0.03	0.00	0.00	0.02	0.08	0.00	0.00	0.14	3.85	3.99
Start Exhaust	9.90	0.00	0.69	0.00	0.18	1.90	0.00	2.07	0.04	0.05	0.00	0.00	0.01	0.01	0.00	0.00	10.83	4.02	14.85
Total Exhaust	25.12	0.07	0.96	2.01	0.45	5.28	0.49	13.98	0.09	0.35	0.17	0.00	0.16	0.41	0.05	0.38	27.49	22.49	49.98
PM2.5 Emissions																			
Run Exhaust	0.38	0.01	0.00	0.04	0.00	0.03	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.39	0.26	0.65
Idle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Exhaust	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.07
Total Exhaust	0.45	0.01	0.00	0.05	0.00	0.03	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.46	0.27	0.73
Tire Wear	0.80	0.00	0.01	0.01	0.01	0.02	0.01	0.11	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.84	0.15	0.98
Brake Wear	1.22	0.00	0.11	0.08	0.03	0.09	0.05	0.36	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00	1.44	0.55	1.99
Total	2.47	0.01	0.12	0.14	0.04	0.14	0.06	0.65	0.00	0.01	0.03	0.00	0.01	0.00	0.01	0.01	2.73	0.96	3.70
NH3 Emissions																			
Total Exhaust	14.70	0.00	0.16	0.58	0.18	1.37	0.59	2.82	0.05	0.06	0.49	0.00	0.11	0.01	0.01	0.02	16.29	4.87	21.15
Fuel Consumption (1000 gallons) and SO2																			
Fuel	11800.04	39.12	205.03	143.07	235.78	624.72	107.28	1784.08	32.34	31.98	151.50	0.04	34.25	6.72	50.27	12.00	12616.48	2641.72	15258.20
SOx	1.11	0.00	0.02	0.01	0.02	0.07	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.16	0.28	1.44

Attachment B

Table B-6

2031 Annual Average On-Road Mobile Source Emissions (tons per day) in the South Coast Air Basin

	Light and Medium		Light Heavy		Medium Heavy		Heavy Heavy		Other Buses		Urban Buses		School Buses		Motor Homes		All Vehicles		
	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Non-Diesel	Diesel	Grand Total
Vehicles	9,407,492	31,662	76,615	70,218	25,717	143,032	11,049	96,009	4,811	3,361	6,020	1	6,720	2,347	23,703	12,498	9,562,128	359,128	9,959,958
VMT	366,561,998	1,188,907	2,911,087	2,737,729	1,255,556	5,623,098	714,118	11,816,876	177,708	237,636	706,001	53	214,396	47,165	240,259	120,974	372,781,124	21,772,438	396,979,568
Reactive Organic Gas Emissions																			
Run Exhaust	4.21	0.02	0.02	0.18	0.02	0.05	0.02	0.15	0.01	0.01	0.03	0.00	0.01	0.01	0.00	0.01	4.32	0.42	4.74
Idle Exhaust	0.00	0.00	0.03	0.01	0.03	0.03	0.00	0.56	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.10	0.60	0.70
Start Exhaust	10.73	0.00	0.15	0.00	0.10	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	11.01	0.00	11.01
Total Exhaust	14.94	0.02	0.21	0.19	0.16	0.08	0.02	0.70	0.02	0.02	0.03	0.00	0.05	0.01	0.00	0.01	15.43	1.02	16.45
Diurnal	13.37	0.00	0.18	0.00	0.06	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.08	0.00	13.72	0.00	13.72
Hot Soak	4.88	0.00	0.04	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	4.95	0.00	4.95
Running	10.77	0.00	0.25	0.00	0.10	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	11.15	0.00	11.15
Total	43.95	0.02	0.68	0.19	0.33	0.08	0.02	0.70	0.06	0.02	0.03	0.00	0.07	0.01	0.10	0.01	45.24	1.02	46.26
Carbon Monoxide Emissions																			
Run Exhaust	265.26	0.28	2.06	0.43	0.77	0.29	4.84	0.71	0.21	0.04	20.08	0.00	1.44	0.02	0.08	0.03	294.73	1.80	296.53
Idle Exhaust	0.00	0.00	0.33	0.07	0.47	1.17	0.78	8.18	0.03	0.07	0.00	0.00	0.38	0.01	0.00	0.00	1.99	9.49	11.48
Start Exhaust	107.55	0.00	4.16	0.00	2.09	0.00	0.00	0.00	0.32	0.00	0.03	0.00	0.11	0.00	0.01	0.00	114.26	0.00	114.26
Total Exhaust	372.80	0.28	6.55	0.50	3.33	1.46	5.62	8.89	0.56	0.11	20.10	0.00	1.93	0.03	0.09	0.03	410.98	11.29	422.27
Oxides of Nitrogen Emissions																			
Run Exhaust	14.30	0.06	0.22	1.71	0.21	2.10	0.36	8.83	0.05	0.26	0.07	0.00	0.12	0.27	0.04	0.37	15.37	13.61	28.98
Idle Exhaust	0.00	0.00	0.00	0.10	0.02	0.94	0.09	2.53	0.00	0.03	0.00	0.00	0.02	0.07	0.00	0.00	0.14	3.66	3.80
Start Exhaust	9.64	0.00	0.66	0.00	0.17	1.78	0.00	1.99	0.03	0.05	0.00	0.00	0.01	0.01	0.00	0.00	10.52	3.84	14.35
Total Exhaust	23.94	0.06	0.88	1.81	0.40	4.82	0.46	13.35	0.08	0.34	0.07	0.00	0.15	0.35	0.05	0.37	26.03	21.11	47.13
PM2.5 Emissions																			
Run Exhaust	0.36	0.01	0.00	0.04	0.00	0.03	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.37	0.26	0.62
Idle Exhaust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Exhaust	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.07
Total Exhaust	0.43	0.01	0.00	0.04	0.00	0.03	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.43	0.26	0.70
Tire Wear	0.81	0.00	0.01	0.01	0.01	0.02	0.01	0.11	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.84	0.15	0.99
Brake Wear	1.22	0.00	0.11	0.08	0.03	0.09	0.05	0.36	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	1.44	0.55	1.99
Total	2.45	0.01	0.12	0.13	0.04	0.14	0.07	0.65	0.00	0.01	0.03	0.00	0.01	0.00	0.01	0.01	2.72	0.96	3.68
NH3 Emissions																			
Total Exhaust	14.87	0.00	0.15	0.58	0.17	1.35	0.59	2.84	0.05	0.06	0.38	0.00	0.11	0.01	0.01	0.02	16.34	4.86	21.19
Fuel Consumption (1000 gallons) and SO2																			
Fuel	11657.72	38.14	195.07	139.94	222.05	609.77	105.97	1768.51	30.97	32.02	116.94	0.01	34.48	6.30	49.53	12.08	12412.73	2606.77	15019.50
SOx	1.09	0.00	0.02	0.01	0.02	0.06	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14	0.28	1.42

Attachment C:

Diesel Emissions in South Coast Air Basin

Attachment C

TABLE C-1
2018 BASELINE DIESEL EMISSIONS (TONS/DAY) IN SOUTH COAST AIR BASIN

MSC	Major Source Category (MSC)	annual average								
		TOG	VOC	NOX	CO	SOX	PM	PM10	PM25	NH3
10	Electric Utilities	0	0	0.17	0.01	0	0.01	0.01	0.01	0
30	Oil and Gas Production (combustion)	0	0	0.03	0.01	0	0	0	0	0
40	Petroleum Refining (Combustion)	0	0	0	0	0	0	0	0	0
50	Manufacturing and Industrial	0.15	0.16	0.57	2.85	0.01	0.02	0.02	0.02	0.05
52	Food and Agricultural Processing	0.01	0.01	0.08	0.02	0	0.01	0.01	0.01	0
60	Service and Commercial	0.1	0.08	0.93	0.24	0	0.07	0.07	0.07	0
99	Other (Fuel Combustion)	0.8	0.61	2.84	1.21	0.07	0.4	0.38	0.37	0.25
430	Mineral Processes	0.1	0.08	0.06	0.07	0.02	0.74	0.08	0.06	0.04
710	Light Duty Passenger (LDA)	0.04	0.03	0.24	0.31	0.00	0.03	0.03	0.03	0.00
722	Light Duty Trucks - 1 (LDA1)	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00
723	Light Duty Trucks - 2 (LDA2)	0.01	0.01	0.03	0.05	0.00	0.01	0.01	0.00	0.00
724	Medium Duty Vehicles (MDV)	0.01	0.01	0.07	0.17	0.00	0.02	0.02	0.01	0.00
725	Light Heavy Duty Trucks - 1 (LHDT1)	0.36	0.32	5.79	1.07	0.01	0.26	0.26	0.14	0.26
726	Light Heavy Duty Trucks - 2 (LHDT2)	0.19	0.16	2.76	0.51	0.01	0.16	0.16	0.08	0.15
727	Medium Heavy Duty Trucks (MHDT)	1.23	1.08	28.21	4.39	0.06	1.03	1.02	0.79	0.67
728	Heavy Heavy Duty Trucks (HHDT)	2.18	1.92	60.73	10.10	0.17	2.21	2.21	1.33	1.57
775	Buses	0.18	0.15	3.25	0.52	0.01	0.10	0.10	0.08	0.04
780	Motor Homes (MH)	0.01	0.01	0.53	0.04	0.00	0.02	0.02	0.02	0.01
820	Trains	0.82	0.69	15.1	3.55	0.02	0.37	0.37	0.34	0.01
833	Ocean Going Vessels	1.71	1.44	30.62	4.16	1.57	0.53	0.53	0.49	0.02
835	Commercial Harbor Crafts	0.39	0.33	5.86	1.25	0	0.25	0.25	0.23	0
840	Recreational Boats	0.21	0.17	0.59	0.26	0	0.01	0.01	0.01	0
860	Off-Road Equipment	5.42	4.51	37.91	24.45	0.05	1.79	1.79	1.64	0.05
861	Off-Road Equipment (PERP)	0.9	0.76	8.83	4.8	0.01	0.34	0.34	0.31	0.01
870	Farm Equipment	0.12	0.1	0.61	0.43	0	0.04	0.04	0.03	0
Total		14.94	12.65	205.82	60.50	2.01	8.43	7.73	6.07	3.13

Attachment C

TABLE C-2
2023 BASELINE DIESEL EMISSIONS (TONS/DAY) IN SOUTH COAST AIR BASIN

MSC	Major Source Category (MSC)	annual average								
		TOG	VOC	NOX	CO	SOX	PM	PM10	PM25	NH3
10	Electric Utilities	0	0	0.14	0.01	0	0.01	0.01	0.01	0
30	Oil and Gas Production (combustion)	0	0	0.02	0.01	0	0	0	0	0
40	Petroleum Refining (Combustion)	0	0	0.01	0	0	0	0	0	0
50	Manufacturing and Industrial	0.15	0.16	0.55	2.9	0.01	0.02	0.02	0.02	0.05
52	Food and Agricultural Processing	0.01	0.01	0.08	0.02	0	0.01	0.01	0.01	0
60	Service and Commercial	0.1	0.09	1.07	0.26	0	0.08	0.08	0.07	0
99	Other (Fuel Combustion)	0.78	0.6	2.38	1.11	0.17	0.4	0.39	0.37	0.27
430	Mineral Processes	0.11	0.08	0.17	0.07	0.1	0.74	0.08	0.06	0.04
710	Light Duty Passenger (LDA)	0.02	0.02	0.11	0.19	0.00	0.02	0.02	0.01	0.00
722	Light Duty Trucks - 1 (LDA1)	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
723	Light Duty Trucks - 2 (LDA2)	0.01	0.01	0.02	0.05	0.00	0.01	0.01	0.00	0.00
724	Medium Duty Vehicles (MDV)	0.02	0.01	0.10	0.22	0.00	0.02	0.02	0.01	0.00
725	Light Heavy Duty Trucks - 1 (LHDT1)	0.24	0.21	3.13	0.64	0.01	0.23	0.23	0.11	0.33
726	Light Heavy Duty Trucks - 2 (LHDT2)	0.15	0.13	1.65	0.35	0.01	0.16	0.16	0.07	0.23
727	Medium Heavy Duty Trucks (MHDT)	0.18	0.15	10.36	1.54	0.07	0.41	0.41	0.18	1.29
728	Heavy Heavy Duty Trucks (HHDT)	0.73	0.64	29.75	7.87	0.19	1.61	1.61	0.70	2.52
775	Buses	0.04	0.03	1.39	0.16	0.00	0.04	0.04	0.02	0.06
780	Motor Homes (MH)	0.01	0.01	0.47	0.04	0.00	0.02	0.02	0.01	0.02
820	Trains	0.83	0.69	16.13	3.9	0.02	0.37	0.37	0.34	0.01
833	Ocean Going Vessels	1.72	1.45	29.47	4.25	1.6	0.54	0.54	0.49	0.02
835	Commercial Harbor Crafts	0.39	0.33	5.77	1.22	0	0.25	0.25	0.23	0
840	Recreational Boats	0.2	0.17	0.57	0.25	0	0.01	0.01	0.01	0
860	Off-Road Equipment	3.75	3.12	22.11	16.34	0.04	1.06	1.06	0.97	0.02
861	Off-Road Equipment (PERP)	0.63	0.53	5.16	4.72	0.01	0.18	0.18	0.16	0.01
870	Farm Equipment	0.09	0.08	0.45	0.39	0	0.03	0.03	0.03	0
Total		10.14	8.52	131.05	46.52	2.24	6.22	5.54	3.89	4.87

Attachment C

TABLE C-3
2025 BASELINE DIESEL EMISSIONS (TONS/DAY) IN SOUTH COAST AIR BASIN

MSC	Major Source Category (MSC)	annual average								
		TOG	VOC	NOX	CO	SOX	PM	PM10	PM25	NH3
10	Electric Utilities	0	0	0.14	0.01	0	0.01	0.01	0.01	0
30	Oil and Gas Production (combustion)	0	0	0.02	0.01	0	0	0	0	0
40	Petroleum Refining (Combustion)	0	0	0.01	0	0	0	0	0	0
50	Manufacturing and Industrial	0.16	0.16	0.57	2.93	0.01	0.02	0.02	0.02	0.05
52	Food and Agricultural Processing	0.01	0.01	0.08	0.02	0	0.01	0.01	0.01	0
60	Service and Commercial	0.1	0.09	1.13	0.26	0	0.08	0.08	0.07	0
99	Other (Fuel Combustion)	0.79	0.61	2.39	1.13	0.17	0.42	0.4	0.39	0.28
430	Mineral Processes	0.11	0.08	0.21	0.07	0.1	0.74	0.08	0.06	0.04
710	Light Duty Passenger (LDA)	0.01	0.01	0.07	0.15	0.00	0.01	0.01	0.01	0.00
722	Light Duty Trucks - 1 (LDA1)	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
723	Light Duty Trucks - 2 (LDA2)	0.01	0.01	0.01	0.05	0.00	0.01	0.01	0.00	0.00
724	Medium Duty Vehicles (MDV)	0.01	0.01	0.08	0.21	0.00	0.02	0.02	0.01	0.00
725	Light Heavy Duty Trucks - 1 (LHDT1)	0.20	0.18	2.41	0.52	0.01	0.22	0.22	0.10	0.35
726	Light Heavy Duty Trucks - 2 (LHDT2)	0.14	0.12	1.37	0.31	0.01	0.17	0.17	0.07	0.26
727	Medium Heavy Duty Trucks (MHDT)	0.15	0.13	8.21	1.56	0.07	0.40	0.40	0.16	1.36
728	Heavy Heavy Duty Trucks (HHDT)	0.77	0.68	19.30	8.40	0.19	1.58	1.57	0.62	2.65
775	Buses	0.04	0.03	1.15	0.16	0.00	0.03	0.03	0.01	0.06
780	Motor Homes (MH)	0.01	0.01	0.45	0.04	0.00	0.01	0.01	0.01	0.02
820	Trains	0.81	0.68	16.43	4.05	0.02	0.37	0.37	0.34	0.01
833	Ocean Going Vessels	1.74	1.47	29.39	4.33	1.69	0.54	0.54	0.5	0.02
835	Commercial Harbor Crafts	0.39	0.33	5.79	1.22	0	0.25	0.25	0.23	0
840	Recreational Boats	0.2	0.17	0.56	0.25	0	0.01	0.01	0.01	0
860	Off-Road Equipment	3.43	2.85	19.85	15.97	0.04	0.92	0.92	0.84	0.02
861	Off-Road Equipment (PERP)	0.59	0.49	4.25	4.9	0.02	0.13	0.13	0.12	0.01
870	Farm Equipment	0.08	0.07	0.4	0.37	0	0.02	0.02	0.02	0
Total		9.75	8.19	114.27	46.92	2.34	5.97	5.28	3.63	5.14

Attachment C

TABLE C-4
2028 BASELINE DIESEL EMISSIONS (TONS/DAY) IN SOUTH COAST AIR BASIN

MSC	Major Source Category (MSC)	annual average								
		TOG	VOC	NOX	CO	SOX	PM	PM10	PM25	NH3
10	Electric Utilities	0.00	0.00	0.12	0.01	0.00	0.01	0.01	0.01	0.00
30	Oil and Gas Production (combustion)	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00
40	Petroleum Refining (Combustion)	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
50	Manufacturing and Industrial	0.16	0.17	0.57	2.96	0.01	0.02	0.02	0.02	0.05
52	Food and Agricultural Processing	0.01	0.01	0.08	0.02	0.00	0.01	0.01	0.01	0.00
60	Service and Commercial	0.11	0.09	1.18	0.27	0.00	0.08	0.08	0.08	0.00
99	Other (Fuel Combustion)	0.81	0.62	2.40	1.14	0.08	0.43	0.41	0.40	0.28
430	Mineral Processes	0.11	0.09	0.22	0.07	0.02	0.74	0.08	0.06	0.04
710	Light Duty Passenger (LDA)	0.01	0.01	0.03	0.10	0.00	0.01	0.01	0.00	0.00
722	Light Duty Trucks - 1 (LDA1)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
723	Light Duty Trucks - 2 (LDA2)	0.01	0.01	0.01	0.06	0.00	0.01	0.01	0.00	0.00
724	Medium Duty Vehicles (MDV)	0.01	0.01	0.05	0.18	0.00	0.02	0.02	0.01	0.00
725	Light Heavy Duty Trucks - 1 (LHDT1)	0.16	0.14	1.60	0.38	0.01	0.20	0.20	0.09	0.36
726	Light Heavy Duty Trucks - 2 (LHDT2)	0.12	0.10	1.03	0.26	0.01	0.16	0.16	0.07	0.27
727	Medium Heavy Duty Trucks (MHDT)	0.12	0.10	6.31	1.52	0.07	0.39	0.39	0.15	1.39
728	Heavy Heavy Duty Trucks (HHDT)	0.79	0.70	15.58	8.76	0.19	1.63	1.63	0.64	2.77
775	Buses	0.03	0.03	0.90	0.15	0.00	0.03	0.03	0.01	0.06
780	Motor Homes (MH)	0.01	0.01	0.41	0.03	0.00	0.01	0.01	0.01	0.02
820	Trains	0.84	0.71	17.23	4.29	0.03	0.38	0.38	0.35	0.01
833	Ocean Going Vessels	1.82	1.53	30.14	4.52	1.76	0.57	0.57	0.52	0.02
835	Commercial Harbor Crafts	0.38	0.32	5.75	1.20	0.00	0.24	0.24	0.23	0.00
840	Recreational Boats	0.20	0.17	0.56	0.25	0.00	0.01	0.01	0.01	0.00
860	Off-Road Equipment	3.20	2.66	17.09	15.70	0.05	0.76	0.75	0.69	0.02
861	Off-Road Equipment (PERP)	0.57	0.48	3.64	5.20	0.02	0.10	0.10	0.09	0.01
870	Farm Equipment	0.07	0.06	0.34	0.35	0.00	0.02	0.02	0.02	0.00
Total		9.53	8.00	105.29	47.43	2.23	5.83	5.15	3.46	5.32

Attachment C

TABLE C-5
2030 BASELINE DIESEL EMISSIONS (TONS/DAY) IN SOUTH COAST AIR BASIN

MSC	Major Source Category (MSC)	annual average								
		TOG	VOC	NOX	CO	SOX	PM	PM10	PM25	NH3
10	Electric Utilities	0	0	0.11	0.01	0	0	0	0	0
30	Oil and Gas Production (combustion)	0	0	0.02	0.01	0	0	0	0	0
40	Petroleum Refining (Combustion)	0	0	0.01	0	0	0	0	0	0
50	Manufacturing and Industrial	0.16	0.17	0.57	2.95	0.01	0.02	0.02	0.02	0.05
52	Food and Agricultural Processing	0.01	0.01	0.08	0.02	0	0.01	0.01	0.01	0
60	Service and Commercial	0.11	0.09	1.2	0.27	0	0.08	0.08	0.08	0
99	Other (Fuel Combustion)	0.81	0.63	2.4	1.14	0.08	0.43	0.42	0.4	0.28
430	Mineral Processes	0.11	0.09	0.22	0.07	0.02	0.74	0.08	0.06	0.04
710	Light Duty Passenger (LDA)	0.00	0.00	0.02	0.07	0.00	0.01	0.01	0.00	0.00
722	Light Duty Trucks - 1 (LDA1)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
723	Light Duty Trucks - 2 (LDA2)	0.01	0.01	0.01	0.06	0.00	0.01	0.01	0.00	0.00
724	Medium Duty Vehicles (MDV)	0.01	0.01	0.04	0.16	0.00	0.02	0.02	0.01	0.00
725	Light Heavy Duty Trucks - 1 (LHDT1)	0.14	0.12	1.24	0.32	0.01	0.19	0.19	0.08	0.35
726	Light Heavy Duty Trucks - 2 (LHDT2)	0.11	0.10	0.88	0.24	0.01	0.16	0.16	0.07	0.27
727	Medium Heavy Duty Trucks (MHDT)	0.10	0.09	5.28	1.49	0.07	0.38	0.38	0.14	1.37
728	Heavy Heavy Duty Trucks (HHDT)	0.80	0.71	13.98	8.89	0.19	1.67	1.67	0.65	2.82
775	Buses	0.03	0.02	0.77	0.14	0.00	0.03	0.03	0.01	0.06
780	Motor Homes (MH)	0.01	0.01	0.39	0.03	0.00	0.01	0.01	0.01	0.02
820	Trains	0.86	0.72	17.66	4.45	0.03	0.38	0.38	0.35	0.01
833	Ocean Going Vessels	1.87	1.57	30.75	4.65	1.8	0.58	0.58	0.54	0.02
835	Commercial Harbor Crafts	0.37	0.31	5.7	1.18	0	0.24	0.24	0.23	0
840	Recreational Boats	0.2	0.16	0.55	0.25	0	0.01	0.01	0.01	0
860	Off-Road Equipment	3.13	2.57	15.76	15.65	0.05	0.67	0.67	0.61	0.04
861	Off-Road Equipment (PERP)	0.58	0.49	3.55	5.41	0.02	0.09	0.09	0.08	0.01
870	Farm Equipment	0.07	0.06	0.3	0.34	0	0.02	0.02	0.02	0
Total		9.48	7.92	101.49	47.80	2.29	5.74	5.06	3.38	5.35

Attachment C

TABLE C-6
2031 BASELINE DIESEL EMISSIONS (TONS/DAY) IN SOUTH COAST AIR BASIN

MSC	Major Source Category (MSC)	annual average								
		TOG	VOC	NOX	CO	SOX	PM	PM10	PM25	NH3
10	Electric Utilities	0	0	0.11	0.01	0	0	0	0	0
30	Oil and Gas Production (combustion)	0	0	0.03	0.01	0	0.01	0.01	0	0
40	Petroleum Refining (Combustion)	0	0	0.01	0	0	0	0	0	0
50	Manufacturing and Industrial	0.16	0.17	0.57	2.95	0.01	0.02	0.02	0.02	0.05
52	Food and Agricultural Processing	0.01	0.01	0.08	0.02	0	0.01	0.01	0.01	0
60	Service and Commercial	0.11	0.09	1.21	0.28	0	0.08	0.08	0.08	0
99	Other (Fuel Combustion)	0.82	0.63	2.4	1.14	0.08	0.44	0.42	0.4	0.28
430	Mineral Processes	0.11	0.09	0.22	0.07	0.02	0.74	0.08	0.06	0.04
710	Light Duty Passenger (LDA)	0.00	0.00	0.01	0.06	0.00	0.00	0.00	0.00	0.00
722	Light Duty Trucks - 1 (LDA1)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
723	Light Duty Trucks - 2 (LDA2)	0.01	0.01	0.01	0.06	0.00	0.01	0.01	0.00	0.00
724	Medium Duty Vehicles (MDV)	0.01	0.01	0.03	0.16	0.00	0.02	0.02	0.01	0.00
725	Light Heavy Duty Trucks - 1 (LHDT1)	0.13	0.11	1.10	0.30	0.01	0.18	0.18	0.08	0.34
726	Light Heavy Duty Trucks - 2 (LHDT2)	0.10	0.09	0.82	0.23	0.01	0.16	0.16	0.07	0.27
727	Medium Heavy Duty Trucks (MHDT)	0.09	0.08	4.82	1.46	0.06	0.37	0.37	0.14	1.35
728	Heavy Heavy Duty Trucks (HHDT)	0.80	0.70	13.35	8.89	0.19	1.68	1.68	0.65	2.84
775	Buses	0.03	0.02	0.70	0.14	0.00	0.03	0.03	0.01	0.06
780	Motor Homes (MH)	0.01	0.01	0.38	0.03	0.00	0.01	0.01	0.01	0.02
820	Trains	0.85	0.72	17.78	4.54	0.03	0.38	0.38	0.35	0.01
833	Ocean Going Vessels	1.89	1.59	30.99	4.72	1.82	0.59	0.59	0.54	0.02
835	Commercial Harbor Crafts	0.37	0.31	5.67	1.17	0	0.24	0.24	0.23	0
840	Recreational Boats	0.2	0.16	0.55	0.25	0	0.01	0.01	0.01	0
860	Off-Road Equipment	3.10	2.55	15.32	15.60	0.05	0.64	0.64	0.58	0.04
861	Off-Road Equipment (PERP)	0.59	0.49	3.51	5.52	0.02	0.09	0.09	0.08	0.02
870	Farm Equipment	0.06	0.05	0.29	0.34	0	0.02	0.02	0.02	0
Total		9.45	7.89	99.97	47.95	2.30	5.73	5.05	3.35	5.35

Attachment D:

Road Construction Dust Emissions in South Coast Air Basin

Table D-1

Emissions of Road Construction Dust (Tons/Day) in South Coast Air Basin
(Annual Average Inventory)

Years	PM	PM10	PM25
2018	4.96	2.43	0.24
2022	5.12	2.50	0.25
2024	5.23	2.56	0.26
2023	5.18	2.53	0.25
2025	5.29	2.59	0.26
2026	5.33	2.61	0.26
2027	5.36	2.62	0.26
2028	5.40	2.64	0.26
2029	5.44	2.66	0.27
2030	5.48	2.68	0.27
2031	5.51	2.70	0.27

Attachment E:

Table E-A

List of Category Specific Conversion Factors (Developed by CARB and Used in the Imperial County 2018 SIP) to Estimate Condensable PM_{2.5} from Primary PM_{2.5}

Tables E-B

Primary, Condensable and Filterable PM_{2.5} emissions by Major Source Category (Tons per Day)

1. 2018 Annual Average Emissions
2. 2023 Annual Average Emissions
3. 2025 Annual Average Emissions
4. 2028 Annual Average Emissions
5. 2030 Annual Average Emissions
6. 2031 Annual Average Emissions

Table E-A. List of Category Specific Conversion Factors (Developed by CARB and Used in the Imperial County 2018 SIP) to Estimate Condensable PM2.5 from Primary PM2.5

SCC	SCC_LEVEL_ONE	SCC_LEVEL_TWO	SCC_LEVEL_THREE	SCC_LEVEL_FOUR	Conversion Factor
20100101	Internal Combustion Engines	Electric Generation	Distillate Oil (Diesel)	Turbine	0.070272896
20100102	Internal Combustion Engines	Electric Generation	Distillate Oil (Diesel)	Reciprocating	0.070272896
20100105	Internal Combustion Engines	Electric Generation	Distillate Oil (Diesel)	Reciprocating: Crankcase Blowby	0.07063197
20100106	Internal Combustion Engines	Electric Generation	Distillate Oil (Diesel)	Reciprocating: Evaporative Losses (Fuel Storage and Delivery System)	0
20100107	Internal Combustion Engines	Electric Generation	Distillate Oil (Diesel)	Reciprocating: Exhaust	0.07063197
20100109	Internal Combustion Engines	Electric Generation	Distillate Oil (Diesel)	Turbine: Exhaust	0.07063197
20100201	Internal Combustion Engines	Electric Generation	Natural Gas	Turbine	0.450549451
20100202	Internal Combustion Engines	Electric Generation	Natural Gas	Reciprocating	0.450549451
20100205	Internal Combustion Engines	Electric Generation	Natural Gas	Reciprocating: Crankcase Blowby	0.450549451
20100206	Internal Combustion Engines	Electric Generation	Natural Gas	Reciprocating: Evaporative Losses (Fuel Delivery System)	0.450549451
20100207	Internal Combustion Engines	Electric Generation	Natural Gas	Reciprocating: Exhaust	0.450549451
20100209	Internal Combustion Engines	Electric Generation	Natural Gas	Turbine: Exhaust	0.450549451
20100301	Internal Combustion Engines	Electric Generation	Gasified Coal	Turbine	0.450549451
20100702	Internal Combustion Engines	Electric Generation	Process Gas	Reciprocating	0.450549451
20100707	Internal Combustion Engines	Electric Generation	Process Gas	Reciprocating: Exhaust	0.450549451
20100801	Internal Combustion Engines	Electric Generation	Landfill Gas	Turbine	0.450549451
20100802	Internal Combustion Engines	Electric Generation	Landfill Gas	Reciprocating	0.450549451
20100805	Internal Combustion Engines	Electric Generation	Landfill Gas	Reciprocating: Crankcase Blowby	0.450549451
20100807	Internal Combustion Engines	Electric Generation	Landfill Gas	Reciprocating: Exhaust	0.450549451
20100809	Internal Combustion Engines	Electric Generation	Landfill Gas	Turbine: Exhaust	0.450549451
20100901	Internal Combustion Engines	Electric Generation	Kerosene/Naphtha (Jet Fuel)	Turbine	0.056603774
20100902	Internal Combustion Engines	Electric Generation	Kerosene/Naphtha (Jet Fuel)	Reciprocating	0.058789987
20100907	Internal Combustion Engines	Electric Generation	Kerosene/Naphtha (Jet Fuel)	Reciprocating: Exhaust	0.056603774
20100909	Internal Combustion Engines	Electric Generation	Kerosene/Naphtha (Jet Fuel)	Turbine: Exhaust	0.056603774
20101001	Internal Combustion Engines	Electric Generation	Geysers/Geothermal	Steam Turbine	0.450549451
20101020	Internal Combustion Engines	Electric Generation	Geysers/Geothermal	Well Pad Fugitives: Blowdown	0
20101302	Internal Combustion Engines	Electric Generation	Liquid Waste	Waste Oil - Turbine	0.07063197
20182599	Internal Combustion Engines	Electric Generation	Wastewater, Points of Generation	Specify Point of Generation	0
20200101	Internal Combustion Engines	Industrial	Distillate Oil (Diesel)	Turbine	0.022698613
20200102	Internal Combustion Engines	Industrial	Distillate Oil (Diesel)	Reciprocating	0.022698613
20200103	Internal Combustion Engines	Industrial	Distillate Oil (Diesel)	Turbine: Cogeneration	0.022698613
20200104	Internal Combustion Engines	Industrial	Distillate Oil (Diesel)	Reciprocating: Cogeneration	0.022698613
20200105	Internal Combustion Engines	Industrial	Distillate Oil (Diesel)	Reciprocating: Crankcase Blowby	0.022698613
20200106	Internal Combustion Engines	Industrial	Distillate Oil (Diesel)	Reciprocating: Evaporative Losses (Fuel Storage and Delivery System)	0
20200107	Internal Combustion Engines	Industrial	Distillate Oil (Diesel)	Reciprocating: Exhaust	0.022698613
20200109	Internal Combustion Engines	Industrial	Distillate Oil (Diesel)	Turbine: Exhaust	0.022698613
20200201	Internal Combustion Engines	Industrial	Natural Gas	Turbine	0.450549451
20200202	Internal Combustion Engines	Industrial	Natural Gas	Reciprocating	0.450549451
20200203	Internal Combustion Engines	Industrial	Natural Gas	Turbine: Cogeneration	0.450549451
20200204	Internal Combustion Engines	Industrial	Natural Gas	Reciprocating: Cogeneration	0.450549451
20200205	Internal Combustion Engines	Industrial	Natural Gas	Reciprocating: Crankcase Blowby	0.450549451
20200207	Internal Combustion Engines	Industrial	Natural Gas	Reciprocating: Exhaust	0.450549451
20200209	Internal Combustion Engines	Industrial	Natural Gas	Turbine: Exhaust	0.450549451
20200252	Internal Combustion Engines	Industrial	Natural Gas	2-cycle Lean Burn	0.450549451
20200253	Internal Combustion Engines	Industrial	Natural Gas	4-cycle Rich Burn	0.450549451
20200254	Internal Combustion Engines	Industrial	Natural Gas	4-cycle Lean Burn	0.450549451
20200255	Internal Combustion Engines	Industrial	Natural Gas	2-cycle Clean Burn	0.450549451
20200256	Internal Combustion Engines	Industrial	Natural Gas	4-cycle Clean Burn	0.450549451
20200401	Internal Combustion Engines	Industrial	Large Bore Engine	Diesel	0.134380454
20200402	Internal Combustion Engines	Industrial	Large Bore Engine	Dual Fuel (Oil/Gas)	0.134380454
20200403	Internal Combustion Engines	Industrial	Large Bore Engine	Cogeneration: Dual Fuel	0.134380454
20200406	Internal Combustion Engines	Industrial	Large Bore Engine	Evaporative Losses (Fuel Storage and Delivery System)	0
20200407	Internal Combustion Engines	Industrial	Large Bore Engine	Exhaust	0.134199134
20200501	Internal Combustion Engines	Industrial	Residual/Crude Oil	Reciprocating	0.08296754
20200701	Internal Combustion Engines	Industrial	Process Gas	Turbine	0.450549451

(Continued)

Table E-A. List of Category Specific Conversion Factors (Developed by CARB and Used in the Imperial County 2018 SIP) to Estimate Condensable PM2.5 from Primary PM2.5

SCC	SCC_LEVEL_ONE	SCC_LEVEL_TWO	SCC_LEVEL_THREE	SCC_LEVEL_FOUR	Conversion Factor
20200702	Internal Combustion Engines	Industrial	Process Gas	Reciprocating Engine	0.450549451
20200705	Internal Combustion Engines	Industrial	Process Gas	Refinery Gas: Turbine	0.450549451
20200706	Internal Combustion Engines	Industrial	Process Gas	Refinery Gas: Reciprocating Engine	0.450549451
20200711	Internal Combustion Engines	Industrial	Process Gas	Reciprocating: Evaporative Losses (Fuel Delivery System)	0.450549451
20200712	Internal Combustion Engines	Industrial	Process Gas	Reciprocating: Exhaust	0.450549451
20200714	Internal Combustion Engines	Industrial	Process Gas	Turbine: Exhaust	0.450549451
20200901	Internal Combustion Engines	Industrial	Kerosene/Naphtha (Jet Fuel)	Turbine	0.022698613
20200902	Internal Combustion Engines	Industrial	Kerosene/Naphtha (Jet Fuel)	Reciprocating	0.022698613
20200909	Internal Combustion Engines	Industrial	Kerosene/Naphtha (Jet Fuel)	Turbine: Exhaust	0.022698613
20201001	Internal Combustion Engines	Industrial	Liquified Petroleum Gas (LPG)	Propane: Reciprocating	0.450549451
20201002	Internal Combustion Engines	Industrial	Liquified Petroleum Gas (LPG)	Butane: Reciprocating	0.450549451
20201005	Internal Combustion Engines	Industrial	Liquified Petroleum Gas (LPG)	Reciprocating: Crankcase Blowby	0.450549451
20201012	Internal Combustion Engines	Industrial	Liquified Petroleum Gas (LPG)	Reciprocating Engine	0.450549451
20201013	Internal Combustion Engines	Industrial	Liquified Petroleum Gas (LPG)	Turbine: Cogeneration	0.450549451
20201602	Internal Combustion Engines	Industrial	Methanol	Reciprocating Engine	0.450549451
20201607	Internal Combustion Engines	Industrial	Methanol	Reciprocating: Exhaust	0.450549451
20201609	Internal Combustion Engines	Industrial	Methanol	Turbine: Exhaust	0.450549451
20201701	Internal Combustion Engines	Industrial	Gasoline	Turbine	0.450549451
20201702	Internal Combustion Engines	Industrial	Gasoline	Reciprocating Engine	0.450549451
20201707	Internal Combustion Engines	Industrial	Gasoline	Reciprocating: Exhaust	0.450549451
20280001	Internal Combustion Engines	Industrial	Equipment Leaks	Equipment Leaks	0.450549451
20282599	Internal Combustion Engines	Industrial	Wastewater, Points of Generation	Specify Point of Generation	0
20300101	Internal Combustion Engines	Commercial/Institutional	Distillate Oil (Diesel)	Reciprocating	0.022698613
20300102	Internal Combustion Engines	Commercial/Institutional	Distillate Oil (Diesel)	Turbine	0.022698613
20300105	Internal Combustion Engines	Commercial/Institutional	Distillate Oil (Diesel)	Reciprocating: Crankcase Blowby	0.022698613
20300106	Internal Combustion Engines	Commercial/Institutional	Distillate Oil (Diesel)	Reciprocating: Evaporative Losses (Fuel Storage and Delivery System)	0
20300107	Internal Combustion Engines	Commercial/Institutional	Distillate Oil (Diesel)	Reciprocating: Exhaust	0.022698613
20300108	Internal Combustion Engines	Commercial/Institutional	Distillate Oil (Diesel)	Turbine: Evaporative Losses (Fuel Storage and Delivery System)	0
20300109	Internal Combustion Engines	Commercial/Institutional	Distillate Oil (Diesel)	Turbine: Exhaust	0.022698613
20300201	Internal Combustion Engines	Commercial/Institutional	Natural Gas	Reciprocating	0.450549451
20300202	Internal Combustion Engines	Commercial/Institutional	Natural Gas	Turbine	0.450549451
20300203	Internal Combustion Engines	Commercial/Institutional	Natural Gas	Turbine: Cogeneration	0.450549451
20300204	Internal Combustion Engines	Commercial/Institutional	Natural Gas	Reciprocating: Cogeneration	0.450549451
20300207	Internal Combustion Engines	Commercial/Institutional	Natural Gas	Reciprocating: Exhaust	0.450549451
20300301	Internal Combustion Engines	Commercial/Institutional	Gasoline	Reciprocating	0.067164179
20300307	Internal Combustion Engines	Commercial/Institutional	Gasoline	Reciprocating: Exhaust	0.067164179
20300701	Internal Combustion Engines	Commercial/Institutional	Digester Gas	Turbine	0.375
20300702	Internal Combustion Engines	Commercial/Institutional	Digester Gas	Reciprocating: POTW Digester Gas	0.450549451
20300706	Internal Combustion Engines	Commercial/Institutional	Digester Gas	Reciprocating: Evaporative Losses (Fuel Storage and Delivery System)	0
20300707	Internal Combustion Engines	Commercial/Institutional	Digester Gas	Reciprocating: Exhaust	0.450549451
20300801	Internal Combustion Engines	Commercial/Institutional	Landfill Gas	Turbine	0.450549451
20300802	Internal Combustion Engines	Commercial/Institutional	Landfill Gas	Reciprocating	0.450549451
20300805	Internal Combustion Engines	Commercial/Institutional	Landfill Gas	Reciprocating: Crankcase Blowby	0.450549451
20300809	Internal Combustion Engines	Commercial/Institutional	Landfill Gas	Turbine: Exhaust	0.450549451
20300901	Internal Combustion Engines	Commercial/Institutional	Kerosene/Naphtha (Jet Fuel)	Turbine: JP-4	0.450549451
20301001	Internal Combustion Engines	Commercial/Institutional	Liquified Petroleum Gas (LPG)	Propane: Reciprocating	0.450549451

(Continued)

Table E-A. List of Category Specific Conversion Factors (Developed by CARB and Used in the Imperial County 2018 SIP) to Estimate Condensable PM2.5 from Primary PM2.5

SCC	SCC_LEVEL_ONE	SCC_LEVEL_TWO	SCC_LEVEL_THREE	SCC_LEVEL_FOUR	Conversion Factor
20301002	Internal Combustion Engines	Commercial/Institutional	Liquified Petroleum Gas (LPG)	Butane: Reciprocating	0.450549451
20301007	Internal Combustion Engines	Commercial/Institutional	Liquified Petroleum Gas (LPG)	Reciprocating: Exhaust	0.450549451
20400101	Internal Combustion Engines	Engine Testing	Aircraft Engine Testing	Turbojet	0.071204135
20400102	Internal Combustion Engines	Engine Testing	Aircraft Engine Testing	Turboshaft	0.450549451
20400111	Internal Combustion Engines	Engine Testing	Aircraft Engine Testing	JP-5 Fuel	0.450549451
20400112	Internal Combustion Engines	Engine Testing	Aircraft Engine Testing	JP-4 Fuel	0.071204135
20400199	Internal Combustion Engines	Engine Testing	Aircraft Engine Testing	Other Not Classified	0
20400201	Internal Combustion Engines	Engine Testing	Rocket Engine Testing	Rocket Motor: Solid Propellant	0.450549451
20400202	Internal Combustion Engines	Engine Testing	Rocket Engine Testing	Liquid Propellant	0.450549451
20400299	Internal Combustion Engines	Engine Testing	Rocket Engine Testing	Other Not Classified	0
20400301	Internal Combustion Engines	Engine Testing	Turbine	Natural Gas	0.450549451
20400302	Internal Combustion Engines	Engine Testing	Turbine	Diesel/Kerosene	0.071204135
20400303	Internal Combustion Engines	Engine Testing	Turbine	Distillate Oil	0.071204135
20400305	Internal Combustion Engines	Engine Testing	Turbine	Kerosene/Naphtha	0.071204135
20400399	Internal Combustion Engines	Engine Testing	Turbine	Other Not Classified	0
20400401	Internal Combustion Engines	Engine Testing	Reciprocating Engine	Gasoline	0.071204135
20400402	Internal Combustion Engines	Engine Testing	Reciprocating Engine	Diesel/Kerosene	0.071204135
20400403	Internal Combustion Engines	Engine Testing	Reciprocating Engine	Distillate Oil	0.071204135
20400404	Internal Combustion Engines	Engine Testing	Reciprocating Engine	Process Gas	0.450549451
20400406	Internal Combustion Engines	Engine Testing	Reciprocating Engine	Kerosene/Naphtha (Jet Fuel)	0.071204135
20400407	Internal Combustion Engines	Engine Testing	Reciprocating Engine	Dual Fuel (Gas/Oil)	0.071204135
20400408	Internal Combustion Engines	Engine Testing	Reciprocating Engine	Residual Oil/Crude Oil	0.071204135
20400409	Internal Combustion Engines	Engine Testing	Reciprocating Engine	Liquified Petroleum Gas (LPG)	0.450549451
20400499	Internal Combustion Engines	Engine Testing	Reciprocating Engine	Other Not Classified	0
26000320	Internal Combustion Engines	Off-highway 2-stroke Gasoline Engines	Industrial Equipment	Industrial Fork Lift: Gasoline Engine (2-stroke)	0.071204135
26500320	Internal Combustion Engines	Off-highway 4-stroke Gasoline Engines	Industrial Equipment	Industrial Fork Lift: Gasoline Engine (4-stroke)	0.071204135
27000320	Internal Combustion Engines	Off-highway Diesel Engines	Industrial Equipment	Industrial Fork Lift: Diesel	0.071204135
27300320	Internal Combustion Engines	Off-highway LPG-fueled Engines	Industrial Equipment	Industrial Fork Lift: Liquified Petroleum Gas (LPG)	0.450549451
28500201	Internal Combustion Engines	Railroad Equipment	Diesel	Yard Locomotives	0.071204135
28888801	Internal Combustion Engines	Fugitive Emissions	Other Not Classified	Specify in Comments	0

Table E-B-1. 2018 Primary, Condensable and Filterable PM2.5 Emissions by Major Source Category (Tons per Day)

CODE	Source Category	PM2.5 Total	PM2.5 Condensable	PM2.5 Filterable
Fuel Combustion				
10	Electric Utilities	0.53	0.24	0.3
20	Cogeneration	0.01	0	0.01
30	Oil and Gas Production (Combustion)	0.09	0.03	0.06
40	Petroleum Refining (Combustion)	1.79	1	0.79
50	Manufacturing and Industrial	1.33	0.75	0.58
52	Food and Agricultural Processing	0.05	0.03	0.02
60	Service and Commercial	1.15	0.61	0.54
99	Other (Fuel Combustion)	0.38	0.01	0.38
Total Fuel Combustion		5.34	2.66	2.68
Waste Disposal				
110	Sewage Treatment	0	0	0
120	Landfills	0.2	0.02	0.18
130	Incineration	0.05	0.02	0.03
140	Soil Remediation	0	0	0
199	Other (Water Disposal)	0	0	0
Total Waste Disposal		0.25	0.04	0.21
Cleaning and Surface Coatings				
210	Laundrying	0	0	0
220	Degreasing	0.02	0	0.02
230	Coatings and Related Processes	1.4	0	1.4
240	Printing	0	0	0
250	Adhesives and Sealants	0.02	0	0.02
299	Other (Cleaning and Surface Coatings)	0	0	0
Total Cleaning and Surface Coatings		1.44	0	1.44
Petroleum Production and Marketing				
310	Oil and Gas Production	0.02	0	0.02
320	Petroleum Refining	0.88	0.14	0.74
330	Petroleum Marketing	0	0	0
399	Other (Petroleum Production and Marketing)	0	0	0
Total Petroleum Production and Marketing		0.91	0.91	0.14
Industrial Processes				
410	Chemical	0.37	0.01	0.37
420	Food and Agriculture	0.05	0.01	0.04
430	Mineral Processes	0.94	0.03	0.91
440	Metal Processes	0.2	0.09	0.11
450	Wood and Paper	2.7	0	2.7
460	Glass and Related Products	0	0	0
470	Electronics	0	0	0
499	Other (Industrial Processes)	0.46	0.02	0.44
Total Industrial Processes		4.72	0.16	4.56
Solvent Evaporation				
510	Consumer Products	0	0	0
520	Architectural Coatings and Related Solvent	0	0	0
530	Pesticides/Fertilizers	0	0	0
540	Asphalt Paving/Roofing	0.02	0	0.02
Total Solvent Evaporation		0.02	0	0.02

(Continued)

Table E-B-1. 2018 Primary, Condensable and Filterable PM2.5 Emissions by Major Source Category (Tons per Day)

CODE	Source Category	PM2.5 Total	PM2.5 Condensable	PM2.5 Filterable
Miscellaneous Processes				
610	Residential Fuel Combustion	6.77	0.79	5.98
620	Farming Operations	0.17	0	0.17
630	Construction and Demolition	2.27	0	2.27
640	Paved Road Dust	8.59	0	8.59
645	Unpaved Road Dust	1.67	0	1.67
650	Fugitive Windblown Dust	0.23	0	0.23
660	Fires	0.41	0	0.41
670	Waste Burning and Disposal	0.97	0	0.97
690	Cooking	11.44	11.41	0.03
699	Other (Miscellaneous Processes)	0	0	0
Total Miscellaneous Processes		32.52	12.2	20.32
Total Stationary and Area Sources		45.2	15.2	30.0

Table E-B-2. 2023 Primary, Condensable and Filterable PM2.5 Emissions by Major Source Category (Tons per Day)

CODE	Source Category	PM2.5 Total	PM2.5 Condensable	PM2.5 Filterable
Fuel Combustion				
10	Electric Utilities	0.55	0.25	0.31
20	Cogeneration	0.01	0	0.01
30	Oil and Gas Production (Combustion)	0.1	0.04	0.06
40	Petroleum Refining (Combustion)	1.79	1	0.79
50	Manufacturing and Industrial	1.31	0.73	0.58
52	Food and Agricultural Processing	0.05	0.03	0.02
60	Service and Commercial	1.15	0.61	0.55
99	Other (Fuel Combustion)	0.39	0.01	0.38
Total Fuel Combustion		5.36	2.66	2.7
Waste Disposal				
110	Sewage Treatment	0	0	0
120	Landfills	0.2	0.02	0.18
130	Incineration	0.05	0.02	0.03
140	Soil Remediation	0	0	0
199	Other (Water Disposal)	0	0	0
Total Waste Disposal		0.25	0.04	0.21
Cleaning and Surface Coatings				
210	Laundering	0	0	0
220	Degreasing	0.02	0	0.02
230	Coatings and Related Processes	1.47	0	1.47
240	Printing	0	0	0
250	Adhesives and Sealants	0.02	0	0.02
299	Other (Cleaning and Surface Coatings)	0	0	0
Total Cleaning and Surface Coatings		1.51	0	1.51
Petroleum Production and Marketing				
310	Oil and Gas Production	0.02	0	0.02
320	Petroleum Refining	0.88	0.14	0.74
330	Petroleum Marketing	0	0	0
399	Other (Petroleum Production and Marketing)	0	0	0
Total Petroleum Production and Marketing		0.91	0.14	0.77
Industrial Processes				
410	Chemical	0.38	0.01	0.38
420	Food and Agriculture	0.05	0.01	0.04
430	Mineral Processes	0.96	0.03	0.93
440	Metal Processes	0.22	0.1	0.12
450	Wood and Paper	2.95	0	2.95
460	Glass and Related Products	0	0	0
470	Electronics	0	0	0
499	Other (Industrial Processes)	0.48	0.02	0.46
Total Industrial Processes		5.05	0.18	4.87
Solvent Evaporation				
510	Consumer Products	0	0	0
520	Architectural Coatings and Related Solvent	0	0	0
530	Pesticides/Fertilizers	0	0	0
540	Asphalt Paving/Roofing	0.02	0	0.02
Total Solvent Evaporation		0.02	0	0.02

(Continued)

Table E-B-2. 2023 Primary, Condensable and Filterable PM2.5 Emissions by Major Source Category (Tons per Day)

CODE	Source Category	PM2.5 Total	PM2.5 Condensable	PM2.5 Filterable
Miscellaneous Processes				
610	Residential Fuel Combustion	6.78	0.82	5.95
620	Farming Operations	0.15	0	0.15
630	Construction and Demolition	2.36	0	2.36
640	Paved Road Dust	8.83	0	8.83
645	Unpaved Road Dust	1.67	0	1.67
650	Fugitive Windblown Dust	0.22	0	0.22
660	Fires	0.41	0	0.41
670	Waste Burning and Disposal	0.28	0	0.28
690	Cooking	11.79	11.76	0.04
699	Other (Miscellaneous Processes)	0	0	0
Total Miscellaneous Processes		32.49	12.58	19.91
Total Stationary and Area Sources		45.6	15.6	30.0

Table E-B-3. 2025 Primary, Condensable and Filterable PM2.5 Emissions by Major Source Category (Tons per Day)

CODE	Source Category		PM2.5 Total	PM2.5 Condensable	PM2.5 Filterable
Fuel Combustion					
	10	Electric Utilities	0.52	0.23	0.29
	20	Cogeneration	0.01	0	0.01
	30	Oil and Gas Production (Combustion)	0.1	0.04	0.07
	40	Petroleum Refining (Combustion)	1.79	1	0.79
	50	Manufacturing and Industrial	1.33	0.74	0.59
	52	Food and Agricultural Processing	0.05	0.03	0.02
	60	Service and Commercial	1.14	0.6	0.54
	99	Other (Fuel Combustion)	0.4	0.01	0.39
Total Fuel Combustion			5.34	2.64	2.7
Waste Disposal					
	110	Sewage Treatment	0	0	0
	120	Landfills	0.2	0.02	0.18
	130	Incineration	0.05	0.02	0.03
	140	Soil Remediation	0	0	0
	199	Other (Water Disposal)	0	0	0
Total Waste Disposal			0.26	0.04	0.21
Cleaning and Surface Coatings					
	210	Laundering	0	0	0
	220	Degreasing	0.02	0	0.02
	230	Coatings and Related Processes	1.5	0	1.5
	240	Printing	0	0	0
	250	Adhesives and Sealants	0.02	0	0.02
	299	Other (Cleaning and Surface Coatings)	0	0	0
Total Cleaning and Surface Coatings			1.55	0	1.54
Petroleum Production and Marketing					
	310	Oil and Gas Production	0.02	0	0.02
	320	Petroleum Refining	0.88	0.14	0.74
	330	Petroleum Marketing	0	0	0
	399	Other (Petroleum Production and Marketing)	0	0	0
Total Petroleum Production and Marketing			0.91	0.14	0.77
Industrial Processes					
	410	Chemical	0.39	0.01	0.38
	420	Food and Agriculture	0.05	0.01	0.04
	430	Mineral Processes	0.97	0.03	0.94
	440	Metal Processes	0.23	0.11	0.12
	450	Wood and Paper	3.06	0	3.06
	460	Glass and Related Products	0	0	0
	470	Electronics	0	0	0
	499	Other (Industrial Processes)	0.48	0.02	0.46
Total Industrial Processes			5.19	0.18	5
Solvent Evaporation					
	510	Consumer Products	0	0	0
	520	Architectural Coatings and Related Solvent	0	0	0
	530	Pesticides/Fertilizers	0	0	0
	540	Asphalt Paving/Roofing	0.02	0	0.02
Total Solvent Evaporation			0.02	0	0.02

(Continued)

Table E-B-3. 2025 Primary, Condensable and Filterable PM2.5 Emissions by Major Source Category (Tons per Day)

CODE	Source Category	PM2.5 Total	PM2.5 Condensable	PM2.5 Filterable
Miscellaneous Processes				
610	Residential Fuel Combustion	6.72	0.81	5.92
620	Farming Operations	0.14	0	0.14
630	Construction and Demolition	2.41	0	2.41
640	Paved Road Dust	8.91	0	8.91
645	Unpaved Road Dust	1.67	0	1.67
650	Fugitive Windblown Dust	0.22	0	0.22
660	Fires	0.41	0	0.41
670	Waste Burning and Disposal	0.28	0	0.28
690	Cooking	11.96	11.93	0.04
699	Other (Miscellaneous Processes)	0	0	0
Total Miscellaneous Processes		32.73	12.73	19.99
Total Stationary and Area Sources		45.99	15.74	30.25

Table E-B-4. 2028 Primary, Condensable and Filterable PM2.5 Emissions by Major Source Category (Tons per Day)

CODE	Source Category	PM2.5 Total	PM2.5 Condensable	PM2.5 Filterable
Fuel Combustion				
10	Electric Utilities	0.46	0.21	0.25
20	Cogeneration	0.01	0	0.01
30	Oil and Gas Production (Combustion)	0.11	0.04	0.07
40	Petroleum Refining (Combustion)	1.79	1	0.79
50	Manufacturing and Industrial	1.31	0.73	0.58
52	Food and Agricultural Processing	0.05	0.03	0.02
60	Service and Commercial	1.12	0.58	0.54
99	Other (Fuel Combustion)	0.41	0.01	0.41
Total Fuel Combustion		5.26	2.59	2.67
Waste Disposal				
110	Sewage Treatment	0	0	0
120	Landfills	0.2	0.02	0.19
130	Incineration	0.05	0.02	0.03
140	Soil Remediation	0	0	0
199	Other (Water Disposal)	0	0	0
Total Waste Disposal		0.26	0.04	0.22
Cleaning and Surface Coatings				
210	Laundering	0	0	0
220	Degreasing	0.02	0	0.02
230	Coatings and Related Processes	1.53	0	1.53
240	Printing	0	0	0
250	Adhesives and Sealants	0.02	0	0.02
299	Other (Cleaning and Surface Coatings)	0	0	0
Total Cleaning and Surface Coatings		1.58	0	1.58
Petroleum Production and Marketing				
310	Oil and Gas Production	0.02	0	0.02
320	Petroleum Refining	0.88	0.14	0.74
330	Petroleum Marketing	0	0	0
399	Other (Petroleum Production and Marketing)	0	0	0
Total Petroleum Production and Marketing		0.91	0.14	0.77
Industrial Processes				
410	Chemical	0.39	0.01	0.39
420	Food and Agriculture	0.06	0.01	0.05
430	Mineral Processes	0.98	0.03	0.95
440	Metal Processes	0.24	0.12	0.13
450	Wood and Paper	3.2	0	3.2
460	Glass and Related Products	0	0	0
470	Electronics	0	0	0
499	Other (Industrial Processes)	0.49	0.03	0.46
Total Industrial Processes		5.36	0.19	5.17
Solvent Evaporation				
510	Consumer Products	0	0	0
520	Architectural Coatings and Related Solvent	0	0	0
530	Pesticides/Fertilizers	0	0	0
540	Asphalt Paving/Roofing	0.03	0	0.03
Total Solvent Evaporation		0.03	0	0.03

(Continued)

Table E-B-4. 2028 Primary, Condensable and Filterable PM2.5 Emissions by Major Source Category (Tons per Day)

CODE	Source Category	PM2.5 Total	PM2.5 Condensable	PM2.5 Filterable
Miscellaneous Processes				
610	Residential Fuel Combustion	6.64	0.78	5.86
620	Farming Operations	0.14	0	0.14
630	Construction and Demolition	2.46	0	2.46
640	Paved Road Dust	9.08	0	9.08
645	Unpaved Road Dust	1.67	0	1.67
650	Fugitive Windblown Dust	0.21	0	0.21
660	Fires	0.41	0	0.41
670	Waste Burning and Disposal	0.28	0	0.28
690	Cooking	12.17	12.13	0.04
699	Other (Miscellaneous Processes)	0	0	0
Total Miscellaneous Processes		33.06	12.92	20.14
Total Stationary and Area Sources		46.46	15.89	30.57

Table E-B-5. 2030 Primary, Condensable and Filterable PM2.5 Emissions by Major Source Category (Tons per Day)

CODE	Source Category	PM2.5 Total	PM2.5 Condensable	PM2.5 Filterable
Fuel Combustion				
10	Electric Utilities	0.43	0.19	0.24
20	Cogeneration	0.01	0	0.01
30	Oil and Gas Production (Combustion)	0.11	0.04	0.07
40	Petroleum Refining (Combustion)	1.79	1	0.79
50	Manufacturing and Industrial	1.29	0.72	0.57
52	Food and Agricultural Processing	0.05	0.03	0.02
60	Service and Commercial	1.1	0.57	0.53
99	Other (Fuel Combustion)	0.42	0.01	0.41
Total Fuel Combustion		5.2	2.56	2.64
Waste Disposal				
110	Sewage Treatment	0	0	0
120	Landfills	0.21	0.02	0.19
130	Incineration	0.05	0.02	0.03
140	Soil Remediation	0	0	0
199	Other (Water Disposal)	0	0	0
Total Waste Disposal		0.26	0.04	0.22
Cleaning and Surface Coatings				
210	Laundering	0	0	0
220	Degreasing	0.02	0	0.02
230	Coatings and Related Processes	1.54	0	1.54
240	Printing	0	0	0
250	Adhesives and Sealants	0.02	0	0.02
299	Other (Cleaning and Surface Coatings)	0	0	0
Total Cleaning and Surface Coatings		1.59	0	1.59
Petroleum Production and Marketing				
310	Oil and Gas Production	0.02	0	0.02
320	Petroleum Refining	0.88	0.14	0.74
330	Petroleum Marketing	0	0	0
399	Other (Petroleum Production and Marketing)	0	0	0
Total Petroleum Production and Marketing		0.91	0.14	0.77
Industrial Processes				
410	Chemical	0.39	0.01	0.38
420	Food and Agriculture	0.06	0.01	0.05
430	Mineral Processes	0.98	0.03	0.95
440	Metal Processes	0.25	0.12	0.13
450	Wood and Paper	3.23	0	3.23
460	Glass and Related Products	0	0	0
470	Electronics	0	0	0
499	Other (Industrial Processes)	0.49	0.03	0.46
Total Industrial Processes		5.4	0.2	5.2
Solvent Evaporation				
510	Consumer Products	0	0	0
520	Architectural Coatings and Related Solvent	0	0	0
530	Pesticides/Fertilizers	0	0	0
540	Asphalt Paving/Roofing	0.03	0	0.03
Total Solvent Evaporation		0.03	0	0.03

(Continued)

Table E-B-5. 2030 Primary, Condensable and Filterable PM2.5 Emissions by Major Source Category (Tons per Day)

CODE	Source Category	PM2.5 Total	PM2.5 Condensable	PM2.5 Filterable
Miscellaneous Processes				
610	Residential Fuel Combustion	6.59	0.77	5.82
620	Farming Operations	0.13	0	0.13
630	Construction and Demolition	2.49	0	2.49
640	Paved Road Dust	9.11	0	9.11
645	Unpaved Road Dust	1.67	0	1.67
650	Fugitive Windblown Dust	0.21	0	0.21
660	Fires	0.41	0	0.41
670	Waste Burning and Disposal	0.28	0	0.28
690	Cooking	12.3	12.27	0.04
699	Other (Miscellaneous Processes)	0	0	0
Total Miscellaneous Processes		33.21	13.03	20.17
Total Stationary and Area Sources		45.59	15.97	30.62

Table E-B-6. 2031 Primary, Condensable and Filterable PM2.5 Emissions by Major Source Category (Tons per Day)

CODE	Source Category	PM2.5 Total	PM2.5 Condensable	PM2.5 Filterable
Fuel Combustion				
10	Electric Utilities	0.43	0.19	0.24
20	Cogeneration	0.01	0	0.01
30	Oil and Gas Production (Combustion)	0.11	0.04	0.07
40	Petroleum Refining (Combustion)	1.79	1	0.79
50	Manufacturing and Industrial	1.28	0.71	0.57
52	Food and Agricultural Processing	0.05	0.03	0.02
60	Service and Commercial	1.1	0.57	0.53
99	Other (Fuel Combustion)	0.42	0.01	0.41
Total Fuel Combustion		5.19	2.55	2.64
Waste Disposal				
110	Sewage Treatment	0	0	0
120	Landfills	0.21	0.02	0.19
130	Incineration	0.05	0.02	0.03
140	Soil Remediation	0	0	0
199	Other (Water Disposal)	0	0	0
Total Waste Disposal		0.26	0.04	0.22
Cleaning and Surface Coatings				
210	Laundering	0	0	0
220	Degreasing	0.02	0	0.02
230	Coatings and Related Processes	1.54	0	1.54
240	Printing	0	0	0
250	Adhesives and Sealants	0.02	0	0.02
299	Other (Cleaning and Surface Coatings)	0	0	0
Total Cleaning and Surface Coatings		1.59	0	1.59
Petroleum Production and Marketing				
310	Oil and Gas Production	0.02	0	0.02
320	Petroleum Refining	0.88	0.14	0.74
330	Petroleum Marketing	0	0	0
399	Other (Petroleum Production and Marketing)	0	0	0
Total Petroleum Production and Marketing		0.91	0.14	0.77
Industrial Processes				
410	Chemical	0.39	0.01	0.38
420	Food and Agriculture	0.06	0.01	0.05
430	Mineral Processes	0.98	0.03	0.95
440	Metal Processes	0.25	0.12	0.13
450	Wood and Paper	3.24	0	3.23
460	Glass and Related Products	0	0	0
470	Electronics	0	0	0
499	Other (Industrial Processes)	0.49	0.03	0.46
Total Industrial Processes		5.41	0.2	5.21
Solvent Evaporation				
510	Consumer Products	0	0	0
520	Architectural Coatings and Related Solvent	0	0	0
530	Pesticides/Fertilizers	0	0	0
540	Asphalt Paving/Roofing	0.03	0	0.03
Total Solvent Evaporation		0.03	0	0.03

(Continued)

Table E-B-6. 2031 Primary, Condensable and Filterable PM2.5 Emissions by Major Source Category (Tons per Day)

CODE	Source Category	PM2.5 Total	PM2.5 Condensable	PM2.5 Filterable
Miscellaneous Processes				
610	Residential Fuel Combustion	6.59	0.77	5.82
620	Farming Operations	0.13	0	0.13
630	Construction and Demolition	2.51	0	2.51
640	Paved Road Dust	9.11	0	9.11
645	Unpaved Road Dust	1.67	0	1.67
650	Fugitive Windblown Dust	0.21	0	0.21
660	Fires	0.41	0	0.41
670	Waste Burning and Disposal	0.28	0	0.28
690	Cooking	12.37	12.33	0.04
699	Other (Miscellaneous Processes)	0	0	0
Total Miscellaneous Processes		33.28	13.1	20.18
Total Stationary and Area Sources		46.66	16.03	30.64



APPENDIX II

Modeling and Attainment Demonstration



CHAPTER 1 – MODELING OVERVIEW

Introduction.....	II-1-1
Modeling Methodology.....	II-1-1
Design Values.....	II-1-1
Model Selection	II-1-1
Regional Modeling.....	II-1-2
Relative Response Factors and Future Year Design Values	II-1-3
Modeling Results	II-1-4
Uncertainties Associated with the Technical Analysis.....	II-1-4
Document Organization	II-1-5

CHAPTER 2 – MODELING PROTOCOL

Background.....	II-2-1
Attainment Demonstration	II-2-1
Numerical Models.....	II-2-1
Emissions Processing.....	II-2-4
Biogenic Emissions.....	II-2-6
Computational Resources	II-2-6

CHAPTER 3 – METEOROLOGICAL MODELING

Overview	II-3-1
Comparison of 2018 Observed Meteorology to 10-Year Average	II-3-1
Modeling Configuration	II-3-5
Model Performance Evaluation: Surface Level	II-3-9
Model Performance Evaluation: Diurnal Variations	II-3-20
Model Performance Evaluation: Wind Rose	II-3-22
Model Performance Evaluation: Planetary Boundary Layer Height.....	II-3-25
Sensitivity Test of Planetary Boundary Layer Scheme	II-3-27
Summary	II-3-35

CHAPTER 4 - MODELING EMISSIONS, BOUNDARY CONDITIONS, AND INITIAL CONDITIONS

Modeling Emissions Inventory	II-4-1
Inventory Profile	II-4-1
Temporal and Spatial Allocations of Emissions	II-4-2
On-road Mobile Emissions	II-4-2
Emissions Profiles	II-4-56
Spatial Distribution	II-4-67
Biogenic Emissions.....	II-4-1011
Boundary and Initial Conditions.	II-4-1112
Total PM2.5 Mass in Boundary Conditions	II-4-1112
PM2.5 Species in Boundary Conditions	II-4-1920

CHAPTER 5 - ANNUAL PM2.5 ATTAINMENT DEMOSTRATION

Introduction	II-5-1
PM2.5 FRM Sampling	II-5-1
Speciated PM2.5 Sampling	II-5-2
Annual PM2.5 Modeling Approach.....	II-5-4
Performance Evaluation	II-5-67
Statistical Evaluation of Total PM2.5 mass.....	II-5-1415
Model Performance of Speciated PM2.5 Predictions.....	II-5-1617
CMAQ SOA Mass Simulation	II-5-2122
Base Year Annual PM2.5	II-5-2425
Speciated Quarterly Average Data	II-5-2425
Future Year Annual PM2.5 Air Quality	II-5-3435
Unmonitored Area Analysis.....	II-5-3739
Summary and Conclusions	II-5-4244

CHAPTER 6 – ATTAINMENT DEMONSTRATION FOR THE CA-60 NEAR-ROAD MONITORING STATION

Introduction.....	II-6-21
Approach to Model the Effect of Near-Road Sources.....	II-6-32
Alternatives for the determination of NRI.....	II-6-54
AERMOD Dispersion Modeling Set-Up.....	II-6-20
PM2.5 simulation with AERMOD	II-6-2426
Model Evaluation of Hybrid Model	II-6-2630
Annual PM2.5 Design Values using the Hybrid Approach	II-6-3034
Summary	II-6-3236

CHAPTER 7 – ~~EXCEPTIONAL~~ATYPICAL EVENTS DEMONSTRATIONANALYSIS

Introduction.....	II-7-1
Fireworks Emissions.....	II-7-3
Professional Fireworks.....	II-7-5
Historical Analysis	II-7-7
Fireworks Summary for 2016-07-05.....	II-7-20
Fireworks Summary for 2017-07-04 and 2017-07-05	II-7-23
Fireworks Summary for 2018-07-05.....	II-7-30
Fireworks Summary for 2019-07-05.....	II-7-39
Conclusion	II-7-50

Attachment 1: WRF Model Performance Time Series

Attachment 2: CMAQ Model Performance Figures

Attachment 3: Emissions Reductions Summary for Future Control Scenarios

Attachment 4: List of Wildfires that Affected the South Coast Air Basin in 2020

Chapter 1

MODELING OVERVIEW

Introduction

Modeling Methodology

Design Values

Model Selection

Regional Modeling

Relative Response Factors and Future Year Design Values

Modeling Results

Uncertainties Associated with the Technical Analysis

Document Organization

Introduction

Air quality modeling to demonstrate future attainment of air quality standards is an integral part of the planning process to achieve clean air. Modeling provides the means to relate emission reductions from pollution sources to the resulting air quality improvements. The attainment demonstrations provided in this ~~Draft~~ PM_{2.5} Plan reflect updated emissions estimates, new technical information, enhanced air quality modeling techniques, updated attainment demonstration methodology, and the control strategies provided in Chapter 4.

This ~~Draft~~ PM_{2.5} Plan aims to develop a control strategy and corresponding attainment demonstration that: 1) ensures that the 2012 annual PM_{2.5} National Ambient Air Quality Standard (NAAQS) is met by the established deadline in the federal Clean Air Act (CAA) and 2) achieves an expeditious rate of progress towards attaining the air quality standard.

The South Coast Air Basin is classified as an “serious” nonattainment area for the 2012 annual PM_{2.5} NAAQS with an attainment year of 2025. This plan seeks an extension of the attainment to 2030 and included control strategy and modeling demonstration to attain in 2030. The modeling base year is 2018 and was used to derive meteorological inputs; it also served as an anchor year to project future emissions and was used in the attainment demonstration.

Modeling Methodology

Design Values

U.S. EPA guidance recommends the use of multiple year averages of design values, where appropriate, to dampen the effects of single year anomalies to the air quality trend due to factors such as adverse or favorable meteorology or radical changes in the local emissions profile. The Basin PM_{2.5} design value trend is presented in Chapter 5 of the ~~Draft~~ PM_{2.5} Plan, Figure 5-1. The trend in the Basin Annual PM_{2.5} design values from 2001 through 2022 reveals substantial reductions in concentrations over this timeframe. The year 2020 was particularly anomalous for a variety of reasons such as recorded-setting wildfires and pandemic-era emissions. The five-year period, 2016-2020 was used in the current modeling attainment demonstration. However, due to the anomaly of year 2020 related with COVID-19 pandemic and record-setting wildfires, a five-year weighted design value recommended by U.S. EPA was modified to exclude the impact 2020 measurements. Chapter 5 of the ~~Draft~~ PM_{2.5} Plan discusses the detail of the 5-year weighted design value calculations.

Model Selection

The attainment demonstration was developed using the U.S. EPA Community Multiscale Air Quality (CMAQ) (version 5.3.3) modeling platform with Statewide Air Pollution Research Center (SAPRC) 07 chemistry and aerosol mechanism of aero6, and the Weather Research and Forecasting Model (WRF)

(version 4.4.2) meteorological fields. Comprehensive descriptions of the CMAQ modeling system are provided by U.S. EPA.¹ Additional descriptions of the SAPRC07 chemistry module and aerosol mechanism of aero6 are provided are available online.² Documentation of the National Center for Atmospheric Research (NCAR) WRF model is available from the University Corporation for Atmospheric Research (UCAR).³

Regional Modeling

The CMAQ air quality modeling platform with SAPRC07 chemistry and WRF meteorology were employed as the primary tool used to demonstrate future year attainment of the PM_{2.5} standard. Simulations are conducted from January 1st to December 31th. Daily average values of PM_{2.5} concentrations were Predicted.

As in the 2022 AQMP, simulations were conducted using a Lambert Conformal grid projection where the western boundary of the domain is at 084 UTM, over 100 miles west of the ports of Los Angeles and Long Beach. The eastern boundary extends beyond the Colorado River, while the northern and southern boundaries of the domain extend to the southern edge of the San Joaquin Valley and the Northern portions of Mexico (3543 UTM). The grid size is 4 x 4 kilometers with 30 vertical layers. Figure II-1-1 depicts the CMAQ modeling domain which includes a grid of 156 cells from west to east and 102 cells from south to north.

¹ <http://www.epa.gov/scram001/>

² <https://intra.engr.ucr.edu/~carter/SAPRC/>

³ <https://www.mmm.ucar.edu/models/wrf>

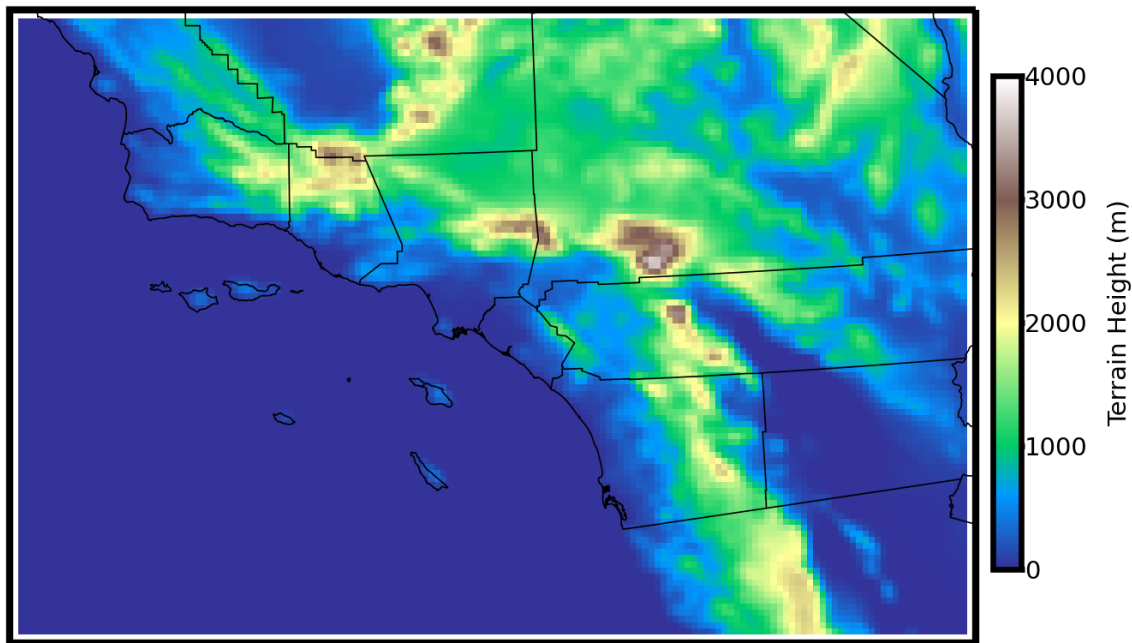


FIGURE II-1-1

CMAQ Regional Modeling Domain for the Draft PM_{2.5} Plan

WRF was updated to the most recent version (version 4.4.2) available at the time of this protocol preparation and was evaluated with a set of observation data. The WRF simulations were initialized from National Centers for Environmental Prediction (NCEP) North American Regional reanalysis (NARR) Reanalysis data and run for 4-day increments with the option for four-dimensional data assimilation (FDDA). The atmospheric chemistry package used in the CMAQ simulations relied on SAPRC07 gas phase chemistry with version “c” toluene updates with the AERO6 aerosol mechanism, the Euler Backward Iterative solver, the Yamo horizontal advection scheme, the WRF vertical advection scheme, the multiscale CMAQ horizontal diffusion scheme, the ACM2 vertical diffusion scheme, in-line photolysis calculations, and clean homogeneous initial values.

Relative Response Factors and Future Year Design Values

To bridge the gap between air quality model output evaluation and applicability to the health-based air quality standards, EPA guidance⁴ has proposed the use of relative response factors (RRF). South Coast AQMD developed a tool to calculate the RRF and did not rely on EPA’s MATS/SMAT software. The RRF is simply a ratio of future year predicted air quality with the control strategy fully implemented to the simulated air quality in the base year (U.S. EPA, 2018). For PM_{2.5} simulations, PM_{2.5} component-specific

⁴ U.S. EPA (2018) Modeling Guidance for Demonstrating Air Quality Goals for Ozone, PM_{2.5}, and Regional Haze.

relative response factors (RRF) should be calculated for each quarter. The guidance requires that quarterly mean concentrations for each component to be determined among 9 grid cells around a monitoring station if model grid resolution is equal or less than 12km and that the specific grid location be preserved in the future year modeling scenario when calculating. The ratio of base to future year quarterly mean concentrations for each component is the RRF for that component.

The future year design value is estimated by multiplying the non-dimensional RRF to the measured base year design value. Thus, the simulated improvement in air quality, based on multiple meteorological episodes, is translated to a simple metric that directly determines compliance of the standard. Equations II-1-1 and II-1-2 summarize the calculation.

Equation II-1-1:

$$\text{RRF} = \frac{\text{Future Year Model Prediction}}{\text{Base Year Model Prediction}}$$

Equation II-1-2:

$$\text{Future Design Value} = \text{RRF} \times \text{Base Design Value}$$

The modeling analyses described above use the RRF method to project future design values. A future design value less than or equal to the standard constitutes attainment. The RRF approach aims to minimize the effects of biases in the model simulations, thus providing more accurate projections of future air quality.

Modeling Results

Air quality modeling simulations are conducted to quantify the air quality improvements resulting from the measures proposed in the ~~Draft~~ PM2.5 Plan, and to demonstrate that future PM2.5 concentrations will meet the air quality standards. Modeling results show that the measures proposed in this ~~Draft~~ PM2.5 Plan will be able to bring PM2.5 concentrations down and that all areas in the Basin will be in attainment of the 2012 annual PM2.5 standard by 2030.

Uncertainties Associated with the Technical Analysis

As with any attainment plan, there are uncertainties associated with the technical analysis. Uncertainties are inherent to many of the inputs used in the emissions, meteorological and air quality models. Uncertainty in emission projections stem from the uncertainties associated with the demographic and socioeconomic factors, the emission factors and the spatial distribution surrogates used in the development of emissions inventories. Modeling tools also contribute to the uncertainty as all models can only be a limited representation of the real world. Also, uncertainty in the measurements add to the

uncertainty when model performance is assessed. And finally, uncertainty in future climate may also impact our understanding and ability to determine the necessary emission controls to attain the standards. While completely eliminating uncertainties is an impossible task, there are a number of features and practices built into the air quality planning process that manage and control such uncertainties and preserve the integrity of an air quality management plan. These measures include the constant revision of modeling tools and the design of contingency measures that could be enacted in the event that the measures in the Draft PM2.5 Plan do not result in the projected air quality improvements.

Document Organization

This document provides the federal attainment demonstration for PM2.5. Chapter 2 provides the modeling protocol which summarizes the key elements that have been revised relative to the 2022 AQMP modeling protocol. Chapter 3 provides a discussion of the meteorological modeling including a comprehensive model performance evaluation. Chapter 4 provides a brief summary of the modeling emissions, boundary conditions and initial conditions. Chapter 5 discusses the annual PM2.5 attainment demonstration for the 2030 attainment year. The PM2.5 analysis includes discussions of base-year modeling performance, and projections of future year PM2.5 concentrations for baseline emissions. Table II-1-2 lists the Attachments to this document.

TABLE II-1-2

ATTACHMENTS

Number	Description
Attachment-1	WRF Model Performance Time Series
Attachment-2	CMAQ Model Performance Figures
Attachment-3	Emissions Reductions Summary for Future Control Scenarios

Chapter 2

MODELING PROTOCOL

Background

Attainment Demonstration

Numerical Models

Emissions Processing

Biogenic Emissions

Computational Resources

Background

One of the basic requirements of a modeling attainment demonstration is the development of a comprehensive modeling protocol that defines the scope of the regional modeling analyses. This includes the attainment demonstration methodology, meteorological and chemical transport platforms, gridded and speciated emission inventories, and geographical characteristics of the modeling domains. The protocol also defines the methodology to assess model performance and the selection of the simulation periods. The 2016 AQMP provided a comprehensive discussion of the modeling protocol used for the development of the PM_{2.5} and ozone attainment demonstrations. The 2016 AQMP Modeling Protocol served as the prototype of the ~~Draft 2024~~ PM_{2.5} Plan modeling protocol. This ~~Draft 2024~~ PM_{2.5} Plan demonstrates attainment of the 2012 annual PM_{2.5} standard with 2018 as the base year and 2030 as the attainment year. Future attainment years (See Table II-2-1) are identified based on nonattainment designation, pollutant standards, and geographical area.

TABLE II-2-1
UPCOMING ATTAINMENT YEARS FOR THE 2012 ANNUAL PM_{2.5} NAAQS FOR THE SOUTH COAST AIR BASIN

Attainment Year	Remarks
2018	Base Year for Modeling and Emissions Projection
2025	2012 PM _{2.5} Serious Area Attainment Due
2030	2012 PM _{2.5} Serious Area with 5 -year Extension

Attainment Demonstration

The annual PM_{2.5} attainment demonstration was performed based on the U.S. EPA guidance document, “Modeling Guidance for Demonstrating Air Quality Goals for Ozone, PM_{2.5}, and Regional Haze”, issued on November 29, 2018 (U.S. EPA, 2018). To predict the future annual PM_{2.5} design values, PM_{2.5} component-specific relative response factors (RRF) should be calculated for each quarter. The guidance requires that quarterly mean concentrations for each component to be determined among 9 grid cells around a monitoring station if model grid resolution is equal or less than 12km and that the specific grid location be preserved in the future year modeling scenario when calculating. The ratio of base to future year quarterly mean concentrations for each component is the RRF for that component.

Numerical Models

Table II-2-2 provides a side-by-side comparison of the 2016, 2022 AQMP and the current ~~Draft 2024~~ PM_{2.5} Plan modeling protocols. In general, changes have occurred in the following categories: emissions inventories, future-year simulations, the level of the non-attainment designation and the attainment demonstration methodology. As such, these changes are expected to occur with each subsequent modeling update. Table II-2-3 highlights the main differences in CMAQ setup since the 2022 AQMP.

TABLE II-2-2

NUMERICAL MODELING PLATFORMS AND DOMAINS FOR 2024 PM2.5 PLAN AND PREVIOUS AQMPs

	2016 AQMP	2022 AQMP	Draft 2024 PM2.5 Plan
Modeling Base Year	2012 Ozone: May – Sep PM: Annual	2018 Ozone: May - Sep	2018 Entire Year
Chemical Transport Model	CMAQ version 5.0.2	CMAQ version 5.2.1	CMAQ version 5.3.3
Meteorological Model	WRF version 3.6 with Updated Land Use	WRF version 4.0.3 Unified Noah	WRF version 4.4.2 Pleim-Xiu
Emission: On-Road	EMFAC 2014	EMFAC 2017	EMFAC 2021
Off-Road	Category Specific Calculation	Category Specific Calculation	Category Specific Calculation
Modeling Domain	624 km by 408 km	624 km by 408 km	624 km by 408 km
Grid Resolution	4km by 4km grid	4km by 4km grid	4km by 4km grid
Vertical Layer	18 layers with 14 layer below 2000 m AGL and 50 hPa as top boundary	30 layers with 14 layer below 2000 m AGL and 50 hPa as top boundary	30 layers with 14 layer below 2000 m AGL and 50 hPa as top boundary

TABLE II-2-3
CHEMICAL TRANSPORT MODELING PLATFORM FOR THE ~~DRAFT 2024~~ PM2.5 PLAN

Options	Draft 2024 PM2.5 Plan
Numerical Model	CMAQ version 5.3.3
Modeling Grid	156 by 102 grids with 4 km grid distance
Vertical Layers	30 layers
Gas Phase Chemical Mechanism	SAPRC07 with version “c” toluene updates
Aerosol Mechanism	AERO6
Chemical Solver	Euler Backward Iterative solver (EBI)
Horizontal Advection	Yamo
Vertical Advection	WRF
Horizontal Diffusion	Multiscale CMAQ scheme
Vertical Diffusion	ACM2
Photolysis	In-line Calculation
Initial Values	Clean Homogeneous Condition
Boundary Values	Nested modeling with 12km statewide CMAQ The 12km CMAQ domain used boundaries from the global model of Community Atmosphere Model with Chemistry (CAM-chem)

The Weather Research and Forecast (WRF) model remains the primary tool for meteorological modeling. WRF was updated with the most recent version (version 4.4.2) available and was evaluated with a set of observation data to ensure the accuracy and reliability of meteorological predictions. WRF simulations were conducted with three nested domains with grid resolutions of 36 km, 12 km and 4 km. The innermost domain spans 652 km by 460 km in the east–west and north–south directions, respectively, which includes the greater Los Angeles area, its surrounding mountains, and ocean waters off the coast of the South Coast Air Basin (Figure II-2-1). A Lambert conformal map projection was used with reference latitudes of 30° and 60° N and the center of the modeling domain positioned at 37° N and 120° 30' W. Details on the WRF model configuration are provided in Chapter 3 of Appendix II.



FIGURE II-2-1

THE RELATIVE LOCATIONS OF THE INNER MOST WRF DOMAIN COMPARED TO THE CMAQ DOMAIN. THE BOUNDARY OF SOUTH COAST AQMD JURISDICTION BOUNDARY AND AIR MONITORING LOCATIONS ARE OVERLAID BY A THICK SOLID LINE AND BLACK DOTS, RESPECTIVELY.

Emissions Processing

Emissions inventories are often developed on an annual basis for large geographic areas and a process must be developed to allocate the emissions to a time-dependent grid for use in chemical transport modeling. Traditionally, emissions were allocated to the modeling grid using generic or average activity patterns and profiles. These approaches did not sufficiently reflect the real-world characteristics of emissions sources. Shortcomings of previous emissions allocation methods included an inability to account for traffic flows responding to changes in weather, vessels transiting outside of well-known shipping lanes, or aircraft following airport-specific landing and takeoff trajectories. For these reasons, new approaches were developed to spatially and temporally allocate emissions from on-road mobile sources, Ocean-Going Vessels (OGV), and aircraft. Each method used information from sensor or transponder-based datasets, which accurately reflected where and when emissions were occurring. Further details on the updated allocation methods are presented in Chapter 4 of Appendix II.

TABLE II-2-4**SUMMARY OF EMISSION PROCESSING FOR THE ~~DRAFT~~ 2024 PM2.5 PLAN**

Options	Draft 2024 PM2.5 Plan
On-Road Emissions	EMFAC 2021
	Temporal allocation using Caltrans real-time PeMS single loop detector-based traffic data for light & medium-duty vehicles. Heavy-duty vehicle temporal allocation based on PeMS data and an algorithm to detect heavy-duty vehicle classes ¹
Aircraft Emissions	ACARS/GATE ¹ spatial allocation
OGV Emissions	AIS-based ² spatial allocation
Vehicle Miles Traveled	2020 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS)
Off-Road Emissions	Category Specific Calculation
Mexico Emissions	CARB's Mexican emissions profile

¹ Aircraft Communication Addressing and Reporting System (ACARS)/Gridded Aircraft Trajectory Emissions (GATE)

² Automated Identification System

¹ Kwon J, Varaiya P, Skabardonis A. Estimation of Truck Traffic Volume from Single Loop Detectors with Lane-to-Lane Speed Correlation. Transportation Research Record. 2003;1856(1):106-117, <https://doi.org/10.3141%2F1856-11>

TABLE II-2-5

LIST OF EMISSIONS CATEGORIES WITH TEMPORAL PROFILE USED

Day-Specific Profile	Generic Profile
<ul style="list-style-type: none"> Wildfires¹ Prescribed burns¹ Biogenic and On-Road motor vehicle emissions are adjusted using day/hour-specific meteorological data. 	<ul style="list-style-type: none"> Agricultural burning Residential wood combustion Facilities Paved road dust Unpaved road dust Windblown dust Livestock dust

¹ Wildfires and prescribed burns were modeled using day-specific profiles for the model performance evaluation only. For the attainment demonstration, wildfire emissions were excluded, and prescribed burns were modeled using a generic profile.

Biogenic Emissions

Daily biogenic VOC emissions were calculated using the Model of Emissions of Gases and Aerosols from Nature version 3.0 (MEGAN3.0) using 2018 meteorology as input. MEGAN was executed in its default configuration, except for the normalized Leaf Area Index (LAIv) input. LAIv was developed by the California Air Resources Board using 2018 data from the Moderate Resolution Imaging Spectroradiometer (MODIS) on the National Aeronautical Space Administration's Terra and Aqua satellites. Because MODIS does not provide data in urban areas, LAIv in these areas was based on tree survey data from the US Forest Service. A detailed description of the biogenic inventory is provided in Chapter 4 of Appendix II.

Computational Resources

The main computation platform employs high performance nodes. New servers, compiled to enhance computational capability, were configured with Red-Hat Enterprise Linux 7 and 64-bit operating systems. Details of the computing resources are summarized in Table II-2-6.

TABLE II-2-6
DETAILS OF COMPUTATIONAL RESOURCES USED IN THE 2016, 2022 AQMPS AND THE ~~DRAFT 2024~~
PM2.5 PLAN

2016 AQMP	2022 AQMP	Draft 2024 PM2.5 Plan
<ul style="list-style-type: none">• HP DL560 G8, 64 bit 4x8 cores• HP DL560 G8, Total 320 processors• HP DL560 G8 Total 64 processors	<ul style="list-style-type: none">• HP DL380 G10, 64 bit 2x16 cores• HPE DL380 G10 Total 320 processors• HP DL560 G8, Total 256 processors	<ul style="list-style-type: none">• Same as 2022 AQMP

Chapter 3

METEOROLOGICAL MODELING

Overview

Comparison of 2018 Observed Meteorology to 10-Year Average

Modeling Configuration

Model Performance Evaluation: Surface Level

Model Performance Evaluation: Diurnal Variations

Model Performance Evaluation: Wind Rose

Model Performance Evaluation: Planetary Boundary Layer Height

Sensitivity Test of Planetary Boundary Layer Scheme

Summary

Overview

This chapter provides a description of the meteorological modeling that serves as the foundation of the ~~Draft 2024~~ PM2.5 plan modeling analysis. The Weather Research and Forecasting (WRF) model was used to generate meteorological fields for further modeling analysis. The model offers a variety of user options to cover atmospheric boundary layer parameterizations, turbulent diffusion, cumulus parameterizations, land surface-atmosphere interactions, which can be customized to specific geographical and climatological situations. South Coast AQMD staff performed extensive sensitivity tests and developments to improve WRF performance for the South Coast Air Basin, where prediction of complex meteorological structures associated with air quality episodes is particularly challenging due to the region's unique geography and climate. This chapter describes the numerical configuration, sensitivity test on key parameterizations, input database, and initial and boundary values used in the ~~Draft 2024~~ PM2.5 Plan modeling analysis.

Comparison of 2018 Observed Meteorology to 10-Year Average

Meteorological data from airport weather stations across the Basin and the Coachella Valley were used to assess differences between regional weather patterns observed in 2018 and average conditions from 10 years (2013-2022). The 15 weather stations used for this analysis were Los Angeles International Airport (LAX), Santa Monica Municipal Airport (SMO), Hawthorne Municipal Airport (HHR), Long Beach Airport (LGB), John Wayne Airport (SNA), Fullerton Municipal Airport (FUL), Chino Airport (CNO), Ontario International Airport (ONT), Riverside Municipal Airport (RAL), March Air Reserve Base (RIV), Palm Springs International Airport (PSP), Burbank Bob Hope Airport (BUR) and Van Nuys Airport (VNY). The location of the stations is shown in Figure II-3-1. Comparisons of 2018 and 2013-2022 daily total rain, daily average wind speed, relative humidity and temperature at the station of LAX are shown as examples in Figures II-3-2 through II-3-5. Comparisons for all other stations are included in Attachment 1 of Appendix II.

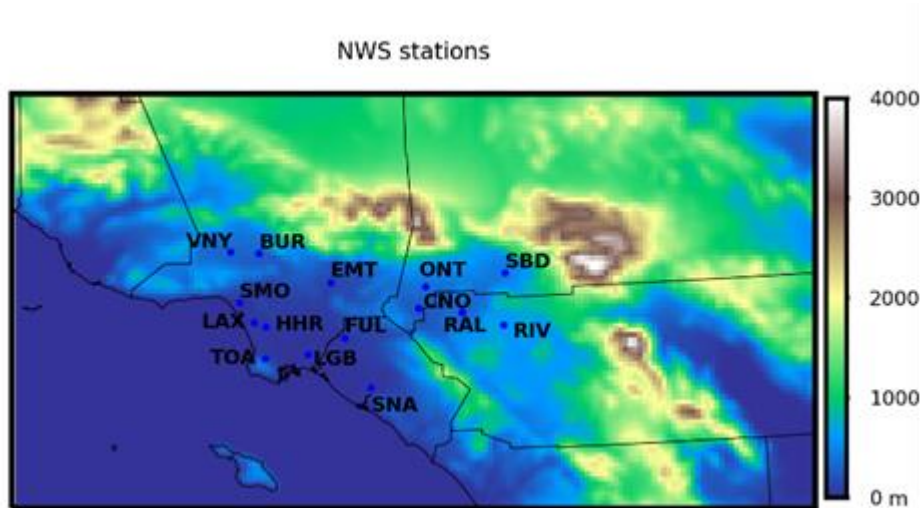


FIGURE II-3-1

15 NATIONAL WEATHER SERVICE (NWS) STATIONS AND TOPOGRAPHY IN THE BASIN

As shown in Figure II-3-2, the daily total rain at the station of LAX recorded higher precipitation for some years such as 2017, 2019 and 2021. Lower precipitation is observed during years such as 2013 and 2022. Typically, the first quarter and the 4th quarter of the year are the rain seasons. For example, the first quarter of 2017 and the last quarter of 2021 observed more than 2 inches daily total rain. There are more rain days with > 1 inch daily total rain in the year of 2019 from both first quarter and 4th quarter. On the other side, the year of 2013 is dry and observed the lowest rain amount comparing with other years. Regarding both precipitation days and rain amount, the year of 2018 observed values between the lower and the higher values among the 10 years precipitation record. Figure II-3-3, II-3-4, and II-3-5 are normalized histogram of daily average at station of LAX in 2018 and the 10-year (2013-2022) for wind speed, relative humidity, and temperature respectively. The higher value range for the above three variables in 2018 are in line with the counterparts from the 10 years observations. The histogram of 2018 didn't show much shifting to the higher or the lower values comparing with the 10 years normalized histogram. For example, the higher wind speed is in the 2.5 m/s - 4 m/s range for both 2018 and the 10 years observations. The higher relative humidity is in the 65% - 85% range for both 2018 and the 10 years observations.

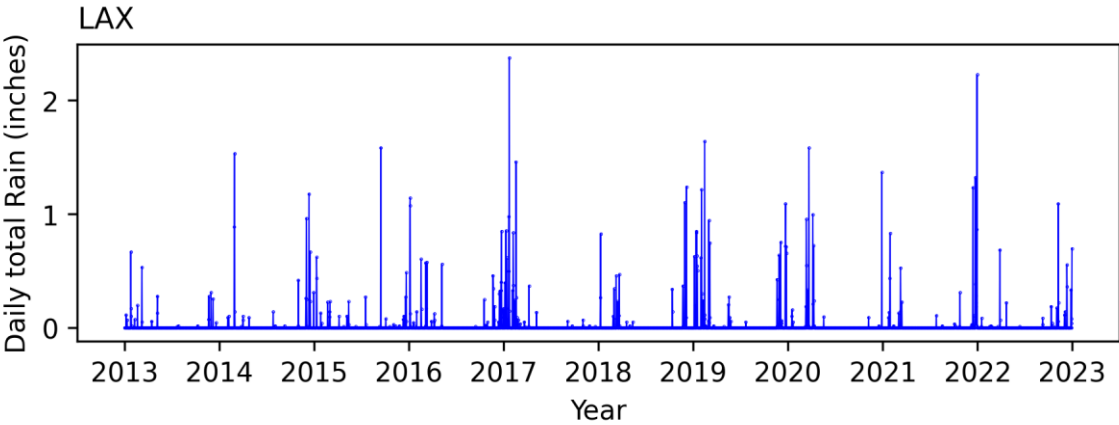


FIGURE II-3-2
DAILY TOTAL RAIN AT STATION OF LAX DURING 2013 - 2022

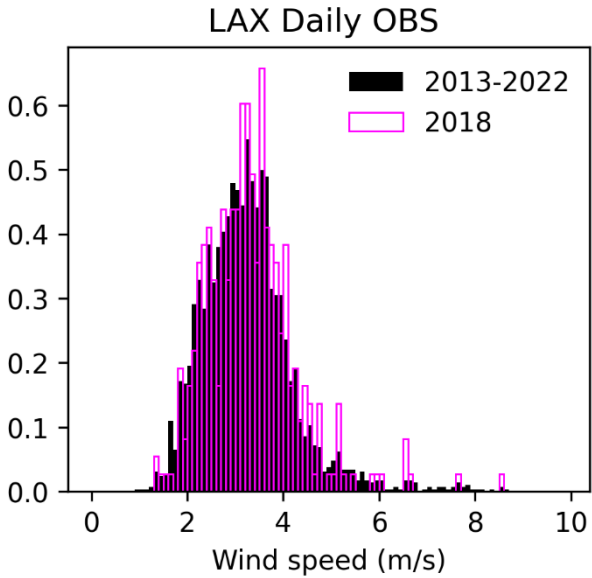


FIGURE II-3-3
NORMALIZED HISTOGRAM OF DAILY AVERAGE WIND SPEED AT STATION OF LAX IN 2018 AND THE 10-YEAR (2013-2022)

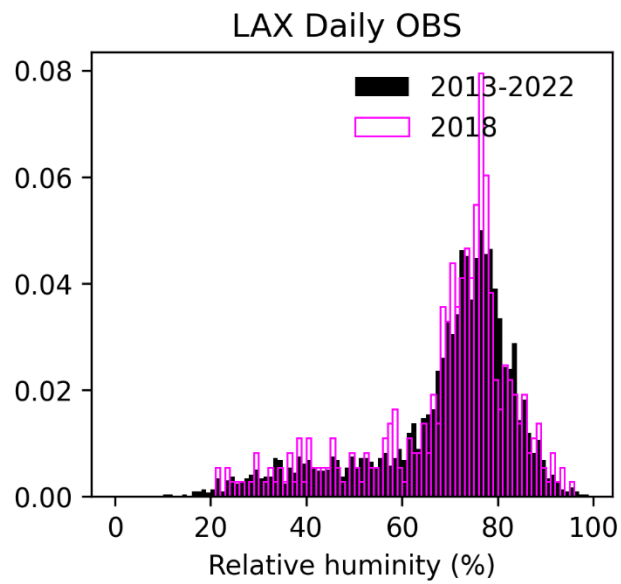


FIGURE II-3-4

NORMALIZED HISTOGRAM OF DAILY AVERAGE RELATIVE HUMIDITY AT STATION OF LAX IN 2018 AND THE 10-YEAR (2013-2022)

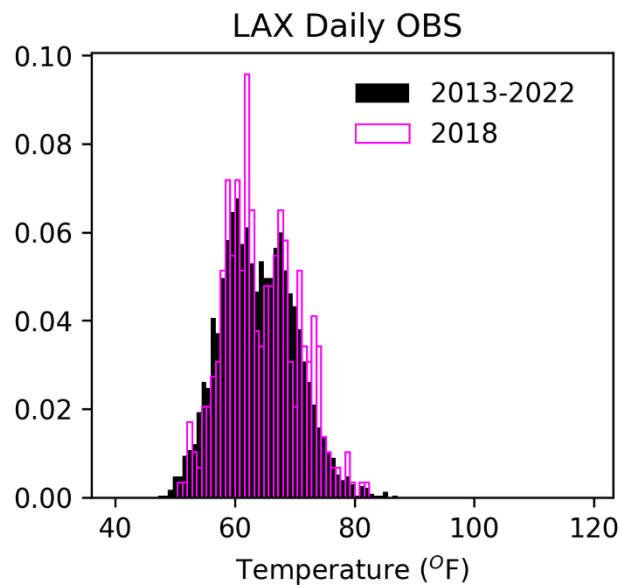


FIGURE II-3-5

NORMALIZED HISTOGRAM OF DAILY AVERAGE TEMPERATURE AT STATION OF LAX IN 2018 AND THE 10-YEAR (2013-2022)

Modeling Configuration

The WRF model is one of the most widely used meteorological models for both operational forecasting and research applications. WRF has been applied to a wide range of phenomena across geographic scales from tens of meters to thousands of kilometers, such as regional climate, monsoons, baroclinic waves, mesoscale fronts, hurricanes, deep convection, land-sea breezes, mountain-valley circulations, large eddy simulations, and fire events. The model is supported by the National Center for Atmospheric Research (NCAR) and actively developed by a worldwide user community. The WRF system contains two dynamical solvers, referred to as the ARW (Advanced Research WRF) core and the NMM (Nonhydrostatic Mesoscale Model) core. The ARW configuration was used for the Draft 2024 PM_{2.5} Plan modeling analysis. The ARW is primarily developed and maintained by the NCAR Mesoscale and Microscale Meteorology Laboratory.

The WRF model is a fully compressible and nonhydrostatic model (with a run-time hydrostatic option). For vertical coordinate, the model uses either a terrain-following (TF) or hybrid vertical coordinate (HVC). The grid staggering is the Arakawa C-grid¹ (Skamarock, W. C., 2019). It uses a time-split small step for acoustic and gravity-wave modes. The dynamics conserve scalar variables. The WRF is designed to be a flexible, state-of-the-art atmospheric simulation system that is portable and efficient on parallel computing platforms.

The WRF simulation domain designed for the Draft 2024 PM_{2.5} Plan encompasses the greater Los Angeles and suburban areas, its surrounding mountains, and ocean off the coast of the Basin, as shown in Figure II-3-6. WRF simulations were conducted with three nested domains at grid resolutions of 36 km, 12 km, and 4 km. The innermost domain has 163 by 115 grid points, which span 652km by 460km in east-west and north-south directions, respectively. Figure II-3-6 also shows the relative locations and sizes of the three nested grids. The innermost domain presented in Figure II-3-6, excluding three boundary columns and rows, served as the CMAQ (Community Multiscale Air Quality Model) chemical transport modeling domain.

The WRF simulation employed 30 layers vertically with the lowest computational layer at approximately 20 m above ground level (agl) and the top layer at 50 hPa. Four-Dimensional Data Assimilation (FDDA) was conducted using grid analysis data enhanced with available surface and vertical sounding data. Sea surface temperatures (SST) are a critical control on the land-sea breeze and up-slope/down-slope flow. SST data from the Global Data Assimilation Experiment (GODAE) were used to update the WRF modeling every 6 hours to better represent the sea surface temperature. The Yon-Sei University (YSU) scheme² (Hong and

¹ Skamarock, W. C., J. B. Klemp, J. Dudhia, D. O. Gill, Z. Liu, J. Berner, W. Wang, J. G. Powers, M. G. Duda, D. M. Barker, and X.-Y. Huang (2019). A Description of the Advanced Research WRF Version 4. NCAR Tech. Note NCAR/TN-556+STR, 145 pp.
doi:10.5065/1dfh-6p97

² Hong, S.-Y., and H.-L. Pan (1996). Nonlocal boundary layer vertical diffusion in a medium-range forecast model. *Mon. Wea. Rev.*, 124, 2322–2339, doi:10.1175/1520-0493

Pan, 1996) was used to model the planetary boundary layer (PBL). The flowchart (Figure II-3-7) of WRF simulation shows the meteorology input data, processing steps, observation nudging, and one-way nesting for high resolution inner domain.

After careful testing of different WRF physics options, the longwave radiation scheme of Rapid Radiative Transfer Model (RRTM)³, the shortwave radiation scheme of Dudhia⁴ and WRF Single-Moment 3-class scheme of micro physics were chosen for simulations. Kain-Fritsch cumulus schemes⁵ were used in all three domains. The Pleim-Xiu land surface model (LSM) is used.

³ Mlawer, E. J., S. J. Taubman, P. D. Brown, M. J. Iacono, and S. A. Clough (1997). Radiative transfer for inhomogeneous atmosphere: RRTM, a validated correlated-k model for the longwave. *J. Geophys. Res.*, 102 (D14), 16 663 - 16 682.

⁴ Dudhia, J. (1989), Numerical study of convection observed during the winter monsoon experiment using a mesoscale two-dimensional model, *J. Atmos. Sci.*, 46(20), 3077–3107, doi:10.1175/1520-046919890463C3077:NSOCOD3E2.0.CO;2. 16 682.

⁵ Kain, J.S. (2004). The Kain–Fritsch Convective Parameterization: An Update. *J. Appl. Meteor.*, 43, 170–181.

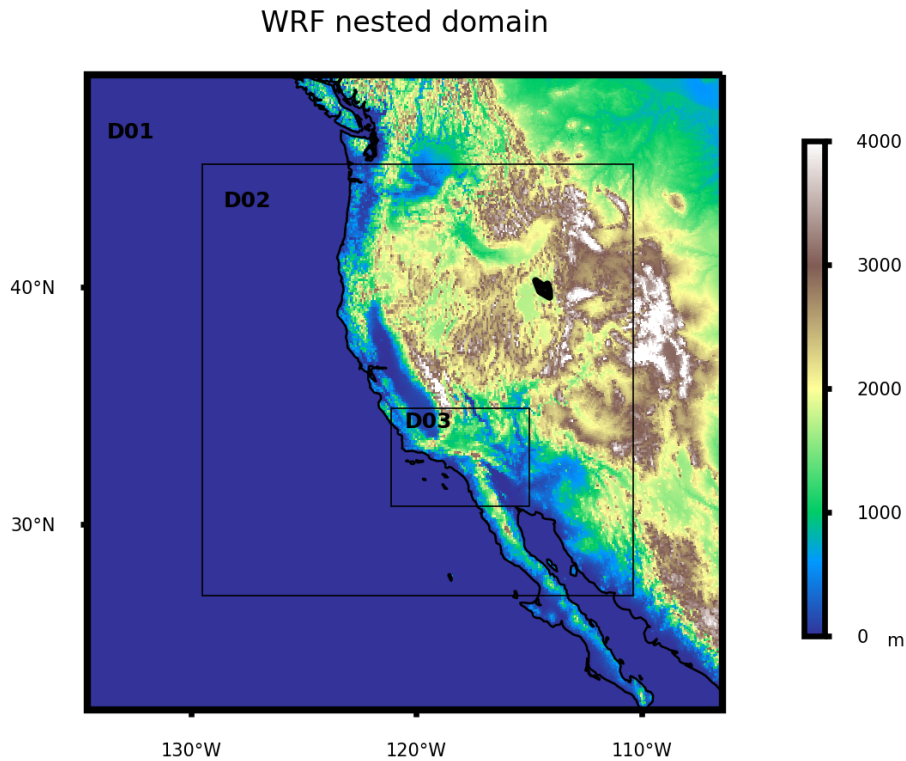


FIGURE II-3-6

THREE NESTED MODELING DOMAINS EMPLOYED IN THE WRF SIMULATIONS. COLOR SCALE INDICATES ELEVATION.

Table II-3-1 below provides a summary of the WRF configuration of the major options relevant for air quality modeling used for the ~~Draft 2024~~ PM_{2.5} Plan in comparison with the 2022 AQMP. Major parameters used for the ~~Draft 2024~~ PM_{2.5} Plan are similar to those used for the 2022 AQMP.

TABLE II-3-1

OVERVIEW OF WRF CONFIGURATION FOR DRAFT 2024-PM2.5 PLAN IN COMPARISON WITH 2022 AQMP

Component	2022 AQMP	Draft 2024-PM2.5 Plan
Numerical Platform	WRF v4.0.3	WRF v4.4.2
Number of domains	3 nested domains	
Nested Domain setting	D01: 36 km (83 X 83)	
	D02: 12 km (169 X 169)	
	D03: 4 km (163 X 115)	
Number of vertical layers	30 layers, the lowest layer is at ~ 20 m agl.	
Simulation Length	4 days with 24-hour spin-up	
Initial and boundary values	NCEP NARR ¹ Re-analysis (32 km X 32 km)	
Sea Surface Temperature	GHRST ²	
Boundary layer scheme	YSU ³ scheme	
Land Surface model	Unified Noah	Pleim-Xiu
Cumulus parameterization	Kain-Fritsch	
Micro physics	WRF Single-Moment 3-class	
Radiation	RRTM scheme for longwave, Dudhia scheme for shortwave	
Four-dimensional data analysis	Analysis nudging with NWS surface and upper air Measurements	

¹NARR - North American Regional Reanalysis

²GHRST - The Group for High Resolution Sea Surface Temperature (<https://www.ghrsst.org/>)

³YSU - Yon-Sei University

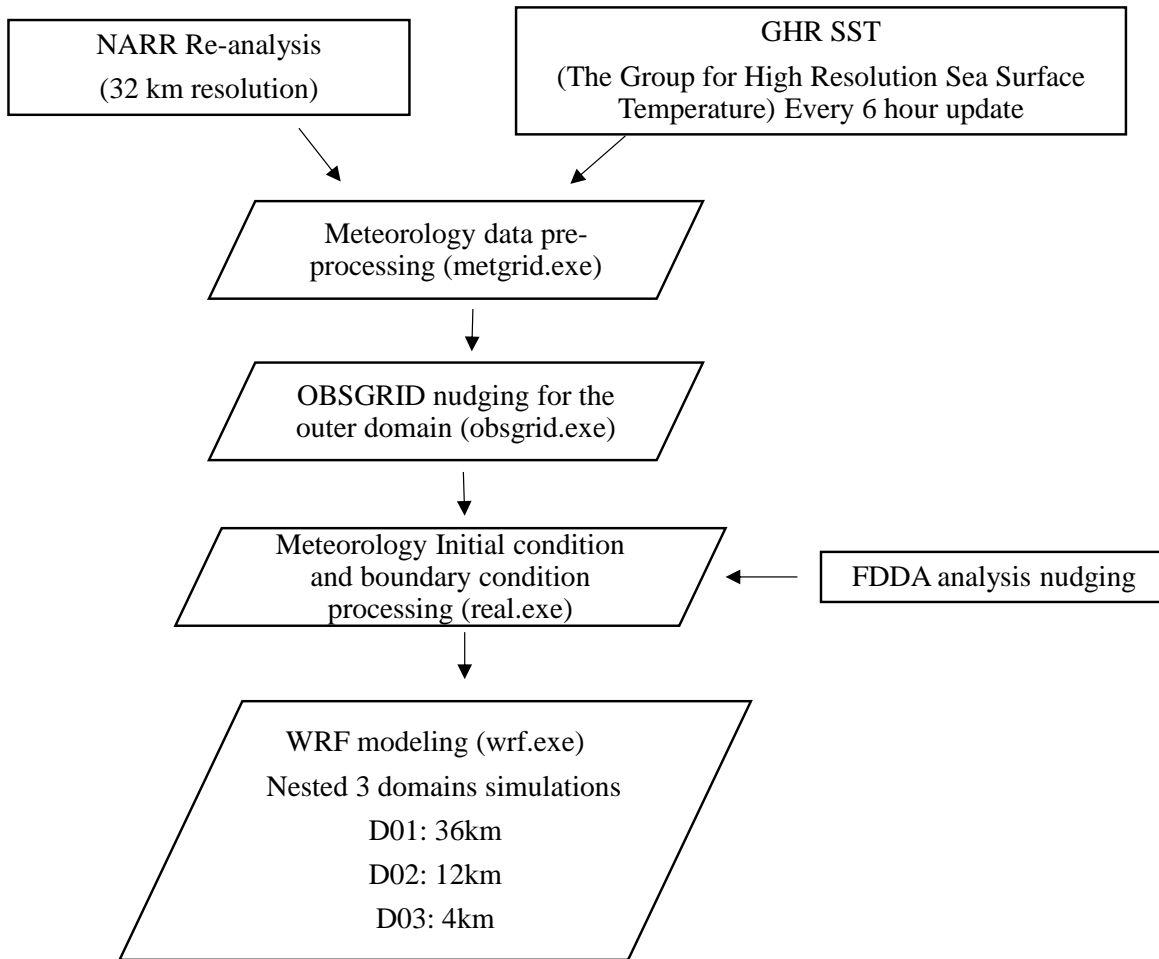


FIGURE II-3-7

FLOWCHART OF WRF SIMULATION FOR 2024 DRAFT PM_{2.5} PLAN

Model Performance Evaluation: Surface Level

The performance of the WRF simulations is summarized in Table II-3-2 for 4 quarters of 2018. All the results shown in Table II-3-2 are averaged values for the 15 airport weather stations. Overall, WRF simulations for 4 quarters provided representative meteorological fields that well characterized observed conditions in 2018. These fields were used directly in the CMAQ joint particulate simulations.

The performance of WRF simulations used as transport fields for CMAQ modeling is shown in Figure II-3-8 through Figure II-3-16. The model performance was evaluated for each month at airport stations in the model domain for January through December 2018. For simplicity, only one summer month (July) and one winter month (January) are shown in Figure II-3-8 through Figure II-3-16.

Three weather stations are carefully selected from near coastal areas (HHR, Hawthorne municipal Airport) through inland Orange County (FUL, Fullerton Municipal airport) to further east in San Bernardino County (CNO, Chino Airport) for surface level model performance evaluations. Diurnal variations of temperature,

humidity and surface wind were well represented by the WRF simulations. Temperature and wind speed predictions were more accurate in the summer season than the winter months (Figure II-3-8 – Figure II-3-13). The observed temperature gradient from the coastal station of HHR to the inland station of CNO was also well characterized by the WRF model. Median observed summer temperatures in 2018 were 296.6, 298.7, and 300.9 K at HHR, FUL and CNO, respectively. The WRF model showed similar median temperature for these stations. Temperature is one of the key factors for atmospheric photochemical reactions, and high temperature is favorable for ozone formation. For the stations of CNO, the WRF simulations showed slight underestimation of daily high temperatures during July 2018. At the station of FUL and HHR, the WRF simulation showed better performance in predicting daily high temperatures in the summer. During the winter, daily high temperature predictions were closer to observed values during the 2nd half of January 2018 at all three stations. While the model tended to overpredict the daily minimum temperatures during the 2nd half of January 2018 at CNO and FUL.

Both observational data and WRF simulations at all stations showed distinct diurnal variations in wind speed during the summer, with a strong sea breeze in the early afternoon. Mostly, stronger wind speed indicates less accumulation of air pollutants. Daily maximum wind speeds were relatively consistent throughout July 2018, with much more variability observed during January 2018 (e.g., range of daily maximum wind speeds from ~2-13 m/s during January at CNO from both measurements and simulations). The model performance in predicting the wind speed was significantly better for July 2018 compared to January 2018 at all stations; R values for model-observation correlations were 0.81, 0.70, and 0.78 in July 2018 at CNO, FUL, and HHR stations, respectively. It is noticed that the model underestimated daily maximum wind speeds at the HHR station during July 2018.

The WRF model predicted water vapor mixing ratio trends well at all stations. The WRF simulations yield water vapor mixing ratios comparable to observed values in both January and July. The model-observation correlation coefficients are 0.85, 0.87, and 0.89 in January 2018 and 0.72, 0.70, and 0.71 in July 2018 at CNO, FUL, and HHR stations, respectively.

TABLE II-3-2

WRF PERFORMANCE STATISTICS FOR QUARTER AVERAGE OF 2018 AT 15 NWS STATIONS

	Statistic	Q1	Q2	Q3	Q4
T	T Mean Observation (K)	288.1	291.8	297.8	290.4
	T Mean Simulation (K)	287.1	292	297.4	289.6
	T Bias (K)	-1	0.2	-0.3	-0.8
	T Gross Error (K)	2	1.4	1.4	1.7
	T RMSE (K)	2.7	1.9	1.9	2.3
	Q Mean Observation (K)	5.8	8.1	10.8	6.6
Q	Q Mean Simulation (K)	6	8.5	12.2	7.3
	Q Bias (K)	0.3	0.4	1.4	0.7
	Q Gross Error (K)	1	0.9	1.7	1.3
	Q RMSE (K)	1.5	1.3	3	2
	WS Mean Observation (kg/kg)	2	2.7	2.6	1.9
WS	WS Mean Simulation (kg/kg)	2.1	2.5	2.5	1.9
	WS Bias (kg/kg)	0.1	-0.2	-0.1	0
	WS Gross Error (kg/kg)	1.4	1.2	1.1	1.4
	WS RMSE (kg/kg)	1.8	1.6	1.4	1.9

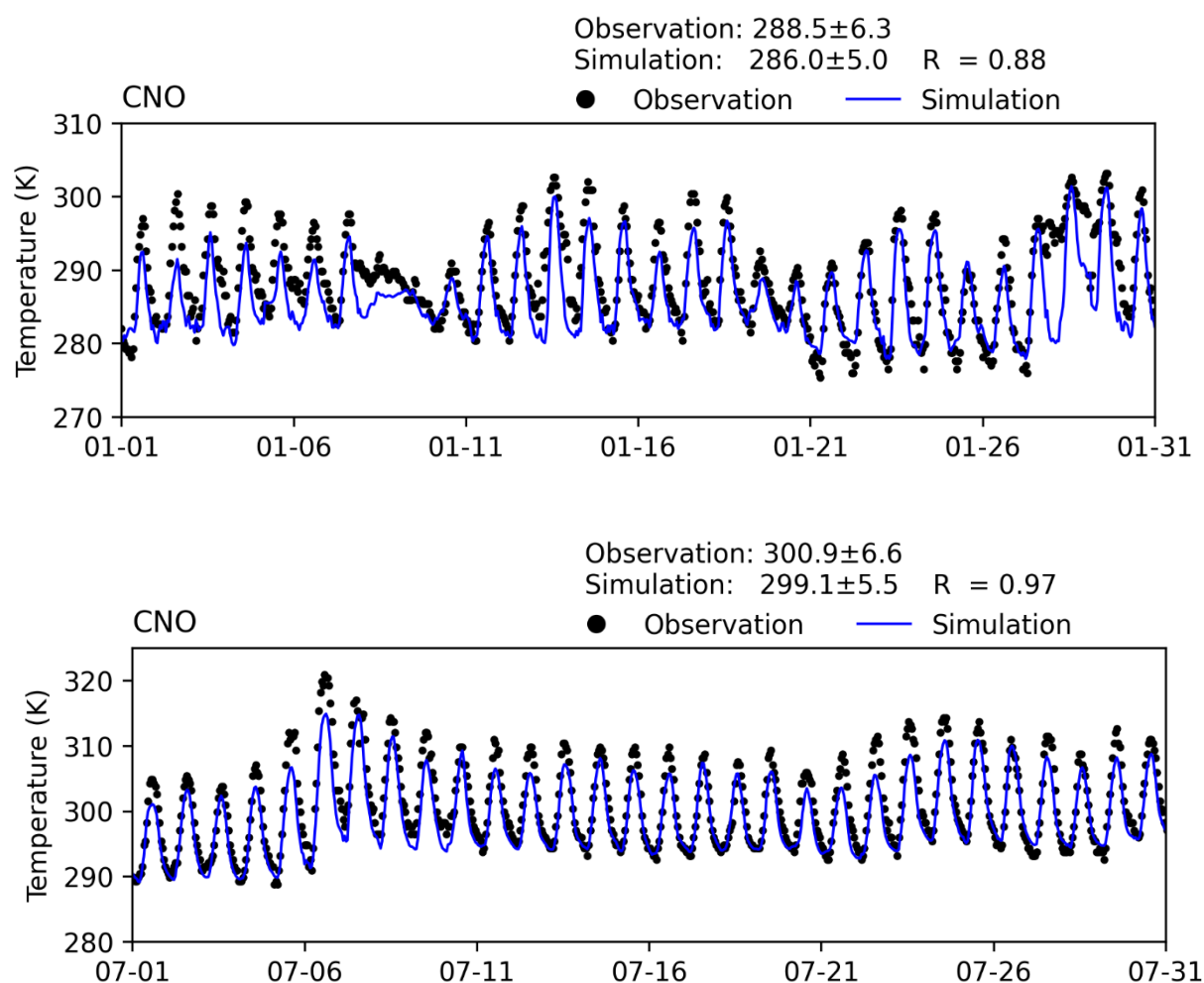


FIGURE II-3-8

TIME SERIES OF HOURLY TEMPERATURE FROM MEASUREMENT AND WRF SIMULATIONS AT CHINO (CNO) STATION FOR JANUARY 2018 AND JULY 2018

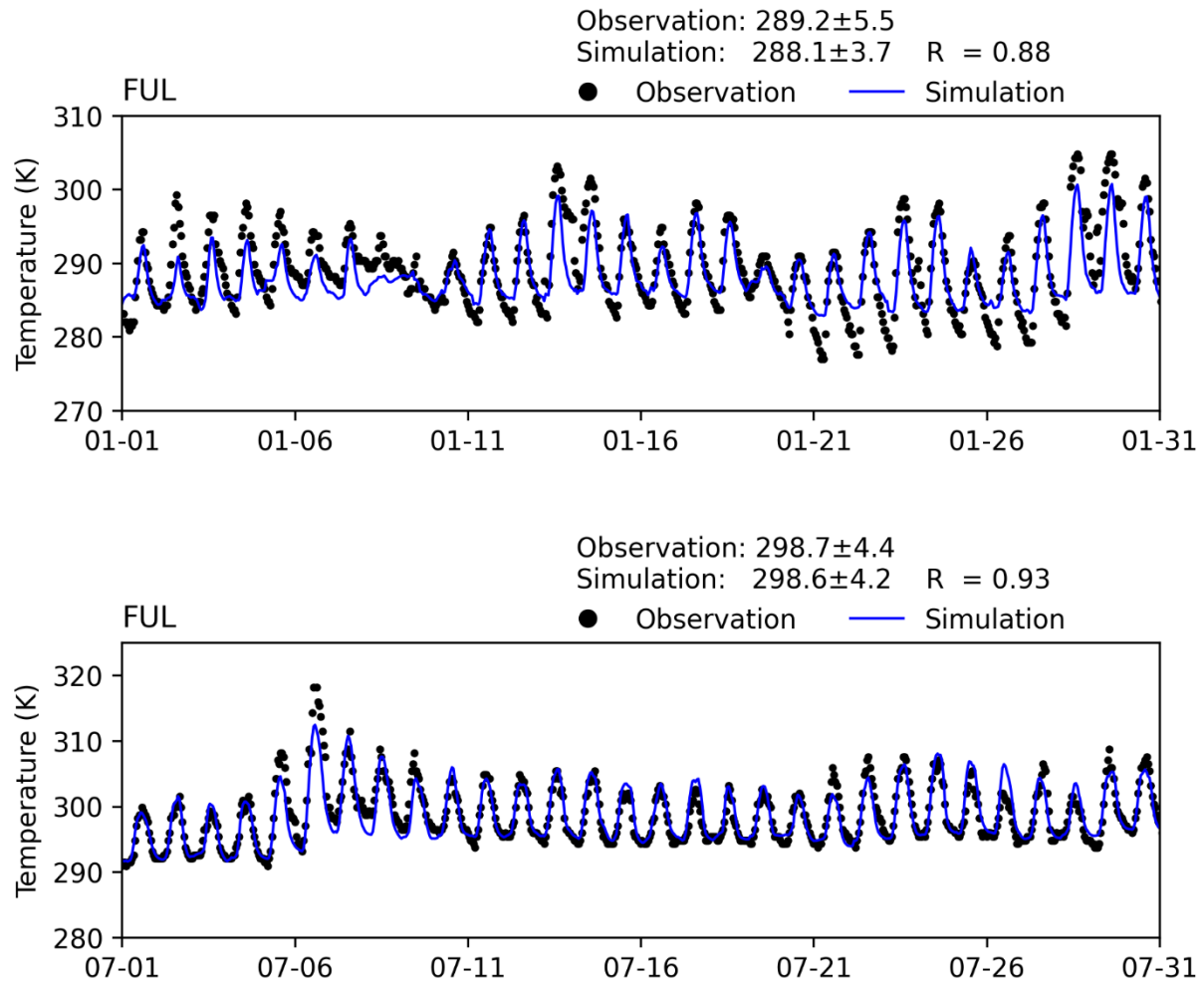


FIGURE II-3-9

TIME SERIES OF HOURLY TEMPERATURE FROM MEASUREMENTS AND WRF SIMULATIONS AT FULLERTON (FUL) STATION FOR JANUARY 2018 AND JULY 2018

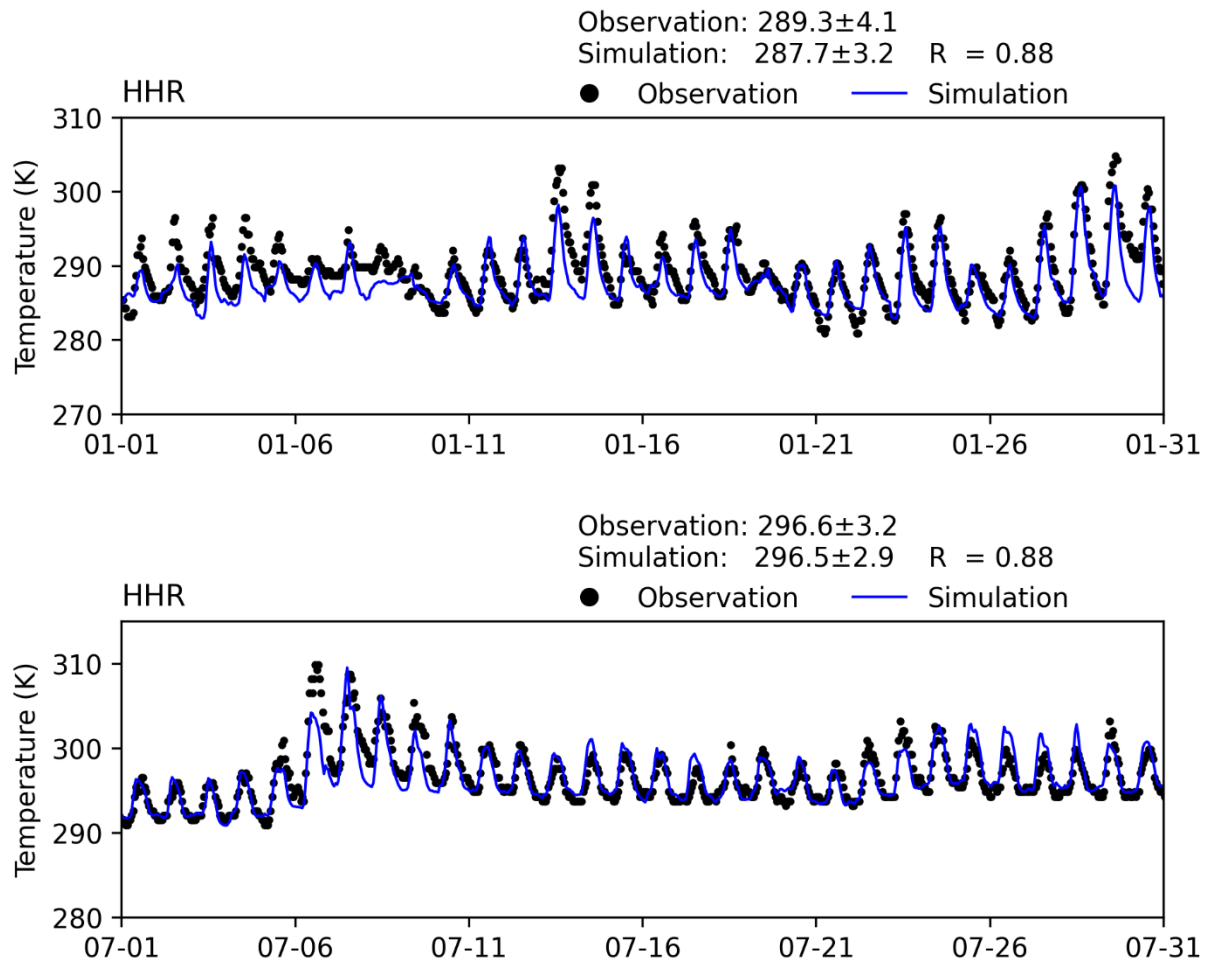


FIGURE II-3-10

TIME SERIES OF HOURLY TEMPERATURE FROM MEASUREMENTS AND WRF SIMULATIONS AT
HAWTHORNE (HHR) STATION FOR JANUARY 2018 AND JULY 2018

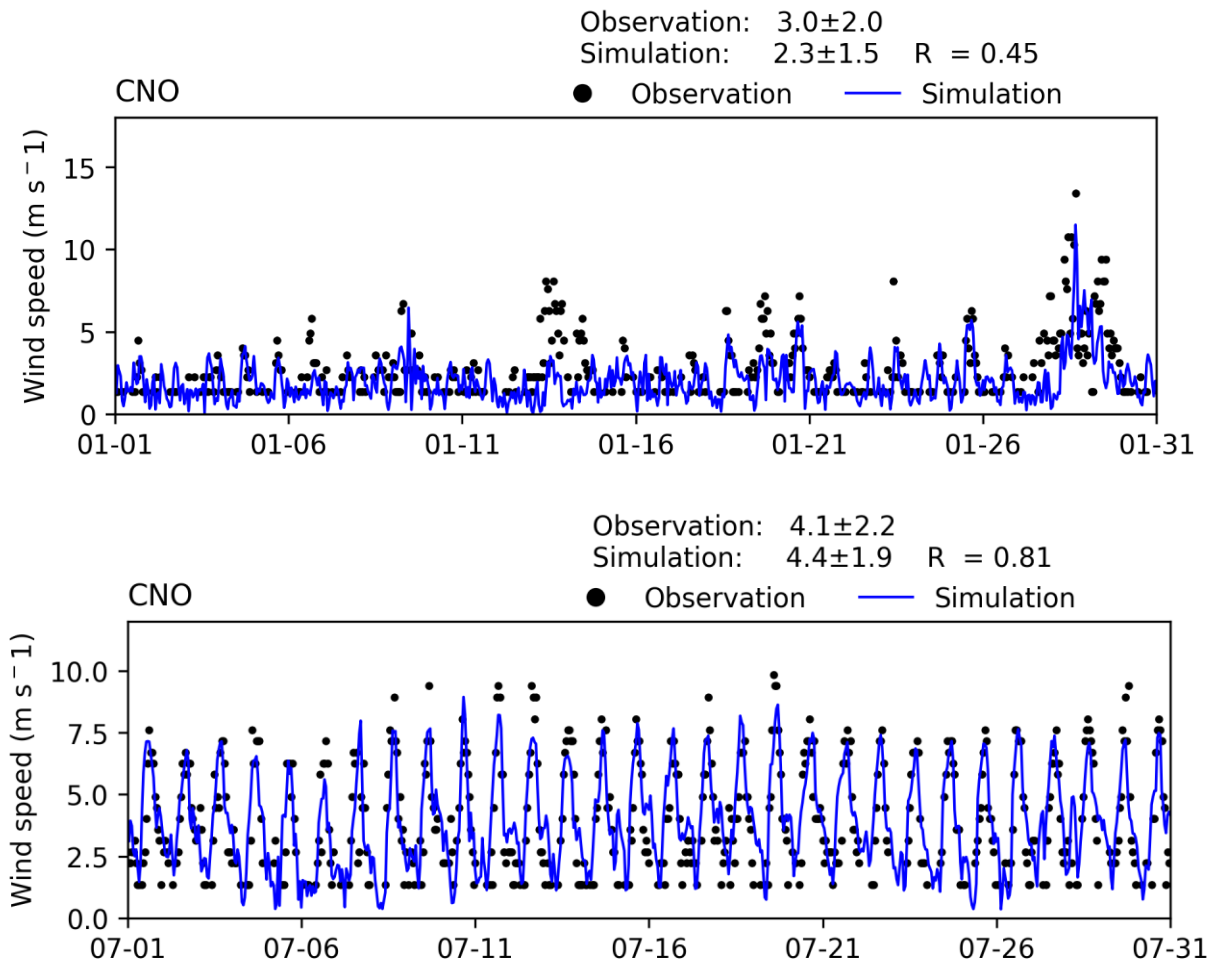


FIGURE II-3-11

TIME SERIES OF HOURLY WIND SPEED FROM MEASUREMENTS AND WRF SIMULATIONS AT CHINO (CNO) STATION FOR JANUARY 2018 AND JULY 2018

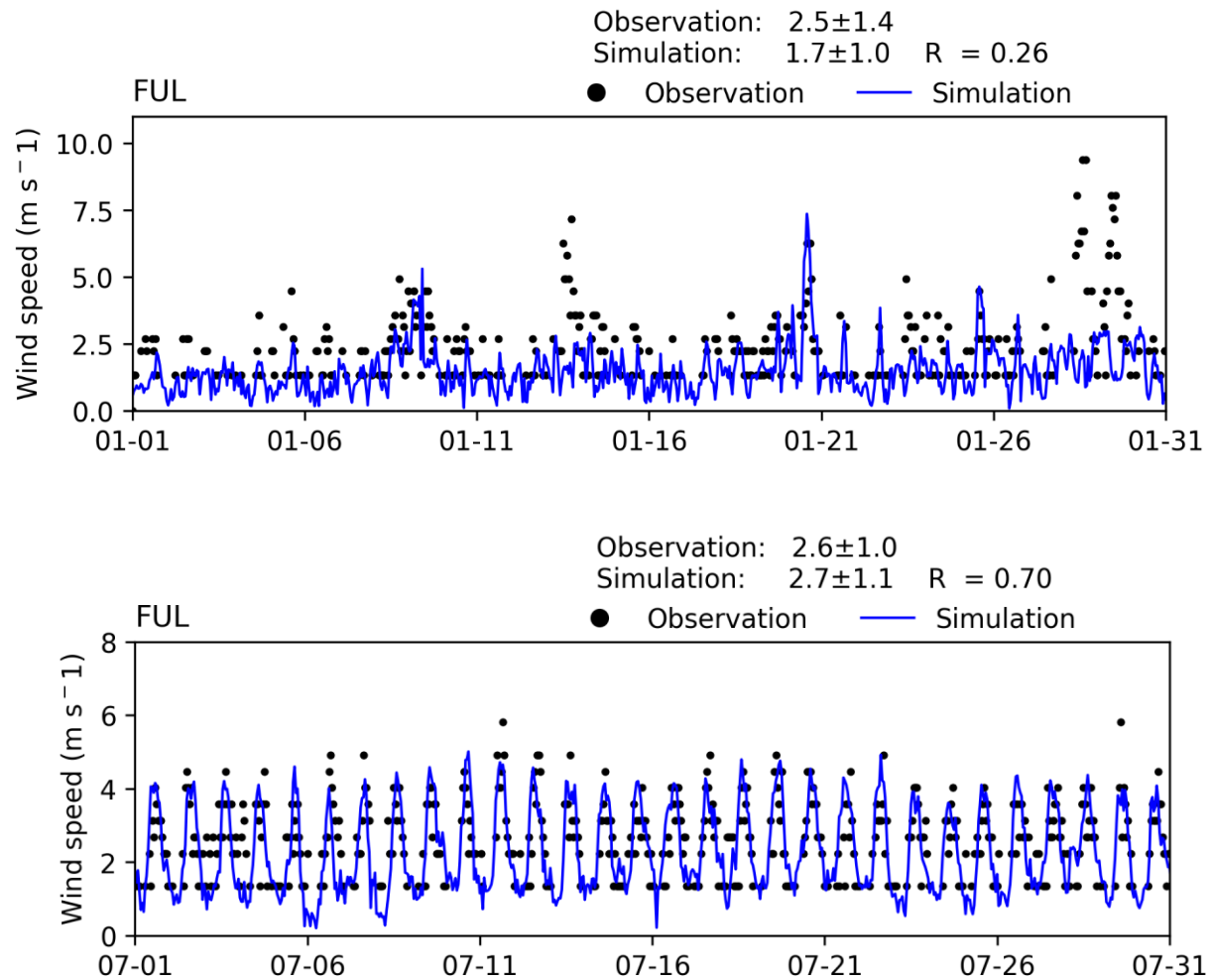


FIGURE II-3-12

TIME SERIES OF HOURLY WIND SPEED FROM MEASUREMENTS AND WRF SIMULATIONS AT
FULLERTON (FUL) STATION FOR JANUARY 2018 AND JULY 2018

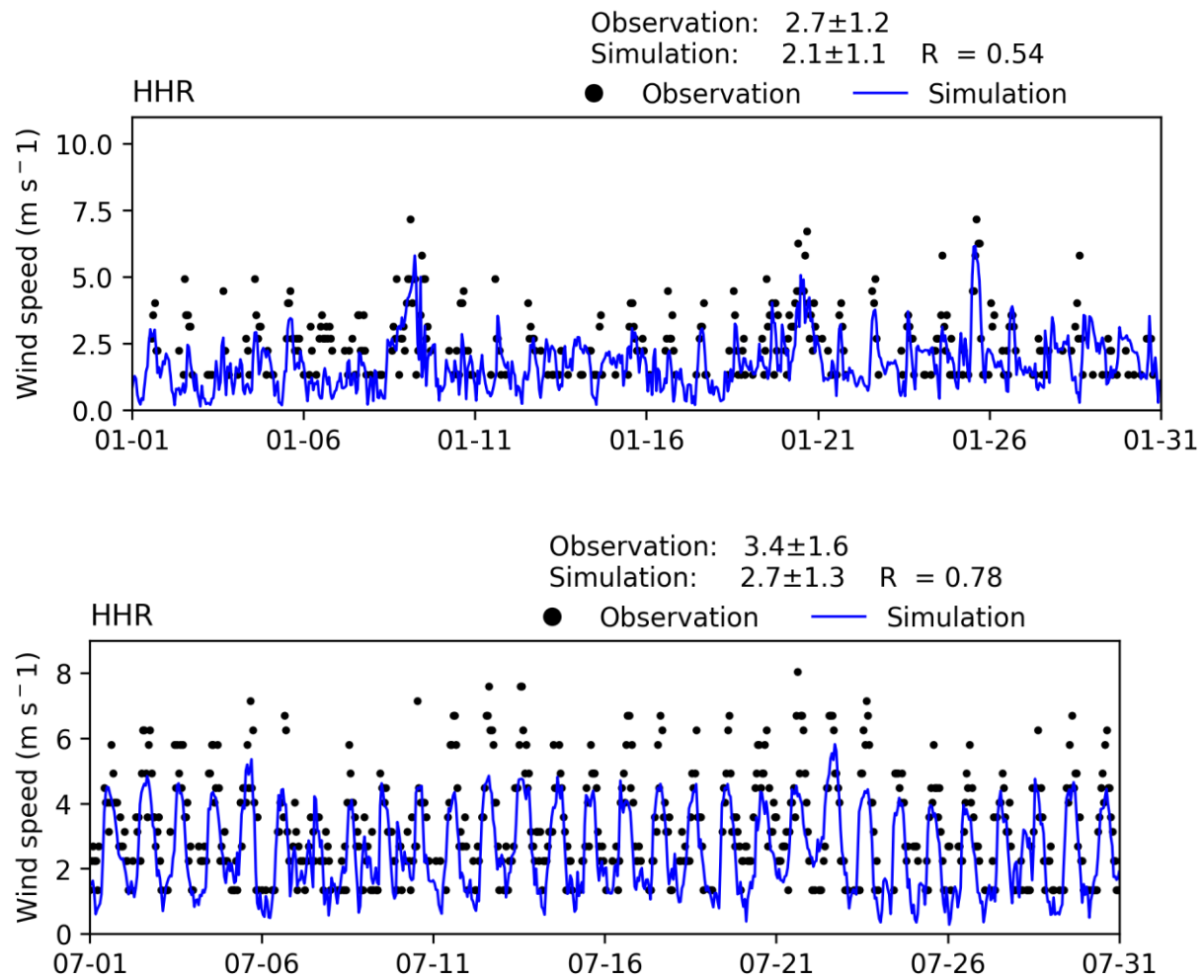


FIGURE II-3-13

TIME SERIES OF HOURLY WIND SPEED FROM MEASUREMENTS AND WRF SIMULATIONS AT HAWTHORNE (HHR) STATION FOR JANUARY 2018 AND JULY 2018

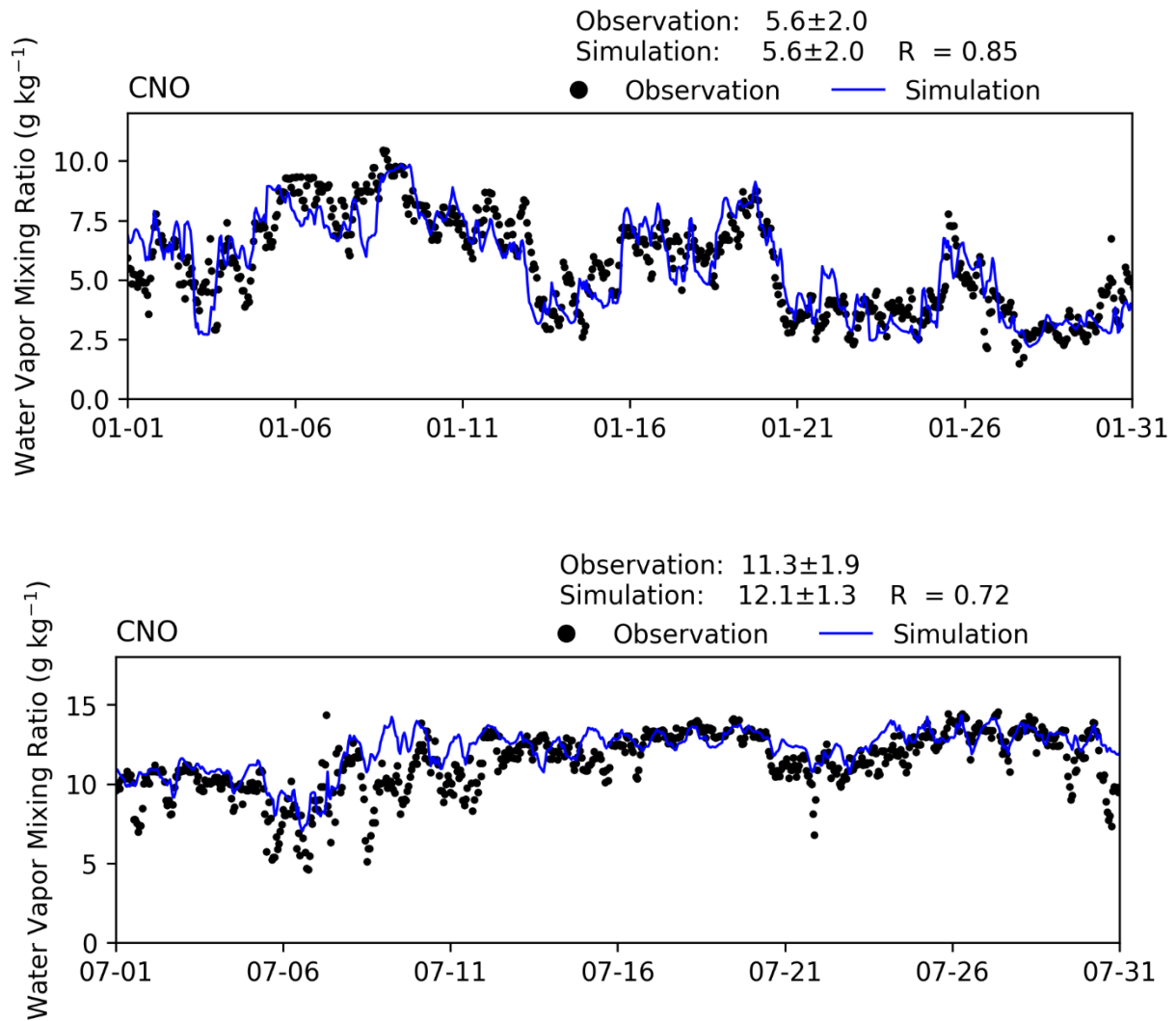


FIGURE II-3-14

TIME SERIES OF HOURLY WATER VAPOR MIXING RATIO FROM MEASUREMENTS AND WRF SIMULATIONS AT CHINO (CNO) STATION FOR JANUARY 2018 AND JULY 2018

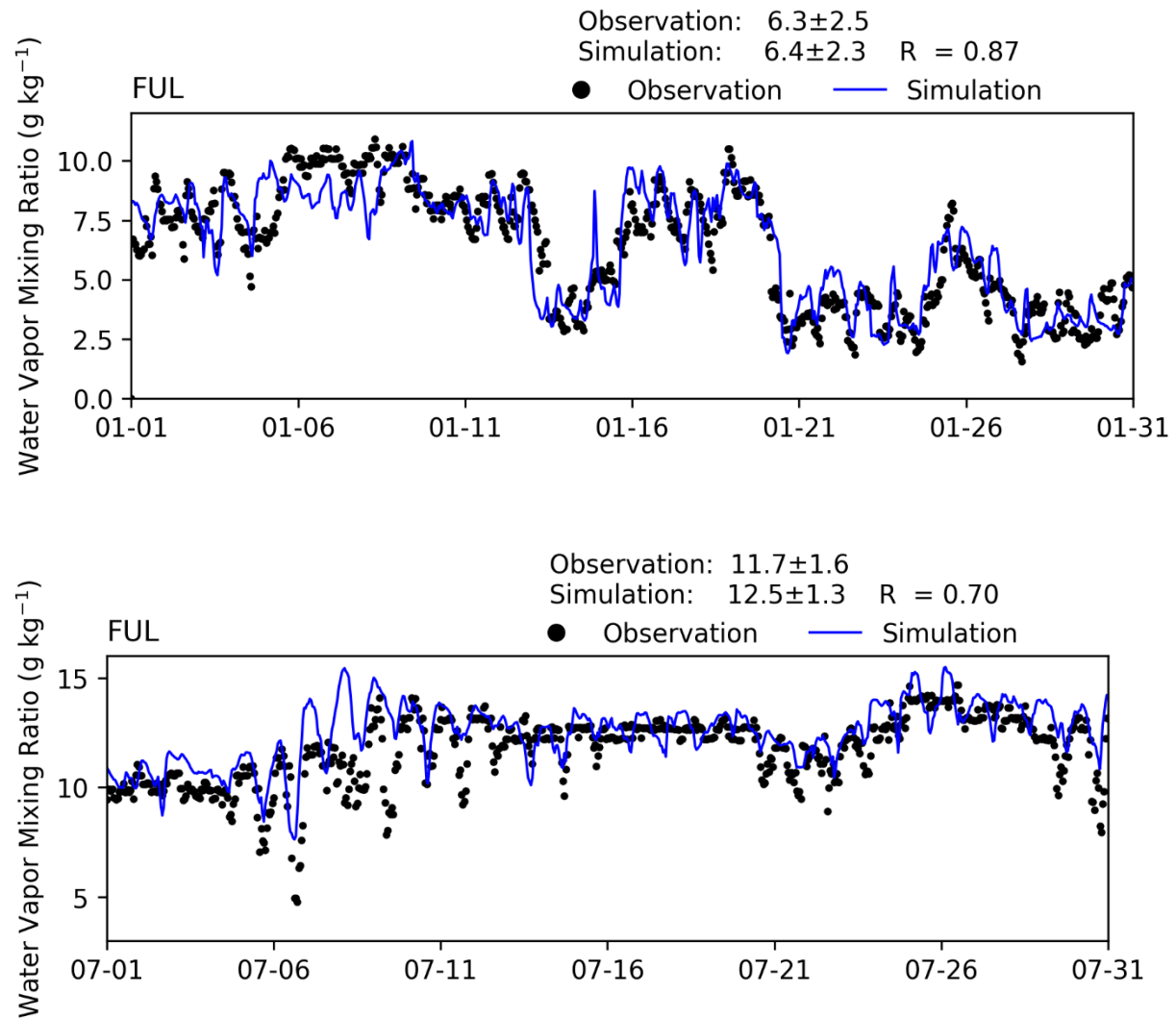


FIGURE II-3-15

TIME SERIES OF HOURLY WATER VAPOR MIXING RATIO FROM MEASUREMENTS AND WRF SIMULATIONS AT FULLERTON (FUL) STATION FOR JANUARY 2018 AND JULY 2018

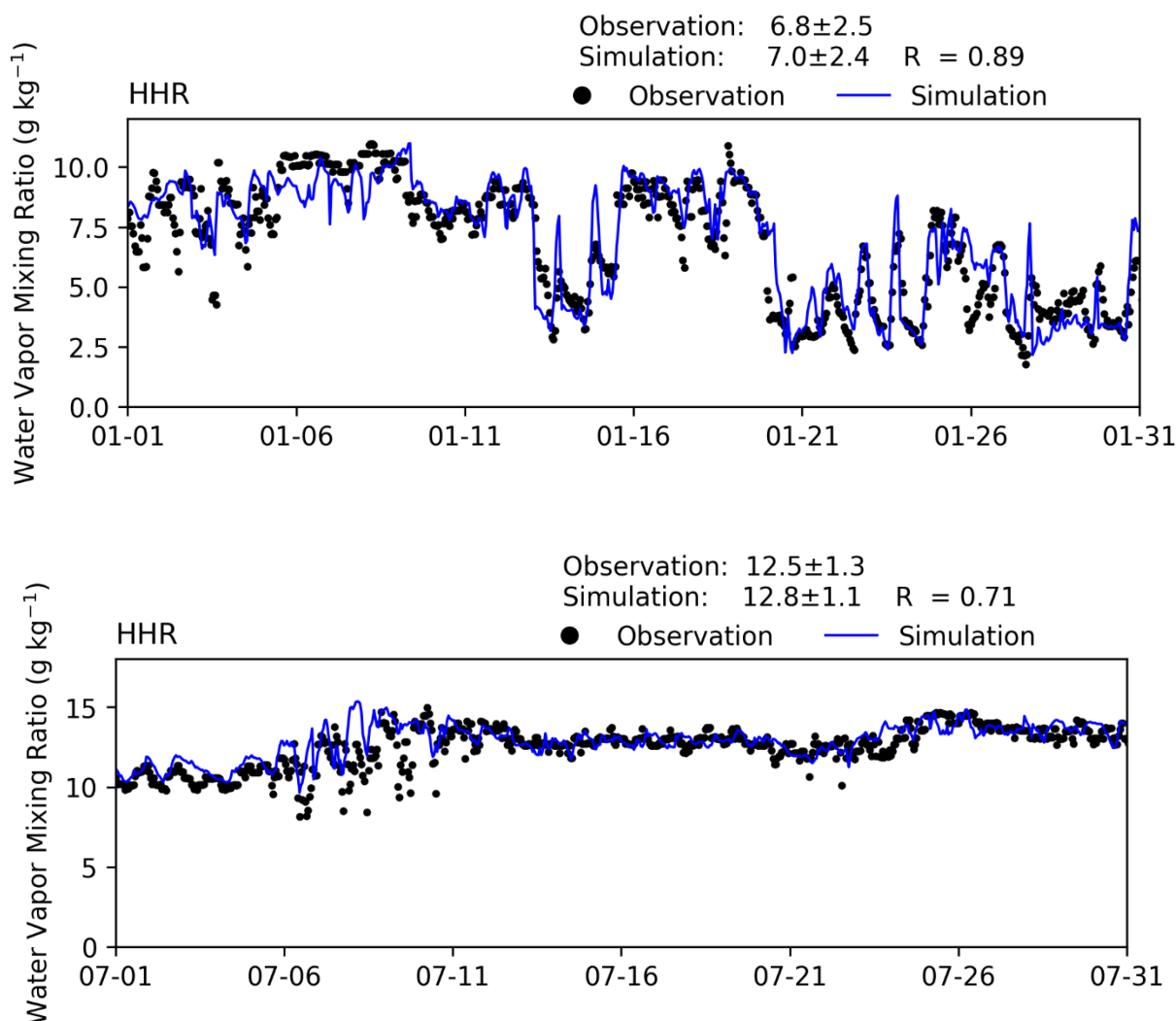


FIGURE II-3-16

TIME SERIES OF HOURLY WATER VAPOR MIXING RATIO FROM MEASUREMENTS AND WRF SIMULATIONS AT HAWTHORNE (HHR) STATION FOR JANUARY 2018 AND JULY 2018

Model Performance Evaluation: Diurnal Variations

Comparisons of simulated and measured monthly average diurnal temperature and water vapor mixing ratio variations at the Fullerton (FUL) station are shown in Figure II-3-17 and Figure II-3-18. Seasonal differences between summer and winter, as represented by July and January, respectively, and diurnal patterns were well reproduced in the WRF simulation. For example, daily temperatures in both observed and simulated diurnal profiles peaked around 14:00 local time during summer (~ 297 K) and winter (~ 290 K). Water vapor mixing ratios did not exhibit distinct diurnal variation in either observed or simulated data.

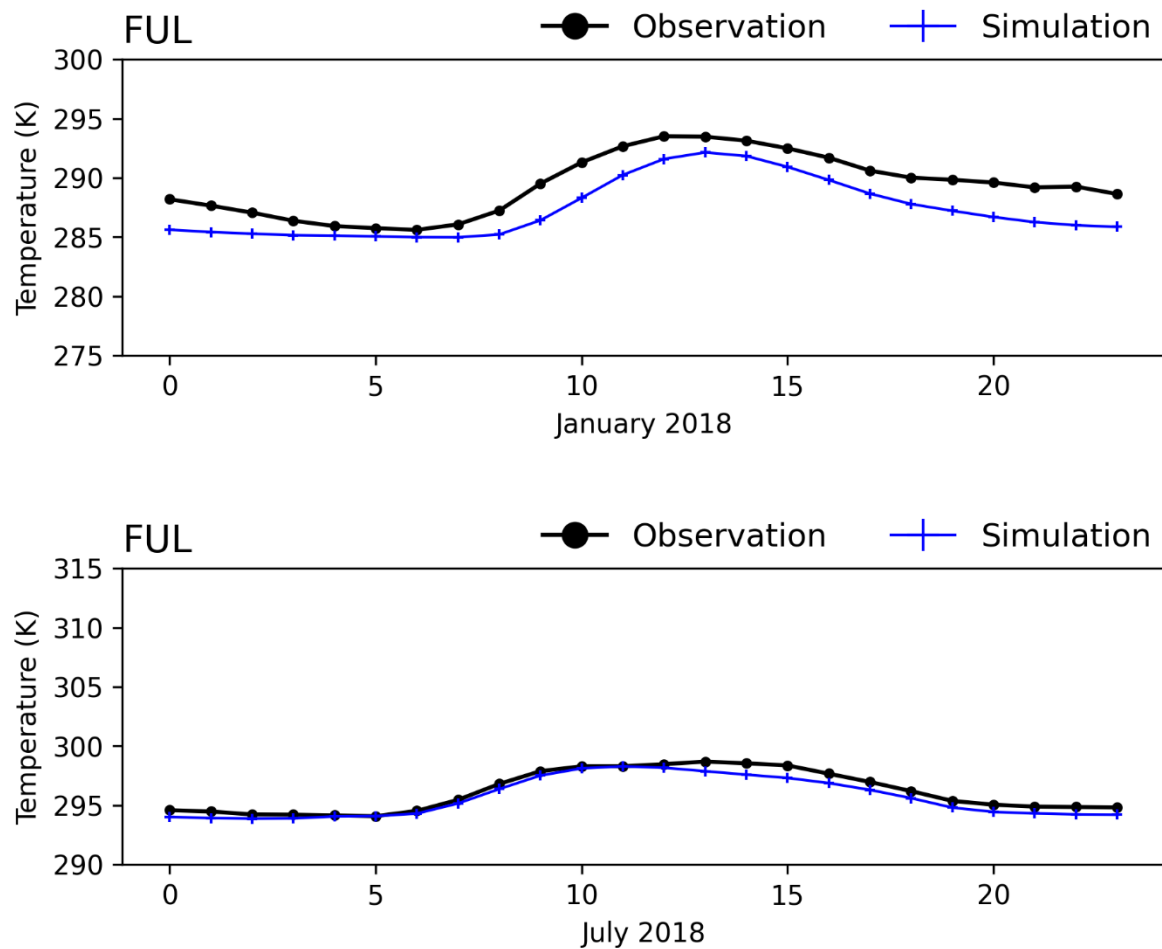


FIGURE II-3-17

MEASURED VS. SIMULATED COMPOSITE DIURNAL TEMPERATURE VARIATION AT FULLERTON (FUL) STATION FOR JANUARY 2018 AND JULY 2018

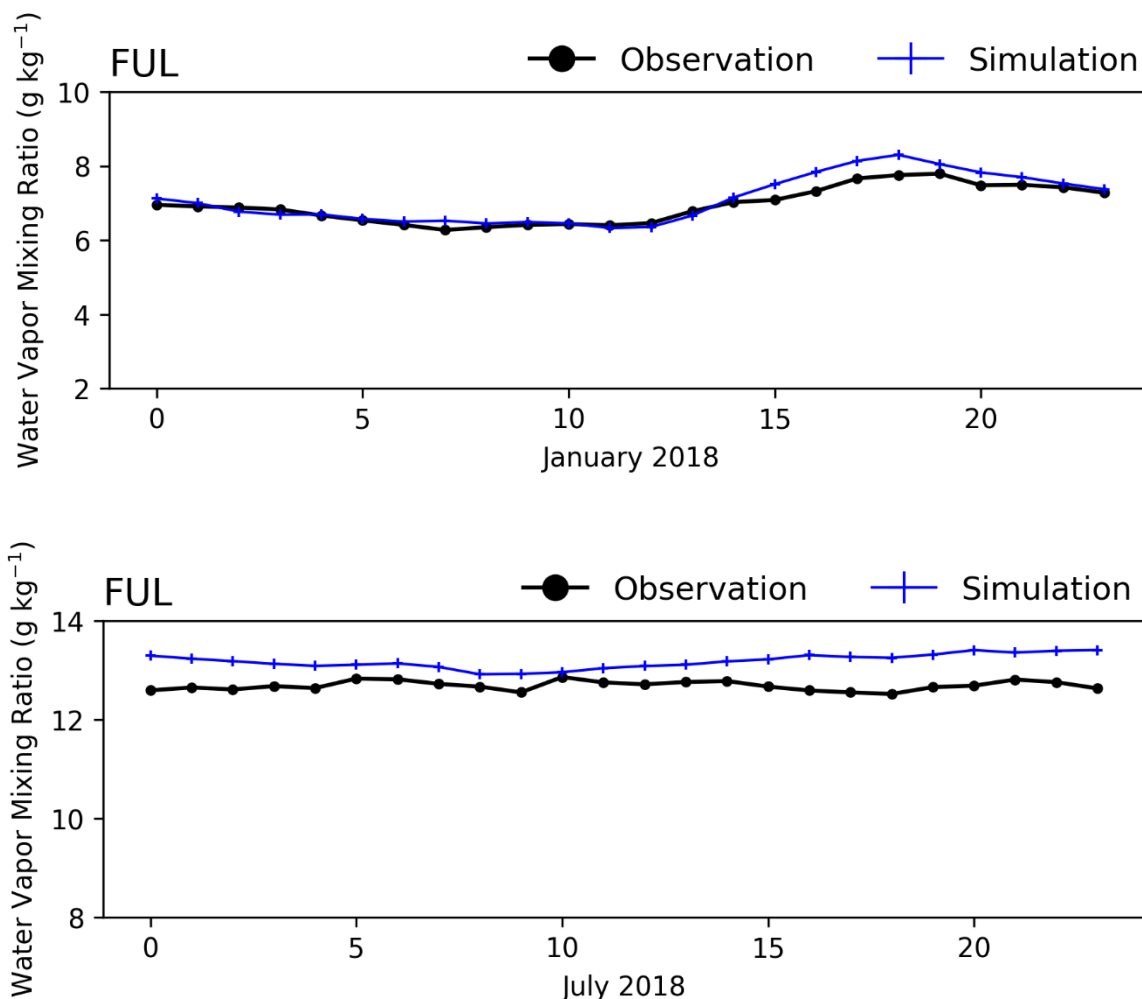


FIGURE II-3-18

WATER VAPOR MIXING RATIO AT FULLERTON (FUL) STATION FROM MEASUREMENTS AND WRF SIMULATIONS FOR JANUARY 2018 AND JULY 2018

Model Performance Evaluation: Wind Rose

The measured and WRF simulated wind rose at each station for 1-year period of January – December 2018 are shown in Figure II-3-19 – Figure II-3-23. Consistent with the sections above, the wind rose at HHR (near coastal areas), FUL (inland Orange County) and CNO (further east in San Bernardino County) are presented. Another two stations: BUR (inland Los Angeles County) and ONT (San Bernardino County) are included as well to evaluate the model performance in further downwind areas. In general, the WRF simulations reproduce the dominant wind direction as the measurements at each station. For example, model and observations both show that westerly and south-westerly directions are the prevailing wind directions for the stations of CNO, FUL, HHR and ONT. The wind direction is mostly from the southeast at the BUR station, as presented in both observations and simulations. For the wind speed, among the five

stations, the FUL and BUR stations have calm winds, mostly under 6 m/s, while other stations showed stronger wind between 6 - 8 m/s. In general, the WRF simulation underestimates the observed wind speed at HHR and ONT stations. Overall, WRF simulates surface wind speed and direction reasonably well as shown in the wind roses.

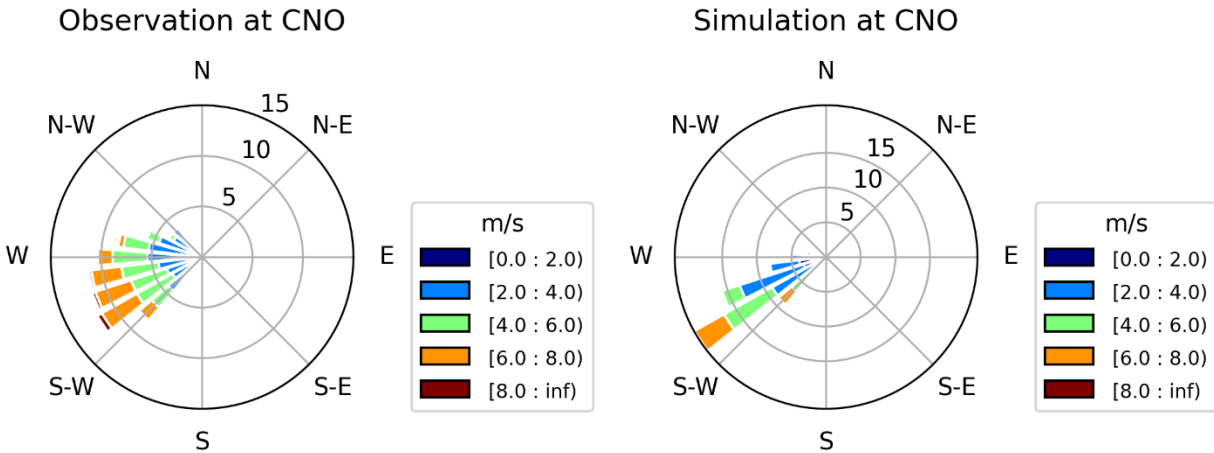


FIGURE II-3-19

WIND ROSE FROM MEASUREMENT AND WRF SIMULATION AT CHINO (CNO) STATION IN 2018

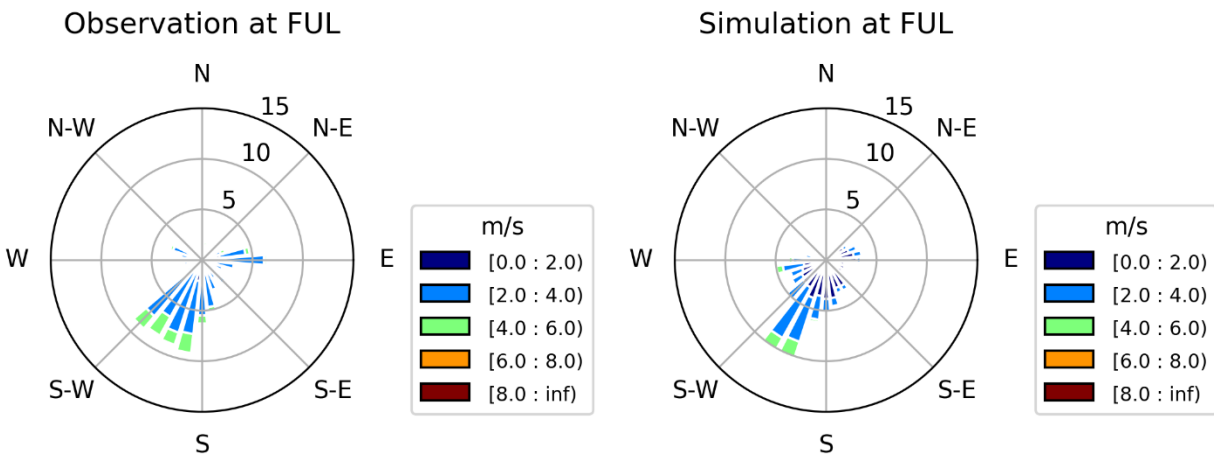


FIGURE II-3-20

WIND ROSE FROM MEASUREMENT AND WRF SIMULATION AT FULLERTON (FUL) STATION IN 2018

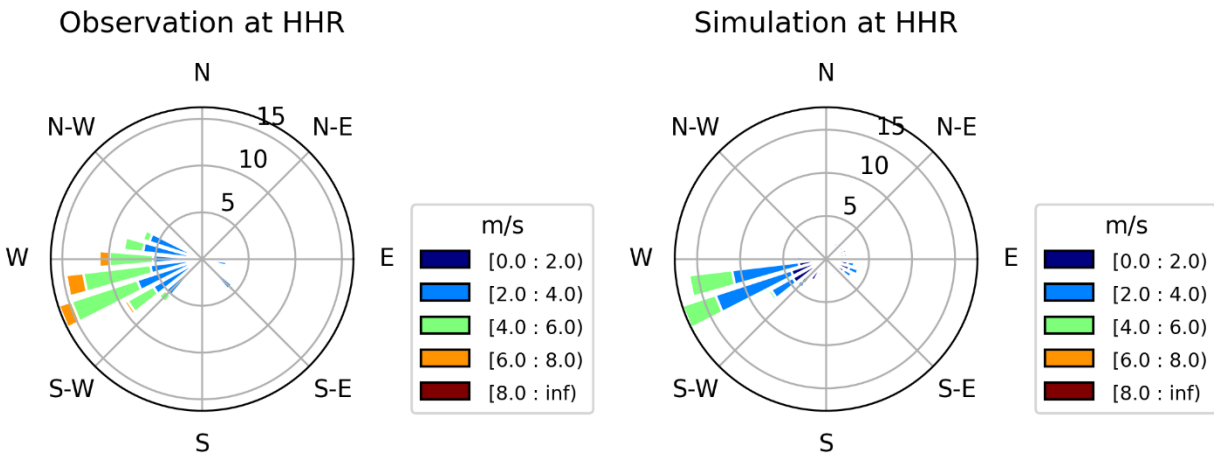


FIGURE II-3-21

WIND ROSE FROM MEASUREMENT AND WRF SIMULATION AT HAWTHORNE (HHR) STATION IN 2018

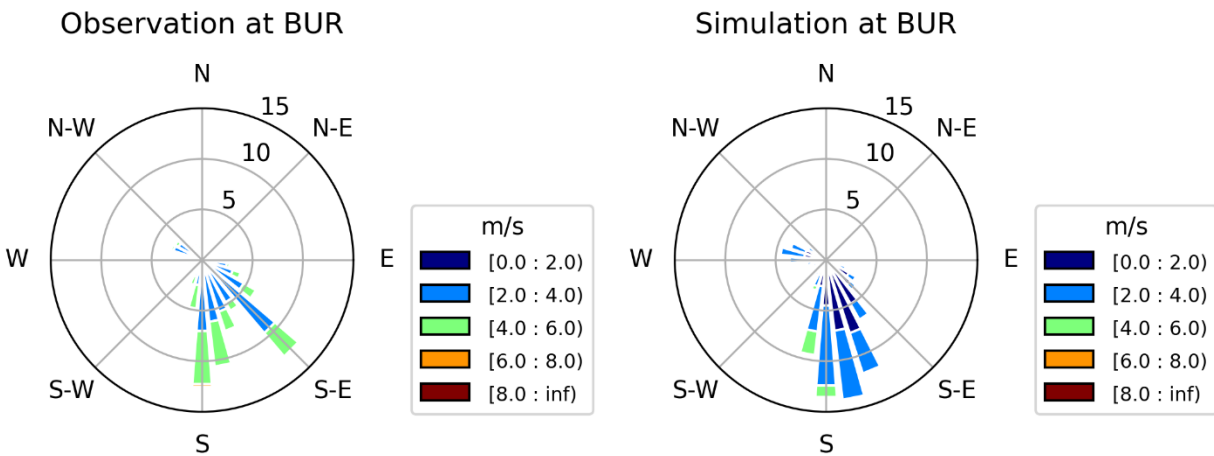


FIGURE II-3-22

WIND ROSE FROM MEASUREMENT AND WRF SIMULATION AT BURBANK (BUR) STATION IN 2018

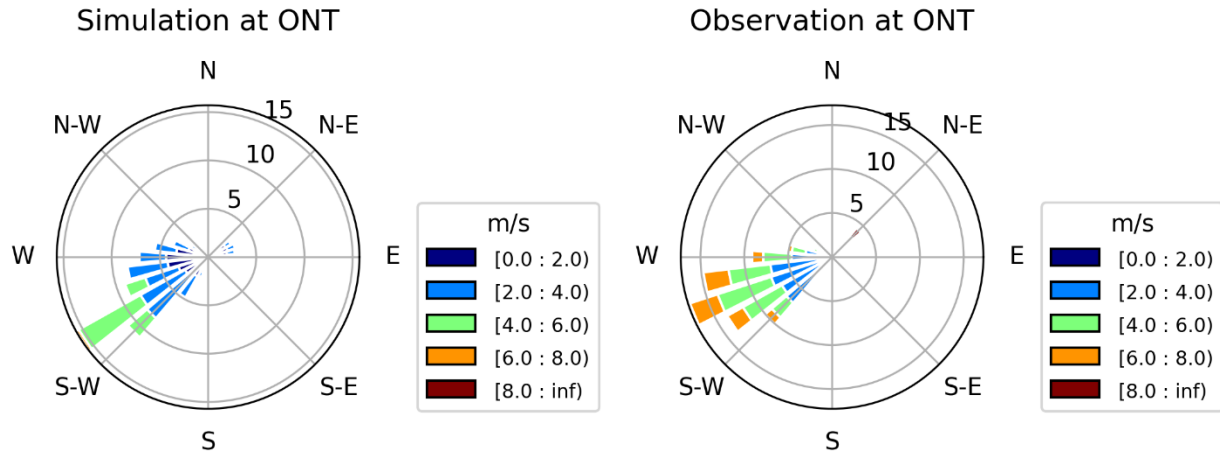


FIGURE II-3-23

WIND ROSE FROM MEASUREMENT AND WRF SIMULATION AT ONTARIO (ONT) STATION IN 2018

Model Performance Evaluation: Planetary Boundary Layer Height

Time series of hourly PBLH from ceilometer measurements and WRF simulations at ONT and IRV during July 2018 are shown in Figure II-3-24. Simulated PBLHs generally showed good agreement with ceilometer derived PBLHs except for very high reported PBLH values (> 2 km). These very high PBLH measurements may have been measurements artifacts caused by cloud interference in ceilometer profiles. Time series of average PBLH diurnal variation from measurements and WRF simulations for the summer season (June-August 2018) at ONT and IRV are shown in Figure II-3-25. The diurnal cycle in PBL height was well captured by the simulations. For example, at ONT, both measured and simulated PBLHs were lowest during early morning, increased to maximum values of ~ 800 m at midday due to stronger convection and vertical mixing, and then slowly decayed to lower heights during the late afternoon and early night. Usually, the days with lower PBL height will lead to lower ventilation of air pollutions, and higher PBL height will help with dispersion of surface pollutions.

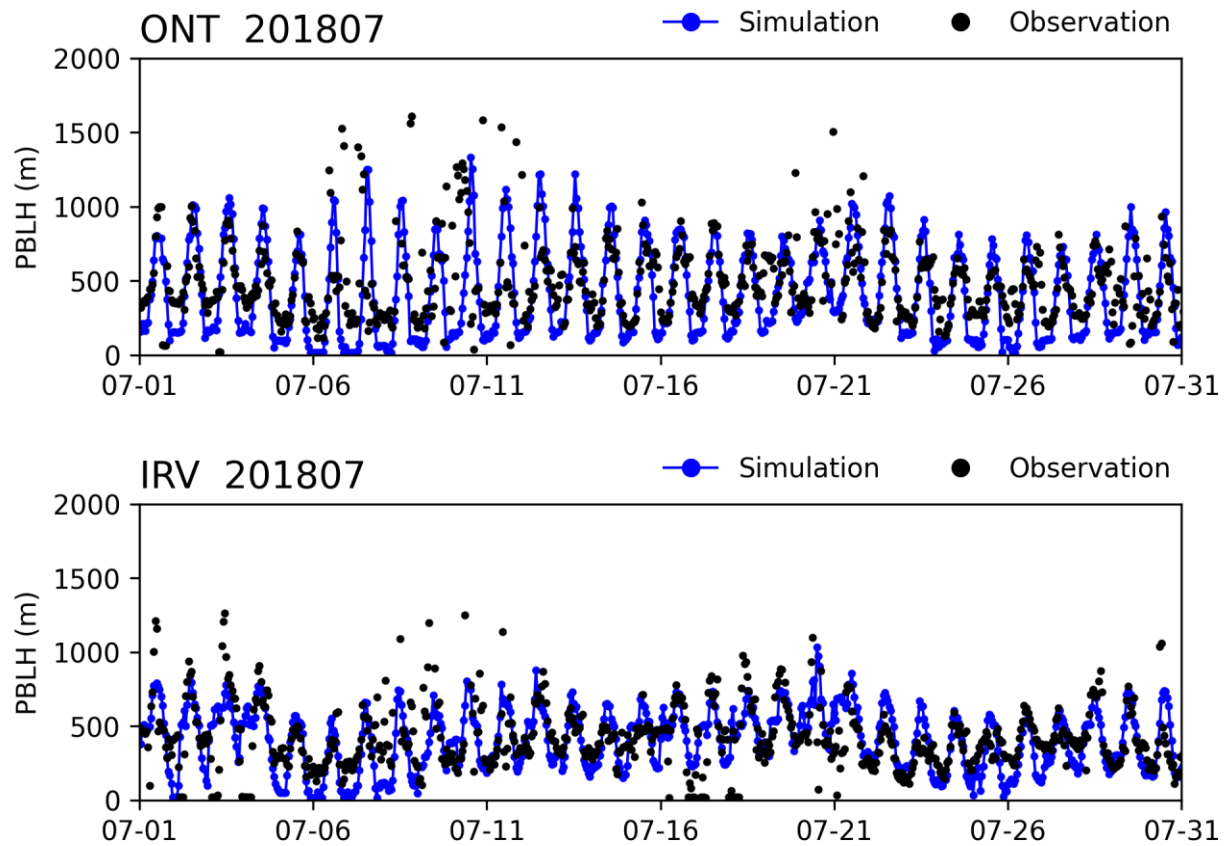


FIGURE II-3-24

TIME SERIES OF HOURLY PBLH FROM CEILOMETER MEASUREMENTS AND WRF SIMULATIONS FOR JULY 2018 AT ONTARIO (ONT) STATION AND AT IRVINE (IRV) STATION

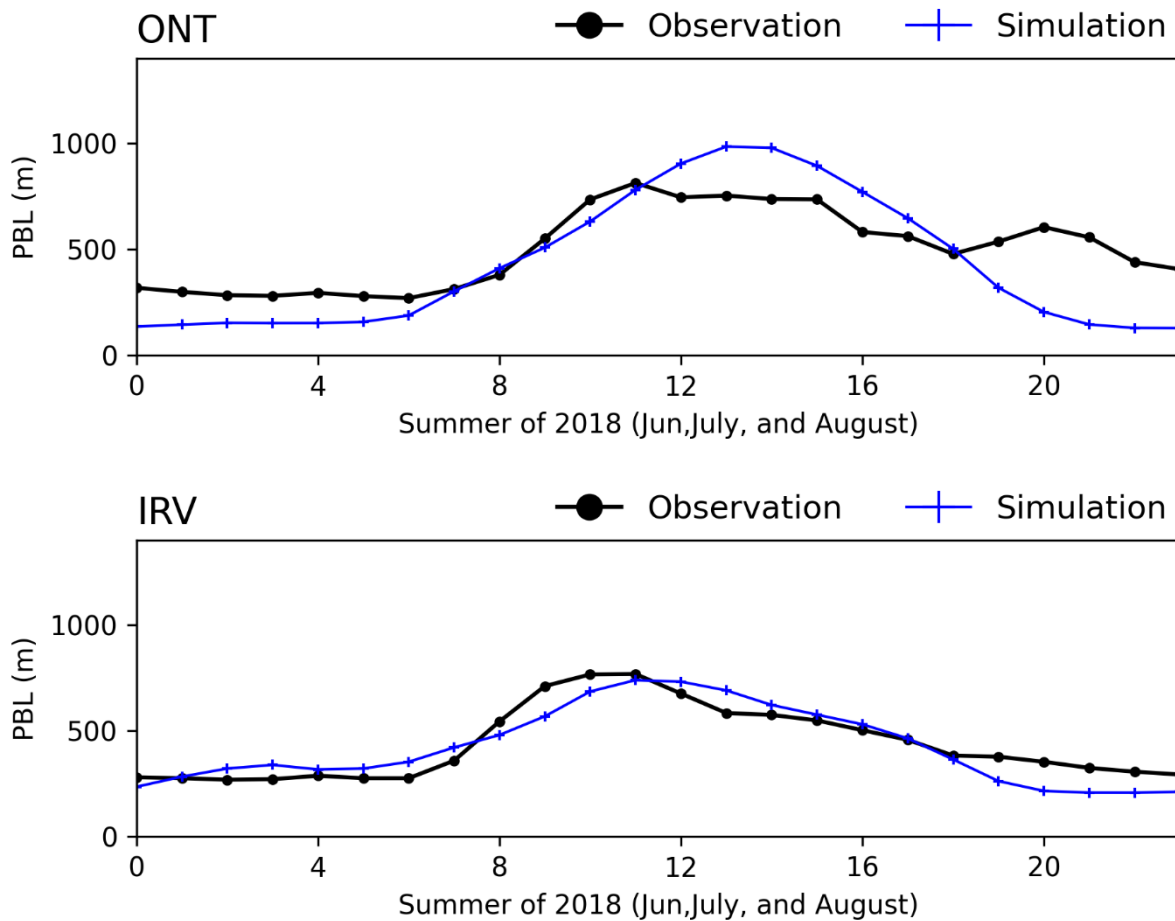


FIGURE II-3-25

TIME SERIES OF SEASONAL COMPOSED PBLH DIURNAL VARIATION FROM CEILOMETER MEASUREMENT AND WRF SIMULATIONS FOR SUMMER SEASON (JUNE-AUGUST 2018) AT ONTARIO (ONT) STATION AND IRVINE (IRV) STATION

Sensitivity Test of Planetary Boundary Layer Scheme

A set of WRF sensitivity simulations regarding the planetary boundary layer scheme was conducted. The planetary boundary layer scheme of Asymmetric Convective Model version 2 (ACM2)⁶ (Pleim, J. E., 2007) was tested in the WRF model. Comparing this set of sensitivity simulations with the simulation with YSU planetary boundary layer scheme, statistical results for temperature, water vapor and wind predictions are similar for both winter and summer seasons. The ACM2 PBL scheme showed slightly better performance for temperature and water vapor mixing ratio comparing with the YSU PBL scheme. The

⁶ Pleim, J. E. (2007). A Combined Local and Nonlocal Closure Model for the Atmospheric Boundary Layer. Part I: Model Description and Testing. J. Appl. Meteor. Climatol., 46, 1383–1395, <https://doi.org/10.1175/JAM2539.1>.

YSU PBL scheme had marginally better performance for wind speed and the ACM2 PBL scheme has small lower bias for wind speed.

TABLE II-3-3

WRF PERFORMANCE STATISTICS FOR QUARTER AVERAGE OF 2018 AT 15 NWS STATIONS

	Statistic	Q1	Q2	Q3	Q4
T	T Mean Observation (K)	288.1	291.8	297.8	290.4
	T Mean Simulation (K)	287.3	292.4	297.8	289.7
	T Bias (K)	-0.8	0.6	0	-0.7
	T Gross Error (K)	1.9	1.6	1.5	1.7
	T RMSE (K)	2.6	2.1	2	2.3
Q	Q Mean Observation (K)	5.8	8.1	10.8	6.6
	Q Mean Simulation (K)	5.7	8.2	11.9	7
	Q Bias (K)	-0.1	0.1	1.1	0.4
	Q Gross Error (K)	0.9	0.9	1.6	1.2
	Q RMSE (K)	1.4	1.3	2.9	1.9
WS	WS Mean Observation (kg/kg)	2	2.7	2.6	1.9
	WS Mean Simulation (kg/kg)	2	2.4	2.3	1.8
	WS Bias (kg/kg)	0	-0.3	-0.3	-0.1
	WS Gross Error (kg/kg)	1.4	1.3	1.2	1.4
	WS RMSE (kg/kg)	1.8	1.6	1.5	1.9

The performance of the WRF simulations with ACM2 PBL scheme is summarized in Table II-3-3 for 4 quarters of 2018. All the results shown in Table II-3-3 are averaged values for the 15 airport weather stations. Overall, the results from YSU PBL scheme and YSU PBL scheme are consistent with each other with small discrepancies. Both WRF simulations proved representative meteorological fields that well characterized the observed values in summer and winter of 2018.

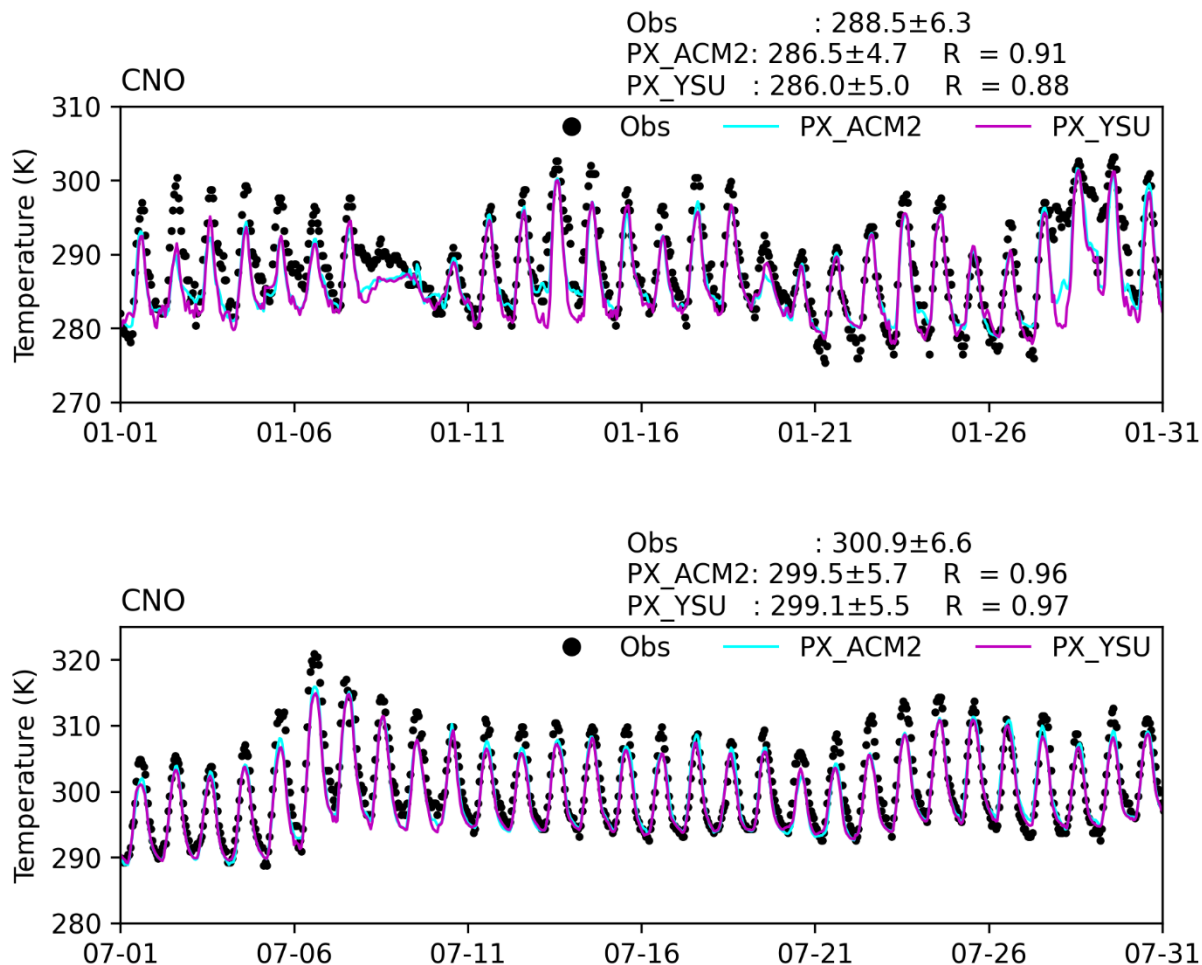
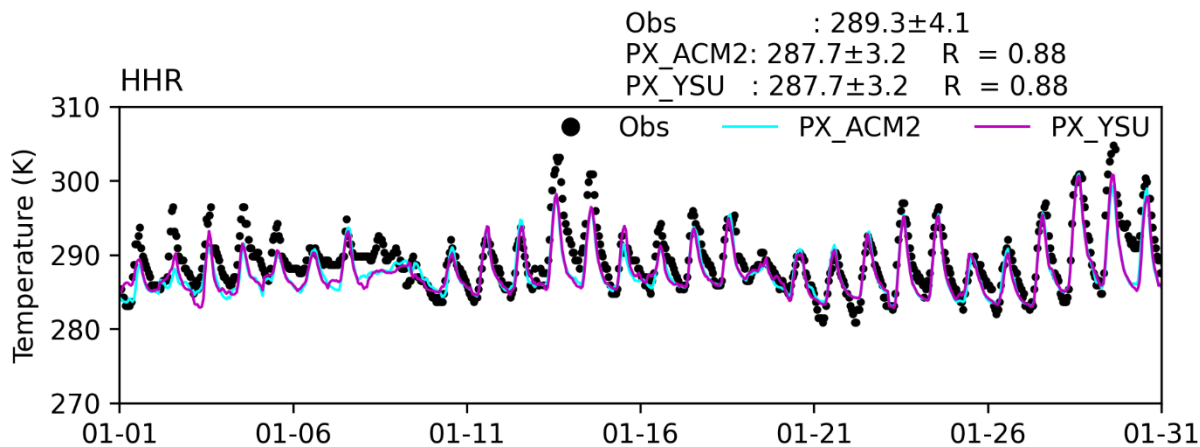


FIGURE II-3-26

TIME SERIES OF HOURLY TEMPERATURE FROM MEASUREMENT AND WRF SIMULATIONS AT CHINO (CNO) STATION FOR JANUARY 2018 AND JULY 2018



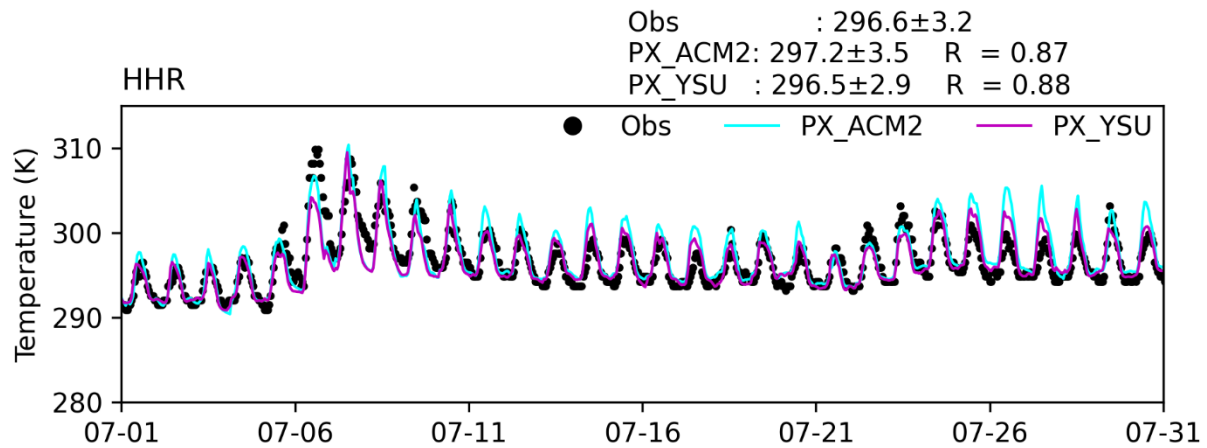
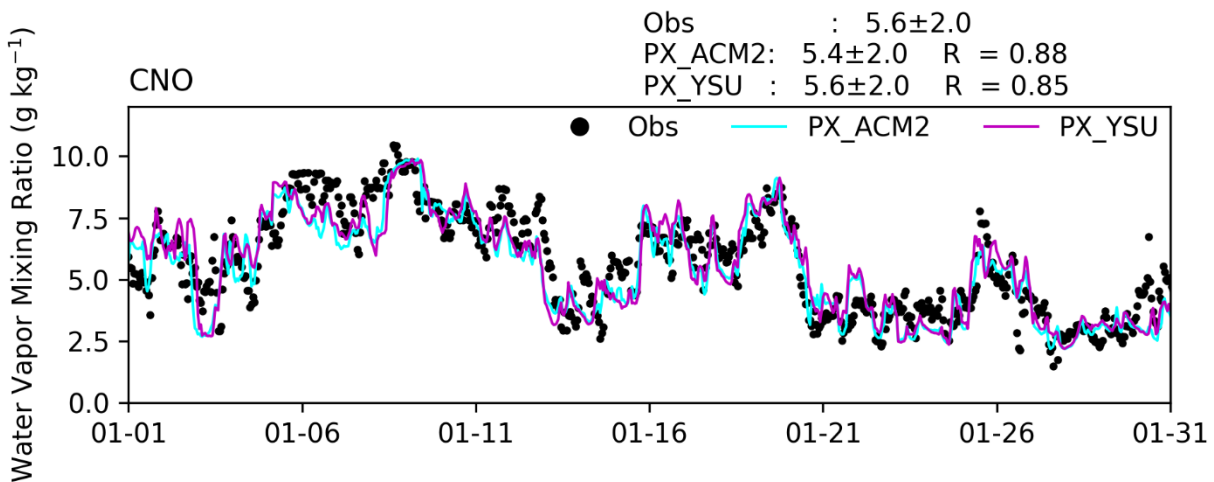


FIGURE II-3-27

TIME SERIES OF HOURLY TEMPERATURE FROM MEASUREMENTS AND WRF SIMULATIONS AT HAWTHORNE (HHR) STATION FOR JANUARY 2018 AND JULY 2018



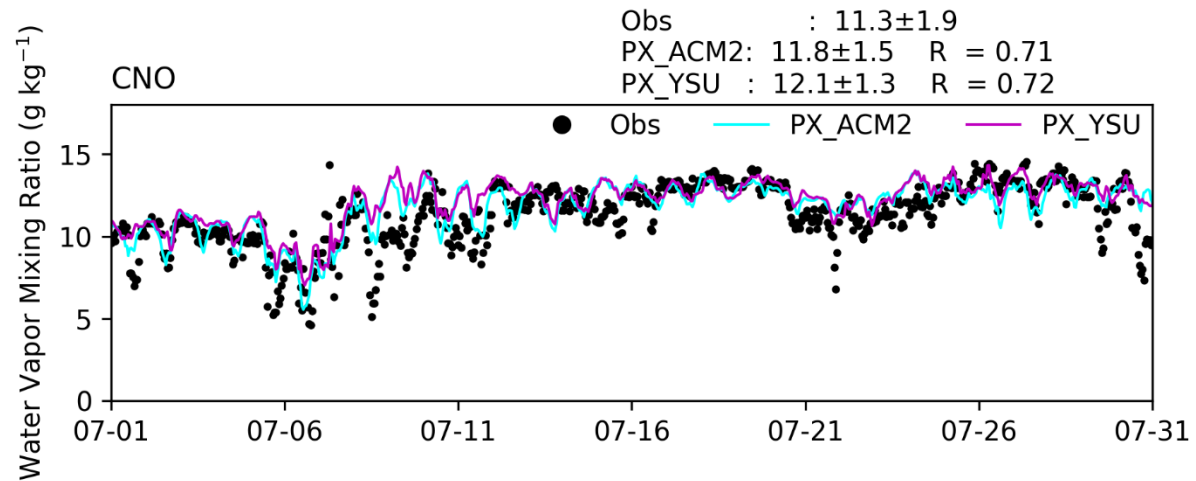


FIGURE II-3-28

TIME SERIES OF HOURLY WATER VAPOR MIXING RATIO FROM MEASUREMENTS AND WRF SIMULATIONS AT CHINO (CNO) STATION FOR JANUARY 2018 AND JULY 2018

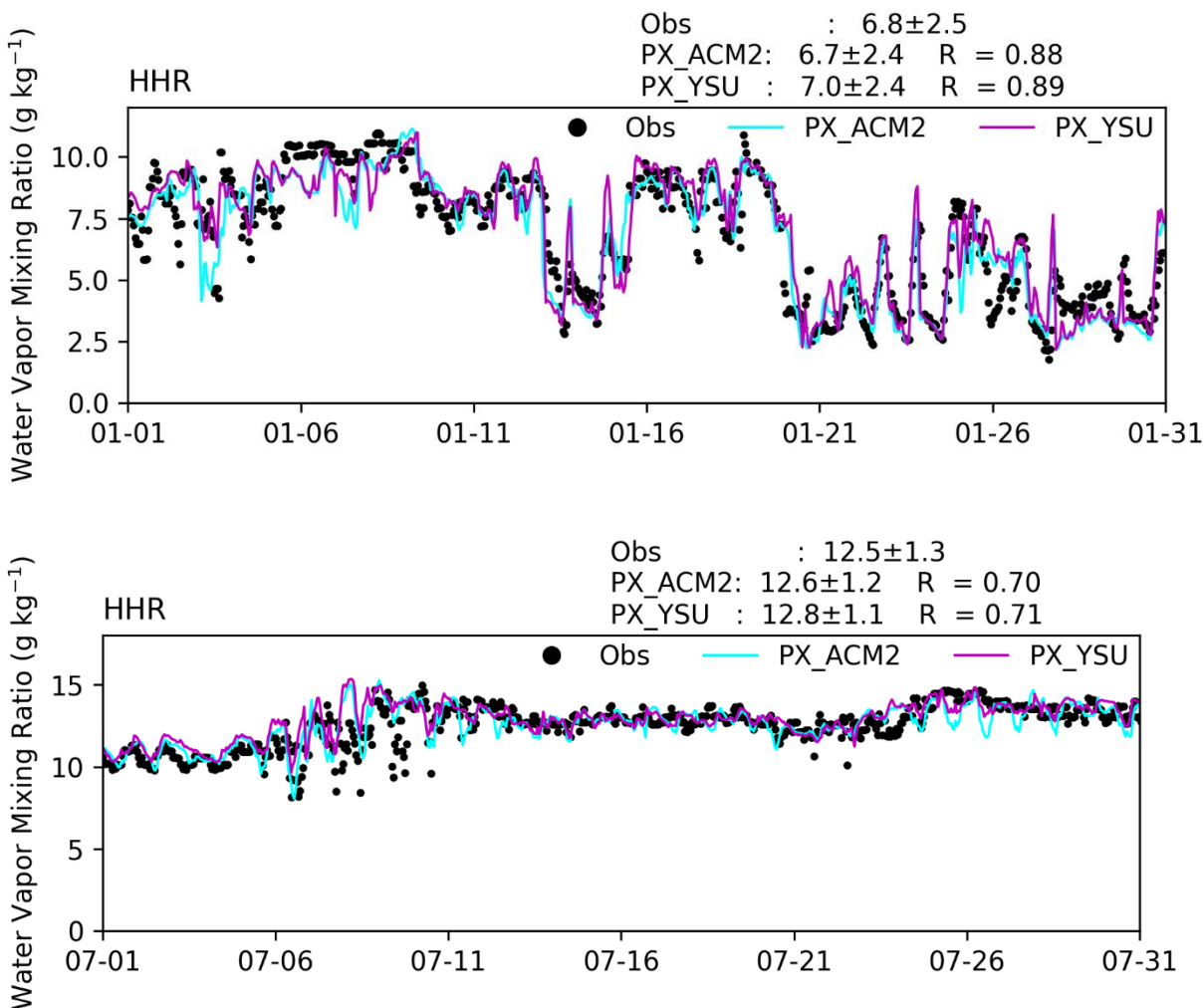


FIGURE II-3-29

TIME SERIES OF HOURLY WATER VAPOR MIXING RATIO FROM MEASUREMENTS AND WRF SIMULATIONS AT HAWTHORNE (HHR) STATION FOR JANUARY 2018 AND JULY 2018

The surface level model performance comparison between the YSU PBL scheme and ACM2 PBL scheme were evaluated for each month at airport stations in the model domain for January through December 2018. For simplicity, only one summer month (July) and one winter month (January) are shown in Figure II-3-26 through Figure II-3-29. Two stations were selected as examples for surface level model performance evaluation: CNO and HHR. The station of CNO represents inland area and the station of HHR represents coastal climate. In general, the two sets of WRF simulations generated similar hourly temperature and water vapor mixing ratio at each station. The WRF simulations with ACM2 PBL scheme have slightly higher daily maximum temperatures during winter, while it shows warm bias during summertime in the coastal station of HHR. For water vapor mixing ratio, the WRF simulations with ACM2 PBL scheme showed lower values comparing with the WRF simulations with YSU PBL scheme. In all, the performance of WRF with ACM2 PBL scheme is very close to WRF with YSU PBL scheme and the

WRF with YSU PBL scheme was used as the primary model platform to generate meteorological fields for the ~~Draft-PM_{2.5} plan~~ Plan.

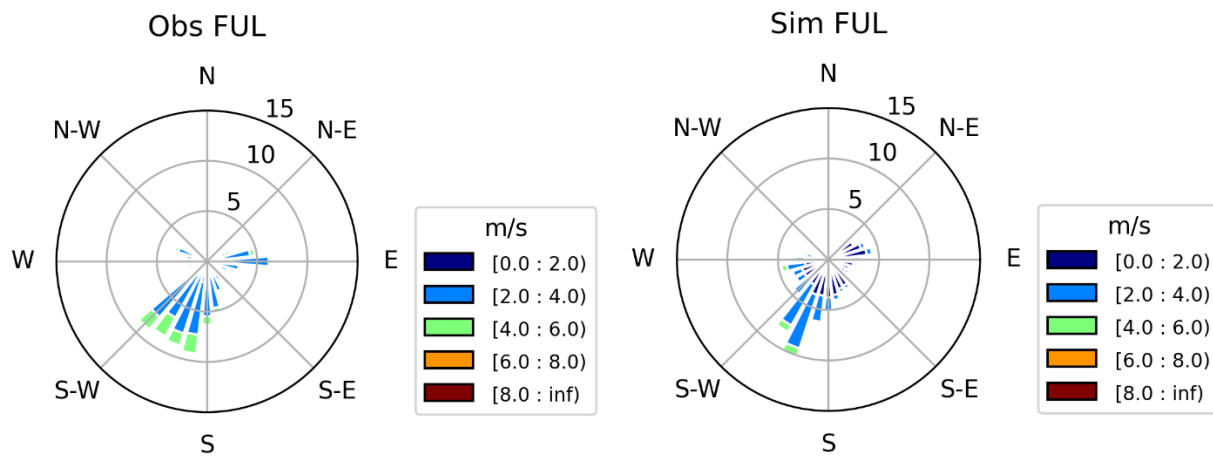


FIGURE II-3-30

WIND ROSE FROM MEASUREMENT AND WRF SIMULATION AT FULLERTON (FUL) STATION FOR THE ENTIRE YEAR OF 2018

The measured and WRF simulated wind rose at the station of FUL for 1-year period of January – December 2018 are shown in Figure II-3-30. In general, the WRF simulations with ACM2 reproduces the dominant wind direction as the measurement. For example, model and observations both show that westerly and south-westerly directions are the prevailing wind directions for the stations of FUL. In general, the WRF with ACM2 PBL scheme simulates surface wind speed and direction reasonably well as shown in the wind roses, although the simulation show slightly more underestimates of the observed wind speed comparing with the WRF simulations with YSU PBL scheme.

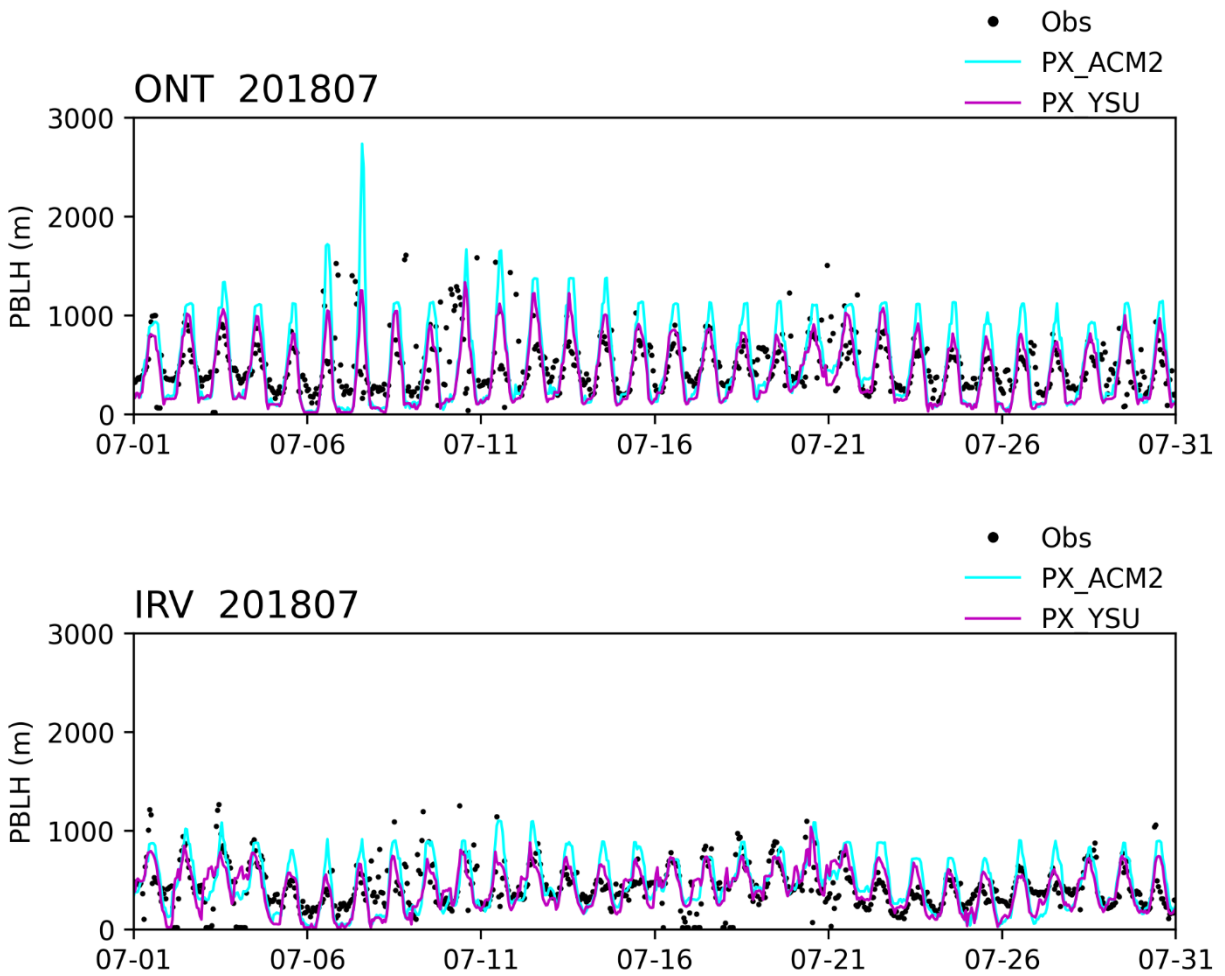


FIGURE II-3-31

TIME SERIES OF HOURLY PBLH FROM CEILOMETER MEASUREMENTS AND WRF SIMULATIONS FOR JULY 2018 AT ONTARIO (ONT) STATION AND AT IRVINE (IRV) STATION

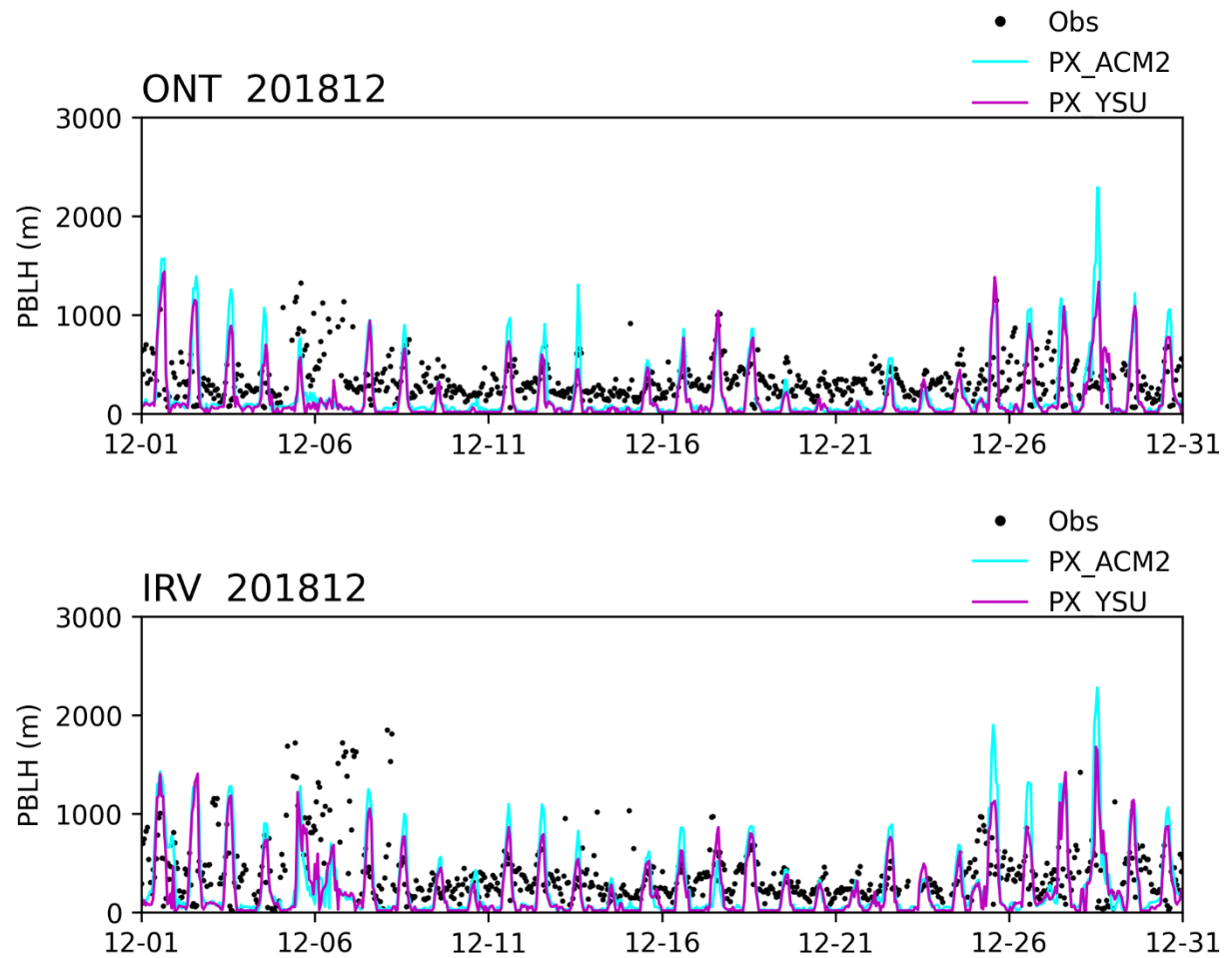


FIGURE II-3-32

TIME SERIES OF HOURLY PBLH FROM CEILOMETER MEASUREMENTS AND WRF SIMULATIONS FOR DECEMBER 2018 AT ONTARIO (ONT) STATION AND AT IRVINE (IRV) STATION

Time series of hourly PBLH from ceilometer measurements and WRF simulations at ONT and IRV during December 2018 are shown in Figure II-3-32. The simulation with ACM2 PBL scheme showed higher daily maximum PBL and this pattern is consistent with the simulated higher daily maximum temperature comparing with the simulations with YSU PBL scheme.

Summary

The performance of the WRF simulations for the year of 2018 is evaluated with observations from airport weather stations and PBL height measurement from ceilometers. Overall, WRF simulations for each season provided representative meteorological fields that well characterized observed conditions in 2018. Regarding different option of planetary boundary layer scheme, set of WRF sensitivity simulations of Asymmetric Convective Model version 2 (ACM2) was conducted. Comparing this set of sensitivity simulations with the simulation with YSU planetary boundary layer scheme, statistical results for temperature, water vapor and wind predictions are similar for both winter and summer seasons. The ACM2 PBL scheme showed slightly better performance for temperature and water vapor mixing ratio comparing with the YSU PBL scheme. The YSU PBL scheme had marginally better performance for wind speed and the ACM2 PBL scheme has small lower bias for wind speed. Since the modeling discrepancies between different PBL height scheme are very small, the meteorological fields obtained with WRF simulations with YSU PBL scheme are used as meteorological inputs for CMAQ modeling of PM_{2.5} in this plan.

Chapter 4

MODELING EMISSIONS, BOUNDARY CONDITIONS, AND INITIAL CONDITIONS

Modeling Emissions Inventory

Inventory Profile

Temporal and Spatial Allocations of Emissions

Boundary and Initial Conditions

Modeling Emissions Inventory

Table II-4-1 provides the baseline and controlled modeling emissions inventories that are consistent with the emissions used in the attainment demonstration and alternative analyses. The CMAQ simulations were based on the annual emissions inventory, with adjustments made for source-specific temporal profiles and daily temperature variations. An extensive discussion of the overall emissions inventory is provided in Appendix I. Approaches used in generating gridded hourly emissions for each modeling day are presented in this Chapter.

TABLE II-4-1
ANNUAL AVERAGE ANTHROPOGENIC EMISSIONS INVENTORY IN SOUTH COAST AIR BASIN
(TONS/DAY)

	Annual Average				
Year	VOC	NOX	SOX	PM _{2.5}	NH ₃
(a) Baseline					
2018	402	383	14	56	75
2025	364	239	15	54	78
2030	344	210	15	54	79
(b) Controlled ¹					
2030	340	178 175	15	52 53	76

¹Emission account for reductions due to control strategies described in Chapter 4.

Inventory Profile

This section discusses the baseline modeling inventories for the base year 2018 and the future years 2025 and 2030, as outlined in the Draft PM_{2.5} Plan. The primary focus of this plan is to demonstrate attainment of the 2012 annual PM_{2.5} National Ambient Air Quality Standard (NAAQS) set at 12 µg/m³.

The baseline emissions projection assumes no additional emission controls beyond the measures and programs already in place. These projections consider emissions resulting from population growth, increased vehicle miles traveled (VMT), and the implementation of all previously adopted rules and regulations. The cut-off date for South Coast AQMD regulations is October 2020 (except for Rule 1109.1, adopted in November 2021), and for CARB's regulations, the cut-off date is December 2021. Controlled emission projections reflect the anticipated benefits of implementing control measures in relation to future baseline emissions. Comprehensive descriptions of these control measures can be found in Chapter 4 and Appendix IV of the Draft PM_{2.5} Plan report. For further details on emission sources, readers can refer to Appendix I which contains emission summary reports categorized by source for both the base year and future baseline scenarios used in this modeling analysis. Detailed summaries of emissions

reductions by source category for future (2025 and 2030) controlled scenarios are available in Attachment 3 of Appendix II.

Temporal and Spatial Allocations of Emissions

Point, mobile, and area emissions inventories specific to each day were generated for the base year 2018. On-road mobile source emissions were calculated using data from SCAG transportation modeling, CARB's EMFAC2021 emissions rates, observed daily traffic fluctuations, and modeled daily temperature variations. To create day-specific hourly emissions, annual emissions were distributed using temporal profiles. Each source type was assigned profiles for monthly throughputs, day-of-week variations, and diurnal changes.

Point source emissions were allocated spatially based on the precise locations of emitting facilities. Conversely, countywide emissions stemming from area and off-road sources were distributed using spatial surrogates. For this purpose, a comprehensive set of over 110 spatial surrogates was employed, a compilation refined by CARB during each AQMP development cycle. Each emissions source, identified by its Emission Inventory Code, was associated with an appropriate surrogate profile. These surrogates represented a diverse range of sources, encompassing gas stations, landfills, military bases, single-family homes, and railyards. In alignment with our established AQMP practices, socioeconomic data for both the base and future years, incorporating population, employment, and housing statistics, as provided by SCAG during its RTP/SCS process, were incorporated into these surrogates. Further elaboration on the temporal and spatial allocation of on-road and total emissions are provided in following sections.

On-road Mobile Emissions

On-road mobile sources are responsible for a large fraction of the total VOC, NO_x, CO, NH₃ and PM_{2.5} emissions in our modeling domain. These emission sources are highly dependent on both time and location, with variations up to a factor of 8 between overnight and peak traffic hours at specific locations. On-road mobile emission patterns also exhibit substantial variation throughout the week and year, influenced by factors such as special events, holidays, and weather conditions. Location-specific variations may also arise due to proximity to high-employment areas, sporting events, or/and seasonal activities.

Real-time traffic flow measurements from 2018 were used to apportion traffic volumes on an hourly basis throughout the five counties (Ventura, Los Angeles, Orange, Riverside and San Bernardino). These measurements include data from thousands of sensors scattered throughout the Basin, covering both light- and heavy-duty vehicle flow. Given the limited availability of monitoring data in the five outlying counties (San Luis Obispo, Santa Barbara, Kern, Imperial, and San Diego), grid-based on-road emissions

were generated for those regions using generic traffic profiles that account for variations by day of the week (Kwon et al., 2003)¹.

In Figures II-4-1 to II-4-4, we compare daily on-road emissions of NO_x, Primary Elemental Carbon (PEC), Primary Organic Carbon (POC), and CO between the 2022 AQMP estimated with EMFAC2017 (blue) and the ~~Draft~~ PM_{2.5} ~~plan~~ Plan estimated with EMFAC2021 (orange) over the south coast air basin (SCAB) in 2018. On-road emissions estimated with EMFAC2021 exhibit very similar daily/weekly patterns and seasonal variation as those estimated with EMFAC2017. Despite of the similar temporal variation in emissions in the two models, EMFAC2021 estimates higher NO_x (higher by 10% on average) and CO (higher by 24% on average) emissions compared to EMFAC2017 whereas it estimates noticeably lower POC emissions than EMFAC2017 (lower by 38% on average). PEC estimated with the two emission models (EMFAC2017 and EMFAC2021) are comparable (differs by 5% on average). The higher estimates of NO_x and CO in EMFAC2021 compared to EMFAC2017 are mostly because new vehicle emissions test data show that light-duty vehicles have higher exhaust emissions and updated DMV data for 2018 indicate that medium heavy-duty trucks are older than what was assumed in EMFAC2017. The lower primary particulate emissions (PEC and POC) in EMFAC2021 compared to EMFAC2017 can be attributed to the model updates on emissions and speed correction factors for brake wear that are obtained from new emission tests.

¹ Kwon J, Varaiya P, Skabardonis A. Estimation of Truck Traffic Volume from Single Loop Detectors with Lane-to-Lane Speed Correlation. Transportation Research Record. 2003;1856(1):106-117, <https://doi.org/10.3141%2F1856-11>

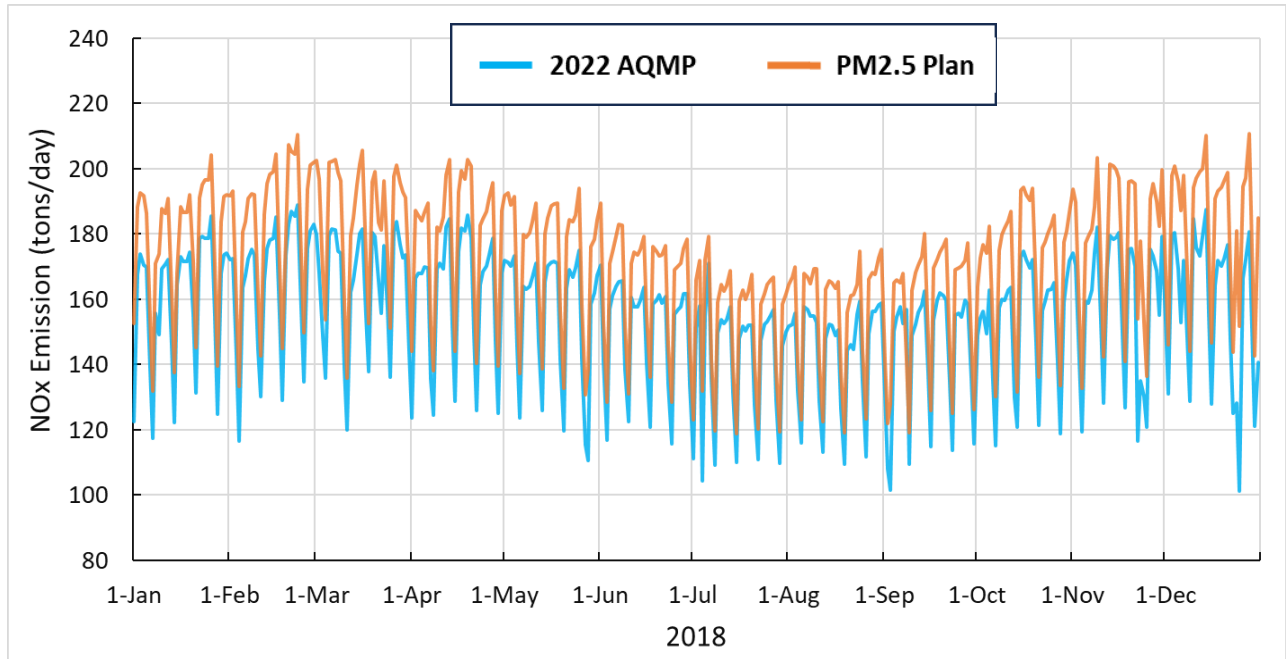


FIGURE II-4-1

A COMPARISON OF TOTAL DAILY ON-RAOD NITROGEN OXIDES (NO_x) EMISSION OVER THE SOUTH COAST AIR BASIN FROM THE 2022 AQMP AND THE DRAFT-PM2.5 PLAN DURING THE BASE YEAR 2018.

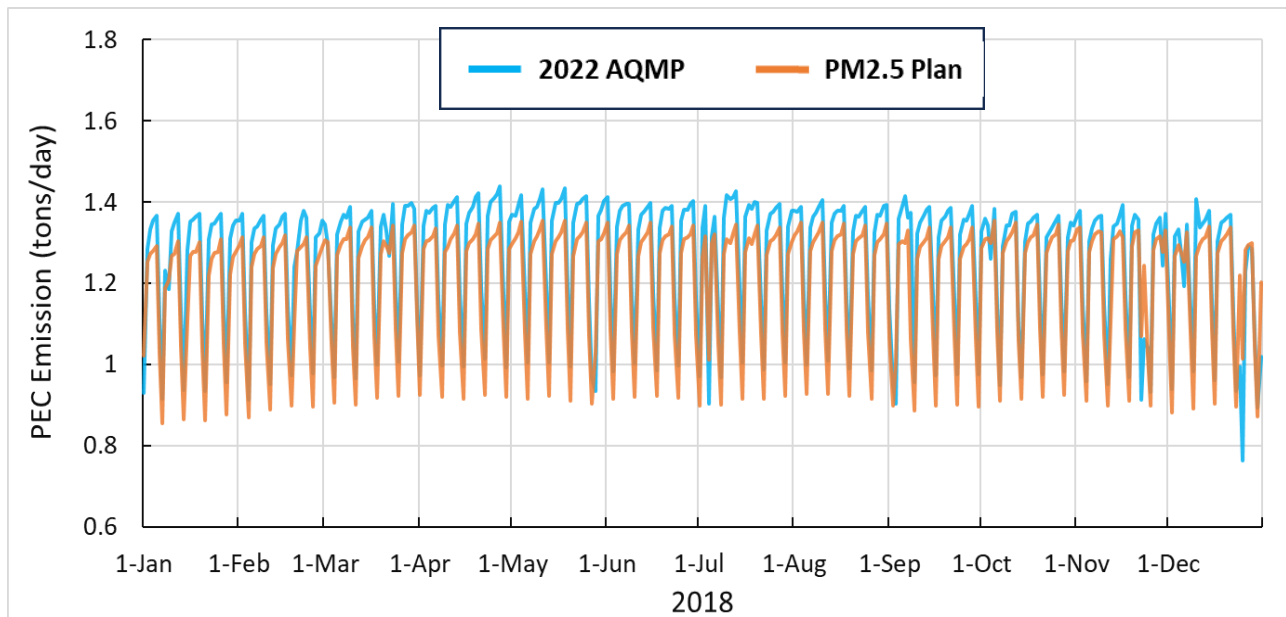


FIGURE II-4-2

A COMPARISON OF TOTAL DAILY ON-RAOD PRIMARY ELEMENTAL CARBON (PEC) EMISSION OVER THE SOUTH COAST AIR BASIN FROM THE 2022 AQMP AND THE DRAFT-PM2.5 PLAN DURING THE BASE YEAR 2018.

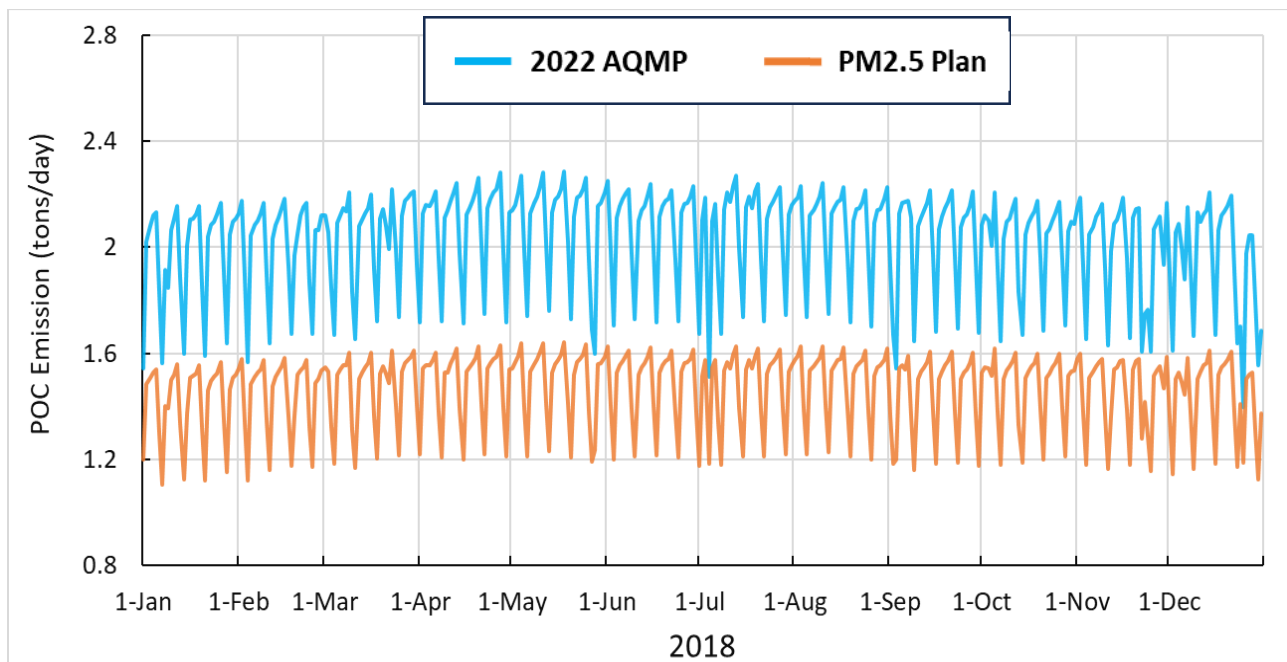


FIGURE II-4-3

A COMPARISON OF TOTAL DAILY ON-RAOD PRIMARY ORGANIC CARBON (POC) EMISSION OVER THE SOUTH COAST AIR BASIN FROM THE 2022 AQMP AND THE DRAFT-PM2.5 PLAN DURING THE BASE YEAR 2018.

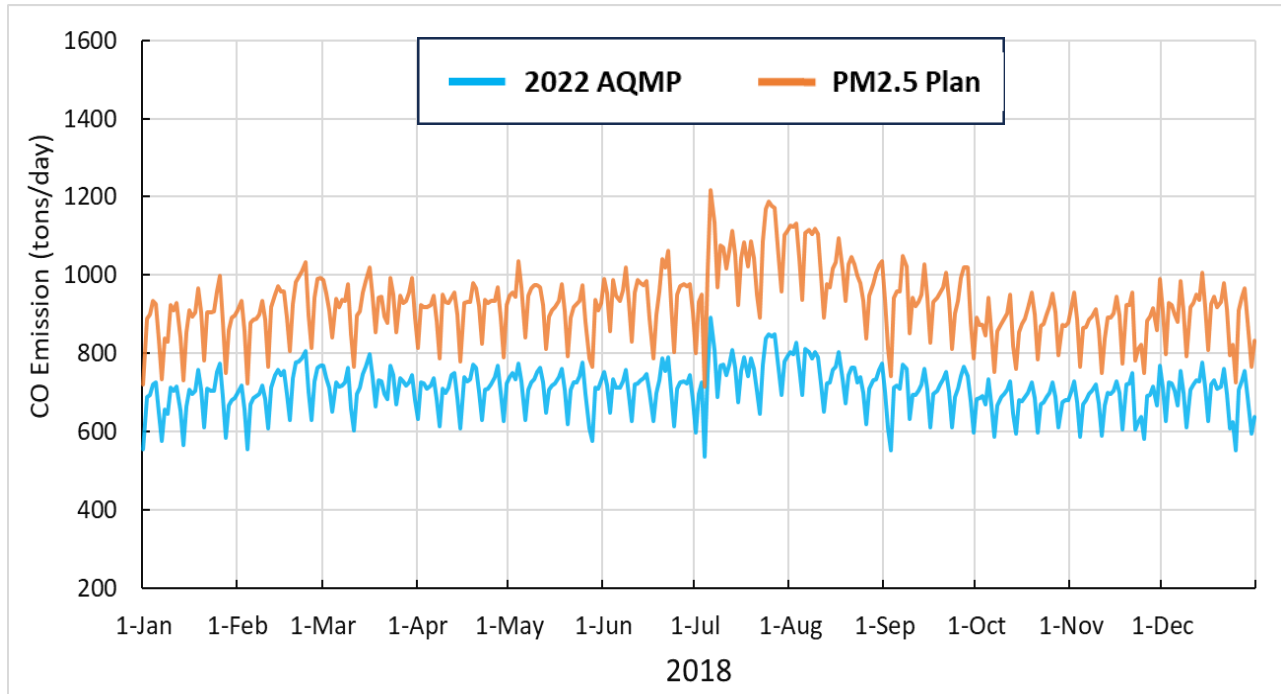


FIGURE II-4-4

A COMPARISON OF TOTAL DAILY ON-ROAD CARBON MONOXIDE (CO) EMISSION OVER THE SOUTH COAST AIR BASIN FROM THE 2022 AQMP AND THE DRAFT-PM2.5 PLAN DURING THE BASE YEAR 2018.

Emissions Profiles

Day specific emissions were generated for 2018. Figure II-4-5 illustrates the total daily emissions of NO_x, NH₃, and Primary PM_{2.5} contained in the CMAQ modeling domain during the base year of 2018. Note that the emissions totals are much higher than those presented in Table II-4-1. This is because the values in Table II-4-1 represent basin-wide total emissions while those in Figure II-4-5 comprise totals from the entire modeling domain. The profile clearly depicts a changing emissions pattern with two distinct cycles represented: a weekly cycle, illustrated by Sunday through Saturday peaks and valleys, and day-to-day variations in emissions within the weekly cycle. Daily variations are primarily driven by daily vehicular activities and ambient temperature and humidity changes. Although not included in Figure II-4-5, spatially and temporally resolved emissions from prescribed fires were also included in the emissions in the modeling domain. The attainment demonstration does not include emissions from wildfires.

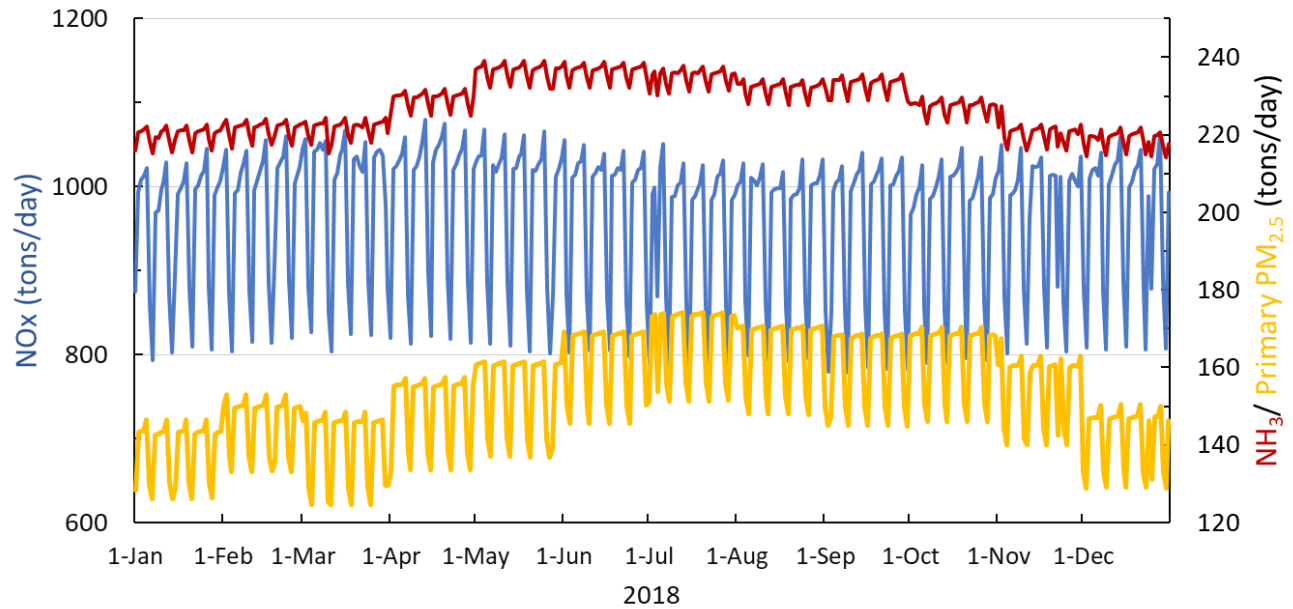


FIGURE II-4-5

2018 DAILY EMISSIONS OF NO_x, NH₃, AND PRIMARY PM_{2.5} IN THE MODELING DOMAIN.

Spatial Distribution

Figures II-4-6 through V-4-8 illustrate the spatial distribution of on-road emissions for primary PM_{2.5}, NO_x, and NH₃ in the modeling domain. Figures II-4-9 through II-4-11 show the spatial distribution of total emissions from all sources for these key primary pollutants across the entire modeling domain. The maps reveal that on-road emissions tend to cluster in urban areas, such as the downtown areas of Los Angeles, San Diego, and Long Beach, as well as along major arterial highways like I-5 and I-15. This concentration results from the high density of vehicles and substantial traffic volumes in these regions. When examining the total emissions of these key pollutants, urban centers emerge as major sources, characterized by their high population density and significant anthropogenic activities, including heavy transportation and various industrial and commercial operations. Notably, the spatial distribution of primary emissions also highlights elevated emissions in Mexican cities near the US-Mexico border. These emissions from across the border can influence background pollutant levels and directly impact Southern California's air quality, particularly under specific meteorological conditions, such as southerly winds during the summer, which facilitate the transport of air pollution across borders.

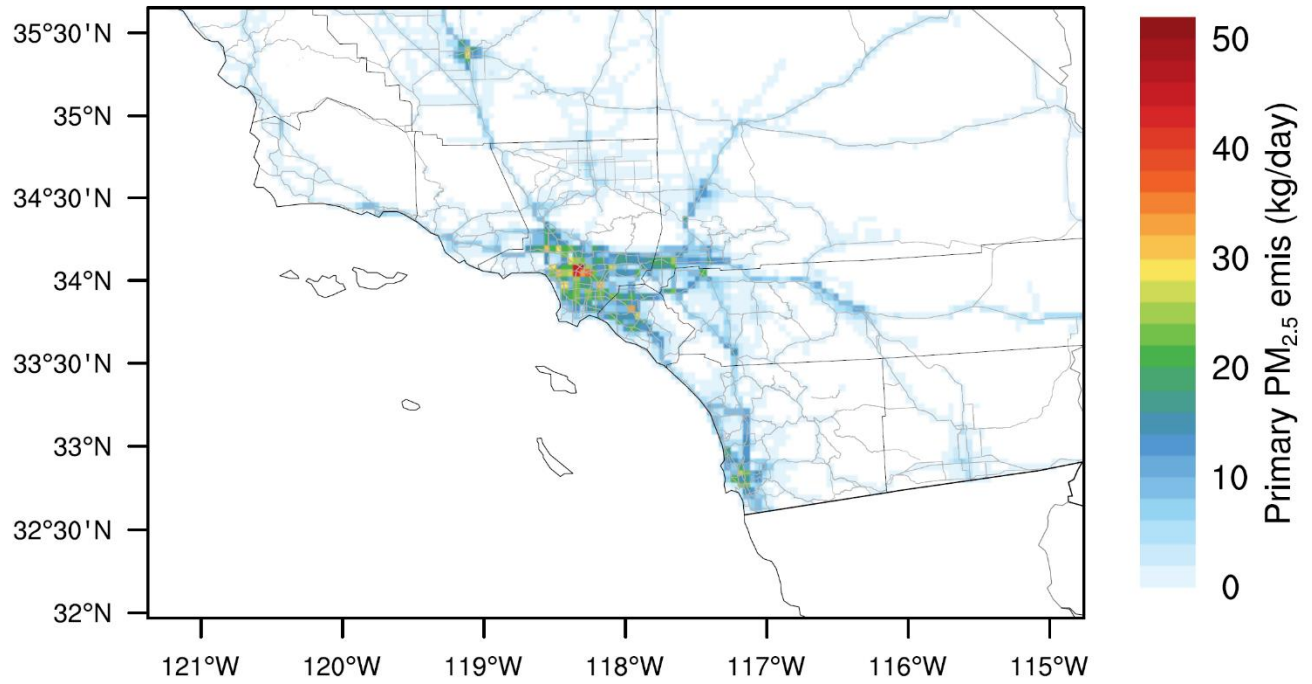


FIGURE II-4-6

ON-ROAD PRIMARY PM_{2.5} EMISSIONS OVER THE MODELING DOMAIN DURING THE BASE YEAR 2018.

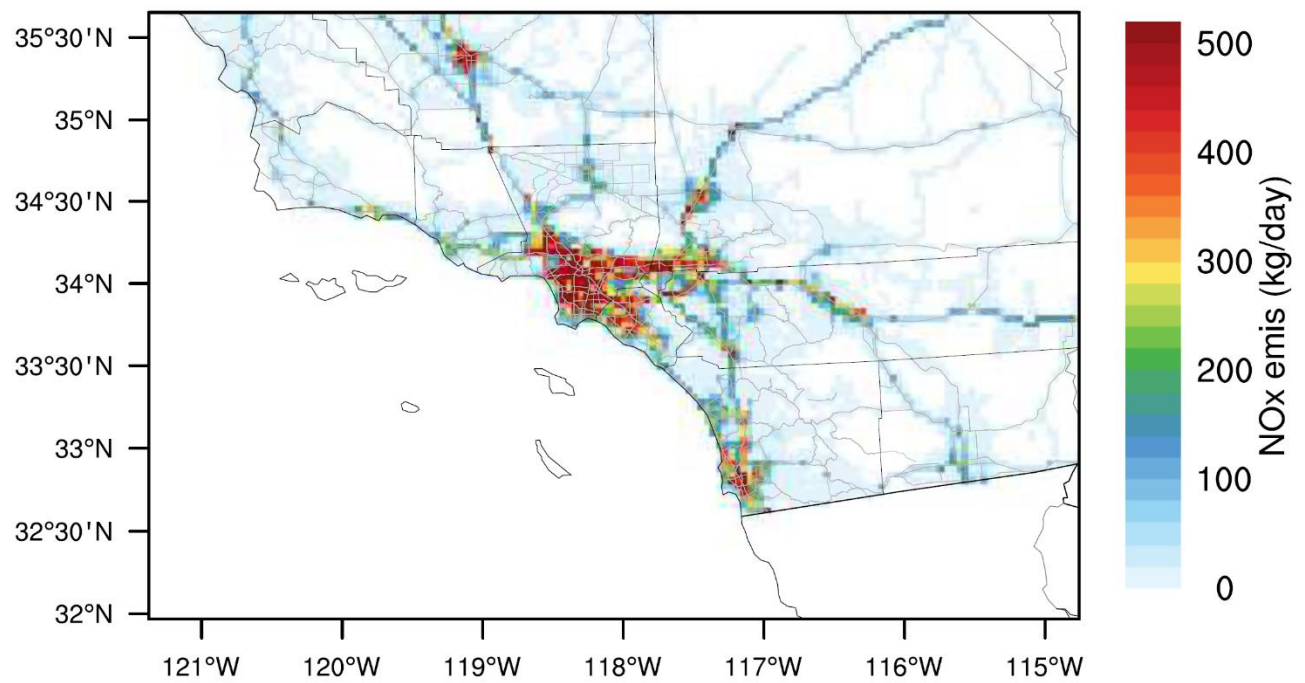


FIGURE II-4-7

ON-ROAD NO_x EMISSIONS OVER THE MODELING DOMAIN DURING THE BASE YEAR 2018.

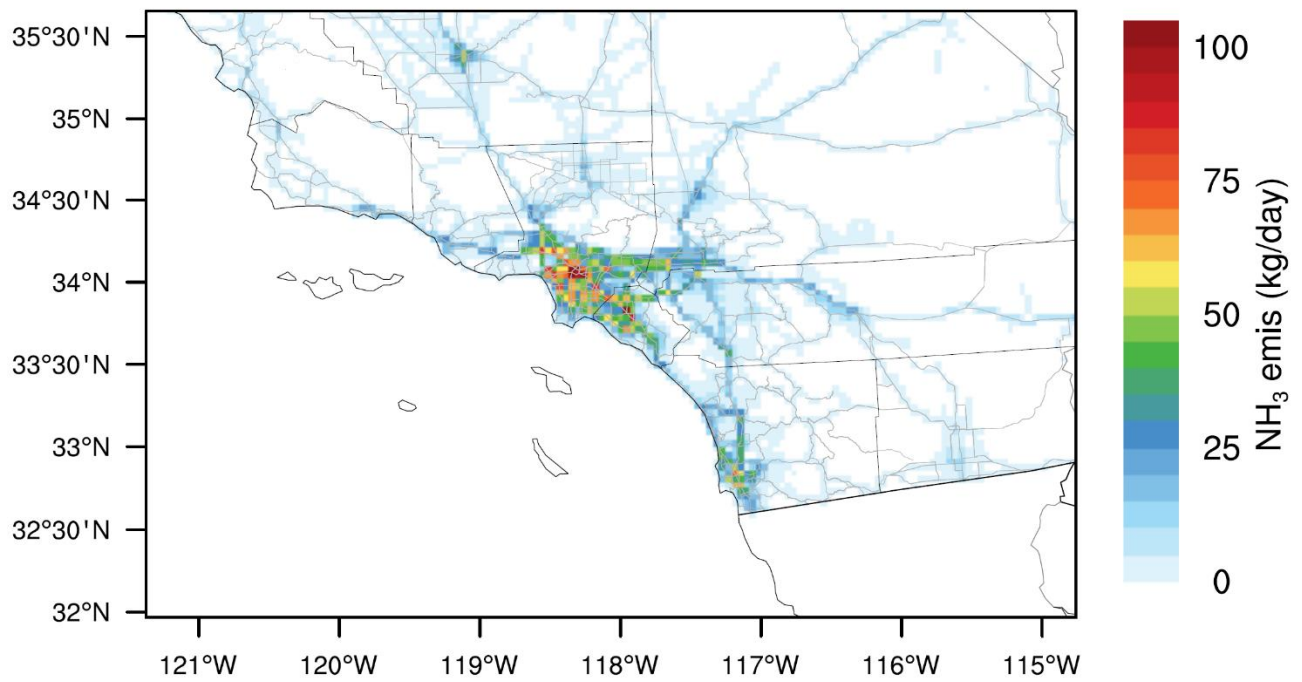


FIGURE II-4-8

ON-ROAD NH₃ EMISSIONS OVER THE MODELING DOMAIN DURING THE BASE YEAR 2018.

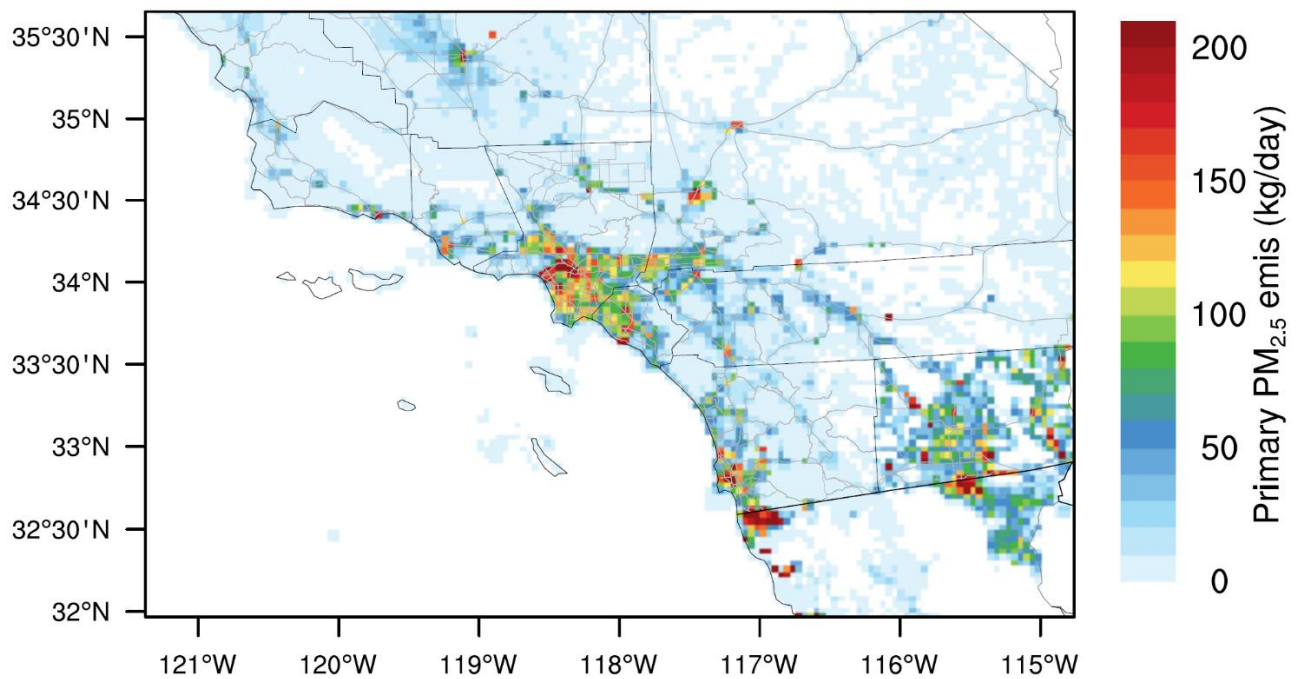


FIGURE II-4-9

TOTAL PRIMARY PM_{2.5} EMISSIONS FROM ALL SOURCES OVER THE MODELING DOMAIN DURING THE BASE YEAR 2018.

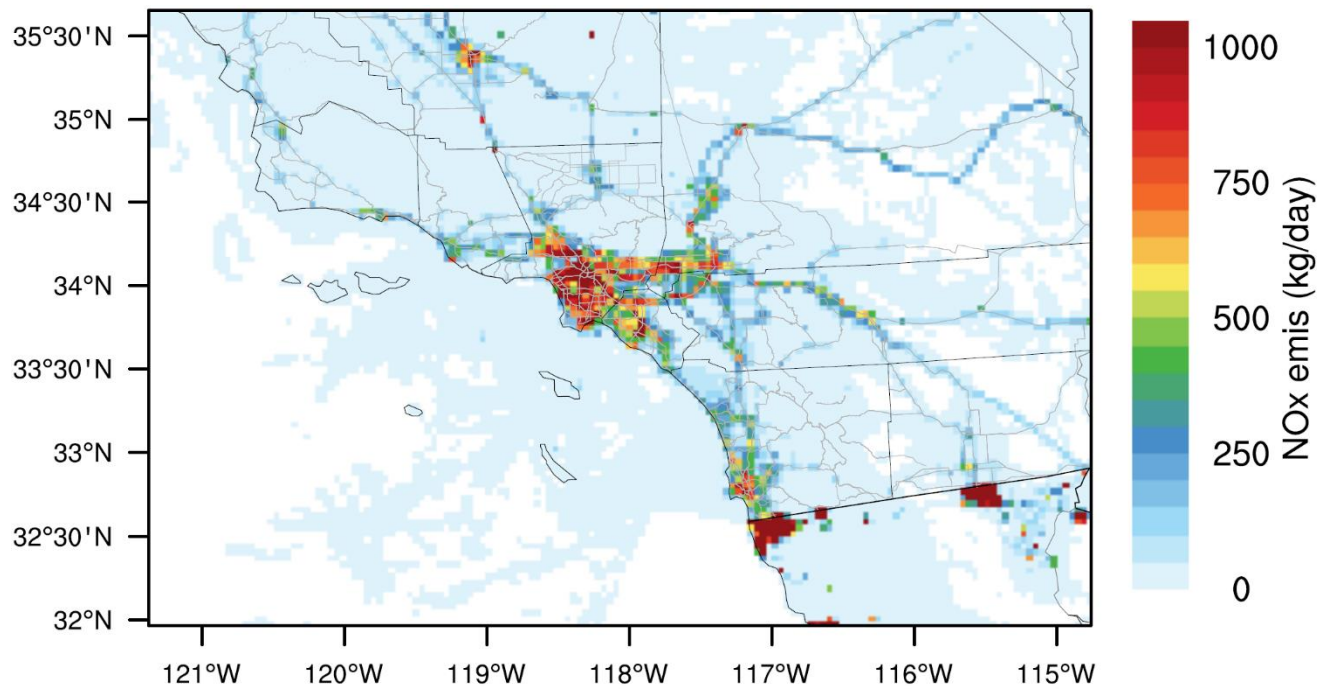


FIGURE II-4-10

TOTAL NO_x EMISSIONS FROM ALL SOURCES OVER THE MODELING DOMAIN DURING THE BASE YEAR 2018.

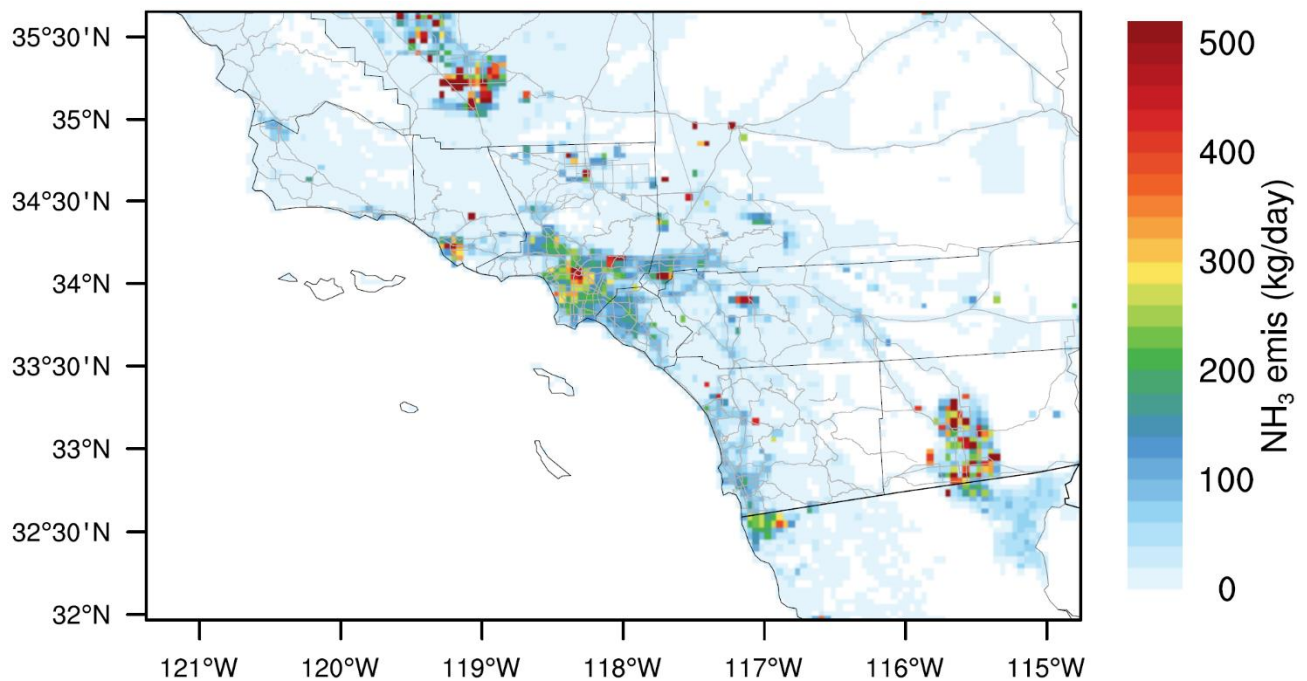


FIGURE II-4-11

TOTAL NH₃ EMISSIONS FROM ALL SOURCES OVER THE MODELING DOMAIN DURING THE BASE YEAR 2018.

Biogenic Emissions

Biogenic VOC emissions were calculated at an hourly frequency using the Model of Emissions of Gases and Aerosols from Nature version 3.0 (MEGAN3.0) with 2018 meteorological data as input (simulated with WRFv4.4.2). MEGAN was employed in its default configuration, with the exception of the normalized Leaf Area Index (LAIv) input. The LAIv input we used here was developed by the California Air Resources Board and was derived from 2018 data obtained from the Moderate Resolution Imaging Spectroradiometer (MODIS) on NASA's Terra and Aqua satellites. In urban areas where MODIS data were unavailable, LAIv was based on tree survey data from the US Forest Service. Figure II-4-12 illustrates the daily total emissions of biogenic VOC, in tons per day, within the Basin. The trend shows higher emissions during spring and summer months, with multiple peaks occurring from June to August, coinciding with periods of high temperatures. Table II-4-1 shows the total emissions from biogenic sources within the Basin.

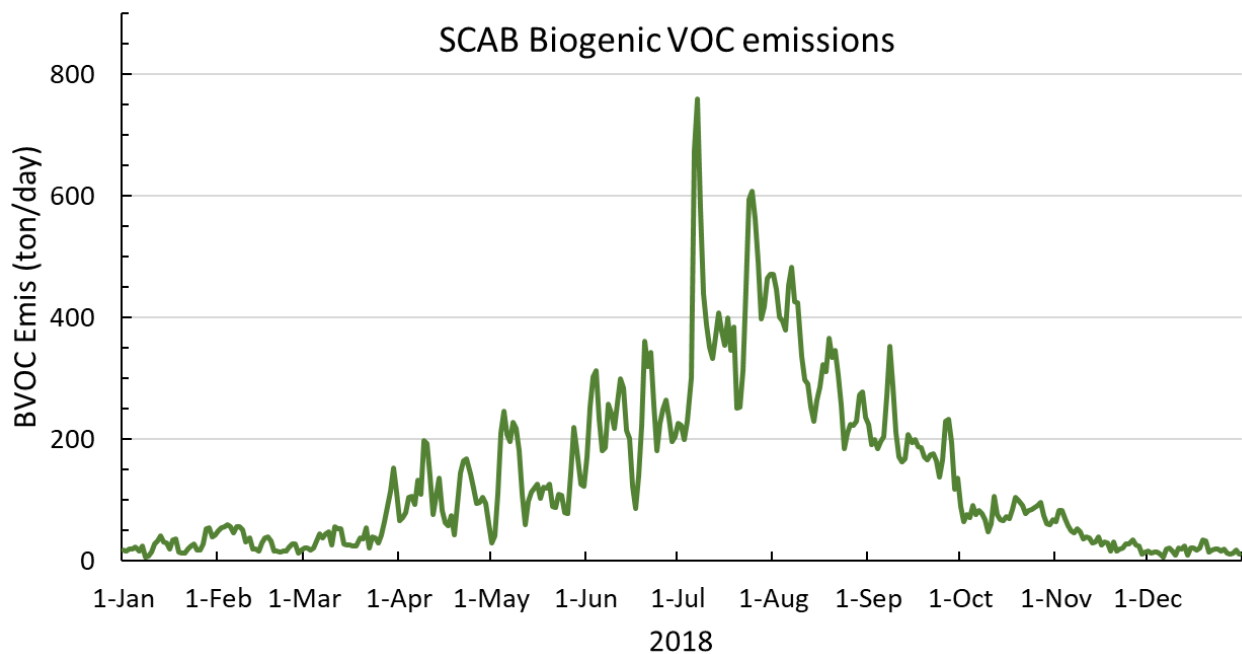


FIGURE II-4-12

2018 DAILY BIOGENIC VOC EMISSIONS IN THE SOUTH COAST AIR BASIN

TABLE II-4-1

ANNUAL AVERAGES EMISSIONS FROM BIOGENIC SOURCES IN THE BASIN (TONS/DAY)

	TOG	VOC	NO _x
Basin-wide Emissions (tons/day)	135.1	132.1	5.3

Boundary and Initial Conditions

We utilized the Community Atmosphere Model with Chemistry (CAM-chem; Emmons et al., 2020)², a component of the National Center for Atmospheric Research (NCAR) Community Earth System Model (CESM), to generate boundary conditions (BCONs) for our modeling domains. Specifically, CAM-chem provided BCONs for the 12 km statewide Community Multi-scale Air Quality (CMAQ) domain, while the boundary conditions for the 4 km inner South Coast domain were derived from the 12 km CMAQ output.

CAM-chem is a well-established global atmospheric model known for simulating tropospheric and stratospheric compositions. We extracted boundary conditions encompassing inorganic gases, volatile organic compounds (VOCs), and aerosol species such as elemental carbon, organic matter, sulfate, and nitrate from CAM-chem simulations conducted in 2018³. These CAM-chem simulation results are publicly accessible at <https://www.acom.ucar.edu/cam-chem/cam-chem.shtml>. To prepare this data for integration into the CMAQ model, we used the 'mozart2camx' computer program, originally designed for processing outputs from the MOZART global model. Some modifications were made to adapt it for CAM-chem output processing.

Vertical layering in the BCON data adheres to the meteorological files, utilizing pressure levels at each layer interface for vertical interpolation. For horizontal alignment, bilinear interpolation was applied to interpolate data from the global model grids to the regional CMAQ grids. Speciation profiles were employed to map CAM-chem species into CMAQ species for trace gases (SAPRC07TC) and aerosols. The final CAM-chem derived BCONs for the CMAQ domain represent day-specific mixing ratios, varying in spatial (horizontal and vertical) and temporal (every 6 hours) dimensions.

Total PM_{2.5} Mass in Boundary Conditions

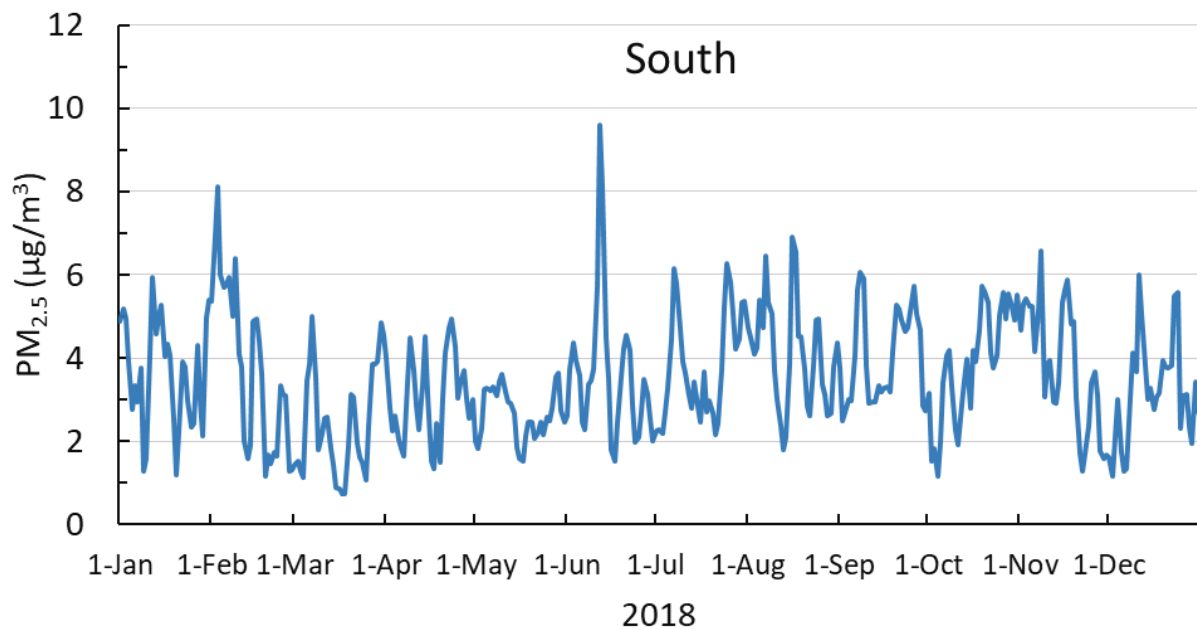
Figures II-4-13 and II-4-14 illustrate daily averages of surface total PM_{2.5} along the four boundaries of our modeling domain. The mean surface PM_{2.5} levels along the southern and northern boundaries exhibit similarities, typically ranging from 1 to 6 µg/m³. Notably, there are periodic peaks in PM_{2.5} concentrations (ranging from 6 to 10 µg/m³) along the southern boundary during the summer season, possibly attributed

² Emmons, L. K., Schwantes, R. H., Orlando, J. J., Tyndall, G., Kinnison, D., Lamarque, J.-F., et al., (2020). The Chemistry Mechanism in the Community Earth System Model version 2 (CESM2). Journal of Advances in Modeling Earth Systems, 12, e2019MS001882, <https://doi.org/10.1029/2019MS001882>

³ Buchholz, R. R., Emmons, L. K., Tilmes, S., & The CESM2 Development Team, (2019). CESM2.1/CAM-chem Instantaneous Output for Boundary Conditions. UCAR/NCAR - Atmospheric Chemistry Observations and Modeling Laboratory. <https://doi.org/10.5065/NMP7-EP60>.

to regional transport from Mexico when southerly winds prevail. In contrast, the northern boundary is influenced by emissions from central California, resulting in a seasonal average surface PM_{2.5} concentration of approximately 3-4 $\mu\text{g}/\text{m}^3$. The western boundary, situated over the Pacific Ocean west of the Basin, consistently shows the lowest concentrations, with an average PM_{2.5} concentration peaking in summer and fall seasons ($\sim 3 \mu\text{g}/\text{m}^3$) and dropping in spring ($\sim 2 \mu\text{g}/\text{m}^3$).

The eastern boundary, on the other hand, exhibits a broader range, with average PM_{2.5} concentrations ranging from 2 to 12 $\mu\text{g}/\text{m}^3$. These concentrations tend to be higher than those observed along other boundaries, particularly during the summer months. This difference may be attributed to elevated background particulate levels resulting from wildfires and biogenic sources originating from the eastern region. Additionally, the prevailing general circulation in Southern California moves from west to east, causing the eastern boundary to experience a higher background level of PM_{2.5} due to the influence of upwind emissions compared to other boundaries. The peak of PM_{2.5} ($>12 \mu\text{g}/\text{m}^3$) occurred in June at the eastern boundary is likely attributed to a wildfire event.



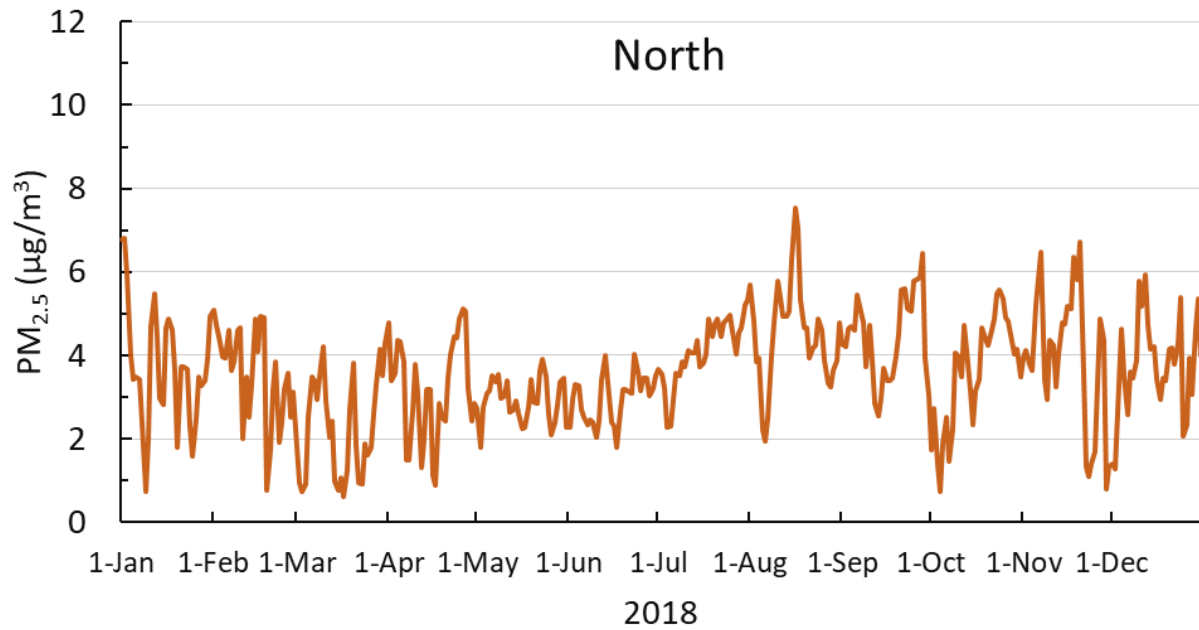
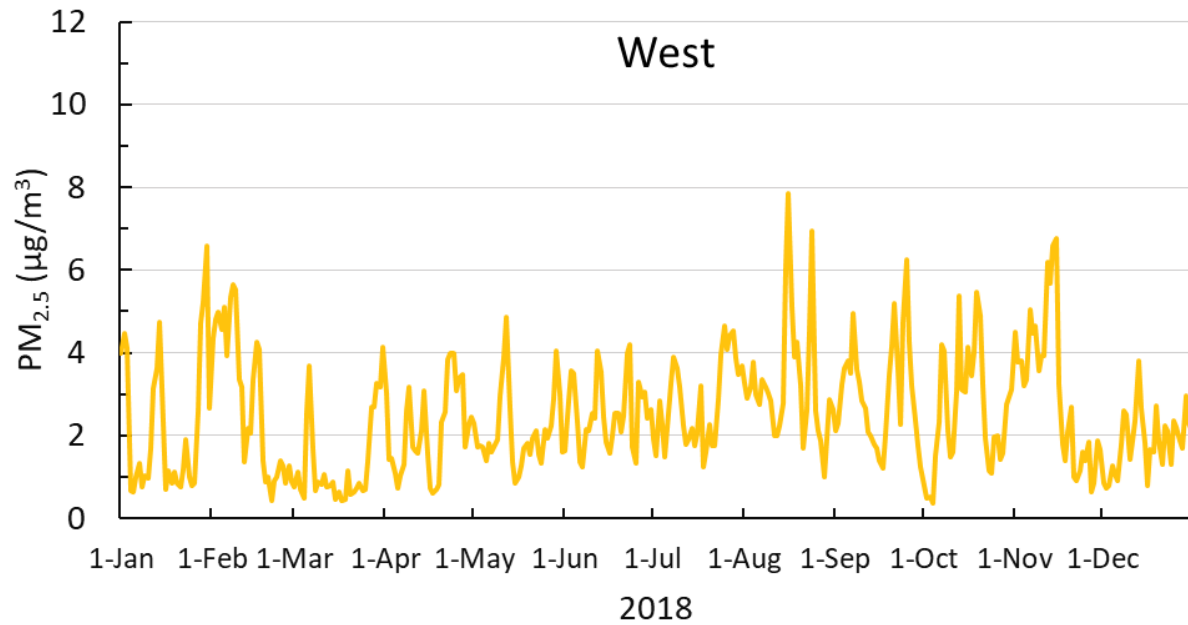


FIGURE II-4-13

DAILY AVERAGES OF SURFACE PM_{2.5} CONCENTRATION ALONG THE SOUTH AND NORTH BOUNDARIES



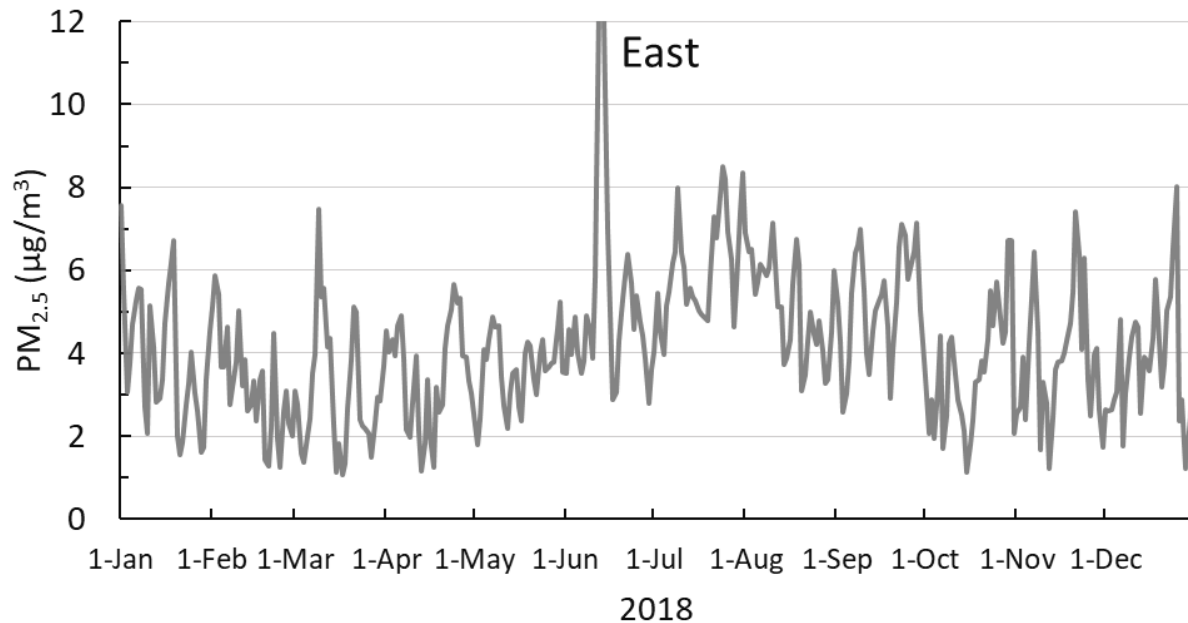
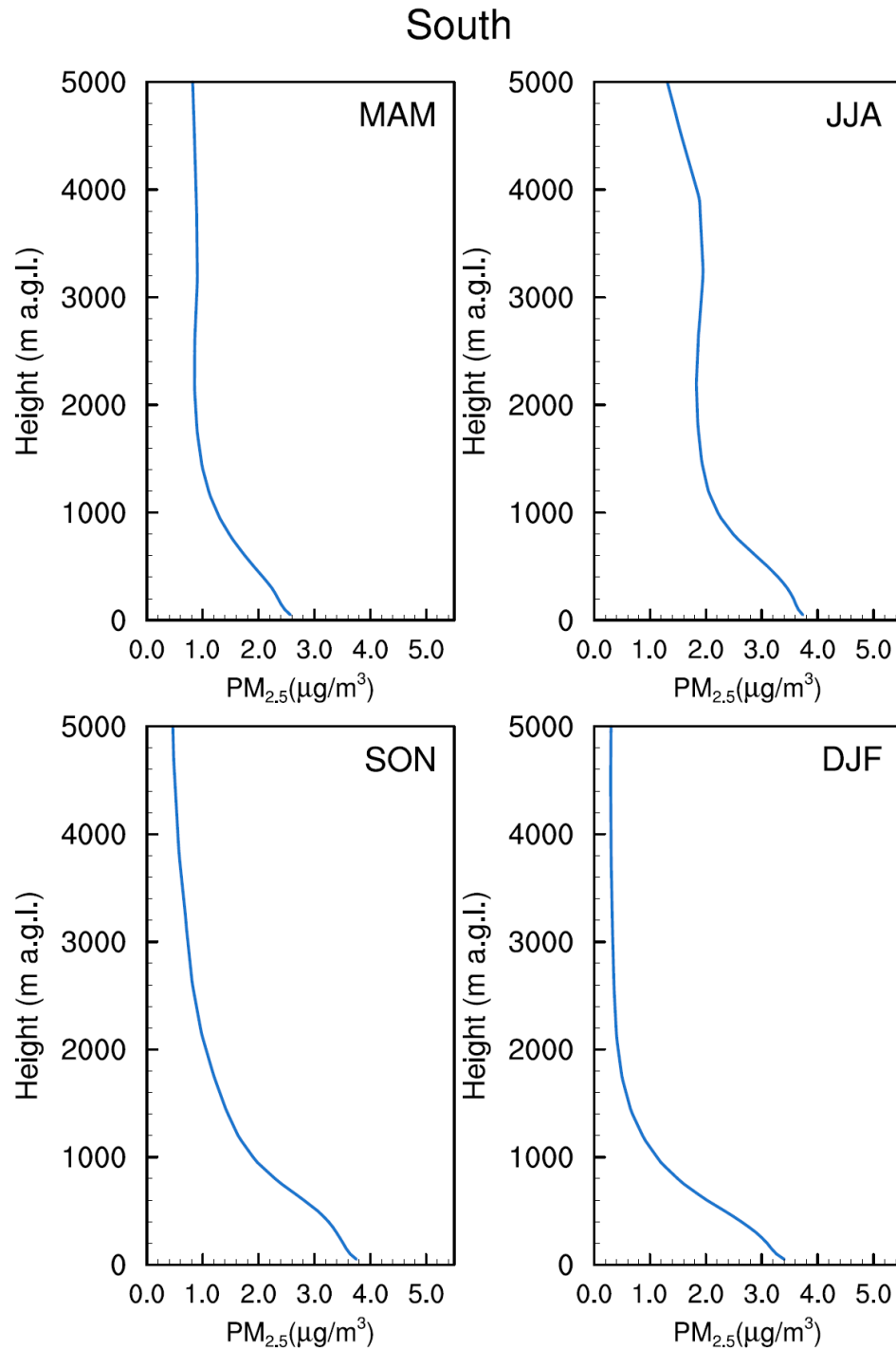


FIGURE II-4-14

DAILY AVERAGES OF SURFACE PM_{2.5} CONCENTRATION ALONG THE WEST AND EAST BOUNDARIES

Figures II-4-15 through II-4-18 depict vertical profiles of seasonal PM_{2.5} concentrations, extending from the ground surface to the mid-troposphere, along the four boundaries of our modeling domain. In all seasons, PM_{2.5} is predominantly concentrated within the atmospheric boundary layer, with background PM_{2.5} levels above the boundary layer typically below 2 µg/m³. Both near-surface PM_{2.5} and background PM_{2.5} in the free troposphere peaks in the summer months along all four boundaries. This phenomenon is likely attributable to increased secondary production under warm and humid summer conditions. The most notable disparity between near-surface (or boundary layer) and free-tropospheric PM_{2.5} concentrations occurs during winter due to reduced vertical mixing and ventilation compared to warmer seasons.

Both near-surface and free-tropospheric PM_{2.5} concentrations are higher along the eastern boundary compared to the other boundaries. This disparity arises from downwind transport and greater influences from wildfires and biogenic matter compared to the other boundaries. Conversely, the western boundary consistently has the lowest PM_{2.5} levels within both the boundary layer and free troposphere due to the relatively cleaner airflow originating from the ocean.



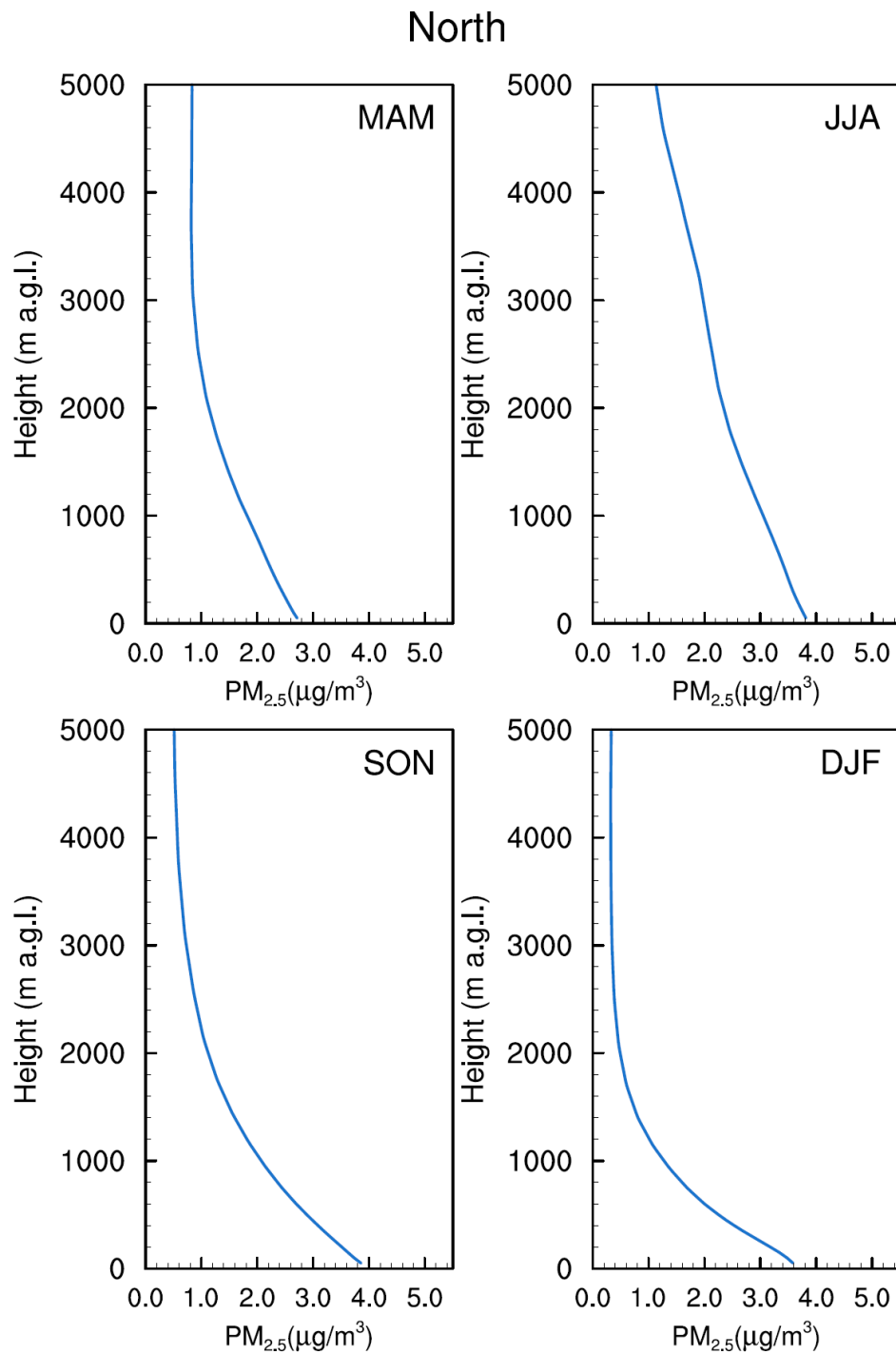
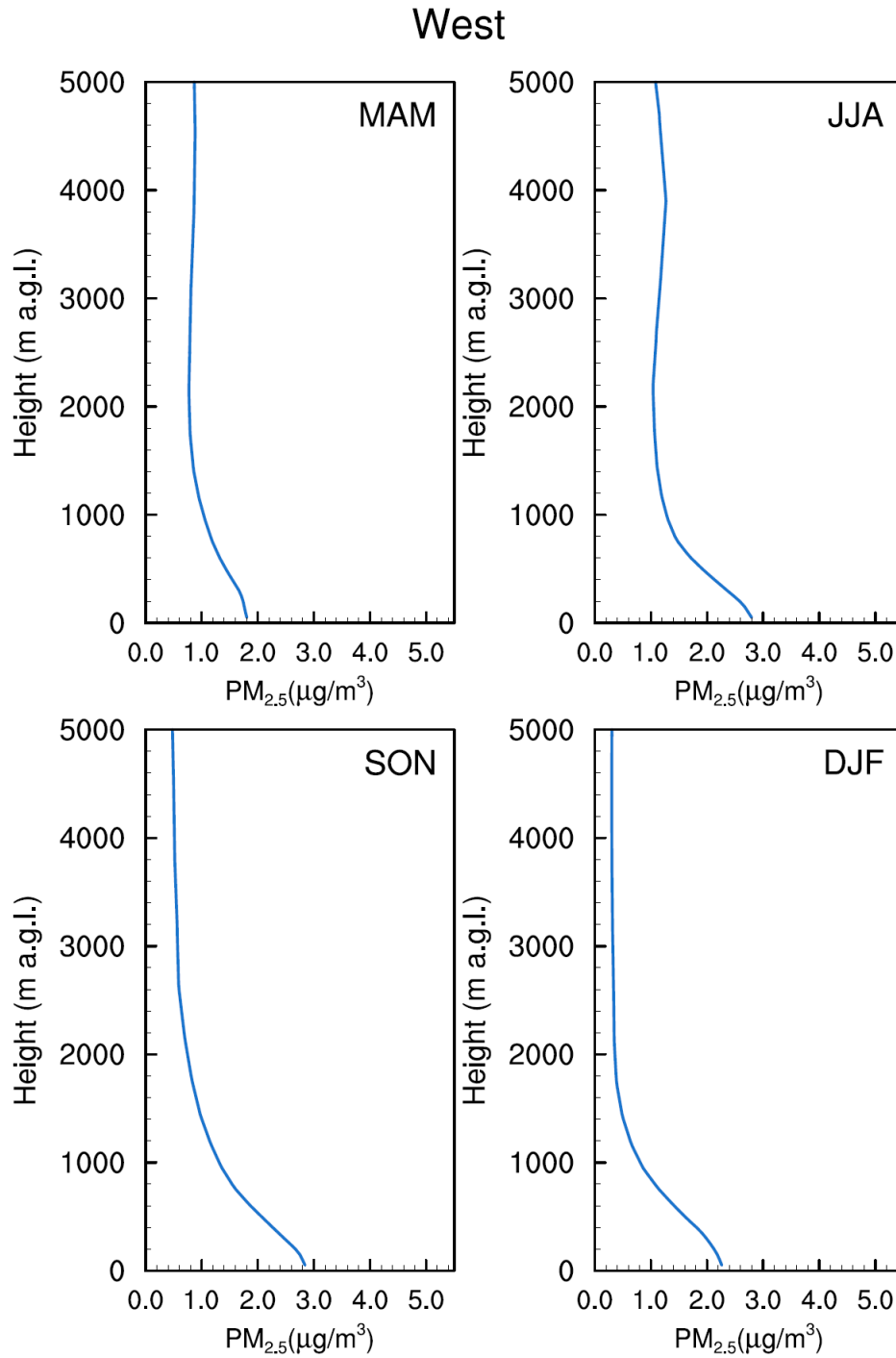


FIGURE II-4-16

PM_{2.5} VERTICAL PROFILE ALONG THE NORTHERN BOUNDARY IN FOUR SEASONS



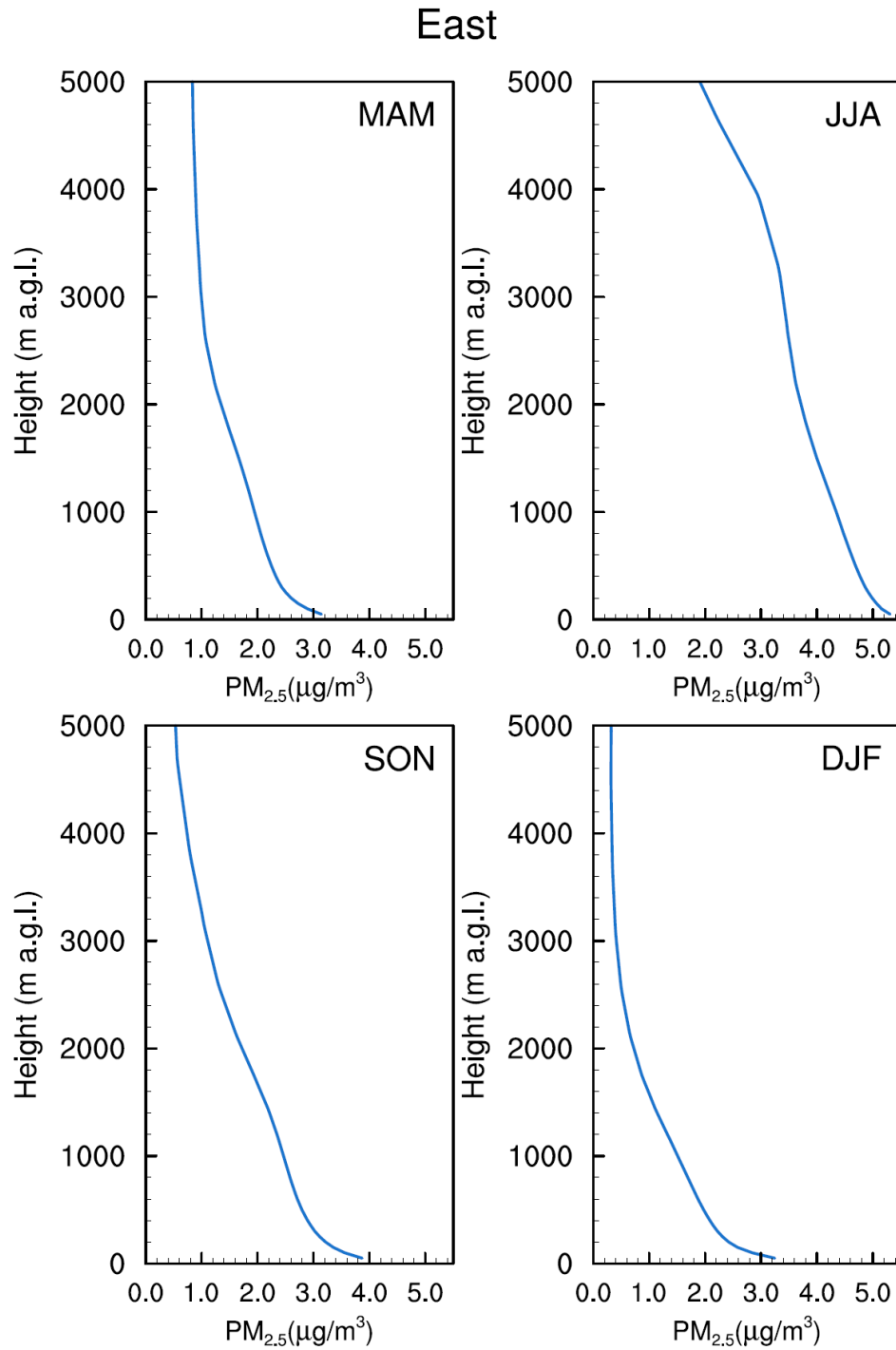


FIGURE II-4-18

PM_{2.5} VERTICAL PROFILE ALONG THE EASTERN BOUNDARY IN FOUR SEASONS

The boundary values used in future year simulations were retrieved using the same approach as in the base year (2018), except for anthropogenic emissions, which were adjusted based on the projected future

emission levels in the State. In this approach, out of state emissions were not adjusted due to the lack of accurate information, but the impact of statewide emission reductions was considered.

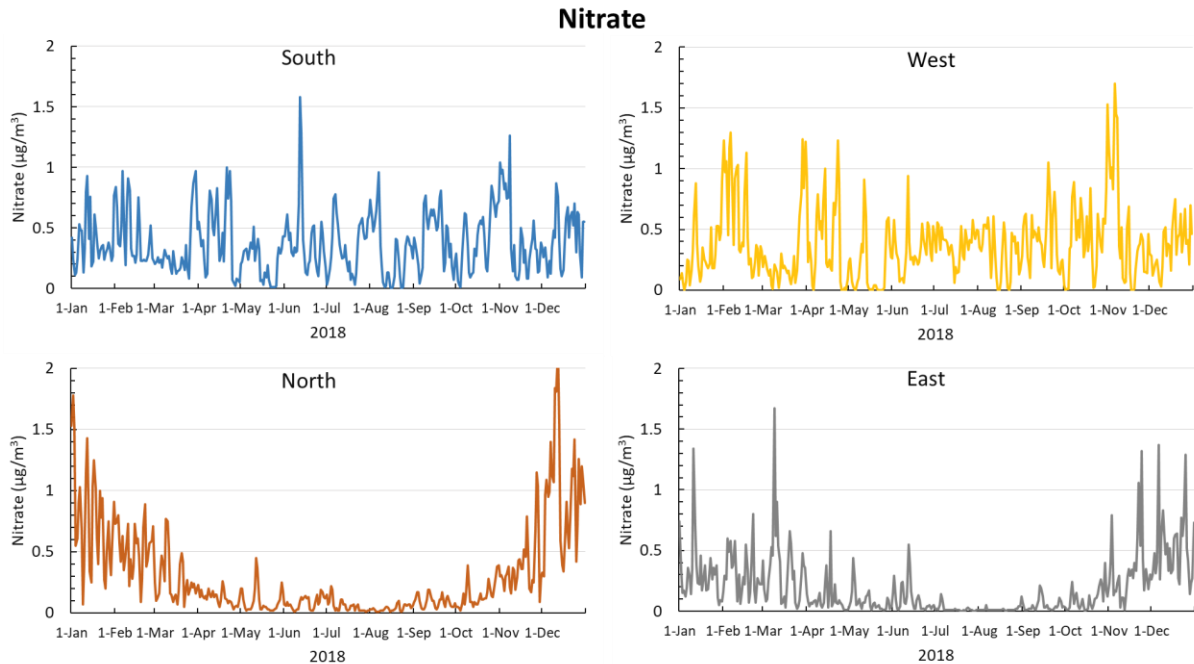
PM_{2.5} Species in Boundary Conditions

We further examine the boundary and initial conditions of several major PM_{2.5} species, including nitrate, sulfate, elemental carbon (EC), and organic carbon (OC). Figures II-4-19 and II-4-22 illustrate daily averages of these PM_{2.5} species along the four boundaries of our modeling domain. The boundary conditions exhibit significant variations across four different directions and among various PM_{2.5} species. OC emerges as the predominant PM_{2.5} species along all four boundaries, with annual average concentrations ranging from 0.72 to 1.88 $\mu\text{g}/\text{m}^3$. This is followed by sulfate (0.43-0.73 $\mu\text{g}/\text{m}^3$), nitrate (0.30-0.38 $\mu\text{g}/\text{m}^3$), and EC (0.05-0.19 $\mu\text{g}/\text{m}^3$). Table II-4-2 provides an overview of the annual averages of PM_{2.5} species along these four boundaries.

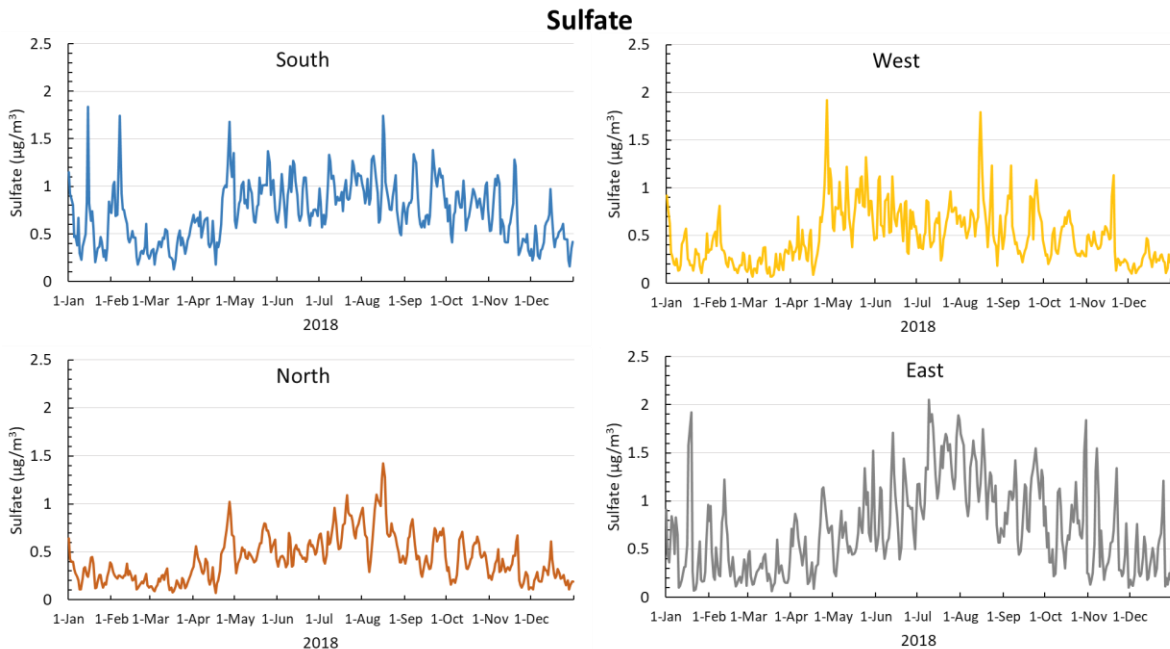
Nitrate and sulfate levels are at their highest along the southern boundary due to anthropogenic emissions originating from cities in Southern California and Mexico (Figures II-4-19 and II-4-20). However, at the western boundary, nitrate and sulfate concentrations are comparable to the levels in other boundary directions. This is possibly attributed to various factors, including transport by land-sea oscillations, long-range transport from Asia, and marine/ship emissions. EC concentrations peak at the southern and eastern boundaries due to anthropogenic emissions from Mexico and wildfires occurring in the western U.S. states (Figure II-4-21). OC exhibits higher levels at the northern and eastern boundaries, possibly due to the influence of wildfires and biogenic sources. Compared to nitrate, sulfate, and EC, OC generally has a shorter atmospheric lifetime and thus is closer to its sources than other species (e.g., Cheung et al., 2011)⁴. Therefore, unlike other species, OC concentrations are at their lowest along the western boundaries (Figure II-4-22), owing to the relatively clean airflow originating from the ocean.

When comparing PM_{2.5} species to gaseous pollutants such as NO_x, it's worth noting that particulate matter has a longer atmospheric lifetime. This extended lifetime allows PM_{2.5} species to disperse more evenly across different boundaries than most gaseous pollutants. In contrast, gaseous pollutants like NO_x show substantial concentration variations across boundaries, with notably low levels at the western boundary (close to zero) and comparatively higher levels at other boundaries (Figure not shown).

⁴ Cheung, K., Daher, N., Kam, W., Shafer, M. M., Ning, Z., Schauer, J. J., & Sioutas, C. (2011). Spatial and temporal variation of chemical composition and mass closure of ambient coarse particulate matter (PM_{10-2.5}) in the Los Angeles area. *Atmospheric environment*, 45(16), 2651-2662, <https://doi.org/10.1016/j.atmosenv.2011.02.066>



DAILY AVERAGES OF SURFACE NITRATE CONCENTRATION ALONG THE FOUR BOUNDARIES OF MODELING DOMAIN



DAILY AVERAGES OF SURFACE SULFATE CONCENTRATION ALONG THE FOUR BOUNDARIES OF MODELING DOMAIN

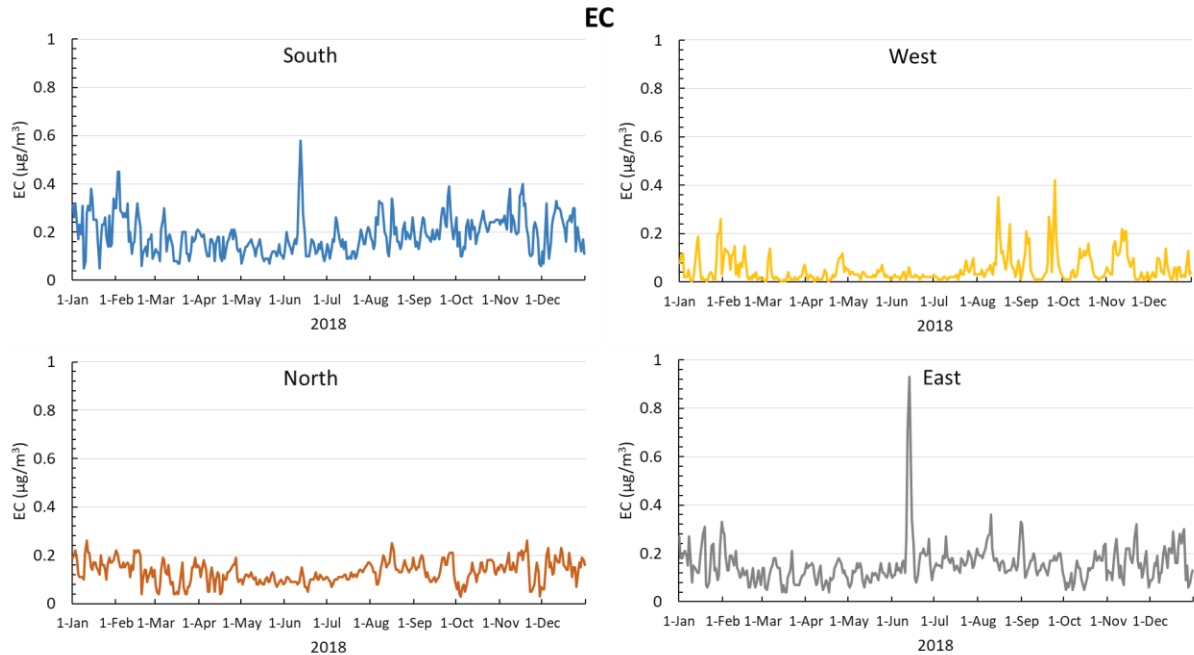


FIGURE II-4-21

DAILY AVERAGES OF SURFACE ELEMENTAL CARBON CONCENTRATION ALONG THE FOUR BOUNDARIES OF MODELING DOMAIN

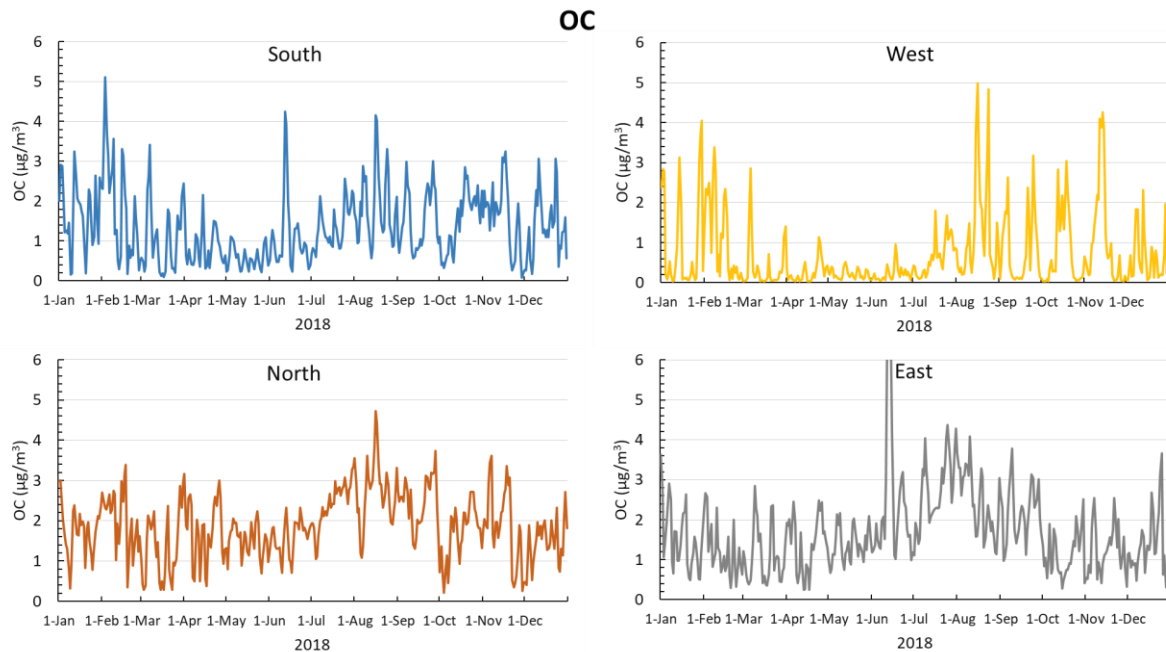


FIGURE II-4-22

DAILY AVERAGES OF SURFACE ORGANIC CARBON CONCENTRATION ALONG THE FOUR BOUNDARIES OF MODELING DOMAIN

TABLE II-4-2

ANNUAL AVERAGES OF MAJOR PM_{2.5} SPECIES AND TOTAL PM_{2.5} ALONG THE FOUR BOUNDARIES OF MODELING DOMAIN (µg/m³)

	South	West	North	East
Nitrate	0.38	0.37	0.30	0.19
Sulfate	0.73	0.49	0.43	0.71
EC	0.19	0.05	0.13	0.15
OC	1.36	0.72	1.88	1.70
Total PM _{2.5}	3.48	2.47	3.59	4.19

Chapter 5

ANNUAL PM2.5 ATTAINMENT DEMONSTRATION

Introduction

Annual PM2.5 Modeling Approach

Performance Evaluation

Base Year Annual PM2.5

Future Year Annual PM2.5 Air Quality

Unmonitored Area Analysis

Summary and Conclusions

Introduction

On April 15, 2015, the South Coast Air Basin was designated a ‘moderate’ non-attainment area for the 2012 annual PM_{2.5} standard of 12 µg/m³. This designation set an attainment deadline of December 31, 2021, based on CAA subpart 4, which establishes that attainment must be reached by the end of the 6th calendar year after the effective date of “moderate” designation. Acknowledging the challenges in meeting the standard, including the feasibility of proposed measures, uncertainties in drought conditions, and the potential inability to credit all ozone strategy reductions towards PM_{2.5} attainment if approved under CAA Section 182(e)(5), South Coast AQMD requested a voluntary bump-up to the “serious” classification, with a new attainment date of 2025. On December 9, 2020, U.S. EPA reclassified the Basin from “moderate” to “serious” nonattainment for the 2012 annual PM_{2.5} NAAQS with an attainment deadline by December 31, 2025.¹ “Serious” nonattainment areas are required to attain the standard as expeditiously as practicable, but no later than the end of the tenth calendar year after the designation, i.e., December 31, 2025. Under CAA Section 188(e), “serious” nonattainment areas may request an attainment date extension to no later than the end of the fifteenth calendar year after the designation, i.e., December 31, 2030. This plan requests an extension of attainment in 2030 due to unforeseen challenges associated with near-road monitored PM_{2.5} levels, lack of progress from the sources subject to federal and international sources and adverse meteorology.

PM_{2.5} FRM Sampling

The South Coast AQMD maintains a sampling network of Federal Reference Method (FRM) PM_{2.5} monitors at 20 sites throughout the Basin and Coachella Valley. This network is supplemented by Federal Equivalent Method (FEM) continuous PM_{2.5} monitors at a subset of these locations to report real-time data to the public and to feed for forecasting algorithms. FRM samplers pull ambient air through a filter over a 24-hour period. The filter is then removed and weighed to determine ambient PM_{2.5} concentrations during the sampling period. The FEM samplers used by South Coast AQMD are Beta Attenuation monitors that report hourly PM_{2.5} concentrations continuously, which are averaged over a 24-hour period to determine daily averages. While measurements from FRM and FEM produce similar concentrations, there still is some variation, with FEM samplers typically reading higher than collocated FRM samplers. FRM measurements are used in the determination of attainment status, whereas FEM measurements are used to supplement FRM measurements for days with missing data, if the FEM monitor is determined to be eligible for NAAQS comparison by U.S. EPA. The calculation of 5-year-weighted base year design values used FRM samples with missing FRM samples replaced by NAAQS-comparable FEM samples.

Speciated PM_{2.5} Sampling

South Coast AQMD adopted a Multi-Channel Fine Particulate (MCFP) sampling system for the PM₁₀ Technical Enhancement Program (PTEP) monitoring program in 1995.¹ New PM samplers, speciated air sampling system (SASS) samplers, were deployed at the four Chemical Speciation Network (CSN) sites in the Basin. The SASS sampler collects PM_{2.5} particles on 47mm quartz and Teflon filters simultaneously within the same sampler continuously for 24-hours for subsequent laboratory chemical analysis. Samples were originally collected one out of every six days.

PM_{2.5} speciation data, measured as individual species at the four CSN sites in the Basin during the period 2017-2019, provided the PM_{2.5} chemical characterization for evaluation and validation of the CMAQ annual modeling. The four CSN sites include Riverside-Rubidoux, Fontana, Anaheim and Central Los Angeles (Figure II-5-1). These four sites represent each county that the monitor is located in. PM_{2.5} mass, ions, organic and elemental carbon, and metals, for a total of 43 chemical species, were analyzed from a one-in-six-day sampling schedule at the 4 sites. The speciation profiles in these four sites are used to estimate the speciation profiles at the other monitoring stations using interpolation with inverse distance weighting per U.S. EPA's guidance.

¹ Bong Mann Kim, Solomon Teffera & Melvin D. Zeldin (2000). Characterization of PM_{2.5} and PM₁₀ in the South Coast Air Basin of Southern California: Part 1—Spatial Variations, *Journal of the Air & Waste Management Association*, 50:12, 2034-2044, Available at: <https://doi.org/10.1080/10473289.2000.10464242>

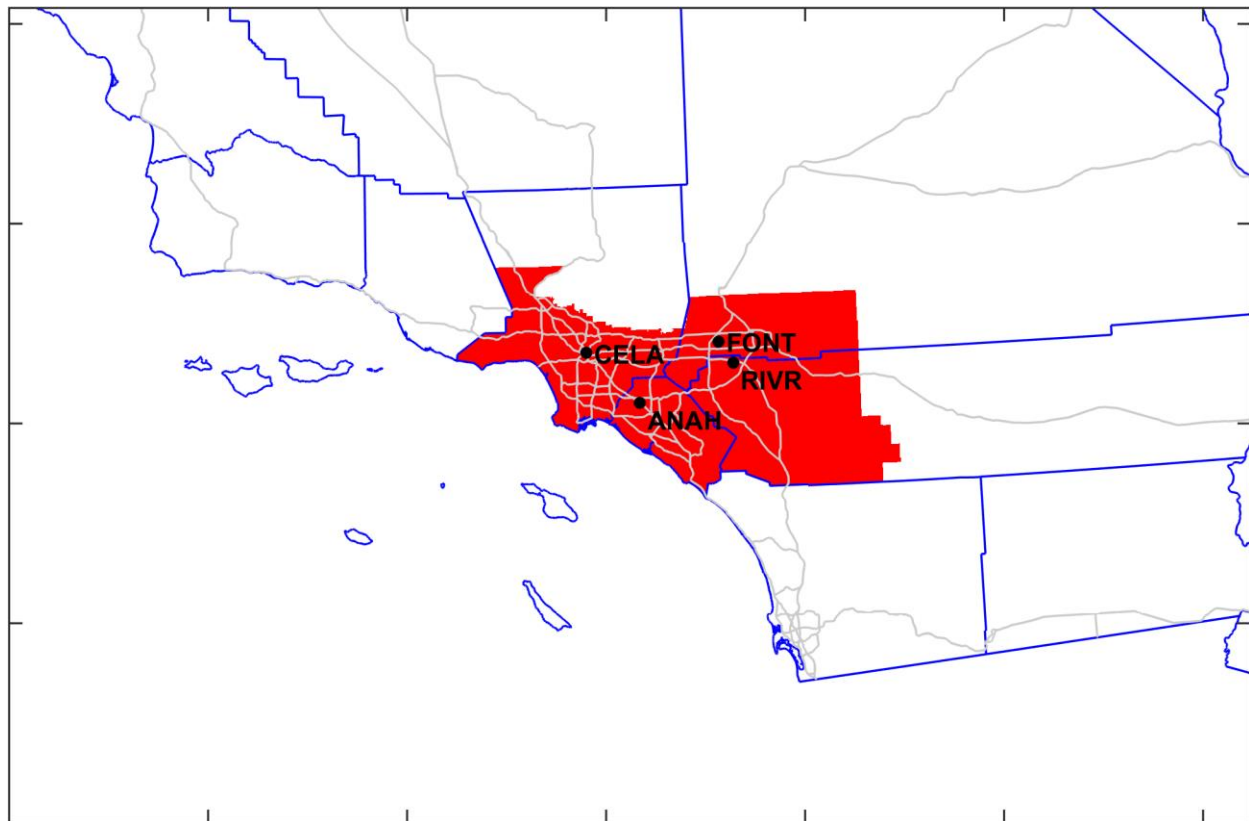


FIGURE II-5-1

SAMPLING SITES IN THE BASIN

PM_{2.5} speciation data measured by the SASS samplers are used to derive the species fractions required for the PM_{2.5} attainment demonstration methodology. U.S. EPA's PM_{2.5} modeling guidance recommends calculating future year PM_{2.5} design values by multiplying quarterly, species-specific Relative Response Factors (RRFs) with the base year speciated design values for each quarter for each monitoring site. Base year design values are determined from the FRM mass data, however the FRM filters are not chemically speciated. Therefore, the guidance document recommends multiplying the species fractions that are measured in a speciation sampler such as the SASS to the FRM mass data to derive chemically speciated design values for the FRM data. Discussion in the measured design values and the calculation of speciation profiles is presented later in this chapter.

Annual PM2.5 Modeling Approach

This PM2.5 Plan’s annual PM2.5 modeling follows the U.S. EPA modeling guidance² to estimate the future year annual PM2.5 levels, which is based on the site and species-specific RRF approach. A five-year weighted quarterly average from the 2016 to 2020 period was established as the base year 2018 design value. The year 2020, however, was excluded in calculation of 2018 base year design values due to exceptionality of 2020. Refer to Chapter 5 for more details.—on the formulation of the modified 5-year weighted design value.

The year 2020 was characterized by a large disruption in air pollutant emissions due to the response to the COVID-19 pandemic and by the exceptionally widespread wildfire activity in the state. The COVID-19 Pandemic started to influence economic activity in March of 2020 in the South Coast AQMD region. During the initial months of “safer at home” orders in late March to June 2020, light-duty and heavy-duty vehicle traffic decreased by 43 percent and 26 percent, respectively, with respect to the month before the COVID stay-at-home measures began. In addition, cargo movement at the ports of Los Angeles and Long Beach decreased by 12 percent, and flights in major airports in the Basin decreased by over 50% during April to June, compared to the same period in 2019. Activity at the ports and airports remained significantly below the business-as-usual level in 2020. Wildfires are a significant source of both fine particulate matter and VOCs. Additional VOC emissions from wildfire activity may lead to increases in secondary PM2.5 throughout the Basin. The 2020 fire season was extremely active, with a record amount of acreage burned. Over 4 million acres burned in California in 2020, more than double the previous modern record set in 2018. Both fires within the South Coast Air Basin such as the Bobcat, El Dorado, Silverado, Blue Ridge, Ranch2, Apple and Snow fires and fires in Northern and Central California affected air quality in 2020. In total, we identified 13 events that potentially affected PM2.5 concentrations in the Basin and that triggered smoke advisories for the Basin.³ These 13 events, listed in Attachment 4 of this appendix, spanned for long periods from mid-June through mid-December. Accordingly, it is unreasonable to use such extraordinary circumstances impacting human activities and associated emissions in a SIP planning which is based on business-as-usual normal situation. More discussions on the COVID-19 impacts, meteorology and wildfire impacts in relation with ozone can be found in Chapter 2 of the 2022 AQMP.

The modeling platform is developed to model an entire year to calculate quarterly PM2.5 averages. A day-specific emissions inventory was developed to reflect the temperature and relative humidity dependency of mobile sources and biogenic emissions. Also, seasonal fuel switching, and the resulting emission rates were incorporated in the modeling inventory.

In addition to the base year (2018), future milestone years simulated under this plan were 2025 and 2030, with the former being the target attainment year for a ‘serious’ non-attainment area and the latter for an extended attainment deadline for a ‘serious’ non-attainment area. Both baseline and control scenarios were simulated for each of the future years. CMAQ output was averaged over the 3X3 grid around each monitoring station following U.S. EPA’s modeling guidance.

² Modeling Guidance for Demonstrating Attainment of Air Quality Goals for Ozone, PM2.5, and Regional Haze, U.S. EPA, November 2018. Available at: https://www.epa.gov/sites/default/files/2020-10/documents/o3-pm-rh-modeling_guidance-2018.pdf

³ Smoke advisories released in 2020 available here: <https://www.aqmd.gov/home/news-events/news-and-media/2020-news-archives#>

The base year design values are listed in Table II-5-1. The future year design values are calculated using the base year quarterly averages and the RRF calculated using modeled concentrations for the base year and future scenario. Site- and species-specific RRFs are calculated from CMAQ simulations and then, they are applied to the quarterly average design values which are averaged for the period of 2016 to 2019 using the 5-year weighted average approach. The average of the quarterly species-specific projections is the future design value.

TABLE II-5-1
FIVE-YEAR WEIGHTED ANNUAL PM_{2.5} DESIGN VALUES FOR 2018 (µg/m³)

Monitoring Site	Annual 2018 DVB
Anaheim-Pampas Lane	10.55
Azusa	10.13
Big Bear	6.35
Los Angeles-North Main Street	11.97
Compton-700 North Bullis Road	12.25
Fontana-Arrow Highway	11.35
Long Beach-Route 710 Near Road	12.28
North Long Beach	10.53
Mira Loma Van Buren	13.53
Mission Viejo-26081 Via Pera	7.94
Ontario- Route 60 Near Road	13.98
Pasadena-S Wilson Avenue	9.68
Pechanga	6.36
Pico Rivera-4144 San Gabriel	11.87
Reseda	9.74
Riverside-Rubidoux	12.13
South Long Beach	10.58
San Bernardino-4th Street	10.87

Performance Evaluation

The EPA guidance assesses model performance on the ability to predict both PM_{2.5} component species concentrations and the total mass. No specific performance criteria thresholds are recommended in EPA's modeling guidance document. This is because the model uses relative response factors rather than direct predictions to forecast future concentrations. Performance is evaluated by examining key statistics and graphical representations of differences between model-predicted concentrations and observations. The statistics examine model bias and error, while graphical representations of model prediction as a function of time and concentration scatter plots supplement the model performance evaluation. The CMAQ modeling results presented for each station are based on the same "1-cell" basis, as recommended by the guidance.

For the CMAQ performance evaluation, the modeling domain is separated into several sub-regions or zones. Figure II-5-2 depicts the sub-regional zones used for base-year simulation performance. The different zones present unique air quality profiles. The Basin is represented by five zones: "Coastal", "San Fernando", "Foothills", "Urban Source", and "Urban Receptor". The "Urban Receptor" region typically has the highest PM_{2.5} concentrations in the Basin. Table II-5-2 lists the stations, their abbreviations, and their assigned performance evaluation zone.

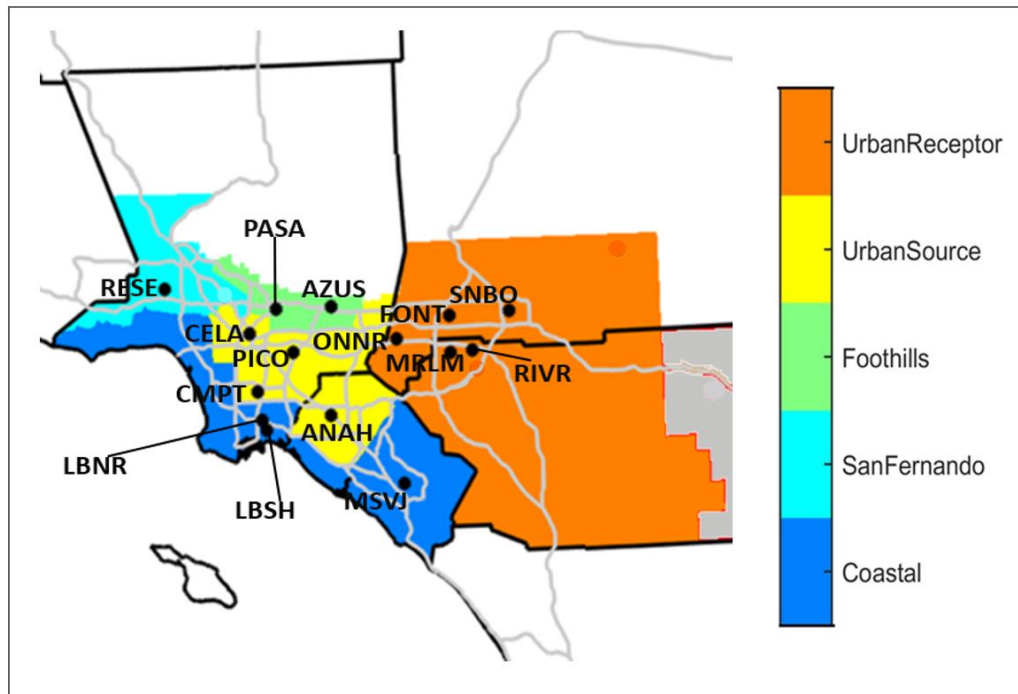


FIGURE II-5-2

PERFORMANCE EVALUATION ZONES. BLACK DOTS INDICATE THE LOCATION OF FRM STATIONS.

TABLE II-5-2
FRM STATIONS IN THE SOUTH COAST AIR BASIN

	Station Location	Station Abbreviation	Performance Evaluation Zone
	Long Beach	LGBH	Coastal
	Mission Viejo	MSVJ	Coastal
	South Long Beach	SLBH	Coastal
	Azusa	AZUS	Foothills
	Pasadena	PASA	Foothills
	Reseda	RESE	San Fernando
	Fontana	FONT	Urban Receptor
	Mira Loma	MRLM	Urban Receptor
	Ontario	ONFS	Urban Receptor
	Riverside	RIVR	Urban Receptor
	San Bernardino	SNBO	Urban Receptor
	Anaheim	ANAH	Urban Source
	Compton	CMPT	Urban Source
	Los Angeles	CELA	Urban Source
	Pico Rivera	PICO	Urban Source

Daily predicted and observed PM_{2.5} concentrations at CELA, ANAH, FONT, MRLM, and RIVR are presented in Figures II-5-3 through II-5-7. While absolute concentrations may differ, the model simulates trends in PM_{2.5} reasonably well. Both modelled and observed PM_{2.5} concentrations have high variability and display the highest peaks in the 1st and 4th quarter. Concentrations have less day-to-day variation in the 2nd and 3rd quarters at all the 5 sites. This behavior is likely due to differences in meteorology throughout the year. Weather patterns during the first quarter and the second half of the 4th quarter are typically highly variable; precipitation days, cold, high-winds and unstable conditions associated with synoptic scale storms are all commonly experienced during the winter months. On the contrary, spring and summer weather patterns are dominated by high pressure systems, leading to less day-to-day variation in boundary layer heights and wind speeds.

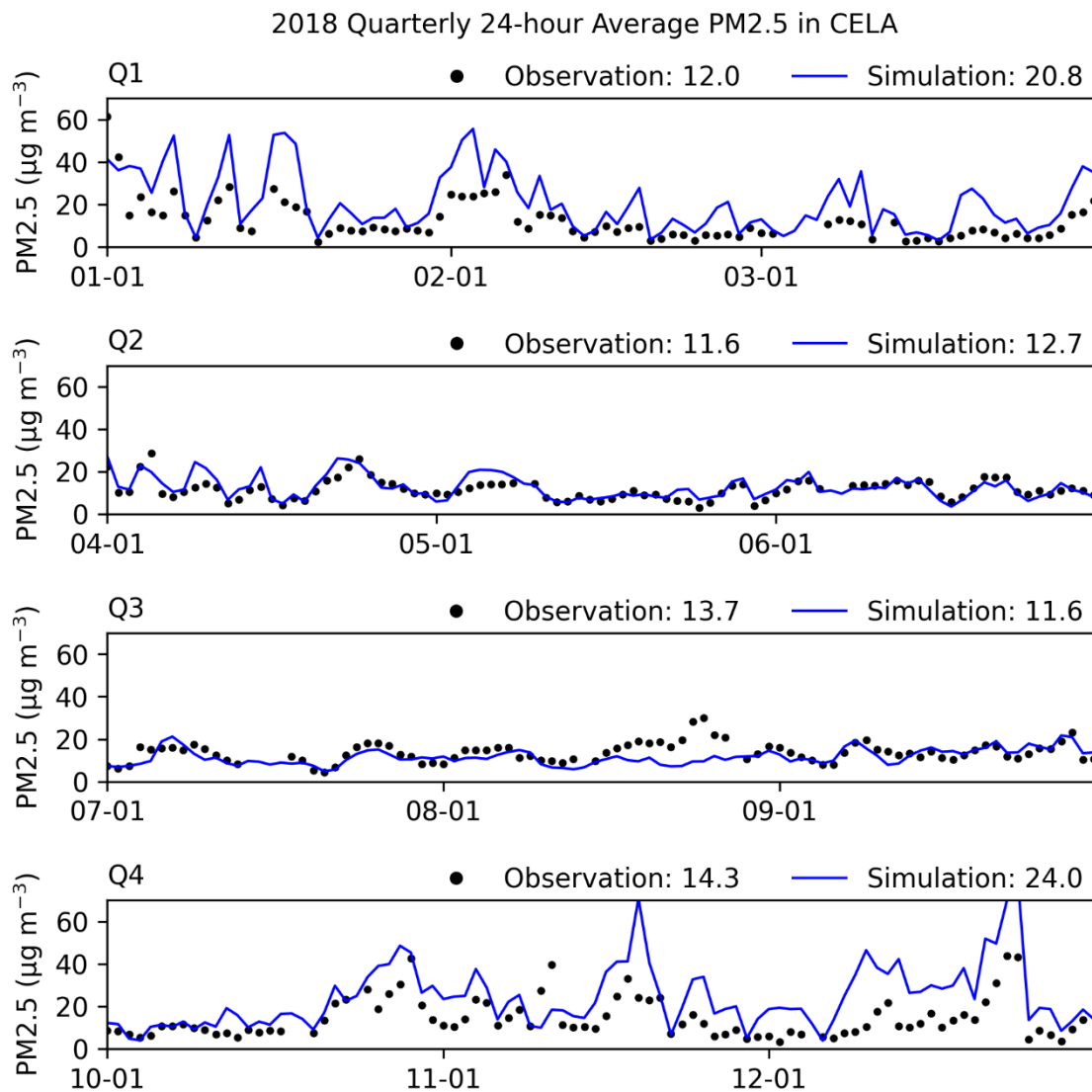


FIGURE II-5-3

2018 MODELLED AND MEASURED 24-HOUR AVERAGE PM_{2.5} CONCENTRATIONS IN LOS ANGELES

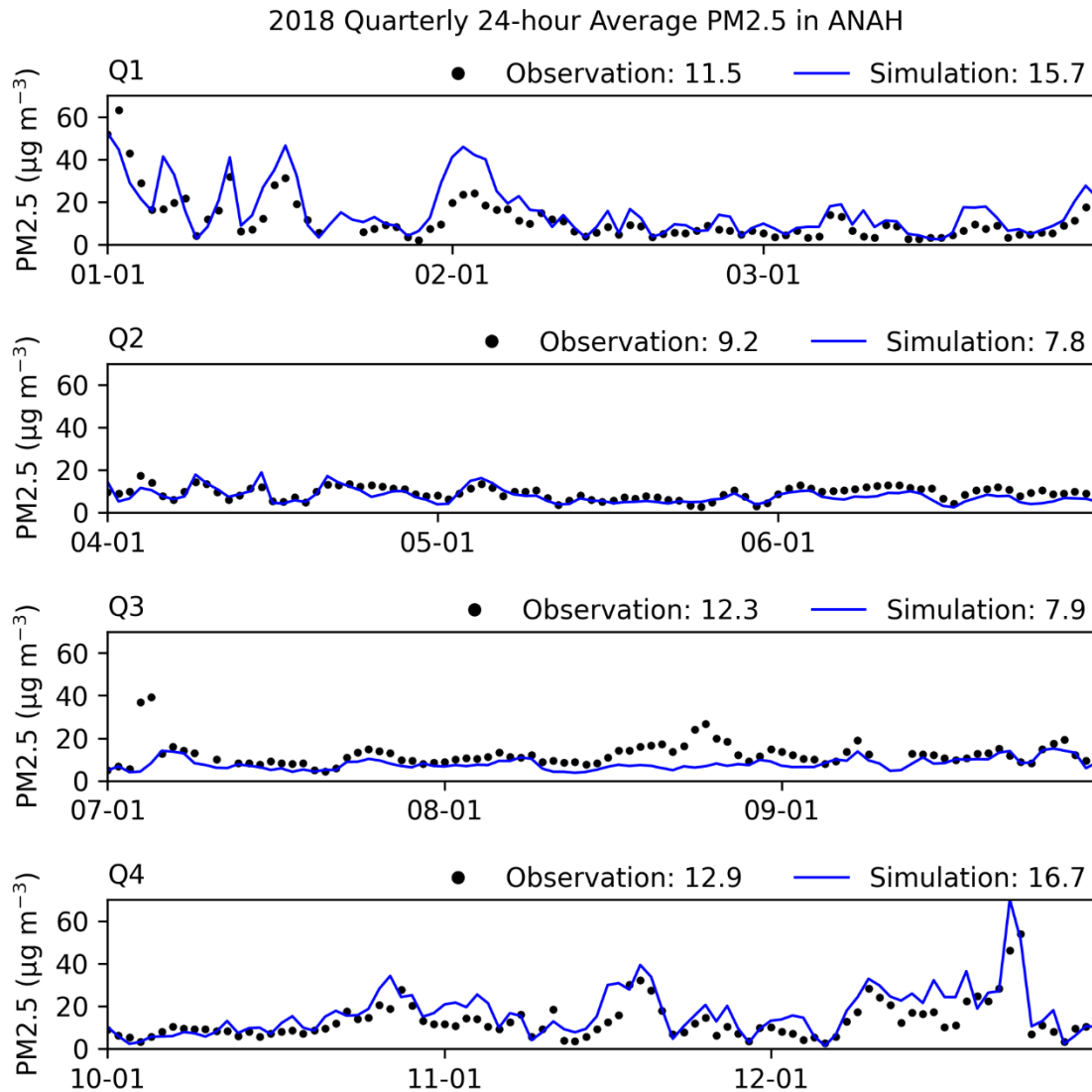


FIGURE II-5-4

2018 MODELLED AND MEASURED 24-HOUR AVERAGE PM_{2.5} CONCENTRATIONS IN ANAHEIM

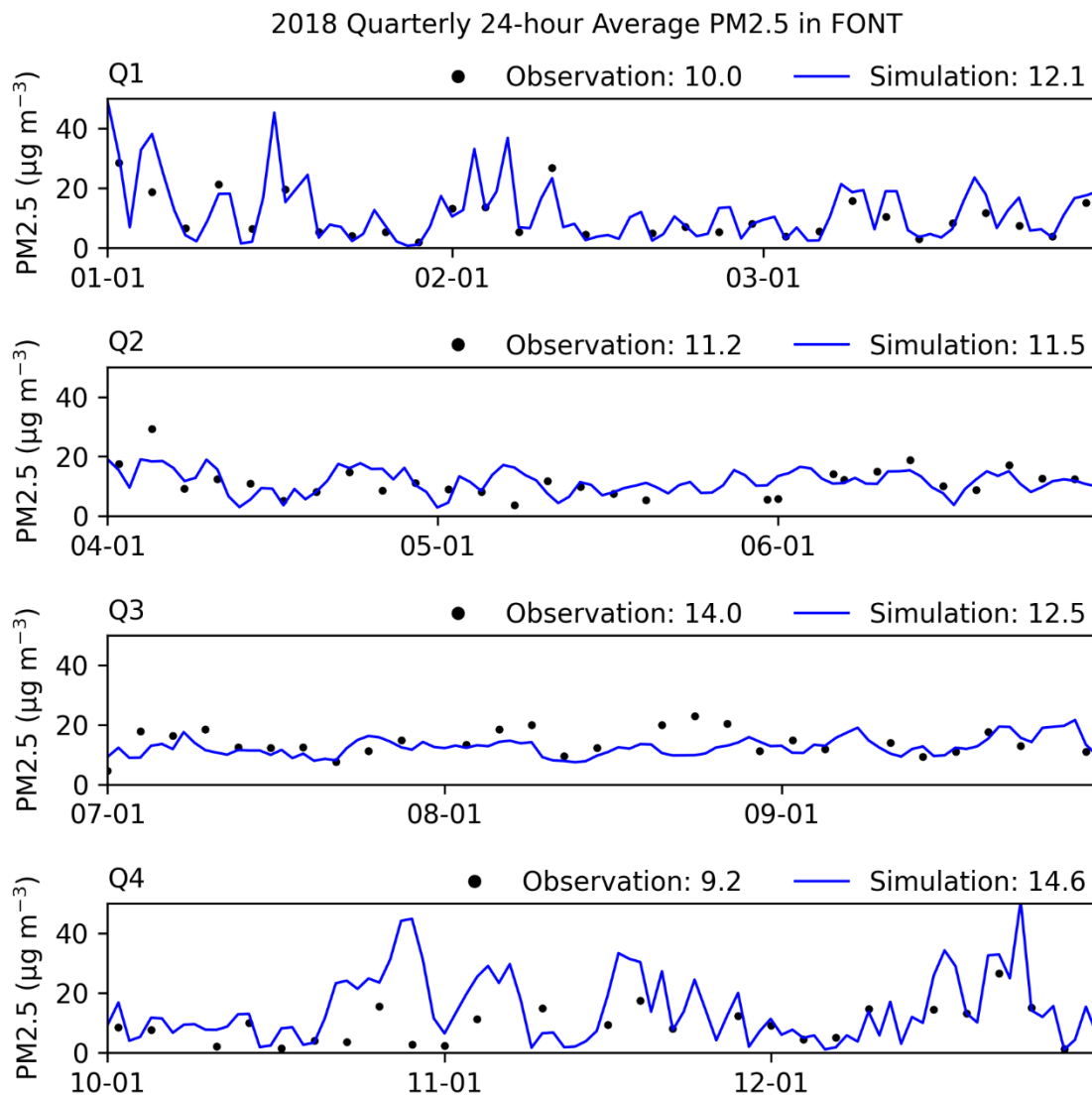


FIGURE II-5-5

2018 MODELLED AND MEASURED 24-HOUR AVERAGE PM_{2.5} CONCENTRATIONS IN FONTANA

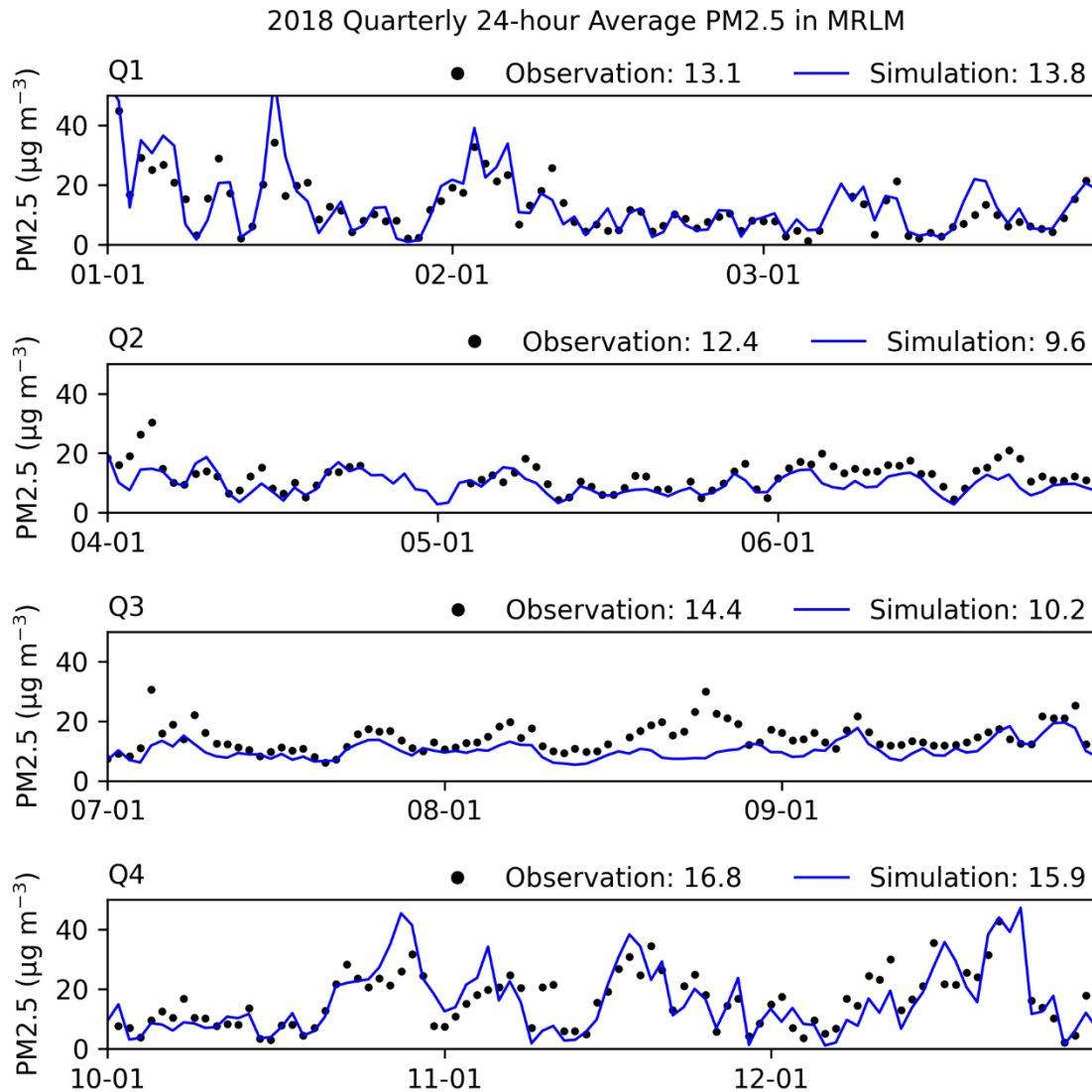


FIGURE II-5-6

2018 MODELLED AND MEASURED 24-HOUR AVERAGE PM_{2.5} CONCENTRATIONS IN MIRA LOMA

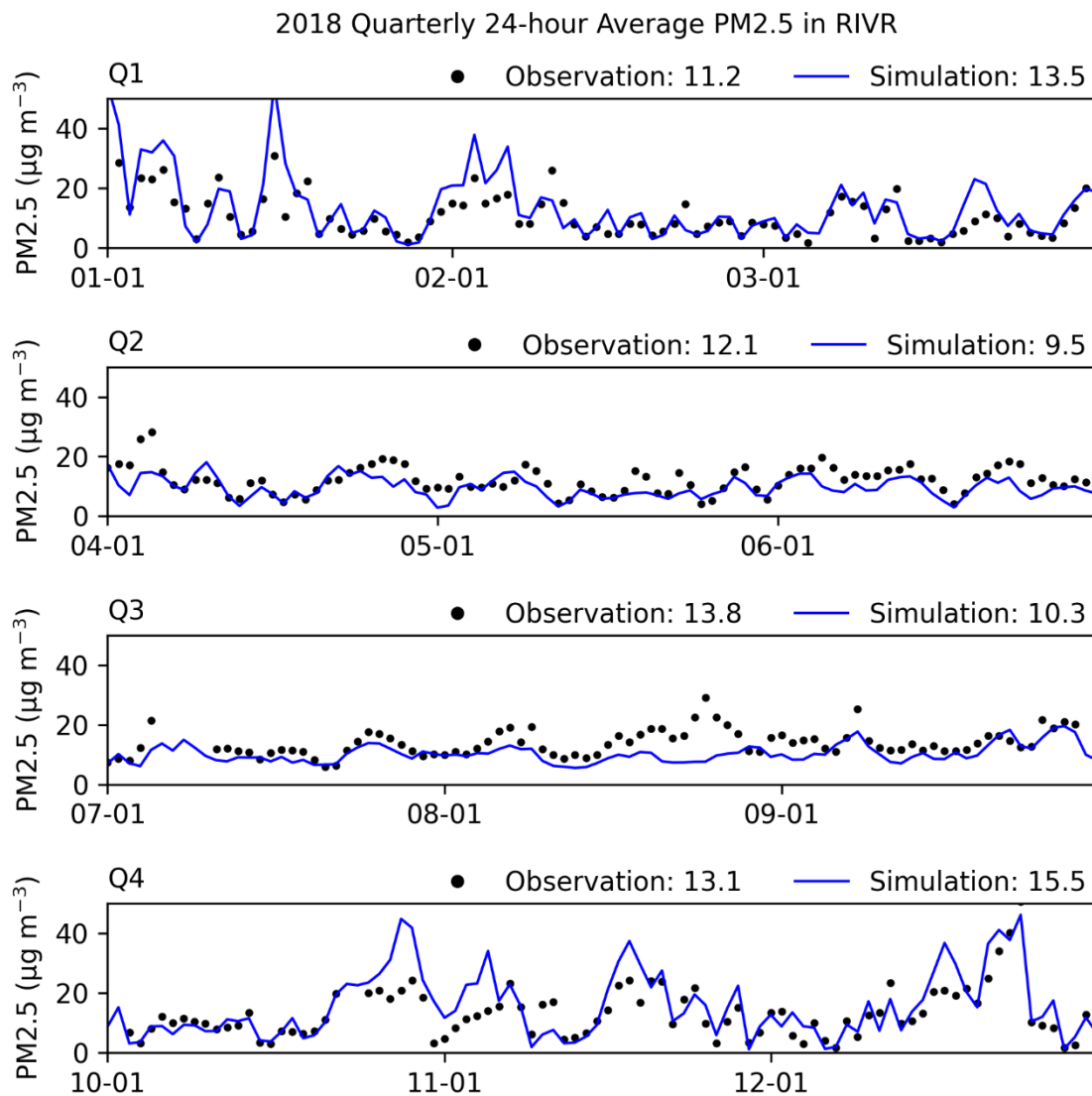


FIGURE II-5-7

2018 MODELLED AND MEASURED 24-HOUR AVERAGE PM_{2.5} CONCENTRATIONS IN RIVERSIDE

Scatter plots comparing daily FRM observations and corresponding model predictions for each region are presented in Figure II-5-8.

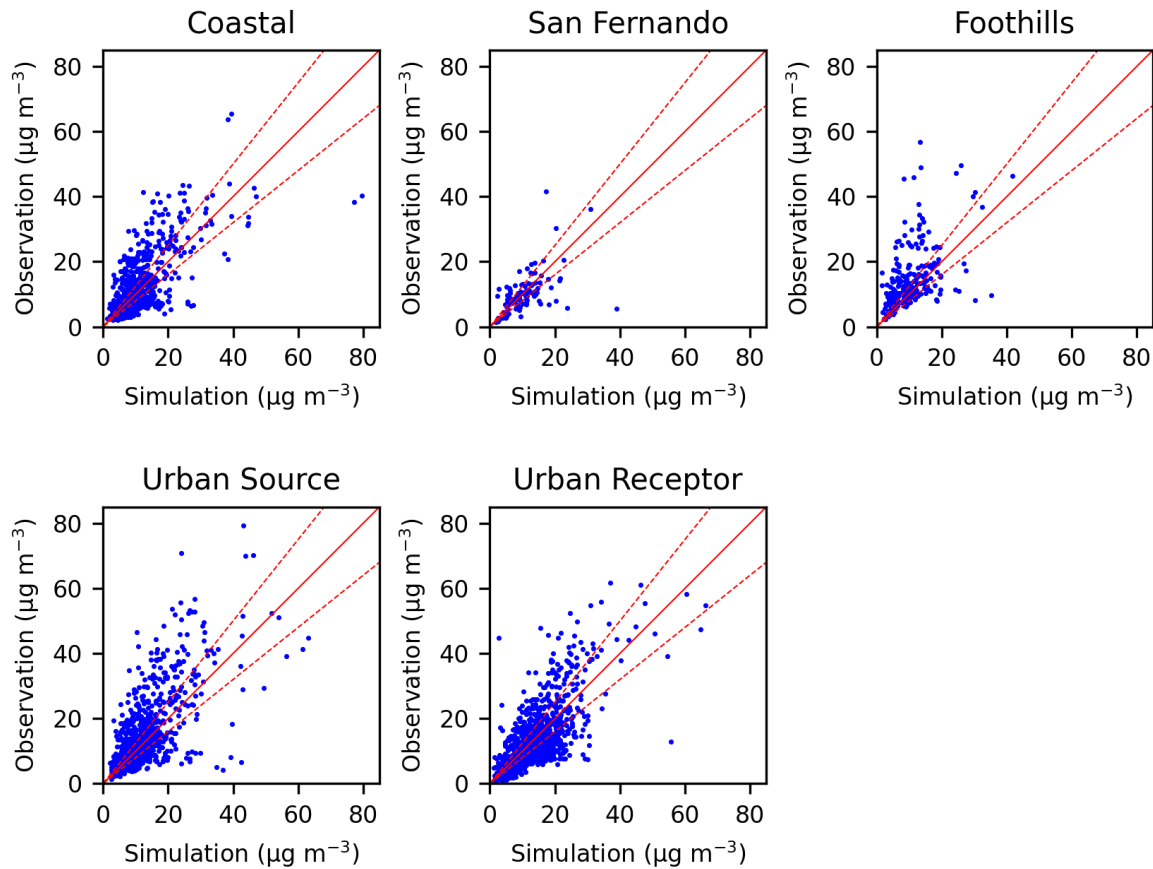


FIGURE II-5-8

2018 MODELLED AND FRM MEASURED PM_{2.5} COMPARISON FOR EACH REGION. DASHED LINES INDICATE AGREEMENT WITHIN 20 PERCENT.

Statistical Evaluation of Total PM2.5 mass

CMAQ over-predicts total PM2.5 mass in the “Coastal”, “Foothills” and “Urban Source” regions. The “San Fernando”, “Urban Receptor” regions, are well represented by CMAQ in the base year. The “Urban Receptor” region typically contains the highest PM2.5 concentrations in the South Coast Basin. Statistical measures to evaluate the modeling performance in each geographical zone are provided in Table II-5-3.

The statistics used to evaluate the daily CMAQ PM2.5 performance include the following:

<u>Statistic</u>	<u>Equation</u>	<u>Definition</u>
Bias Error	$BiasError = \frac{1}{N} \sum (Obs - Pred)$ <p>where “N” is the number of values.</p>	Average of the differences in observed and predicted daily values. Negative values indicate under-prediction.
Normalized Bias Error	$NormBiasError = \frac{1}{N} \sum \left(\frac{Obs - Pred}{Obs} \right) \cdot 100$	Average of the quantity: absolute difference in observed and predicted daily values normalized by the observed daily concentration
Gross Error	$GrossError = \frac{1}{N} \sum Obs - Pred $	Average of the absolute differences in observed and predicted daily values
Normalized Gross Error	$NormGrossError = \frac{1}{N} \sum \left \frac{Obs - Pred}{Obs} \right \cdot 100$	Average of the quantity: absolute difference in observed and predicted daily values normalized by the observed daily concentration

TABLE II-5-3

QUARTERLY STATISTICAL ANALYSIS OF TOTAL PM_{2.5} MASS FOR EACH OF THE SIX ANALYSIS ZONES

Region	Quarter	Mean Sim. ($\mu\text{g}/\text{m}^3$)	Mean Obs. ($\mu\text{g}/\text{m}^3$)	Bias Error ($\mu\text{g}/\text{m}^3$)	Norm Bias (%)	Gross Error ($\mu\text{g}/\text{m}^3$)	Norm Gross (%)
Coastal	Q1	15.4	11.1	-4.3	-60.9	5.9	67.5
Coastal	Q2	7.6	8.9	1.3	11.1	2.3	27.5
Coastal	Q3	7.8	11.4	3.6	26.4	4.0	31.8
Coastal	Q4	17.6	13.1	-4.5	-45.8	6.5	58.6
Coastal	Annual	12.0	11.1	-0.9	-16.3	4.6	45.9
Foothills	Q1	14.6	8.0	-6.7	-97.9	6.8	100.5
Foothills	Q2	12.0	11.1	-0.8	-10.8	2.3	22.0
Foothills	Q3	12.1	13.2	1.2	-22.6	3.8	50.1
Foothills	Q4	19.8	9.9	-9.9	-119.0	11.0	123.7
Foothills	Annual	14.6	10.6	-4.1	-62.6	6.0	74.2
San Fernando	Q1	9.4	8.5	-1.0	-12.2	2.5	34.0
San Fernando	Q2	9.2	10.4	1.2	-1.0	2.4	31.3
San Fernando	Q3	9.4	12.1	2.7	11.3	4.1	31.0
San Fernando	Q4	12.2	11.2	-1.0	-22.7	4.8	42.2
San Fernando	Annual	10.1	10.5	0.4	-7.5	3.5	35.1
Urban Receptor	Q1	14.0	12.1	-1.9	-17.6	4.3	39.0
Urban Receptor	Q2	10.1	12.2	2.1	13.0	3.1	25.6
Urban Receptor	Q3	10.9	14.5	3.7	20.9	4.2	26.4
Urban Receptor	Q4	16.7	14.3	-2.4	-25.7	5.5	49.1
Urban Receptor	Annual	13.0	13.3	0.3	-2.4	4.3	35.1
Urban Source	Q1	17.8	12.2	-5.7	-59.3	7.1	65.6
Urban Source	Q2	10.0	10.5	0.5	3.5	2.5	25.0
Urban Source	Q3	9.7	13.1	3.4	20.4	4.1	27.1
Urban Source	Q4	20.4	13.8	-6.6	-56.8	7.9	65.9
Urban Source	Annual	14.5	12.4	-2.1	-23.1	5.4	45.9

Model performance in the “Urban Receptor” region consistently outperforms the four other regions exhibiting the smaller normalized bias and normalized gross error for the annual analysis. Model performance in the “Urban Receptor” region is also strong when evaluating statistics on a quarterly basis. It is important to model this region accurately, as it contains the stations with the highest PM_{2.5} concentrations in the Basin.

Model Performance of Speciated PM_{2.5} Predictions

Figures II-5-9 through II-5-12 compare predicted and observed particulate sulfate, nitrate, elemental carbon, and organic carbon concentrations for the four stations where speciation data are available (ANAH, CELA, FONT, and RIVR). Note that organic carbon concentrations in the figures are based on direct measurements and are not adjusted with the SANDWICH method.

The model predicts ammonium ion, sulfate, nitrate, EC, and OM reasonably well in general. However, the model tends to overpredict concentrations at Central Los Angeles, which is near major sources of emissions. Conversely, the model tends to underestimate PM_{2.5} species concentrations at inland stations in Fontana and Riverside. Overall, the model captures the relative contributions of PM_{2.5} species reasonably well, showing that OM is the largest contributors to total PM_{2.5}; OM fraction of total PM_{2.5} mass is 44% which agrees with measurements showing 41% of total mass being OM. OM predictions have significantly improved compared to 2016 AQMP values possibly due to the addition of a pseudo-SOA precursor thus increasing the estimates of SOA by CMAQ.

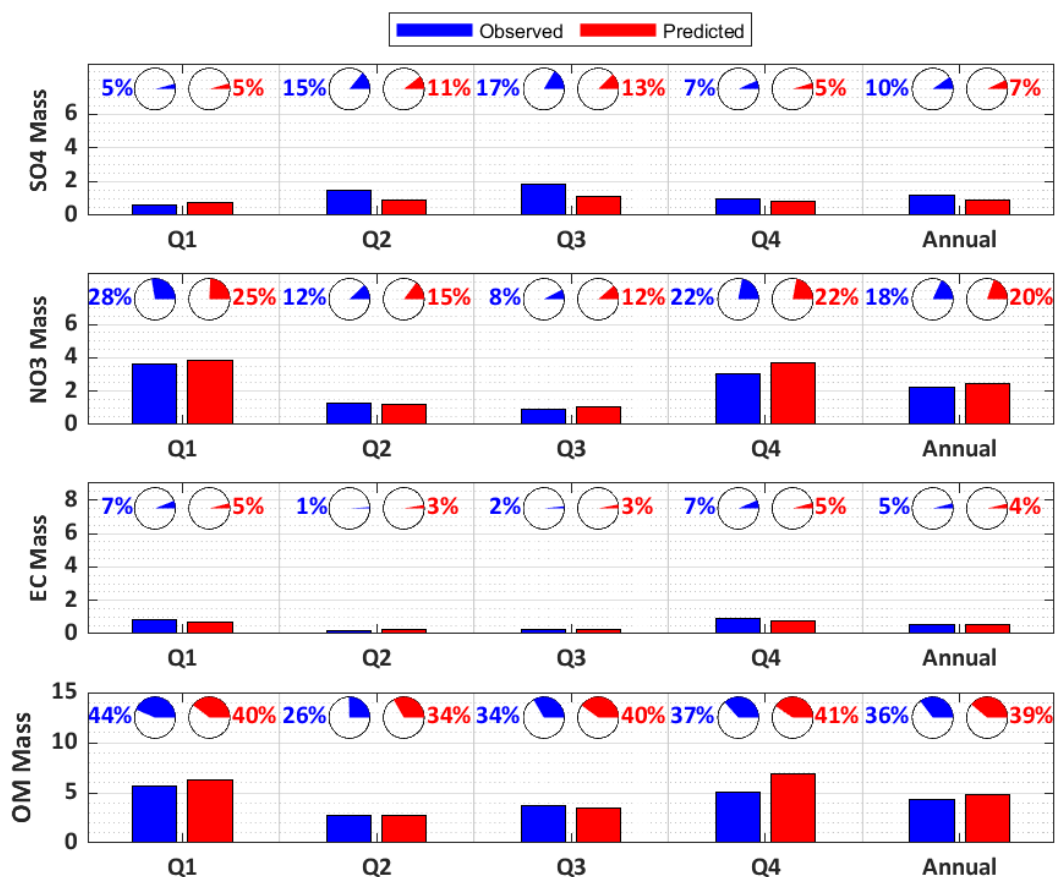


FIGURE II-5-9

2018 MODELLED AND MEASURED PM_{2.5} SPECIATION IN ANAHEIM. BARS INDICATE THE ABSOLUTE PM_{2.5} CONCENTRATION OF EACH SPECIES IN $\mu\text{g}/\text{m}^3$. PIE CHARTS REPRESENT THE SPECIES FRACTION. OM IS CALCULATED FROM OC AS $\text{OM} = 1.4 \times \text{OC}$.

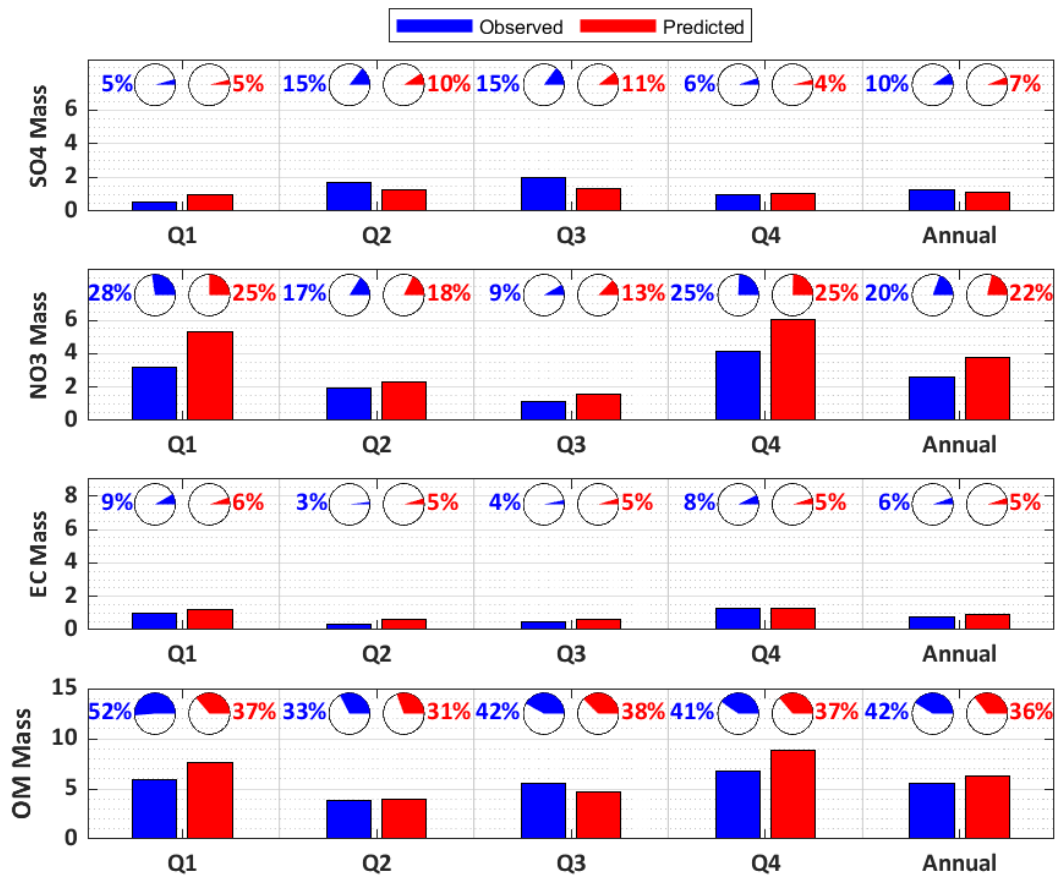


FIGURE II-5-10

2018 MODELLED AND MEASURED PM_{2.5} SPECIATION IN LOS ANGELES. BARS INDICATE THE ABSOLUTE PM_{2.5} CONCENTRATION OF EACH SPECIES IN μg/m³. PIE CHARTS REPRESENT THE SPECIES FRACTION. OM IS CALCULATED FROM OC AS OM = 1.4 × OC.

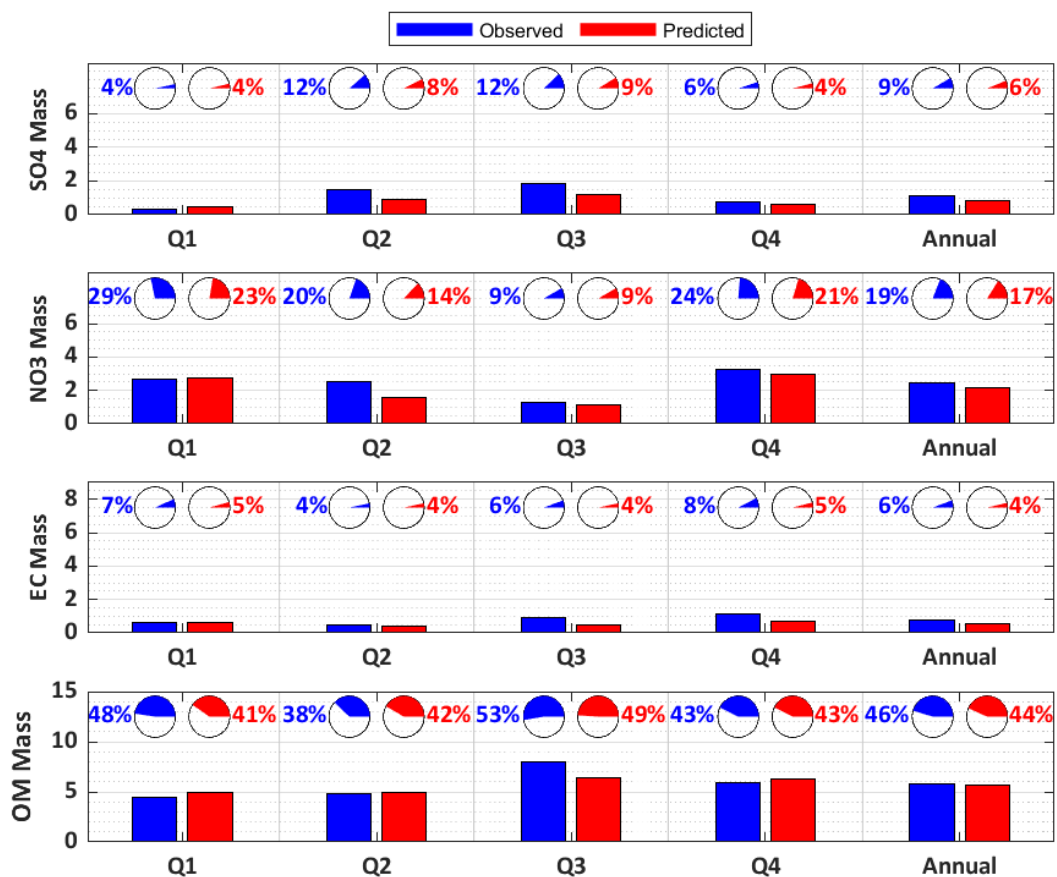


FIGURE II-5-11

2018 MODELLED AND MEASURED PM_{2.5} SPECIATION IN FONTANA. BARS INDICATE THE ABSOLUTE PM_{2.5} CONCENTRATION OF EACH SPECIES IN $\mu\text{g}/\text{m}^3$. PIE CHARTS REPRESENT THE SPECIES FRACTION. OM IS CALCULATED FROM OC AS $\text{OM} = 1.4 \times \text{OC}$.

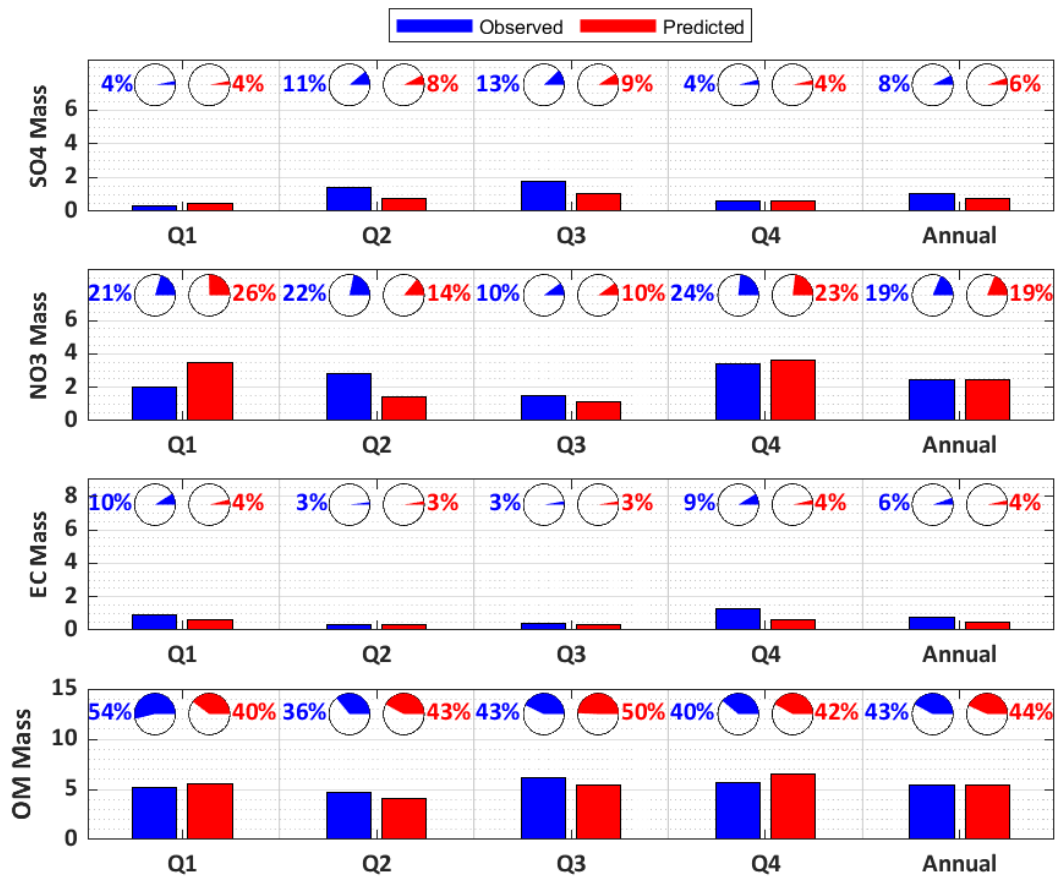


FIGURE II-5-12

2018 MODELLED AND MEASURED PM_{2.5} SPECIATION IN RIVERSIDE. BARS INDICATE THE ABSOLUTE PM_{2.5} CONCENTRATION OF EACH SPECIES IN μg/m³. PIE CHARTS REPRESENT THE SPECIES FRACTION. OM IS CALCULATED FROM OC AS OM = 1.4 × OC.

CMAQ SOA Mass Simulation

Traditionally, air quality models tend to underpredict secondary organic aerosols (SOA) concentrations. Mounting evidence from field and laboratory observations coupled with atmospheric model analysis shows that primary combustion emissions of organic compounds exhibit a broad spectrum of volatility, leading to dynamic partitioning of these compounds, especially in the early stages of their atmospheric lifetime (Murphy et al., 2017).⁴ Starting from CMAQ version 5.2, the model accounts for the semi-volatile partitioning and gas-phase aging of these primary organic aerosol (POA) compounds consistent with experimentally derived parameterizations. A new surrogate species termed potential secondary organic aerosol from combustion (pcSOA) was added to the model. It provides a cumulative representation of the SOA from combustion sources that could be missing from current chemical transport model predictions. The reasons for this missing mass likely include:⁵

- Missing intermediate volatility organic compound (IVOC) emissions in current inventories.
- Multigenerational aging of organic vapor products from known SOA precursors (e.g., toluene, alkanes).
- Underestimation of SOA yields due to vapor losses at the walls in smog chamber experiments.
- Organic-water interactions and aqueous-phase processing of known organic vapor emissions.

The result of this new parameterization is a good model performance with respect to measured organic aerosol by CMAQ, as shown in Figures II-5-9 through II-5-12. The quarterly averages of primary organic aerosol (POA) and secondary organic aerosol (SOA) mass concentrations are depicted in Figures II-5-13 to II-5-16 for each station. Generally, POA concentrations are elevated in the first and fourth quarters. This trend is attributed to increased residential fuel combustion during colder months, which contribute to higher POA levels. SOA concentrations are also high in fall and winter due to the formation of SOA from the oxidation of combustion related pollutant emissions, as well as due lower temperatures and higher humidity in winter, that contribute to the accumulation of air pollutants. Some inland stations, such as RESE, FONT, MRLM, ONFS, and SNBO exhibit also high SOA concentrations in the third quarter. These high concentrations can be attributed to increased biogenic volatile organic compound (VOC) emissions in the summer, resulting in higher SOA levels due to the elevated temperatures during this season.

⁴ Murphy, B. N., Woody, M. C., Jimenez, J. L., Carlton, A. M. G., Hayes, P. L., Liu, S., Ng, N. L., Russell, L. M., Setyan, A., Xu, L., Young, J., Zaveri, R. A., Zhang, Q., and Pye, H. O. T.: Semivolatile POA and parameterized total combustion SOA in CMAQv5.2: impacts on source strength and partitioning, *Atmos. Chem. Phys. Discuss.*, <https://doi.org/10.5194/acp-2017-193>

⁵ Implemented Semivolatile POA and Potential Combustion SOA (pcSOA). Information available here: [CMAQ/CCTM/docs/Release_Notes/SemiVolPOA_pcSOA.md at 5.2 · USEPA/CMAQ · GitHub](#)

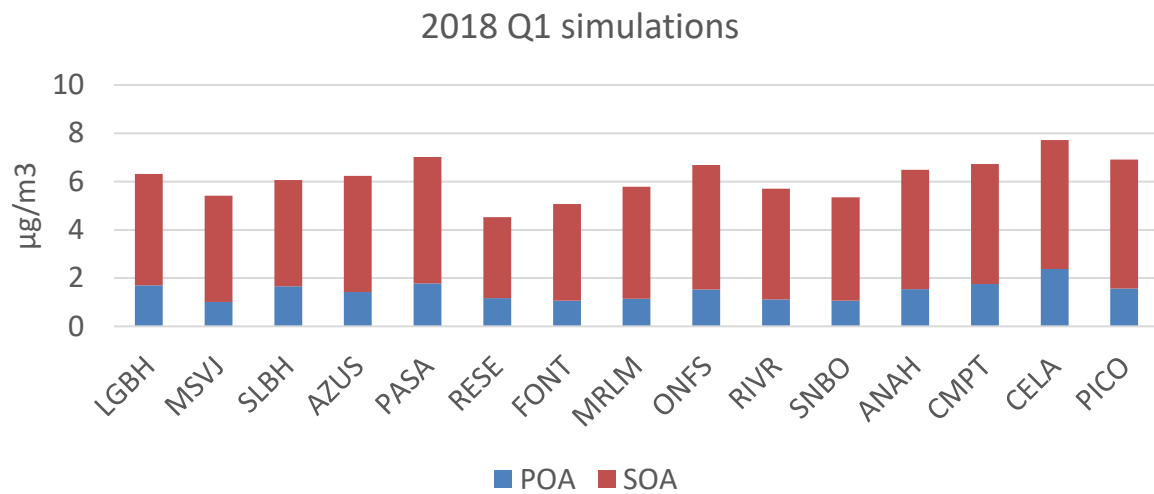


FIGURE II-5-13

QUARTERLY AVERAGE OF POA AND SOA MASS CONCENTRATIONS OF FIRST QUARTER IN 2018.

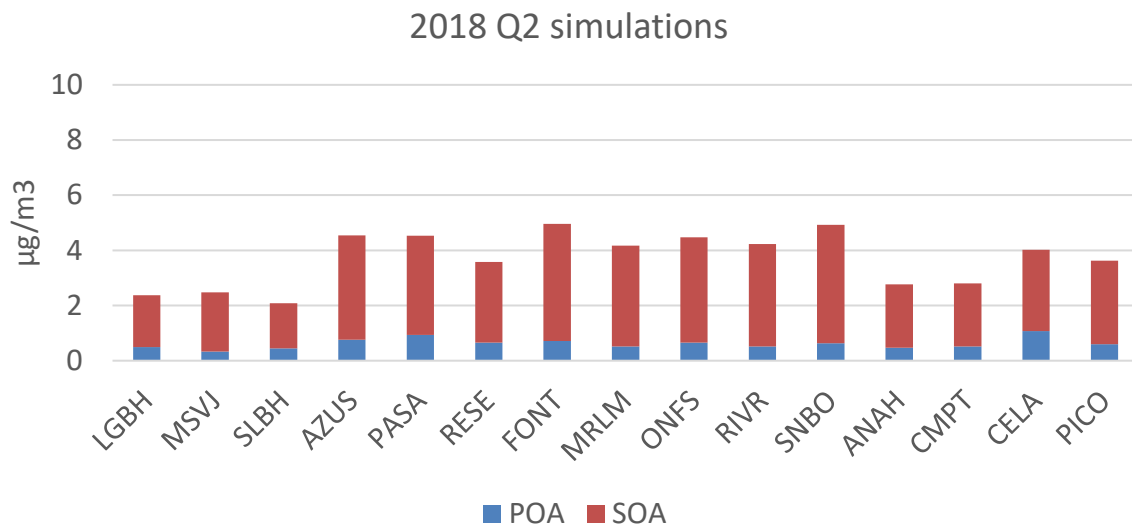


FIGURE II-5-14

QUARTERLY AVERAGE OF POA AND SOA MASS CONCENTRATIONS OF SECOND QUARTER IN 2018.

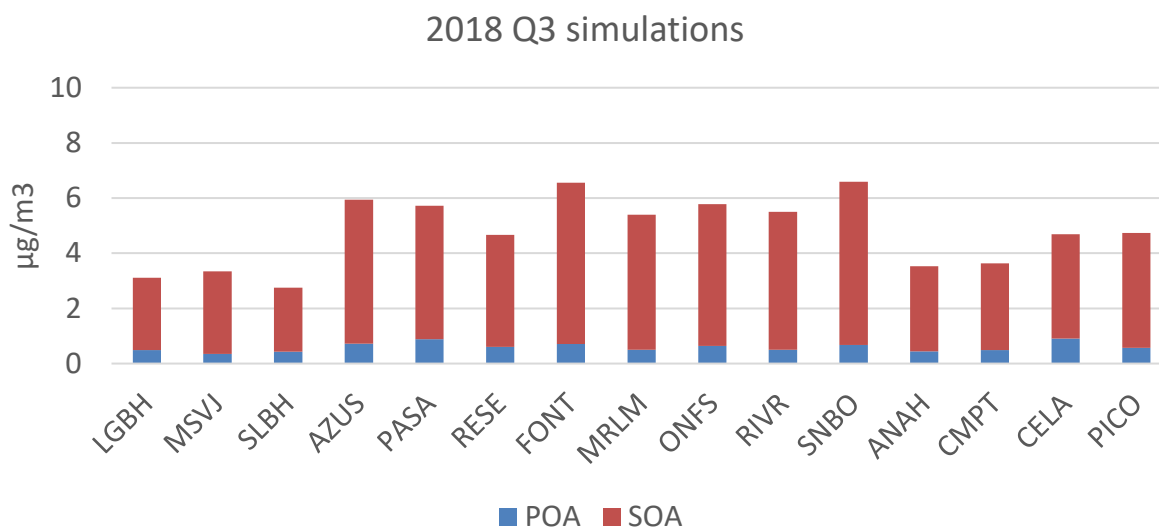


FIGURE II-5-15

QUARTERLY AVERAGE OF POA AND SOA MASS CONCENTRATIONS OF THIRD QUARTER IN 2018.

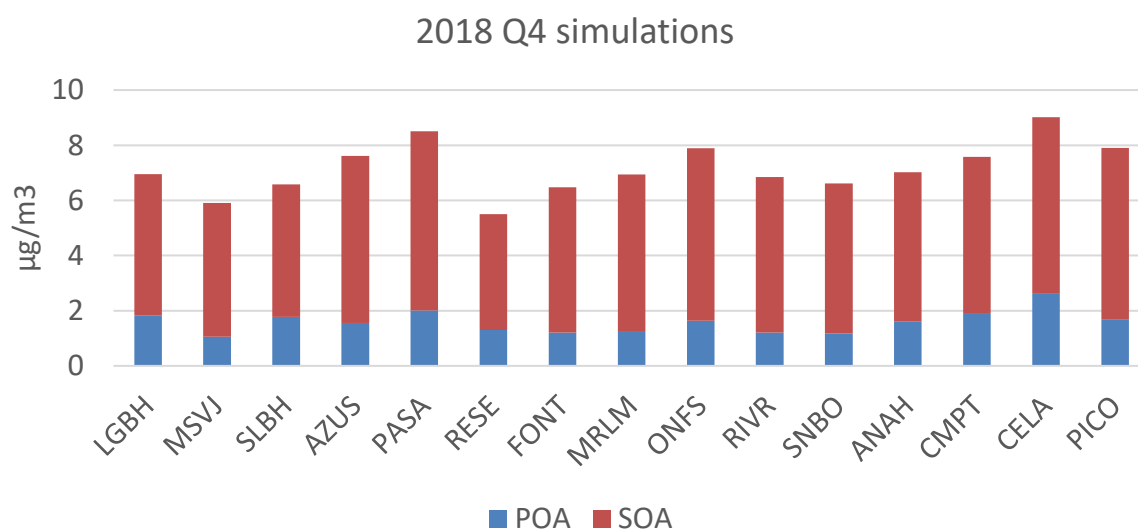


FIGURE II-5-16

QUARTERLY AVERAGE OF POA AND SOA MASS CONCENTRATIONS OF FOURTH QUARTER IN 2018.

Base Year Annual PM2.5

Quarterly average of PM2.5 FRM mass concentrations, using the modified 5-year weighted average of measurements during 2016-2020 is shown in Figure II-5-17. As shown, among the four stations, Anaheim has the lowest level of PM2.5 concentrations in all quarters, and the highest values occur at Rubidoux (13.50 $\mu\text{g}/\text{m}^3$) and CELA (13.49 $\mu\text{g}/\text{m}^3$) in quarter 4. In general, the sites in the western half of the Basin: Los Angeles and Anaheim, tend to have the highest average levels in the fourth quarter. Rubidoux also presents the highest concentration in the fourth quarter, whereas Fontana experiences the highest concentration in the third quarter. All stations tend to have the lowest concentrations in the first or second quarter. Typically, spring storms and favorable atmospheric dispersion drive PM2.5 concentrations down in the second quarter. Fontana, Rubidoux, and Los Angeles presented the lowest concentrations during the first quarter, whereas Anaheim had the lowest value in the second quarter.

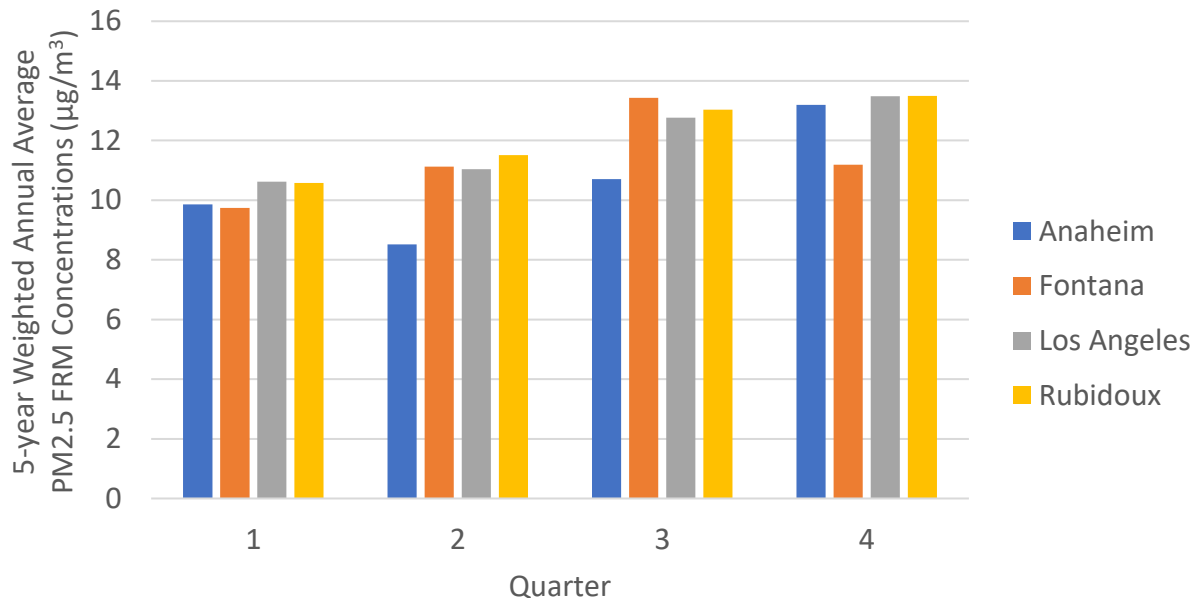


FIGURE II-5-17

QUARTERLY AVERAGE OF PM2.5 FRM MASS CONCENTRATIONS, USING THE MODIFIED 5-YEAR WEIGHTED AVERAGE OF MEASUREMENTS DURING 2016-2020 AT CSN MONITORS.

Speciated Quarterly Average Data

The measurements of individual species obtained from the CSN sites may differ from the retained mass of a specific species in the FRM filter, due to the inherent differences in the measurement techniques. To reconcile the expected differences between speciated and FRM measurements, species are adjusted following the SANDWICH method,⁶ which is described in the U.S. EPA modeling guidance.⁷ This adjustment results in reduced nitrates (relative to the amount measured by routine speciation networks), higher mass associated with sulfates and nitrates (reflecting water included in gravimetric FRM measurements), and an estimate of organic carbonaceous mass, which is derived from the difference between FRM-measured PM_{2.5} and the sum of all components except measured organic carbon. EPA's mass balance method sets a ceiling for OC mass (OCM) to be 80 percent of the total PM_{2.5} mass. However, based on scientific literature on PM_{2.5} speciation data taken in the greater Los Angeles area,^{8,9} this ceiling was set as the 50 percent of PM_{2.5} FRM mass. EPA's guidance also sets a floor value for OCM to be the measured OC value. However, the sum of individual species measured from CSN is sometimes larger than the FRM mass. Under this condition, the measured OC as floor would erroneously exaggerate the OC fraction while reducing the other species, therefore, the OC floor was scaled by the ratio of FRM mass divided by the total CSN mass.

Directly measured ammonium (associated with nitrate and sulfate) at CSN stations, which is equivalent to particulate ammonium retained on FRM filters, was used for the speciation profiles. These measurements, however, were capped with fully neutralized ammonium, which is calculated as follows:

$$\text{Ammonium ceiling} = 0.375 \times \text{sulfate} + 0.29 \times \text{retained nitrate}$$

Additionally, particle water bound (PBW) should be estimated as sulfate and nitrate retained on FRM filters include water because ammonium sulfate and ammonium nitrate are hygroscopic. PBW was estimated using a polynomial regression equation fitted to the equilibrium model Aerosol Inorganic Matter (AIM) as a function of sulfate, nitrate, and ammonium concentrations (described above). Most of FRM monitors in the basin do not have a co-located CSN monitor. Thus, as recommended by EPA guidance, we interpolated the individual speciation components

⁶ Frank, Neil. (2006). Retained Nitrate, Hydrated Sulfates, and Carbonaceous Mass in Federal Reference Method Fine Particulate Matter for Six Eastern U.S. Cities. Journal of the Air & Waste Management Association (1995). 56. 500-11. 10.1080/10473289.2006.10464517.

⁷ Modeling Guidance for Demonstrating Attainment of Air Quality Goals for Ozone, PM_{2.5}, and Regional Haze, U.S. EPA, November 2018. Available at: https://www.epa.gov/sites/default/files/2020-10/documents/o3-pm-rh-modeling_guidance-2018.pdf

⁸ Hayes et al., 2013. Organic aerosol composition and sources in Pasadena, California, during the 2010 CalNex campaign. Journal of Geophysical Research, 118, 9233-9257

⁹ Shirmohammadi et al., 2016. Fine and Ultrafine Particulate Organic Carbon in the Los Angeles Basin: Trends in Sources and Composition. Science of Total Environment, 541, 1083-1096

from co-located CSN monitors to latitude and longitude of FRM monitors that do not have a co-located CSN monitor. Inverse Distance Squared Weights interpolation method was used. This method gives a particular monitor a weight inversely proportional with squared distance from a given point.

Figures II-5-18 through II-5-21 provide SANDWICH-applied species fractions for each CSN site and each quarter. OC and nitrate are the two most common species with OC comprising between 30% to 43% of total PM_{2.5} mass, and nitrate comprising between 13% to 22% of the total PM_{2.5} mass, depending on quarter and location. OC in general tends to be higher in Urban Receptor and San Fernando regions both during the 3rd quarter while nitrate is the lowest during the same quarter. Higher temperatures and abundant sunlight increase evaporative emissions of SOA precursors and increase photochemical processing of those precursors.

On average, secondary ammonium, nitrate and sulfate comprise between 30% to 48% of the total PM_{2.5} concentration and show strong seasonal variability (Figure II-5-22); the highest contribution levels occur in quarter 2, among the four CSN stations. High nitrate concentrations in the fall or winter are caused by the favorable formation of ammonium nitrate under cool temperatures, high humidity, and frequent nocturnal inversions; the CSN stations on the east side – Fontana and Riverside – have the highest nitrate levels. On the contrary, high summertime temperatures reduce concentrations of nitrate, which is relatively volatile. The higher values of sulfate typically occur under conditions of strong inversions and strong sea breeze transport toward inland areas, which is the characteristic of late spring and summer. In addition, heterogeneous formation of sulfate is favored by higher temperatures occurring in the summer. Higher temperatures with abundant afternoon sunlight and the persistence of morning fog and low clouds trigger – the marine boundary layer, both homogeneous and heterogeneous sulfate formation reactions to produce secondary sulfate. Higher temperatures and abundant sunlight increase evaporative emissions of SOA precursors and increase photochemical processing of those precursors.

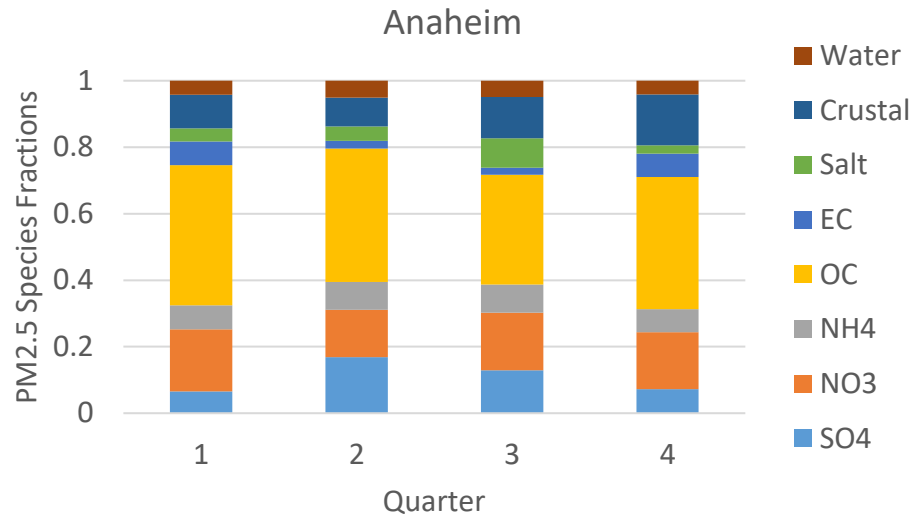


FIGURE II-5-18

SANDWICH-APPLIED QUARTERLY AVERAGES OF PM2.5 SPECIES FRACTIONS DURING 2017 TO 2019 IN ANAHEIM

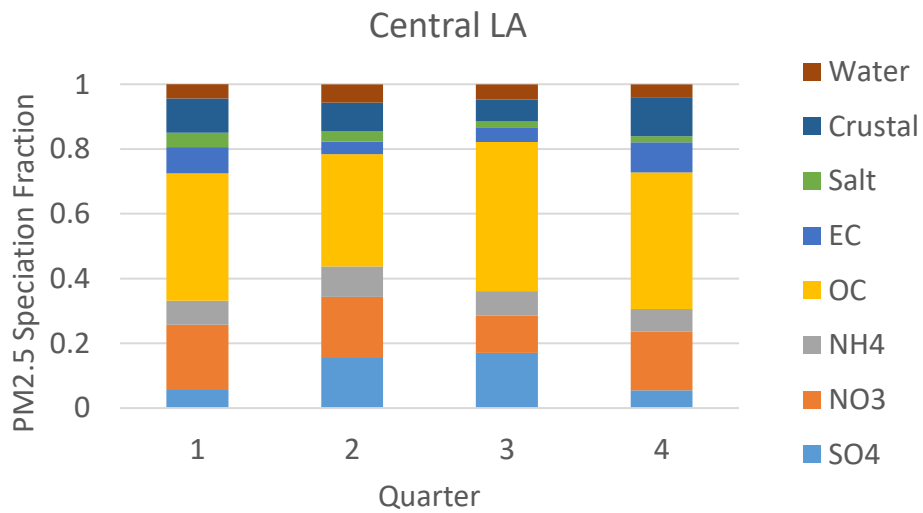


FIGURE II-5-19

SANDWICH-APPLIED QUARTERLY AVERAGES OF PM2.5 SPECIES FRACTIONS DURING 2017 TO 2019 IN CENTRAL LOS ANGELES (CELA)

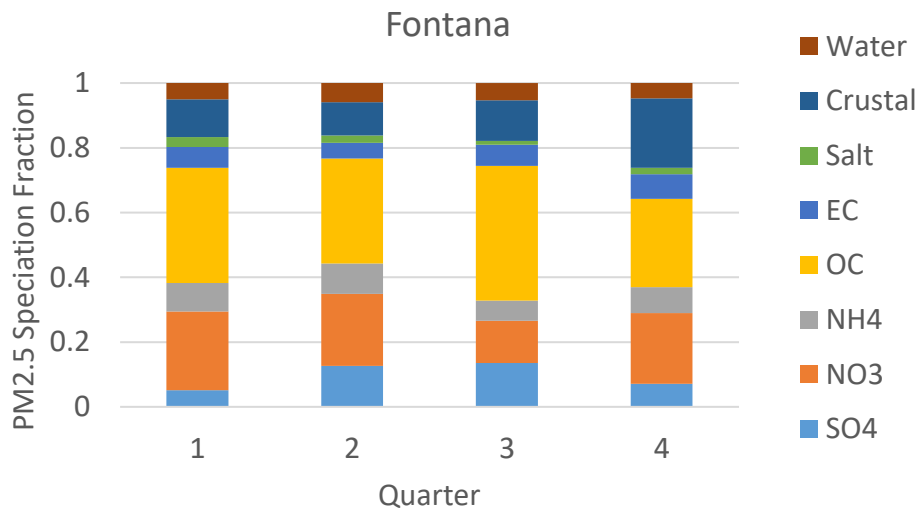


FIGURE II-5-20

SANDWICH-APPLIED QUARTERLY AVERAGES OF PM2.5 SPECIES FRACTIONS DURING 2017 TO 2019 IN FONTANA

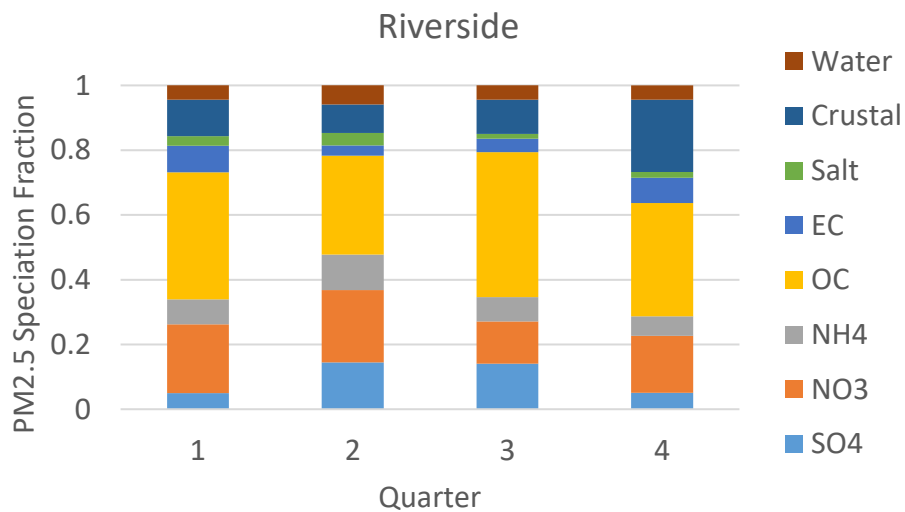


FIGURE II-5-21

SANDWICH-APPLIED QUARTERLY AVERAGES OF PM2.5 SPECIES FRACTIONS DURING 2017 TO 2019 IN RIVERSIDE

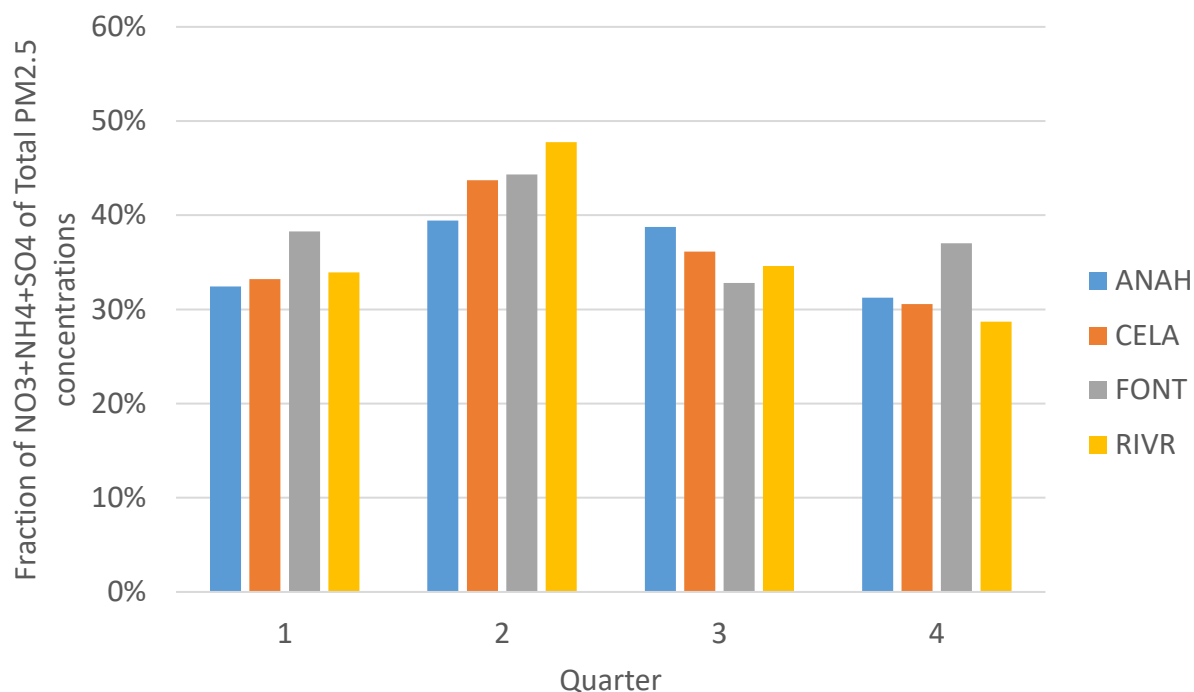


FIGURE II-5-22

5-YEAR WEIGHTED QUARTERLY AVERAGE FRACTIONS OF NO₃, NH₄, AND SO₄ COMBINED MASS TO THE TOTAL PM_{2.5} MASS

Speciated base year annual design values at different stations are shown in Figure II-5-23. Figure II-5-24 through Figure II-5-30 show the base year quarterly DV for the four CSN sites along with the stations with the top three highest annual design value in the basin which includes Ontario Near-road (ONNR), Mira Loma (MRLM), and Compton (CMPT). Among all the stations in the basin, the highest base year annual design value is observed at ONNR with an annual DV of 13.98 $\mu\text{g}/\text{m}^3$, followed by MRLM with a DV of 13.52 $\mu\text{g}/\text{m}^3$. MRLM is the station with the highest quarterly DV in the basin, with quarter 4 quarterly average exceeding 16 $\mu\text{g}/\text{m}^3$. Among the four CSN stations, the highest sulfate concentration was observed in central Los Angeles (4.81 $\mu\text{g}/\text{m}^3$), while the highest concentration of nitrate occurred in Fontana (2.22 $\mu\text{g}/\text{m}^3$) followed by Rubidoux (2.19 $\mu\text{g}/\text{m}^3$); Rubidoux also has the highest ammonium concentrations (0.95 $\mu\text{g}/\text{m}^3$).

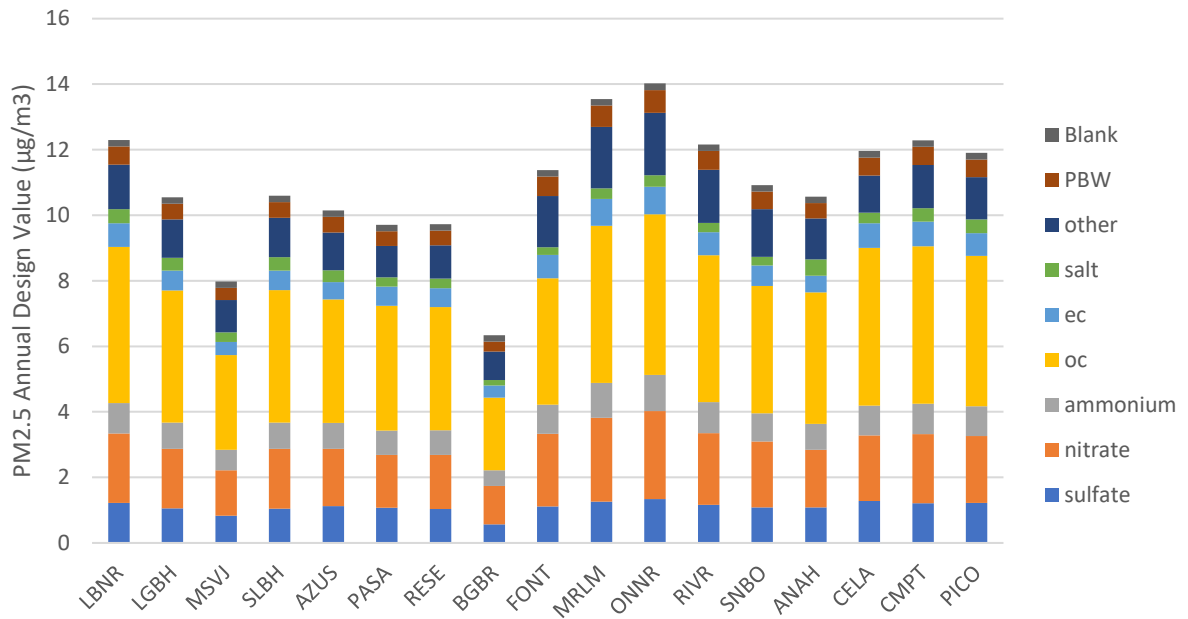


FIGURE II-5-23

BASE YEAR SPECIATED ANNUAL PM_{2.5} DESIGN VALUES FOR ALL STATIONS IN THE BASIN. TABLE II-5-2 SHOWS THE STATION NAMES AND ABBREVIATIONS FOR REFERENCE.

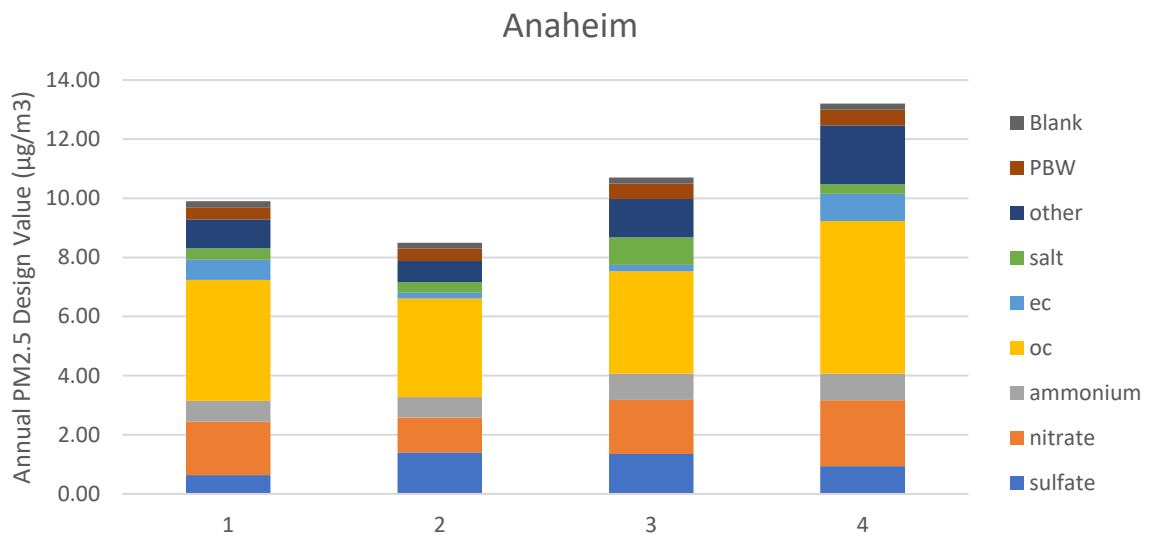


FIGURE II-5-24

BASE YEAR QUARTERLY PM_{2.5} DESIGN VALUES FOR ANAHEIM.

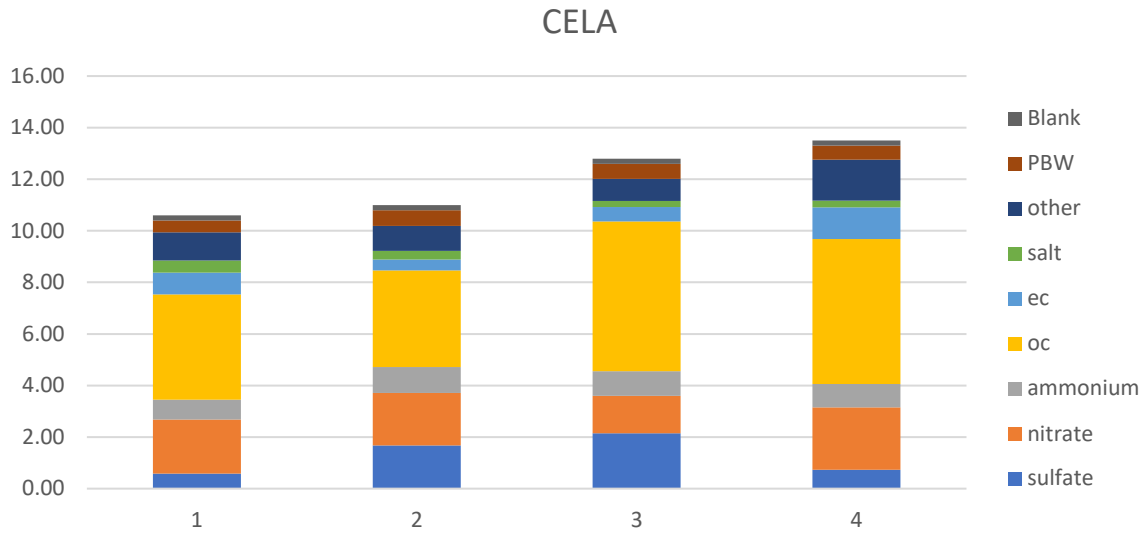


FIGURE II-5-25

BASE YEAR QUARTERLY PM2.5 DESIGN VALUES FOR CENTRAL LOS ANGELES (CELA).

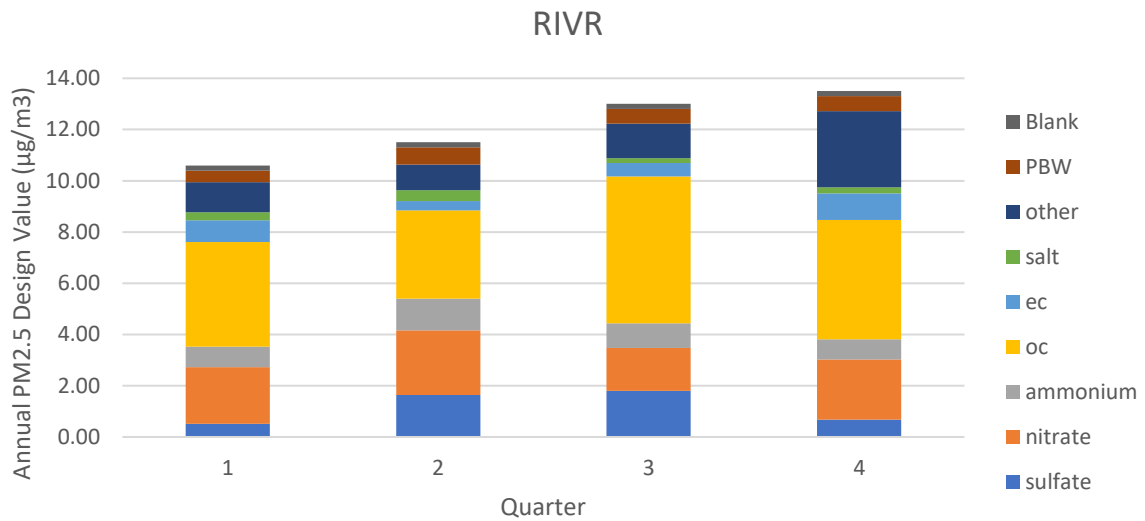


FIGURE II-5-26

BASE YEAR QUARTERLY PM2.5 DESIGN VALUES FOR RUBIDOUX (RIVR).

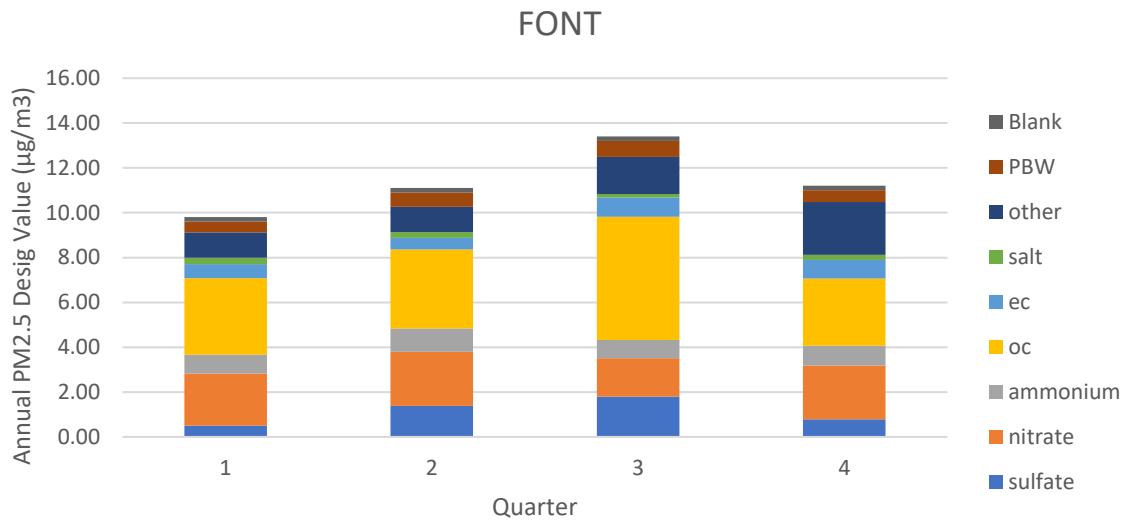


FIGURE II-5-27

BASE YEAR QUARTERLY PM_{2.5} DESIGN VALUES FOR FONTANA (FONT).

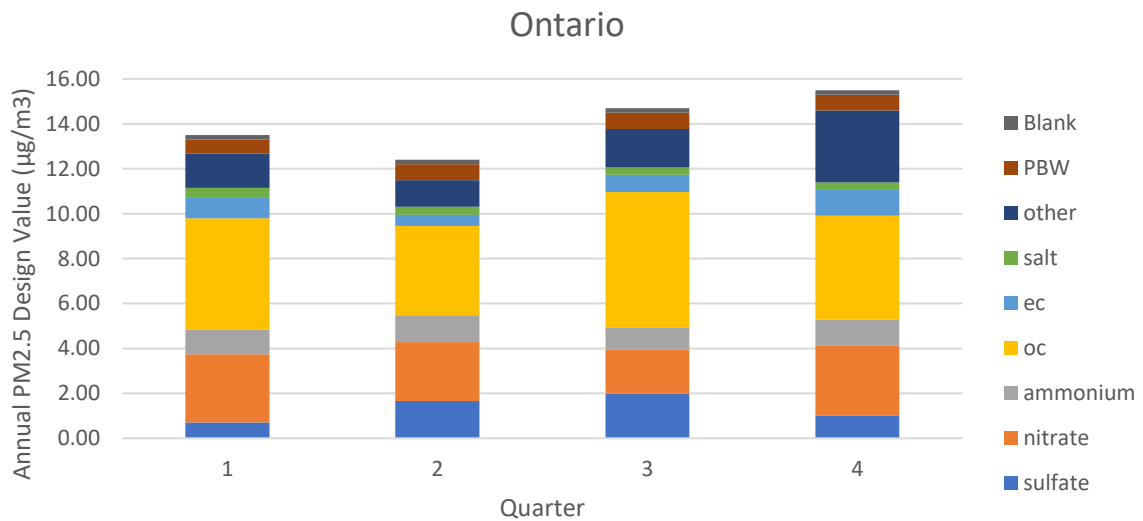


FIGURE II-5-28

BASE YEAR QUARTERLY PM_{2.5} DESIGN VALUES FOR ONTARIO NEAR-ROAD (ONNR).

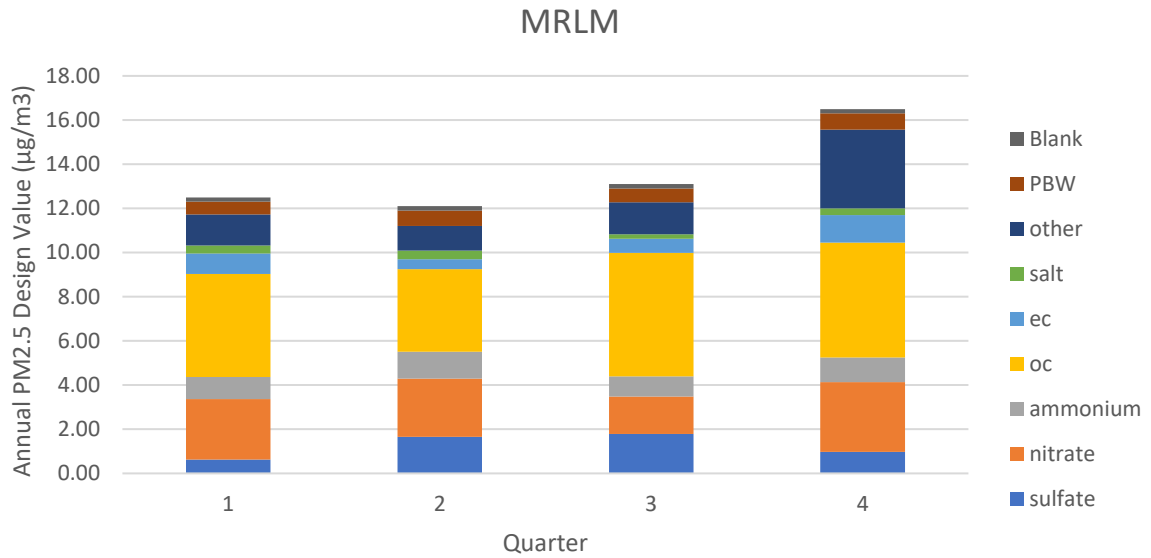


FIGURE II-5-29

BASE YEAR QUARTERLY PM2.5 DESIGN VALUES FOR MIRA LOMA (MRLM).

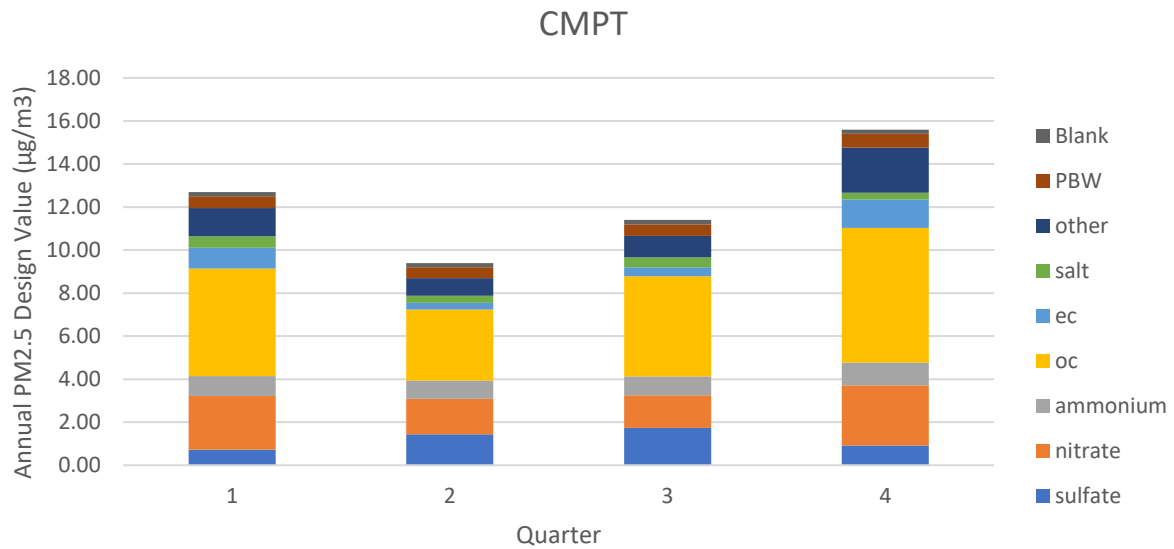
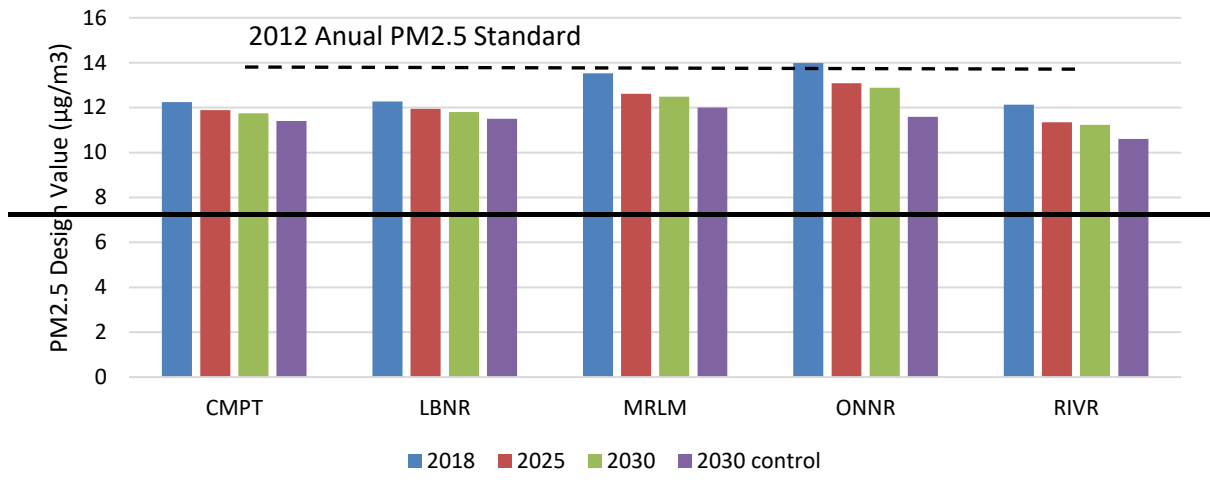


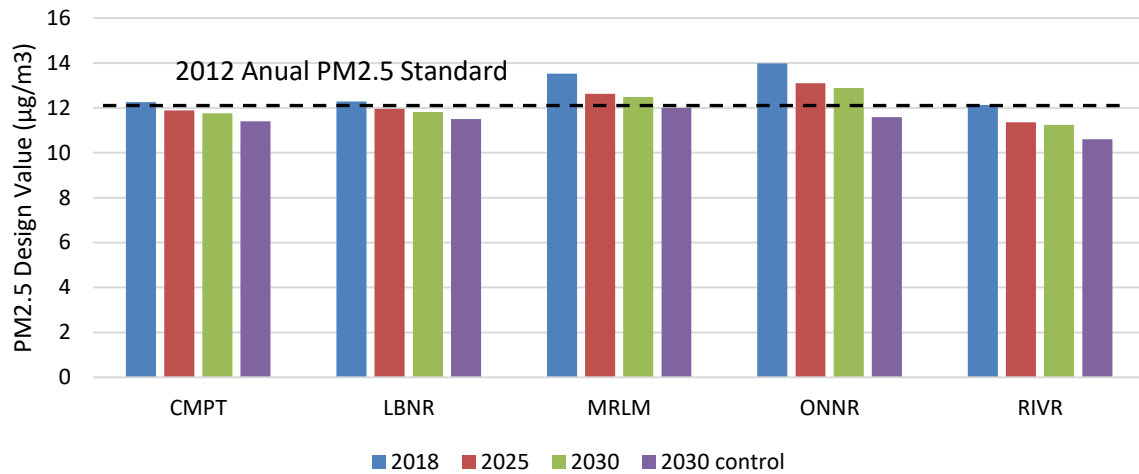
FIGURE II-5-30

BASE YEAR QUARTERLY PM2.5 DESIGN VALUES FOR COMPTON (CMPT).

Future Annual PM_{2.5} air quality

PM_{2.5} annual concentrations projected for milestone years are shown in Figure II-5-31. Ontario Near Road is projected to remain as the design value site in 2025 and 2030. The annual design value for Ontario Near Road in the 2030 attainment scenario is projected to be 12.35 $\mu\text{g}/\text{m}^3$. All other areas will be in attainment of the federal annual standard (12 $\mu\text{g}/\text{m}^3$) by 2030 with the proposed PM strategy presented in Chapter 4 of this Plan. A demonstration of Ontario Near Road projection using a hybrid modeling approach is provided in Chapter 5 and in chapter 6 of this Appendix II. Applying the hybrid approach, Ontario Near Road is expected to have 11.59 $\mu\text{g}/\text{m}^3$ in 2030 with the controls proposed in this Plan. Tables II-5-4 through II-5-6 provide the projected future year PM_{2.5} annual design values speciated by PM_{2.5} components for 2025, 2030 baseline and 2030 attainment.



**FIGURE II-5-31**

ANNUAL PM_{2.5} DESIGN VALUES AT THE TOP 5 STATIONS. FEDERAL STANDARD IS DENOTED WITH HORIZONTAL BLACK DASHED LINE. THE DV FOR THE 2030 CONTROL CASES AT ONTARIO NEAR-ROAD (ONNR) IS BASED ON THE HYBRID MODELING APPROACH

TABLE II-5-4
RRF-BASED PREDICTED 2025 BASELINE ANNUAL DESIGN VALUES (µg/m³)

Sites	SO ₄	NO ₃	NH ₄	OC	EC	Salt	Others	Water	Blank	Total
ANAH	1.1	1.4	0.7	4.2	0.4	0.5	1.3	0.5	0.2	10.2
AZUS	1.2	1.3	0.6	4.0	0.4	0.4	1.2	0.5	0.2	9.7
BGBR	0.6	0.8	0.4	2.2	0.4	0.2	0.9	0.2	0.2	5.9
CELA	1.3	1.6	0.8	5.0	0.6	0.3	1.2	0.5	0.2	11.5
CMPT	1.3	1.7	0.8	5.0	0.6	0.4	1.4	0.5	0.2	11.9
FONT	1.2	1.6	0.7	4.0	0.6	0.2	1.7	0.6	0.2	10.7
LBNR	1.3	1.8	0.8	5.0	0.6	0.4	1.4	0.5	0.2	12.0
LGBH	1.1	1.5	0.7	4.2	0.5	0.4	1.2	0.4	0.2	10.3
MRLM	1.3	1.9	0.8	4.9	0.6	0.3	2.0	0.6	0.2	12.6
MSVJ	0.8	1.2	0.5	2.9	0.3	0.3	1.0	0.4	0.2	7.6
ONNR	1.4	2.0	0.8	5.0	0.6	0.4	2.0	0.7	0.2	13.1
PASA	1.1	1.3	0.6	4.0	0.4	0.3	1.0	0.4	0.2	9.3
PICO	1.3	1.6	0.8	4.8	0.5	0.4	1.3	0.5	0.2	11.5
RESE	1.1	1.2	0.6	3.8	0.4	0.3	1.0	0.4	0.2	9.1
RIVR	1.2	1.6	0.7	4.6	0.5	0.3	1.7	0.5	0.2	11.4
SLBH	1.1	1.6	0.7	4.2	0.5	0.4	1.2	0.4	0.2	10.3
SNBO	1.1	1.5	0.6	4.0	0.5	0.3	1.5	0.5	0.2	10.1

TABLE II-5-5
RRF-BASED PREDICTED 2030 BASELINE ANNUAL DESIGN VALUES (µg/m³)

Sites	SO ₄	NO ₃	NH ₄	OC	EC	Salt	Others	Water	Blank	Total
ANAH	1.1	1.4	0.6	4.2	0.4	0.5	1.3	0.5	0.2	10.2
AZUS	1.2	1.2	0.6	4.0	0.4	0.4	1.2	0.5	0.2	9.5
BGBR	0.6	0.8	0.4	2.2	0.4	0.2	1.0	0.2	0.2	5.9
CELA	1.3	1.5	0.7	5.0	0.6	0.3	1.2	0.5	0.2	11.4
CMPT	1.3	1.6	0.8	5.0	0.6	0.4	1.4	0.5	0.2	11.8
FONT	1.2	1.5	0.6	4.0	0.5	0.2	1.7	0.6	0.2	10.5
LBNR	1.3	1.7	0.8	5.0	0.6	0.4	1.4	0.5	0.2	11.8
LGBH	1.1	1.5	0.7	4.2	0.5	0.4	1.2	0.4	0.2	10.1
MRLM	1.3	1.7	0.7	4.9	0.6	0.3	2.1	0.6	0.2	12.5
MSVJ	0.8	1.1	0.5	2.9	0.3	0.3	1.0	0.4	0.2	7.5
ONNR*	1.4	1.8	0.7	5.0	0.6	0.4	2.1	0.7	0.2	12.9
PASA	1.1	1.2	0.6	4.0	0.4	0.3	1.0	0.4	0.2	9.2
PICO	1.3	1.5	0.7	4.9	0.5	0.4	1.4	0.5	0.2	11.3
RESE	1.1	1.2	0.6	3.8	0.4	0.3	1.1	0.4	0.2	9.0
RIVR	1.2	1.5	0.6	4.6	0.5	0.3	1.8	0.5	0.2	11.2
SLBH	1.1	1.5	0.7	4.2	0.5	0.4	1.3	0.4	0.2	10.2
SNBO	1.1	1.4	0.6	3.9	0.5	0.3	1.6	0.5	0.2	10.0

* indicates results using the traditional CMAQ based RRF approach

TABLE II-5-6

RRF-BASED PREDICTED 2030 ATTAINMENT ANNUAL DESIGN VALUES ($\mu\text{g}/\text{m}^3$)

Sites	SO4	NO3	NH4	OC	EC	Salt	Others	Water	Blank	Total
ANAH	1.1	1.2	0.6	4.2	0.4	0.5	1.3	0.5	0.2	9.9
AZUS	1.2	1.0	0.5	4.0	0.4	0.4	1.2	0.5	0.2	9.2
BGBR	0.6	0.7	0.4	2.2	0.4	0.2	1.0	0.2	0.2	5.7
CELA	1.3	1.3	0.6	5.0	0.5	0.3	1.2	0.5	0.2	11.0
CMPT	1.3	1.4	0.7	5.1	0.6	0.4	1.4	0.5	0.2	11.4
FONT	1.2	1.2	0.5	3.9	0.5	0.3	1.7	0.6	0.2	10.0
LBNR	1.3	1.5	0.7	5.0	0.5	0.4	1.4	0.5	0.2	11.5
LGBH	1.1	1.3	0.6	4.2	0.5	0.4	1.2	0.4	0.2	9.9
MRLM	1.3	1.4	0.6	4.9	0.6	0.3	2.1	0.7	0.2	12.0
MSVJ	0.8	1.0	0.5	2.8	0.3	0.3	1.0	0.4	0.2	7.3
ONNR*	1.4	1.5	0.6	5.0	0.6	0.4	2.1	0.7	0.2	12.4
PASA	1.1	1.0	0.5	4.1	0.4	0.3	1.0	0.4	0.2	9.0
PICO	1.3	1.3	0.6	4.9	0.5	0.4	1.4	0.5	0.2	11.0
RESE	1.1	1.0	0.5	3.8	0.4	0.3	1.1	0.4	0.2	8.7
RIVR	1.2	1.2	0.5	4.5	0.5	0.3	1.8	0.6	0.2	10.8
SLBH	1.1	1.4	0.7	4.2	0.4	0.4	1.2	0.4	0.2	10.0
SNBO	1.1	1.1	0.5	3.9	0.4	0.3	1.6	0.6	0.2	9.6

* indicates results using the traditional CMAQ based RRF approach

Unmonitored Area Analysis

U.S. EPA modeling guidance requires that the attainment demonstration include an analysis that confirms that all grid cells in the modeling domain meet the federal standard. This “unmonitored area analysis” is essential since speciation monitoring is conducted at a limited number of sites in the modeling domain. Variability in the species profiles at selected locations coupled with the differing responses to emissions control scenarios are expected to result in spatially variable impacts to PM2.5 air quality in any grid cell. As described earlier in this chapter, speciation profiles from CSN sites are interpolated using inverse distance squared weighting. With interpolation of the CSN speciation profiles, attainment demonstrations can be directly conducted for the remaining grid cells where FRM mass data has been collected over the modified 5-year weighted period of 2016-2019.

The methodology used to assess the unmonitored grid cell impact is as follows. The speciation fractions throughout the Basin for each relevant species except particle bound water were estimated with inverse distance squared interpolation for each quarter of 2018. In the unmonitored area analysis, the modified five-year weighted annual PM2.5 design values were calculated for all Federal Reference Method (FRM) monitoring stations within the modelling domain for the 2016 to 2019 period for each quarter. Quarterly design values were interpolated using inverse distance squared weighting interpolation. The product of the interpolated total PM2.5 mass from the FRM monitors and the interpolated speciation fractions from the CSN monitors yields spatial distributions of speciated mass in each quarter. In order to maintain consistency with the attainment demonstration at individual stations, base and future year species concentrations at each grid cell were replaced with the average value of the 3x3 grid encompassing the selected grid cell. Model derived base and future-year quarterly averaged species concentrations were used to calculate RRFs for each species except water. RRFs were multiplied by quarterly averaged species concentrations to project future species concentrations. Particle-bound water was then calculated using a polynomial regression of the Aerosol Inorganic Model (AIM) and summed along with a “blank” concentration to calculate the quarterly-averaged PM2.5 future-year design values. Quarterly PM2.5 concentrations were averaged to produce future-year design values throughout the Basin. This approach is consistent with the U.S. EPA’s guidance.¹⁰

Figure II-5-32 shows the annual PM2.5 design values in the base year 2018 for the entire basin. Figures II-5-33 through II-5-35 provide the Basin-wide spatial extent of annual PM2.5 projected for 2025 baseline, 2030 baseline and 2030 attainment scenario. Without additional controls in the baseline 2025 and 2030, the number of grid cells with concentrations exceeding the federal standard is restricted to a small region around the Ontario CA-60 near-road and the Mira Loma monitoring stations, across the border between northwestern Riverside County and southwestern San Bernardino County. Figure II-5-35 shows the projected PM2.5 concentrations in 2030 with the full implementation of the PM2.5 control strategy, and

¹⁰ Modeling Guidance for Demonstrating Attainment of Air Quality Goals for Ozone, PM2.5, and Regional Haze, U.S. EPA, November 2018. Available at: https://www.epa.gov/sites/default/files/2020-10/documents/o3-pm-rh-modeling_guidance-2018.pdf

demonstrate that all areas in the basin are projected to be below the federal standard of $12 \mu\text{g}/\text{m}^3$. Table II-5-7 summarizes the design values projected for the entire basin including unmonitored areas.

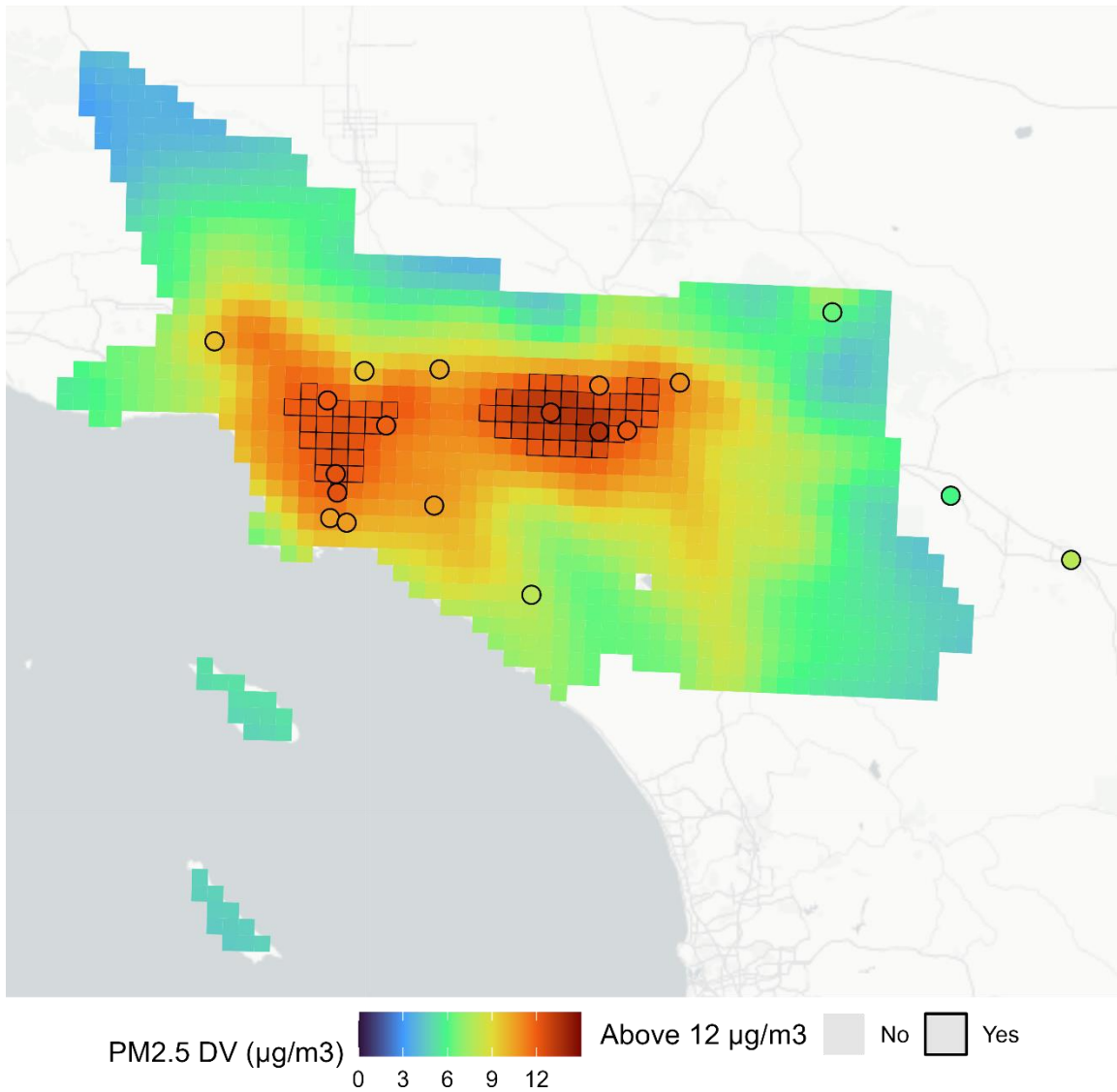


FIGURE II-5-32

PM2.5 DESIGN VALUES ($\mu\text{g}/\text{m}^3$) FROM THE 2018 BASE YEAR SCENARIO. CELLS EXCEEDING $12 \mu\text{g}/\text{m}^3$ ARE OUTLINED IN BLACK.

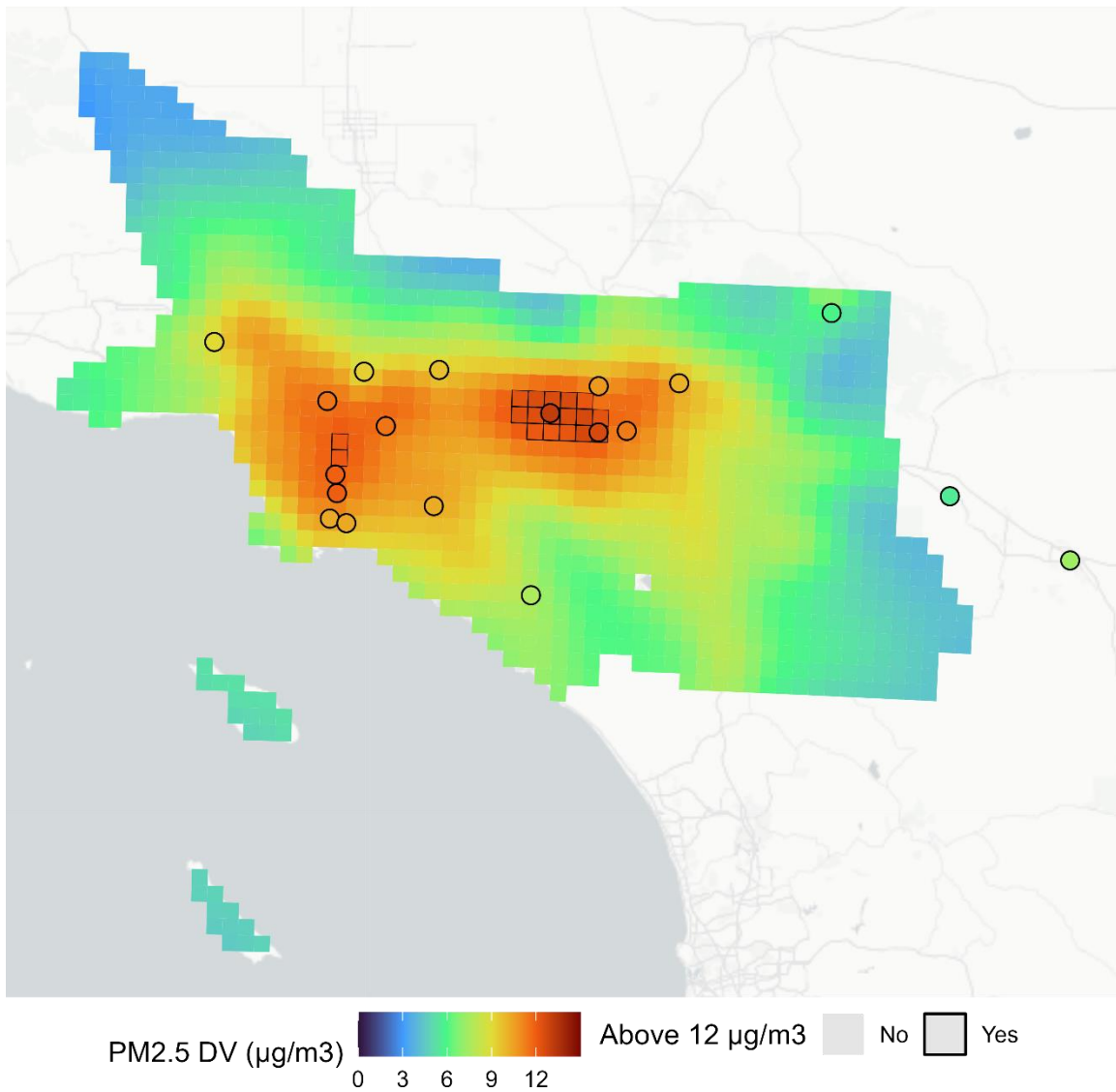


FIGURE II-5-33

ANNUAL PM_{2.5} DESIGN VALUES ($\mu\text{g}/\text{m}^3$) FROM THE 2025 BASELINE SCENARIO. CELLS EXCEEDING 12 $\mu\text{g}/\text{m}^3$ ARE OUTLINED IN BLACK.

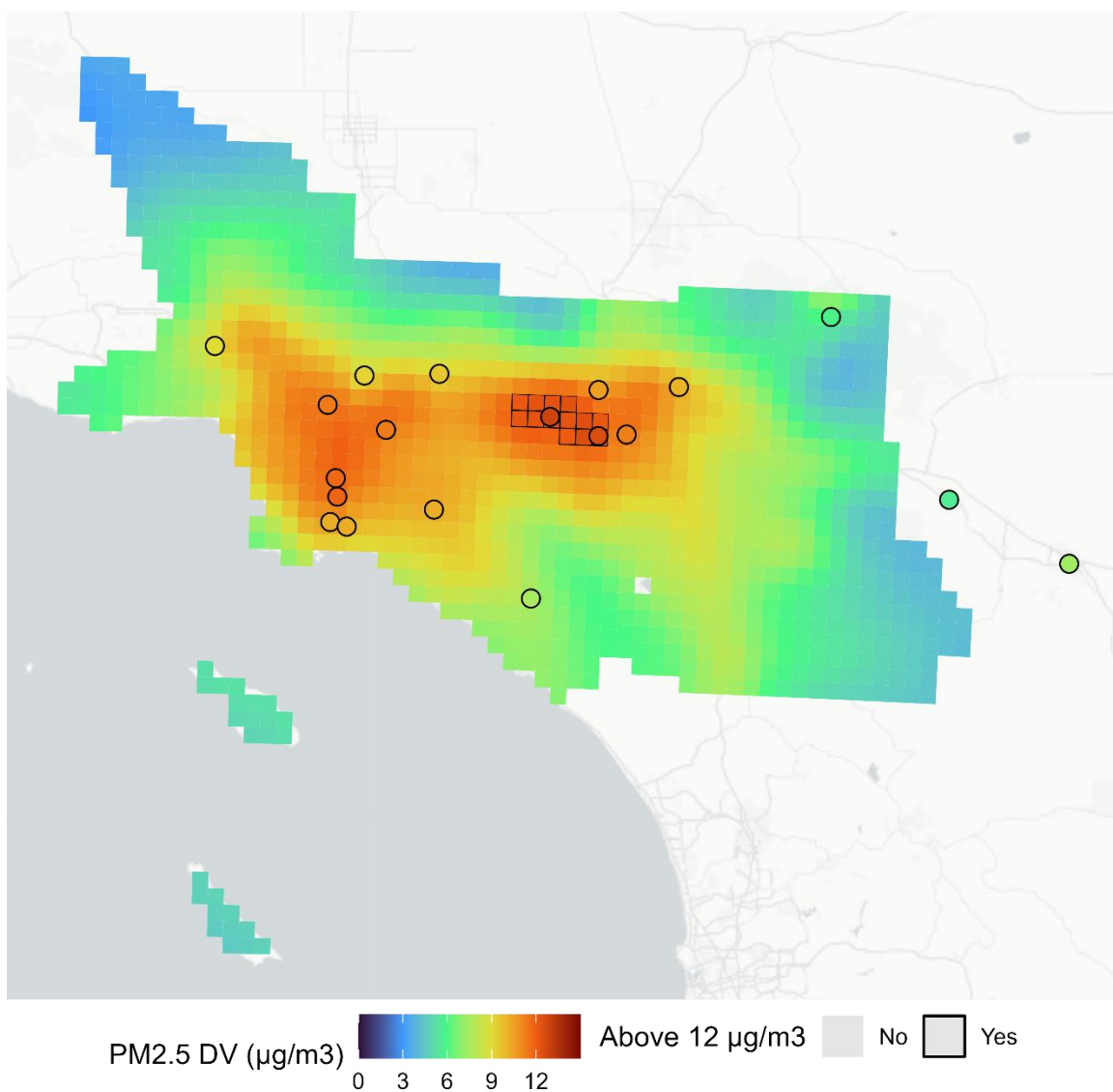


FIGURE II-5-34

ANNUAL PM2.5 DESIGN VALUES ($\mu\text{g}/\text{m}^3$) FROM THE 2030 BASELINE SCENARIO. CELLS EXCEEDING 12 $\mu\text{g}/\text{m}^3$ ARE OUTLINED IN BLACK.

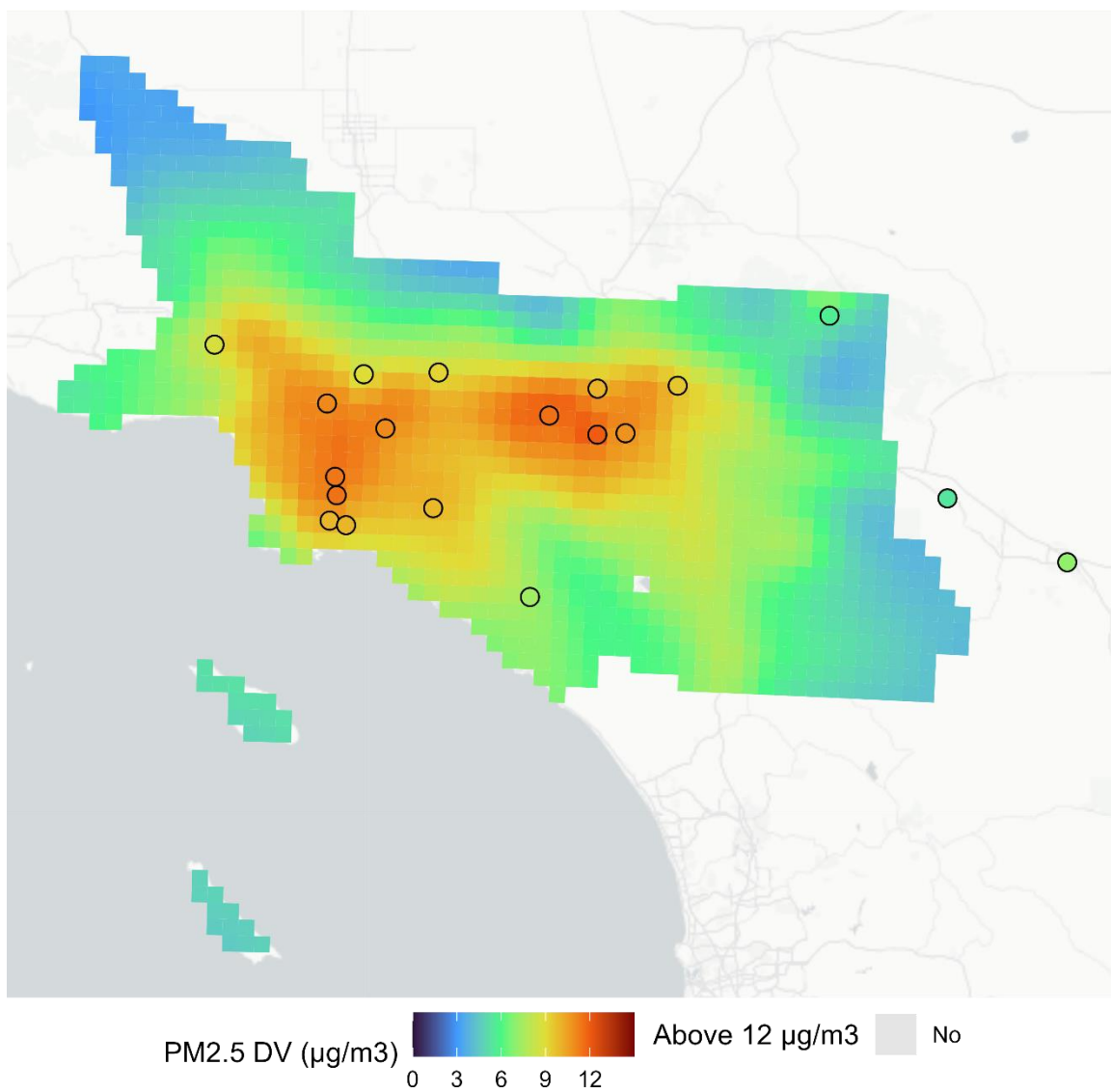


FIGURE II-5-35

ANNUAL PM_{2.5} DESIGN VALUES (µg/m³) FROM THE 2030 ATTAINMENT SCENARIO.

TABLE II-5-7

UNMONITORED AREA ANALYSIS PROJECTED BASIN-MAXIMUM ANNUAL PM_{2.5} DESIGN VALUES

Simulation	Maximum Annual PM _{2.5} Concentration in the Basin
2025 Baseline	13.1
2030 Baseline	12.9
2030 Attainment	12.0

Summary and Conclusions

This section presents the performance of the modeling platform developed for this Draft-PM_{2.5} plan and demonstrates the attainment of the annual PM_{2.5} standard in 2030 in the South Coast Air Basin. The modeling platform reproduces the PM_{2.5} temporal trends throughout the year 2018 and shows good agreement with PM_{2.5} speciation. The control strategy presented in this Draft-PM_{2.5} plan is expected to lead the South Coast Air Basin to attainment of the 2012 annual PM_{2.5} standard in 2030. This was demonstrated using a traditional photochemical-modeling-based approach recommended by U.S. EPA and an alternative hybrid approach for Ontario CA-60 near-road site, which was developed in consultation with U.S. EPA and CARB. The latter approach is presented in detail in the next chapter of this appendix.

Chapter 6

ATTAINMENT DEMONSTRATION FOR THE CA-60 NEAR-ROAD MONITORING STATION

Introduction

Approach to Model the Effect of Near-Road Sources

AERMOD Dispersion Modeling Set-Up

PM2.5 simulation with AERMOD

Model Evaluation of Hybrid Model

Annual PM2.5 Design Values using the Hybrid Approach

Summary

Introduction

The current design site in the basin is the near-road monitor located by CA-60 freeway in Ontario. The monitor is sited just 16 meters away from the freeway, as shown in Figure II-6-1, and is heavily influenced by the emissions released from vehicles as well as resuspended particles caused by moving traffic. The Ontario CA-60 near-road monitor (referred to as CA60NR hereinafter) has been operational since 2015, and since the monitor started collecting data, it has been the station with the highest annual average PM_{2.5} concentration in the basin. This monitor surpassed the concentrations at the previous design site in Mira Loma, which is located approximately 12 km eastward. However, the differences in annual PM_{2.5} concentrations between Mira Loma and CA60NR have narrowed since 2015 (see Figure 5-11 in Chapter 5). This trend can be attributed to the fact that emissions from on-road sources have decreased substantially more than all other sources in the basin, and as a result, PM_{2.5} concentrations at near-road monitors are decreasing faster than concentrations at regional monitors that represent air quality of wider areas.

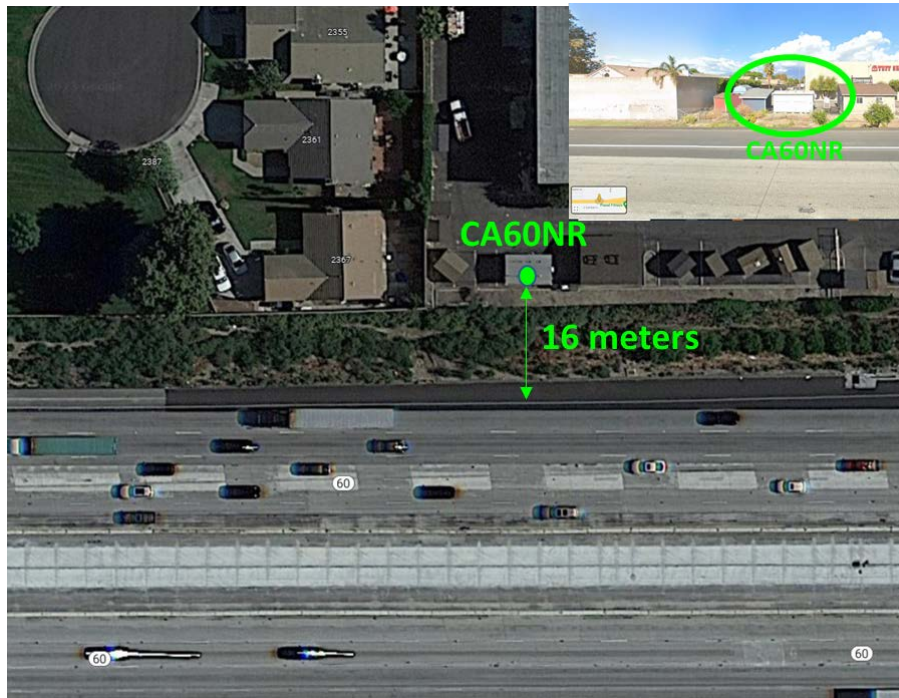


FIGURE II-6-1

LOCATION OF THE ONTARIO CA-60 NEAR-ROAD MONITOR

Regional photochemical transport modeling is designed to calculate air quality that is representative at the grid resolution of the model. This attainment demonstration uses a model resolution of 4 km by 4 km grid, and thus, should model concentration at monitors that are representative of a similar area. Near-road sites are heavily impacted by near-road sources and thus are not representative of the overall grid. U.S. EPA's modeling guidance acknowledges that attainment demonstration at near-road sites may

require a different treatment compared to other monitors as is indicated in modeling guidance, Section 4.6:

“PM2.5 measurement data from monitors that are not representative of “area-wide” air quality, but rather of relatively unique micro-scale, or localized hot spot, or unique middle-scale impact sites, are not eligible for comparison to the annual PM2.5 NAAQS.”

“... numerous cases where local source contributions may not be dominant, but are a sizable contributor to total PM2.5 (~10- 30% of total annual average PM2.5). In these cases, a more refined analysis of the contribution of local primary PM2.5 sources to PM2.5 at the monitor(s) will help explain the causes of nonattainment at and near the monitor.”

And in section 6.0:

“There may be some areas for which the supplemental evidence is persuasive enough to support a conclusion that the area can expect to achieve timely attainment despite failing the modeled attainment test,...”

For monitors affected by localized sources like the CA60NR site, the U.S. EPA modeling guidance suggests additional modeling techniques that would support the attainment demonstration. These techniques include increasing model resolution to a finer grid and using dispersion modeling to assess the impact of primary PM2.5 emissions from near sources on the monitor:

“A grid model can be run at very high horizontal resolution (1 or 2 km or finer) or a Gaussian dispersion model can be used. Grid based models simulate chemical transformation and complex meteorological conditions, while dispersion models are generally more simplistic; being limited to a local scale, using Gaussian approximations with little or no chemistry. Therefore, while dispersion models may not be an appropriate tool for determining secondary PM2.5 or ozone concentrations, they work well for use in determining local primary PM2.5 impacts.”

This chapter describes the application of hybrid approach using a combination of regional photochemical grid modeling (CMAQ) and dispersion modeling (AERMOD) to show that the annual PM2.5 concentrations at the CA60NR monitor are projected to decline more steeply than what the regional model suggests. The overall approach is to use CMAQ to model the impact of all sources at the grid resolution used in the attainment demonstrations, and to use AERMOD to quantify the elevated PM2.5 concentrations resulting from the proximity of the monitor to the emissions from vehicle and road dust resuspension along the freeway.

Approach to Model the Effect of Near-Road Sources

As the modeling guidance suggests, regional modeling may not be sufficient to represent the air pollution dynamics at near-road monitors and dispersion models can be used to determine primary PM2.5 impacts from on-road sources. Figure II-6-2 depicts how near-road sources contribute to PM2.5 concentrations around the monitor compared to how a regional model would quantify the grid cell-average impacts from

near-road sources. While the measurements at the near-road monitor observe a large contribution from near-road sources, a regional model only observes those near-road impacts averaged over the entire area of the modeling grid cell, resulting in an overall smaller impact. Regional modeling using CMAQ represents the air quality resulting from the regional sources plus the grid cell-average impacts of the near-road sources, whereas dispersion modeling using AERMOD can resolve the steep gradients in PM_{2.5} impacts from near-road sources. Thus, the use of AERMOD is used to quantify the near-road increment portion of the impacts from near-road sources that are beyond the grid cell-average near-road impacts. Because of the proximity of the monitor to the freeway, it is reasonable to assume that the impacts on PM_{2.5} primarily result from direct PM_{2.5} emissions and that the near-road impacts on secondary PM_{2.5} are negligible.

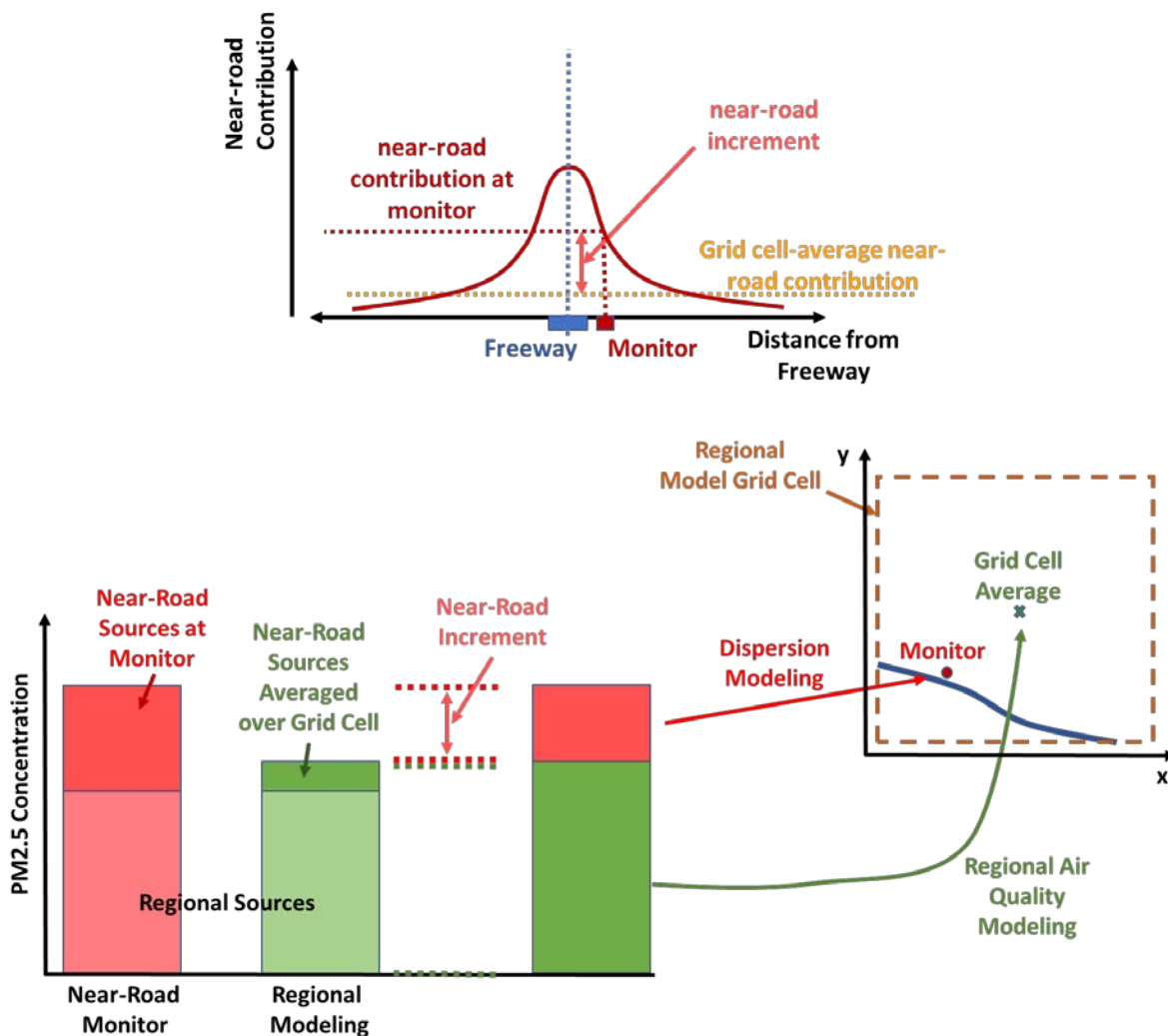


FIGURE II-6-2

SCHEMATICS OF THE HYBRID APPROACH TO INTEGRATE REGIONAL MODELING WITH DISPERSION MODELING OF NEAR-ROAD SOURCES

The receptor grid in the dispersion modeling setup spans the same area as the 4 km-by-4km regional modeling grid cell where the CA60NR monitor is located. The spacing of the receptors is 100 meters, with an additional receptor at the location of the monitor. The average of the concentrations at all receptors represents the receptor grid-average impact from near-road sources. The difference between the concentration at the CA60NR receptor monitor and the average across all dispersion modeling receptors is the AERMOD near-road increment (NRI_{AERMOD}):

$$C_{AERMOD,grid} = \frac{1}{N} \sum_{i=1}^N C_{AERMOD,i} \quad (II.6.1)$$

$$NRI_{AERMOD} = C_{AERMOD,CA60NR} - C_{AERMOD,grid} \quad (II.6.2)$$

where $C_{AERMOD,grid}$ is the near-road source contribution averaged over the AERMOD receptor grid, $C_{AERMOD,i}$ is the PM2.5 contribution at a given receptor i and N is the total number of receptors in the AERMOD modeling setup, and $C_{AERMOD,CA60NR}$ is the modeled near-road source contribution to PM2.5 concentration at the CA60NR monitor.

Alternatives for the determination of NRI

The magnitude of the NRI is a critical factor in the attainment demonstration for this near-road site. Because there are no speciated measurements at the CA60NR site, it is not possible to directly quantify the contribution of near-road sources to the overall PM2.5 measurements. Four potential approaches are considered to determine the NRI:

- 1) NRI based on AERMOD modeling, NRI_{AERMOD} , already described above.
- 2) NRI based on AERMOD for the monitor contribution, and CMAQ for the modeling grid cell average ($NRI_{AERMOD-CMAQ}$):

This approach is to calculate the NRI based on the concentrations calculated by AERMOD at the monitor and the near-road source contribution calculated using CMAQ at the CA60NR monitor cell. The calculation of the near-road source contribution to the CA60NR monitor cell ($C_{CMAQ,CA60NR}$) is calculated as follows:

$$C_{CMAQ,CA60NR} = C_{CMAQ,Base} - C_{CMAQ,NoCA60NR} \quad (II.6.3)$$

Where $C_{CMAQ,Base}$ is the PM2.5 concentration at the CA60NR monitor CMAQ grid cell in the base year simulation, and $C_{CMAQ,NoCA60NR}$ is the PM2.5 concentration in the simulation with all the base year emission sources included except for the near-road sources that are included in the AERMOD modeling setup. Then, this second alternative NRI, $NRI_{AERMOD-CMAQ}$, is calculated using the following expression:

$$NRI_{AERMOD-CMAQ} = C_{AERMOD,CA60NR} - C_{CMAQ,CA60NR} \quad (II.6.4)$$

This $NRI_{AERMOD-CMAQ}$ is used as the benchmark NRI, because the regional model (CMAQ) is the best tool available to determine the regional impacts from regional sources and which includes

secondary formation of PM_{2.5}, and dispersion modeling (AERMOD) is the best tool suited for short scale transport modeling typically used for source permitting.

3) NRI based on measured concentrations in nearby monitors:

As a third alternative, the NRI can be assessed by comparing PM_{2.5} levels at CA60NR with those at nearby monitoring stations. This approach was used in the attainment demonstration for annual PM_{2.5} in the Allegheny County, where there is a monitor that is in the vicinity of a large facility.¹ However, the case of CA60NR is different as there is not a single large facility affecting the monitor, but a collection of moving sources running along the CA-60 freeway. Three neighboring monitors, which are located within a 20-kilometer radius, are used in this approach: Mira Loma, Fontana and Rubidoux. It is important to note that the annual PM_{2.5} design value is calculated using speciated components of PM_{2.5}. However, neither the CA60NR monitor nor the closest monitors at Mira Loma and Fontana have speciated measurements available. Consequently, the speciation profile of the NRI is estimated based on dispersion modeling results. The NRI based on measured PM_{2.5} at neighboring sites, $NRI_{Monitors}$, is calculated as follows:

$$NRI_{Monitors} = DV_{CA60NR} - \frac{1}{N} \sum_{i=1}^N DV_i \quad (II.6.5)$$

Where DV_{CA60NR} is the design value observed at the CA60NR monitor, and DV_i is the design value observed at monitor i .

4) NRI based on the relative proportion of AERMOD and CMAQ modeled values ($NRI_{RelativeModel}$):

The fourth approach is to assume that the modeled $NRI_{AERMOD-CMAQ}$ and the regional sources modeled by CMAQ are in the same proportion as $(C_{CMAQ,Base})$ correspond to the monitored regional and local portions design value at the near-road monitor, DV_{CA60NR} . Then, the portion of the design value that corresponds to the near-road increment is defined by the ratio of the modeled $NRI_{AERMOD-CMAQ}$ to the total modeled concentration. This approach implies that the performance of CMAQ modeling regional sources and the performance of AERMOD modeling near-road sources are comparable.

The expression to calculate the $NRI_{RelativeModel}$ is as follows:

$$NRI_{RelativeModel} = DV_{CA60NR} \cdot \frac{NRI_{AERMOD-CMAQ}}{(NRI_{AERMOD-CMAQ} + C_{CMAQ,Base})} \quad (II.6.6)$$

Each equation represents slightly different definitions of NRI. The four NRI approaches are later evaluated to establish uncertainty bounds for calculating future design values using hybrid modeling results.

¹ Revision to the Allegheny County Portion of the Pennsylvania State Implementation Plan. Attainment Demonstration for the Allegheny County, PA PM_{2.5} Nonattainment Area, 2012 NAAQS.

<https://www.regulations.gov/search?filter=EPA-R03-OAR-2020-0157>

The estimated NRI is then subtracted from the base year design value, and the remaining portion corresponds to the contribution of all regional sources plus the grid cell average contribution of the near-road sources. This second portion of the DV is referred as the regional component of the DV (RDV):

$$RDV = (\text{Base Year DV}) - \text{NRI} \quad (\text{II.6.7})$$

Once the NRI and RDV components are disaggregated from the measured design value, future design value can be estimated by applying two differentiated Relative Reduction Factors (RRF) to these two components. The RDV component is projected using the RRF calculated from regional air quality modeling (RRF_{CMAQ}), and the NRI is projected using the RRF calculated using the dispersion modeling results (RRF_{AERMOD}). Figure II-6-3 illustrates this procedure. The resulting future year design value is calculated as follows:

$$\text{Future DV} = RDV * RRF_{CMAQ} + \text{NRI} * RRF_{AERMOD} \quad (\text{II.6.8})$$

It is important to note that dispersion modeling is used to estimate the NRI, which is an increment from what the regional modeling simulates. Thus, the regional modeling set-up includes all near-road sources, to account for the grid cell average component of near-road sources. Conversely, the receptor grid-average obtained from AERMOD is subtracted from the concentrations estimated by AERMOD at the monitor site, to calculate the NRI_{AERMOD} and avoid double counting of the grid cell average impacts from near-road sources. This approach is described in a 5-step process below.

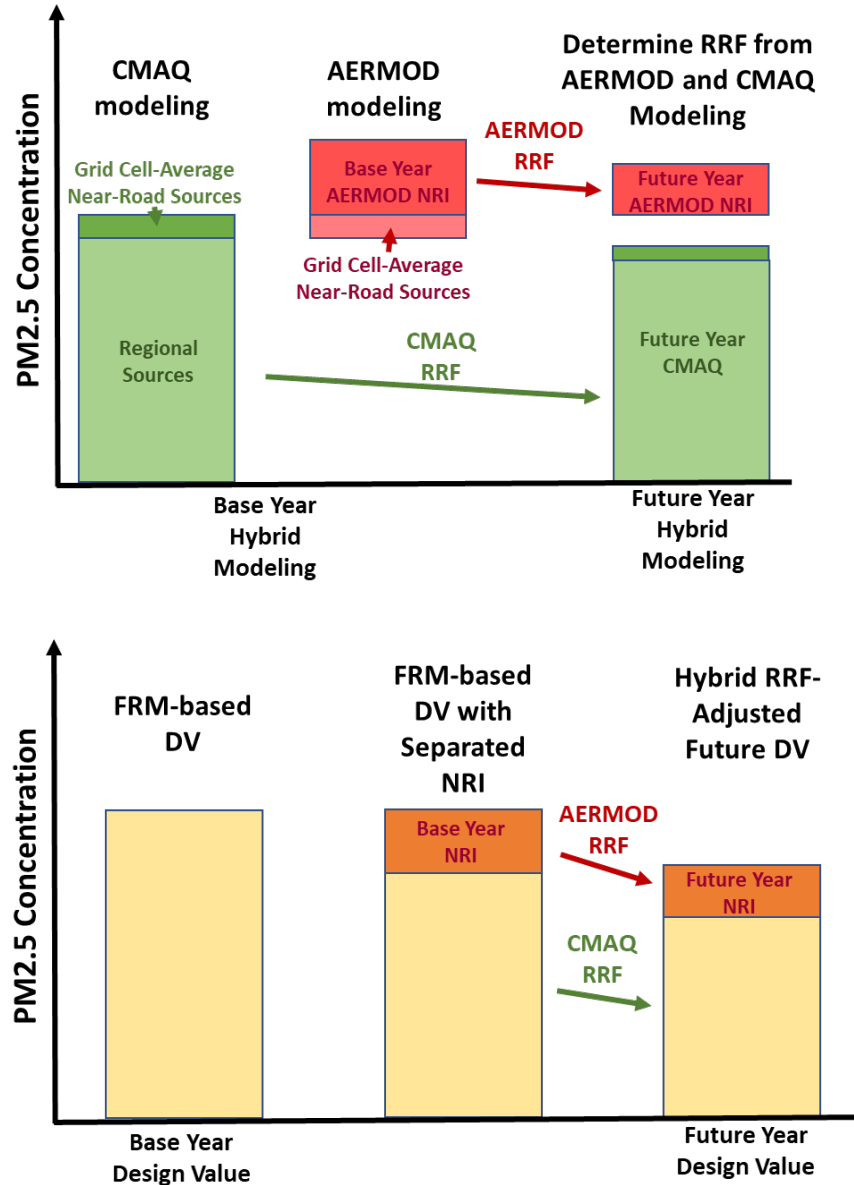


FIGURE II-6-3

DIAGRAM OF THE APPROACH TO PROJECT FUTURE PM_{2.5} CONCENTRATIONS USING RRF FOR REGIONAL MODELING AND DISPERSION MODELING OF NEAR-ROAD SOURCES

STEP 1: Conduct AERMOD dispersion modeling to determine the base year and attainment year speciated near-road increment.

The AERMOD modeling set-up is described in detail in the following section. The quarterly average contribution from near-road sources and the NRI_{AERMOD} for the base year is presented in Table II-6-1. Based on AERMOD modeling, the contribution from near-road sources averaged over the AERMOD receptor grid and averaged annually is $0.32 \mu\text{g}/\text{m}^3$, whereas the annual average contribution of near-road sources at the CA60NR monitor is $3.13 \mu\text{g}/\text{m}^3$. As a result, the estimated NRI_{AERMOD} annual average is $2.81 \mu\text{g}/\text{m}^3$. The future NRI and RRF calculated from the dispersion modeling are presented in Table II-6-2.

TABLE II-6-1

BASE YEAR QUARTERLY AVERAGE CONTRIBUTION OF NEAR-ROAD SOURCES AVERAGED OVER THE RECEPTOR GRID AND AT THE CA60NR MONITOR, AND NEAR-ROAD INCREMENT ($\text{NRI}_{\text{AERMOD}}$, APPROACH #1), USING AERMOD

AERMOD – Receptor Grid Average ($C_{\text{AERMOD,grid}}$) ($\mu\text{g}/\text{m}^3$)					
	Q1	Q2	Q3	Q4	Annual
Sulfate	0.017	0.011	0.009	0.020	0.014
Nitrate	0.003	0.002	0.001	0.003	0.002
Ammonium	0.002	0.002	0.001	0.003	0.002
OC	0.068	0.042	0.037	0.078	0.056
EC	0.067	0.041	0.037	0.078	0.056
Salt	0.014	0.008	0.007	0.016	0.011
Other	0.223	0.135	0.119	0.252	0.182
Total Near-Road	0.39	0.24	0.21	0.45	0.32
AERMOD – At Monitor ($C_{\text{AERMOD,CA60NR}}$) ($\mu\text{g}/\text{m}^3$)					
	Q1	Q2	Q3	Q4	Annual
Sulfate	0.132	0.136	0.135	0.142	0.136
Nitrate	0.021	0.022	0.021	0.023	0.022
Ammonium	0.019	0.020	0.019	0.020	0.020
OC	0.518	0.536	0.529	0.549	0.533
EC	0.515	0.532	0.525	0.555	0.532
Salt	0.106	0.109	0.108	0.111	0.108
Other	1.737	1.797	1.776	1.818	1.782
Total Near-Road	3.05	3.15	3.11	3.22	3.13
Near-Road Increment ($\text{NRI}_{\text{AERMOD}}$) ($\mu\text{g}/\text{m}^3$)					
	Q1	Q2	Q3	Q4	Annual
Sulfate	0.115	0.126	0.125	0.122	0.122
Nitrate	0.018	0.020	0.020	0.020	0.019
Ammonium	0.016	0.018	0.018	0.017	0.018
OC	0.450	0.494	0.493	0.471	0.477
EC	0.448	0.490	0.489	0.476	0.476
Salt	0.092	0.101	0.101	0.095	0.097
Other	1.515	1.662	1.658	1.565	1.600
Total Near-Road	2.65	2.91	2.90	2.77	2.81

TABLE II-6-2

FUTURE YEAR QUARTERLY NEAR-ROAD INCREMENT (NRI) AND RELATIVE REDUCTION FACTORS CALCULATED USING AERMOD.

Future Year Near-Road Increment ($\mu\text{g}/\text{m}^3$)					
	Q1	Q2	Q3	Q4	Annual
Sulfate	0.047	0.051	0.051	0.049	0.050
Nitrate	0.009	0.010	0.010	0.010	0.010
Ammonium	0.006	0.007	0.007	0.007	0.007
OC	0.253	0.279	0.278	0.261	0.268
EC	0.091	0.100	0.100	0.094	0.096
Salt	0.090	0.098	0.098	0.093	0.095
Other	1.475	1.617	1.612	1.533	1.559
Total Near-Road	1.97	2.16	2.16	2.05	2.08
Relative Reduction Factors (RRF_{AERMOD}) (non-dimensional)					
	Q1	Q2	Q3	Q4	Annual
Sulfate	0.408	0.408	0.408	0.404	0.407
Nitrate	0.518	0.518	0.518	0.515	0.517
Ammonium	0.377	0.377	0.377	0.371	0.375
OC	0.563	0.563	0.564	0.556	0.561
EC	0.204	0.204	0.204	0.197	0.202
Salt	0.972	0.972	0.972	0.978	0.974
Other	0.972	0.972	0.972	0.978	0.973
Total Near-Road	0.742	0.742	0.742	0.739	0.741

STEP 2: Determine the NRI.

As described above, we propose four alternatives to the calculation of NRI. Step 1 calculates the NRI_{AERMOD} used in the calculation of RRF_{AERMOD} .

The second alternative is to calculate the NRI using the grid cell-average near-road source contribution calculated with CMAQ. Two simulations are conducted to determine the contribution of near-road sources: (1) annual base year simulation with all emissions and (2) annual base year simulation that includes all emissions excluding the PM_{2.5} emissions from the near-road sources that are included in the AERMOD simulation. Then the difference in PM_{2.5} concentrations between the two simulations at the cell where CA60NR is located is the grid cell-average contribution of near-road sources, $C_{CMAQ,CA60NR}$. Then, the $NRI_{AERMOD-CMAQ}$ is calculated using equation II.6.4 using $C_{AERMOD,CA60NR}$ shown in Table II-6-1. The values for $C_{CMAQ,CA60NR}$ and $NRI_{AERMOD-CMAQ}$ are shown in Table II-6-3. The $NRI_{AERMOD-CMAQ}$ is larger than the NRI_{AERMOD} because the contribution from near-road sources estimated by CMAQ is smaller than the grid-cell average contribution calculated with AERMOD ($C_{AERMOD,grid}$).

TABLE II-6-3

**NEAR-ROAD SOURCE CONTRIBUTION ESTIMATED BY CMAQ AND NEAR ROAD INCREMENT
WITH GRID CELL AVERAGE CONTRIBUTION CALCULATED BY CMAQ ($NRI_{AERMOD-CMAQ_L}$
APPROACH #2).**

Near-Road Source Contribution ($C_{CMAQ,CA60NR}$) ($\mu\text{g}/\text{m}^3$)					
	Q1	Q2	Q3	Q4	Annual
Sulfate	0.010	0.005	0.000*	0.011	0.006
Nitrate	0.041	0.003	0.000*	0.030	0.019
Ammonium	0.008	0.000*	0.000*	0.005	0.003
OC	0.028	0.012	0.024	0.030	0.023
EC	0.035	0.018	0.018	0.041	0.028
Salt	0.008	0.004	0.020	0.008	0.010
Other	0.093	0.050	0.016	0.102	0.065
Total Near-Road	0.22	0.09	0.08	0.23	0.15
$NRI_{AERMOD-CMAQ}$ ($\mu\text{g}/\text{m}^3$)					
	Q1	Q2	Q3	Q4	Annual
Sulfate	0.122	0.131	0.135	0.131	0.130
Nitrate	0.000*	0.018	0.021	0.000*	0.010
Ammonium	0.010	0.020	0.019	0.015	0.016
OC	0.490	0.524	0.506	0.519	0.510
EC	0.479	0.514	0.507	0.514	0.504
Salt	0.098	0.106	0.088	0.103	0.099
Other	1.645	1.747	1.760	1.716	1.717
Total Near-Road	2.84	3.06	3.04	3.00	2.98

*CMAQ estimated negative contribution to sulfate, nitrate, and ammonium, due to chemical interaction with organic aerosol precursors. Because AERMOD modeling only accounts for primary PM_{2.5}, negative values are capped at 0.

The third alternative for the NRI is calculated using monitoring data. There are 19 PM_{2.5} FRM monitoring stations in the basin, although only four stations measure speciated PM. The basin includes distinct geographical features and localized sources that causes PM_{2.5} concentrations vary widely throughout the region. Because of the wide range of sources and PM_{2.5} concentrations across the basin, the NRI in this attainment demonstration is estimated by using observations at the CA60NR and the three closest monitors: Mira Loma, Fontana, and Rubidoux. These three monitors are located within a 20-kilometer radius from CA60NR. Out of the four monitors, only Rubidoux measures speciated PM_{2.5}. Consequently, calculating speciated NRI is not possible from observations. Thus, the speciation of the NRI is based on the modeled speciated NRI using AERMOD. Table II-6-4 shows the quarterly average PM_{2.5} concentrations at the four monitors used to determine the NRI, the resulting NRI, and the quarterly speciation profiles calculated with AERMOD. The annual $NRI_{Monitors}$, estimated using monitoring data, is 1.64 $\mu\text{g}/\text{m}^3$, which is 45% less than the $NRI_{AERMOD-CMAQ}$. Both estimates are subject to uncertainties and there is no direct way to determine the accuracy of the estimates due to the lack of direct measurements.

The validity of $NRI_{Monitors}$ relies on the assumption that all the neighboring monitors are surrounded by the similar regional sources, and the only difference between CA60NR and all other monitors is the presence of freeway CA-60. However, a brief inspection of the surroundings of the neighboring monitors reveals that the monitor at Fontana is 1 km from Fontana's Auto Speedway racetrack and close to industrial yards, and the Mira Loma monitor is less than 2 km downwind from a large Union Pacific railyard and within 500 meters from a railroad. Thus, it is gross assumption that the difference in PM_{2.5} between CA60NR and the rest of neighboring monitors expressed by the $NRI_{Monitors}$ is due to the contribution from freeway CA-60 alone.

TABLE II-6-4

NEAR-ROAD INCREMENT CALCULATED FROM OBSERVATIONS ($NRI_{Monitors}$, APPROACH #3) AND SPECIATION PROFILE FOR THE NRI BASED ON AERMOD MODELING.

Monitor	Distance	Q1	Q2	Q3	Q4	Annual
Ontario-Route 60 Near Road		13.45	12.36	14.65	15.46	13.98
Fontana	13.5 km	9.78	11.12	13.43	11.08	11.35
Rubidoux	18.8 km	10.55	11.51	13.02	13.44	12.13
Mira Loma	12.2 km	12.50	12.05	13.12	16.44	13.53
Near-Road Increment ($\mu\text{g}/\text{m}^3$)		2.51	0.80	1.46	1.80	1.64
Near-Road Increment Speciation						
Sulfate		4.1%	4.1%	4.1%	4.2%	4.1%
Nitrate		0.7%	0.7%	0.7%	0.7%	0.7%
Ammonium		0.6%	0.6%	0.6%	0.6%	0.6%
OC		16.5%	16.4%	16.3%	16.4%	16.4%
EC		16.0%	15.9%	15.9%	16.3%	16.0%
Salt		3.5%	3.5%	3.5%	3.5%	3.5%
Other		58.7%	58.9%	59.0%	58.3%	58.7%
$NRI_{Monitors}$ ($\mu\text{g}/\text{m}^3$)						
		Q1	Q2	Q3	Q4	Annual
Sulfate		0.109	0.034	0.063	0.080	0.071
Nitrate		0.017	0.005	0.010	0.013	0.011
Ammonium		0.016	0.005	0.009	0.011	0.010
OC		0.426	0.135	0.248	0.306	0.279
EC		0.424	0.134	0.246	0.310	0.278
Salt		0.087	0.028	0.051	0.062	0.057
Other		1.434	0.455	0.836	1.018	0.936
Total Near-Road		2.51	0.80	1.46	1.80	1.64

The fourth alternative is using the modeled NRI and CMAQ concentrations in relative terms to determine the portion of the design value that corresponds to the NRI, following equation II.6.6. The observed base year design value at the CA60NR monitor (DV_{CA60NR}) is shown in Table II-6-5. Equation II.6.6 requires the DV_{CA60NR} from Table II-6-5, the modeled concentrations by CMAQ at CA60NR shown in Table II-6-6 and the $NRI_{AERMOD-CMAQ}$ shown in Table II-6-3. The relative portion of PM_{2.5} species from $NRI_{AERMOD-CMAQ}$ with respect to total $NRI_{AERMOD-CMAQ}$ plus CMAQ concentrations, and the resulting $NRI_{RelativeModel}$ values are shown in Table II-6-6. The overall $NRI_{RelativeModel}$ is 1.80 $\mu\text{g}/\text{m}^3$, which is 40% less than the $NRI_{AERMOD-CMAQ}$, and slightly higher than the $NRI_{Monitors}$. As discussed earlier, because of the lack of direct speciated measurements at the CA60NR monitor, it is not possible to ascertain which of the four alternatives to the NRI is the most accurate. However, the range of values for NRI can provide a sense of uncertainty bounds in the modeling of future design values at the CA60NR.

TABLE II-6-5
SPECIATED DESIGN VALUE AT THE CA60NR MONITOR (DV_{CA60NR})

Base Year DV at CA60NR ($\mu\text{g}/\text{m}^3$)	Q1	Q2	Q3	Q4	Annual
Sulfate	0.697	1.654	1.984	1.009	1.336
Nitrate	3.025	2.613	1.951	3.112	2.675
Ammonium	1.102	1.188	0.991	1.135	1.104
OC	4.933	3.961	6.002	4.628	4.881
EC	0.933	0.502	0.766	1.165	0.842
Salt	0.418	0.354	0.319	0.303	0.349
Other	1.513	1.182	1.706	3.201	1.901
Water	0.628	0.706	0.729	0.697	0.690
Blank	0.2	0.2	0.2	0.2	0.2
Total	13.45	12.36	14.65	15.45	13.98

TABLE II-6-6

NEAR-ROAD SOURCE CONTRIBUTION INCREMENT ($NRI_{RelativeModel}$, APPROACH #4) ESTIMATED BY CMAQ AND NEAR ROAD INCREMENT CALCULATED WITH GRID CELL AVERAGE CONTRIBUTION ESTIMATED BY CMAQ ($NRI_{AERMOD-CMAQ}$)

CMAQ Baseline at CA60NR ($C_{CMAQ,Base}$) ($\mu\text{g}/\text{m}^3$)					
	Q1	Q2	Q3	Q4	Annual
Sulfate	0.656	0.863	1.104	0.743	0.842
Nitrate	4.478	1.652	1.273	4.908	3.078
Ammonium	1.347	0.399	0.318	1.461	0.881
OC	6.500	4.404	5.697	7.604	6.051
EC	0.840	0.387	0.421	0.898	0.637
Salt	0.382	1.161	1.120	0.425	0.772
Other	2.505	1.611	1.740	2.959	2.204
Total CMAQ	16.71	10.48	11.67	19.00	14.46
$NRI_{AERMOD-CMAQ}/(C_{CMAQ,Base}+NRI_{AERMOD-CMAQ})$ (non-dimensional)					
	Q1	Q2	Q3	Q4	Annual
Sulfate	0.157	0.132	0.109	0.150	0.134
Nitrate	0.000	0.011	0.017	0.000	0.003
Ammonium	0.008	0.047	0.057	0.010	0.018
OC	0.070	0.106	0.082	0.064	0.078
EC	0.363	0.565	0.546	0.364	0.440
Salt	0.204	0.083	0.073	0.194	0.113
Other	0.377	0.423	0.495	0.367	0.410
$NRI_{RelativeModel}$ ($\mu\text{g}/\text{m}^3$)					
	Q1	Q2	Q3	Q4	Annual
Sulfate	0.109	0.218	0.216	0.152	0.174
Nitrate	0.000	0.029	0.032	0.000	0.015
Ammonium	0.008	0.056	0.057	0.012	0.033
OC	0.346	0.421	0.489	0.296	0.388
EC	0.339	0.283	0.419	0.424	0.366
Salt	0.085	0.030	0.023	0.059	0.049
Other	0.570	0.500	0.845	1.175	0.772
Total Near-Road	1.46	1.54	2.08	2.12	1.80

In summary, the four alternatives described above span the range of NRI from 1.64 µg/m³ to 2.98 µg/m³. While there are no direct measurements or any comprehensive study near the CA60NR that could provide a better estimate of the contribution of near-road sources to observed PM_{2.5}, a recent study collected PM_{2.5} filter samples near two other southern California highways (I-5 and I-710), placing the samplers both upwind and downwind from the freeways.² Measurements over two weeks showed overall differences between upwind and downwind measurements ranging from 1 µg/m³ to 3 µg/m³, which are in the same range as the four alternatives for NRI.

STEP 3: Separate the NRI portion from the measured quarterly base year design value.

The quarterly averages of the base year design value are calculated following the methodology described in the U.S. EPA modeling guidance. Speciation at CA60NR is derived by interpolating the speciation profiles from the four CSN monitors in the basin. Then, the NRI is subtracted from the speciated base year design value to obtain RDV. In this example, *NRI_{AERMOD-CMAQ}* is used, and the breakdown between NRI and RDV is shown in Table II-6-7. Note that the estimated NRI for crustal component Other is larger than the estimated portion from the calculated base year design value in quarters 2 and 3. Thus, the values for Other in *NRI_{AERMOD-CMAQ}* in quarter 2 and quarter 3 are capped at the magnitude in the base year design value.

² Wang X., Gronstal S., Lopez B., Jung H., Chen A.L.-H., Wu G., Ho S.S.H., Chow J.C., Watson J.G., Yao Q., Yoon S., 2023. Evidence of non-tailpipe emission contributions to PM_{2.5} and PM₁₀ near southern California highways. *Environmental Pollution*, 3017, 120691.
<https://doi.org/10.1016/j.envpol.2022.120691>

TABLE II-6-7

**DISAGGREGATION OF NEAR-ROAD INCREMENT FROM REGIONAL COMPONENT OF THE BASE
YEAR DESIGN VALUE**

Speciated Base Year DV ($\mu\text{g}/\text{m}^3$)	Q1	Q2	Q3	Q4	Annual
Sulfate	0.697	1.654	1.984	1.009	1.336
Nitrate	3.025	2.613	1.951	3.112	2.675
Ammonium	1.102	1.188	0.991	1.135	1.104
OC	4.933	3.961	6.002	4.628	4.881
EC	0.933	0.502	0.766	1.165	0.842
Salt	0.418	0.354	0.319	0.303	0.349
Other	1.513	1.182	1.706	3.201	1.901
Water	0.628	0.706	0.729	0.697	0.690
Blank	0.2	0.2	0.2	0.2	0.2
Total	13.45	12.36	14.65	15.45	13.98
NRI_{AERMOD-CMAQ} ($\mu\text{g}/\text{m}^3$)	Q1	Q2	Q3	Q4	Annual
Sulfate	0.122	0.131	0.135	0.131	0.130
Nitrate	0.000	0.018	0.021	0.000	0.010
Ammonium	0.010	0.020	0.019	0.015	0.016
OC	0.490	0.524	0.506	0.519	0.510
EC	0.479	0.502	0.507	0.514	0.501
Salt	0.098	0.106	0.088	0.103	0.099
Other	1.513	1.182*	1.706*	1.716	1.529
Total Near-Road	2.71	2.48	2.98	3.00	2.79
Regional Component (RDV) ($\mu\text{g}/\text{m}^3$)	Q1	Q2	Q3	Q4	Annual
Sulfate	0.575	1.523	1.849	0.878	1.206
Nitrate	3.025	2.595	1.930	3.112	2.665
Ammonium	1.092	1.168	0.972	1.120	1.088
OC	4.443	3.437	5.496	4.109	4.371
EC	0.454	0.000	0.259	0.651	0.341
Salt	0.320	0.248	0.231	0.200	0.250
Other	0.000	0.000	0.000	1.485	0.371
Water	0.628	0.706	0.729	0.697	0.69
Blank	0.2	0.2	0.2	0.2	0.2
Total Regional	10.74	9.88	11.67	12.45	11.18

*Values capped at the values of Other in the speciated DV in quarters 2 and 3

STEP 4: Project future DV by applying AERMOD-based RRF to NRI and CMAQ-based RRF to the regional component RDV.

The AERMOD-based RRF is calculated in Step 1 and is presented in Table II-6-2. The CMAQ-based RRF is calculated following the same methodology used in the traditional attainment demonstration approach, as described in the U.S. EPA modeling guidance. Namely, the quarterly average of modeled concentrations for the base year and the attainment scenario are averaged over a 3-by-3 grid centered at the grid cell where the monitor is located. The quarterly average value for each PM2.5 species in the attainment case divided by the quarterly average for the base year is the RRF for each PM2.5 species. The calculated RRF values are shown in Table II-6-8.

TABLE II-6-8

CMAQ-BASED RELATIVE REDUCTION FACTORS (RRF) FOR THE MONITOR AT CA60NR

	Q1	Q2	Q3	Q4	Annual
Sulfate	1.053	1.013	1.007	1.023	1.017
Nitrate	0.518	0.622	0.688	0.477	0.571
Ammonium	0.532	0.559	0.672	0.482	0.566
OC	1.112	0.963	0.931	1.081	1.018
EC	0.71	0.644	0.654	0.696	0.686
Salt	1.015	1.044	1.053	1.031	1.034
Other	1.095	1.064	1.058	1.091	1.080

The AERMOD-based RRF is applied to the base year NRI and the CMAQ-based RRF is applied to the base year RDV. The resulting speciated concentrations, shown in Table II-6-9, represent the PM2.5 concentrations in the attainment scenario.

TABLE II-6-9

PROJECTED NRI (BASED ON *NRI*_{AERMOD-CMAQ}, APPROACH #2) AND REGIONAL COMPONENT IN THE ATTAINMENT SCENARIO

	Q1	Q2	Q3	Q4	Annual
Near-Road Increment (NRI) ($\mu\text{g}/\text{m}^3$)					
Sulfate	0.050	0.054	0.055	0.053	0.053
Nitrate	0.000	0.010	0.011	0.000	0.005
Ammonium	0.004	0.007	0.007	0.006	0.006
OC	0.276	0.295	0.285	0.288	0.286
EC	0.097	0.102	0.104	0.101	0.101
Salt	0.095	0.103	0.086	0.100	0.096
Other	1.473	1.150	1.659	1.680	1.491
Total Near-Road	2.00	1.72	2.21	2.23	2.04
Regional Component (RDV) ($\mu\text{g}/\text{m}^3$)					
Sulfate	0.605	1.543	1.862	0.898	1.227
Nitrate	1.567	1.614	1.328	1.484	1.498
Ammonium	0.581	0.653	0.653	0.540	0.607
OC	4.940	3.310	5.117	4.442	4.452
EC	0.322	0.000	0.169	0.453	0.236
Salt	0.325	0.259	0.243	0.207	0.258
Other	0.000	0.000	0.000	1.621	0.405
Total Regional	8.34	7.38	9.37	9.64	8.68

STEP 5: Add the future NRI and RDV components, calculate particle bound water and add blank to determine the future design value.

The future NRI and RDV components calculated in step 4 are added. Particle bound water is calculated following U.S. EPA modeling guidance, using a polynomial regression equation fitted to the equilibrium model Aerosol Inorganic Matter (AIM) as a function of sulfate, nitrate, and ammonium concentrations. The standard blank of $0.2 \mu\text{g}/\text{m}^3$ is added to the sum of all components to obtain the quarterly averages. The future annual design value is calculated as the average of the quarterly values. Table II-6-10 shows the calculated values, showing that the annual design value is $11.59 \mu\text{g}/\text{m}^3$, and thus demonstrating attainment of the annual PM_{2.5} standard.

TABLE II-6-10

PROJECTED ANNUAL PM_{2.5} DESIGN VALUE IN THE ATTAINMENT SCENARIO

	Q1	Q2	Q3	Q4	Annual
Future DV with $NRI_{AERMOD-CMAQ}$ ($\mu\text{g}/\text{m}^3$)					
Sulfate	0.655	1.596	1.917	0.951	1.280
Nitrate	1.567	1.623	1.339	1.484	1.503
Ammonium	0.585	0.661	0.660	0.545	0.613
OC	5.216	3.605	5.402	4.730	4.739
EC	0.419	0.102	0.273	0.554	0.337
Salt	0.420	0.362	0.329	0.307	0.355
Other	1.473	1.150	1.659	3.301	1.896
Water	0.409	0.839	0.855	0.557	0.665
Blank	0.2	0.2	0.2	0.2	0.200
Total	10.94	10.14	12.63	12.63	11.59

The future design value calculated using this hybrid approach is sensitive to the magnitude of NRI. Because emissions from on-road sources are expected to decline faster than the overall emissions in the basin, the NRI portion is projected to decline faster than the RDV. Table II-6-11 shows the future design value calculated using $NRI_{Monitors}$, which the smallest among the four alternative NRI values. Since the magnitude of $NRI_{Monitors}$ is smaller than $NRI_{AERMOD-CMAQ}$, the overall future DV increases. As a result, the DV calculated using $NRI_{Monitors}$ is $11.91 \mu\text{g}/\text{m}^3$, higher than the DV calculated using $NRI_{AERMOD-CMAQ}$. Even though the DV calculated with a more conservative estimate of NRI is higher, this hybrid modeling approach demonstrates attainment of the annual PM_{2.5} standard.

TABLE II-6-11

PROJECTED ANNUAL PM_{2.5} DESIGN VALUE IN THE ATTAINMENT SCENARIO USING
ALTERNATIVE ~~$NRI_{Monitors}$~~ $NRI_{Monitors}$ (APPROACH #3)

	Q1	Q2	Q3	Q4	Annual
Future DV with $NRI_{Monitors}$ $NRI_{Monitors}$ ($\mu\text{g}/\text{m}^3$)					
Sulfate	0.664	1.655	1.960	0.983	1.315
Nitrate	1.567	1.625	1.341	1.485	1.504
Ammonium	0.584	0.663	0.663	0.546	0.614
OC	5.252	3.760	5.497	4.842	4.838
EC	0.448	0.264	0.390	0.656	0.440
Salt	0.421	0.368	0.332	0.309	0.357
Other	1.483	1.216	1.733	3.379	1.953
Water	0.413	0.877	0.881	0.576	0.687
Blank	0.2	0.2	0.2	0.2	0.2
Total	11.03	10.63	13.00	12.98	11.91

AERMOD Dispersion Modeling Set-Up

The dispersion modeling set-up is based on the American Meteorological society (AMS) and U.S. EPA Regulatory Model–AERMOD (Cimorelli et al., 2005)³. AERMOD is one of the official EPA dispersion models required to be used for State Implementation Plan (SIP) revisions for existing sources and for New Source Review (NSR) and Prevention of Significant Deterioration (PSD) programs (U.S. EPA, 2017⁴). It has been widely employed in environmental science and air quality management (e.g., Gibson et al., 2013,⁵ Rood 2014⁶).

AERMOD incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain. The AERMOD modeling system consists of several key components, including (1) AERMET, a meteorological data preprocessor; (2) AERMAP, a terrain data preprocessor that incorporates complex terrain using USGS Digital Elevation Data; (3) AERSCREEN, a screening version of AERMOD; (4) AERSURFACE, a surface characteristics preprocessor; and (5) BPIPPRIM, a multi-building dimensions program incorporating the GEP (Good Engineering Practice) technical procedures for PRIME (Plume Rise Model Enhancements) applications (U.S. EPA, 2017).

The meteorological data used in AERMOD to simulate the dispersion of pollutants was from the Weather Research and Forecasting (WRF) model version 4.4.2, which was run at a spatial resolution of 4 km by 4 km. Extensive evaluation of the meteorological modeling performance is presented in Chapter 3 of Appendix II of this plan. The meteorological data was processed with Meteorological Model Input Formulator (MMIF) version 4.0, which prepares the data for input into AERMOD. The data was then further processed and adjusted by the AERMET preprocessor to prepare the meteorological data specifically for AERMOD. Mixing heights, which are crucial for the vertical dispersion of air pollutants, were calculated by AERMET. AERMET was run with the Bulk Richardson number option to estimate the

³ Cimorelli, A. J., Perry, S. G., Venkatram, A., Weil, J. C., Paine, R. J., Wilson, R. B., ... & Brode, R. W. (2005). AERMOD: A dispersion model for industrial source applications. Part I: General model formulation and boundary layer characterization. *Journal of Applied Meteorology and Climatology*, 44(5), 682-693. <https://doi.org/10.1175/JAM2227.1>

⁴ U.S. EPA, 2017, Air Quality Dispersion Modeling - Preferred and Recommended Models, Support Center for Regulatory Atmospheric Modeling (SCRAM), <https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models>

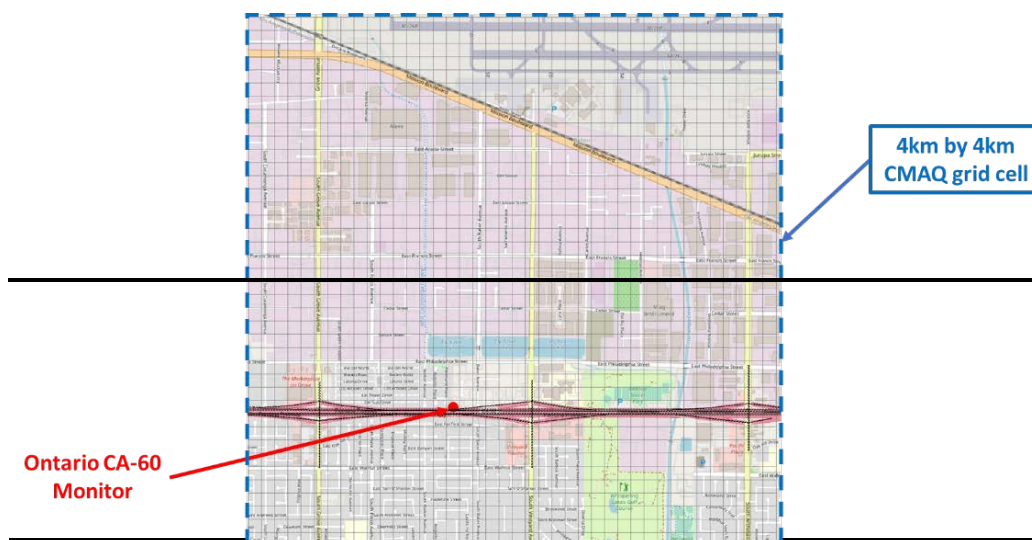
⁵ Gibson, M. D., Kundu, S., & Satish, M. (2013). Dispersion model evaluation of PM_{2.5}, NO_x and SO₂ from point and major line sources in Nova Scotia, Canada using AERMOD Gaussian plume air dispersion model. *Atmospheric Pollution Research*, 4(2), 157-167. <https://doi.org/10.5094/APR.2013.016>

⁶ Rood, A. S. (2014). Performance evaluation of AERMOD, CALPUFF, and legacy air dispersion models using the Winter Validation Tracer Study dataset. *Atmospheric Environment*, 89, 707-720. <https://doi.org/10.1016/j.atmosenv.2014.02.054>

vertical mixing height and it was configured to adjust the friction velocity (u^*) but without any wind direction randomization.

AERMAP was used to process terrain data. In the case of the Drat PM_{2.5} Plan, 1 arcsecond National Elevation Dataset (NED) was used as the terrain data. Receptors are points where pollutant concentrations are calculated to assess the impact of emissions. In this setup, receptors were placed at 100-meter intervals over one CMAQ grid (4 km by 4 km). Additionally, there was one discrete receptor located at the CA60NR monitor. The receptors were positioned at a height of 4.9 meters above the ground, which matches the probe height of the CA60NR monitor. This ensures consistency in the measurements. Figure II-6-4 shows the receptor grid and location of CA60NR.

The modeling emission set-up only includes the emission sources along freeway CA-60 and its on- and off-ramps. Emission sources are grouped into 10 groups so that each category is modeled using distinctive emissions temporal and chemical profiles that can be tracked throughout the modeling. These emissions are derived from SCAG's vehicle activity dataset, which is also used in the regional modeling set-up. SCAG's dataset includes vehicle activity for 5 different vehicle classes: light and medium duty vehicles, light heavy-duty trucks, medium heavy-duty trucks, heavy heavy-duty trucks, and buses. EMFAC 2021 is used to calculate an aggregated emissions factor on a per-mile basis for these 5 groupings that includes exhaust, and tire and brake wear emissions. In addition, road dust emissions are estimated by using SCAG's vehicle activity and road information dataset and by using the road dust methodology described in Attachment H of Appendix III from the 2022 AQMP. In total, five vehicle categories and two emission processes per vehicle class for a total of ten sources of emissions. Figure II-6-5 shows the distribution of the primary PM_{2.5} emissions along the freeway CA-60 within the dispersion modeling domain.



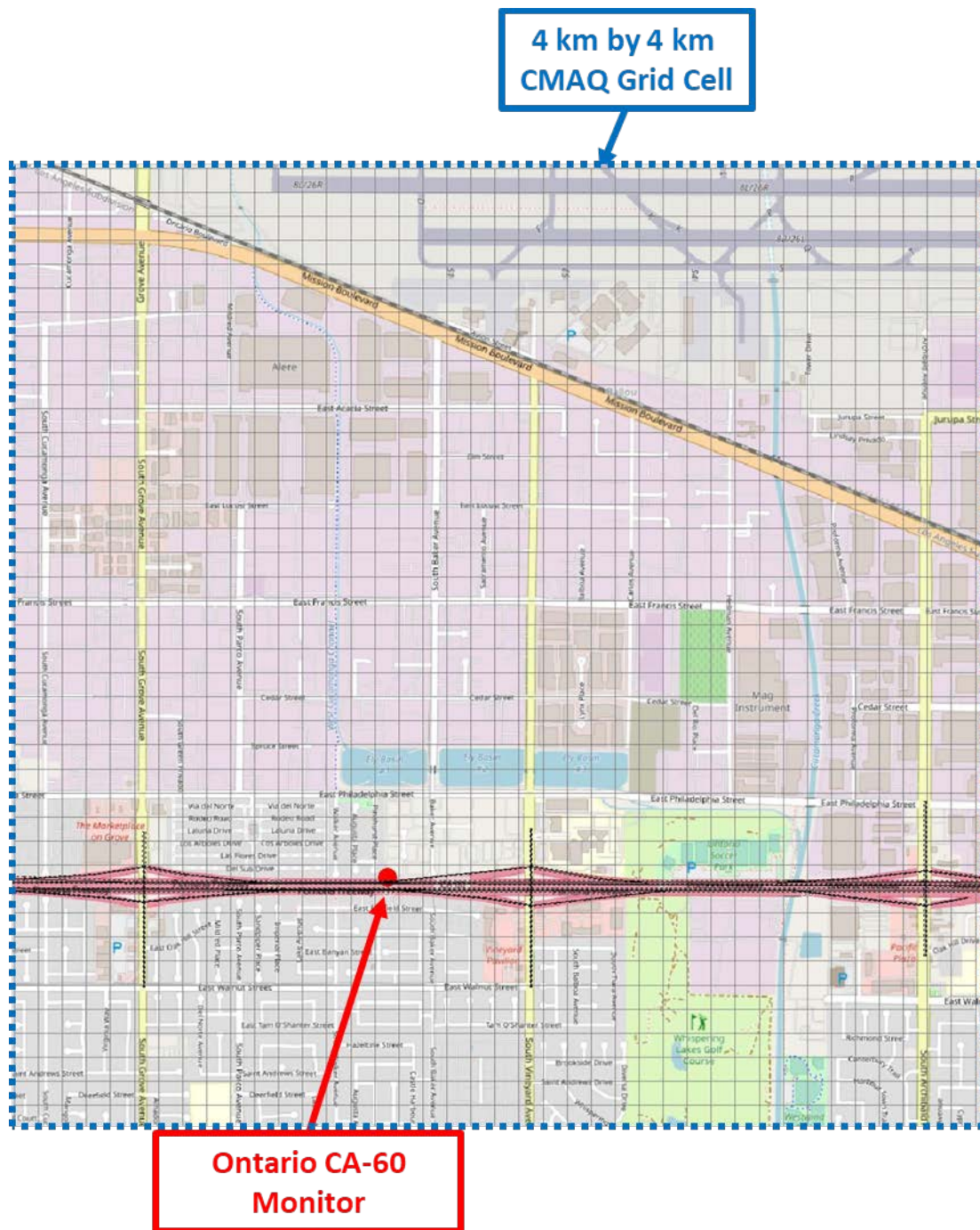
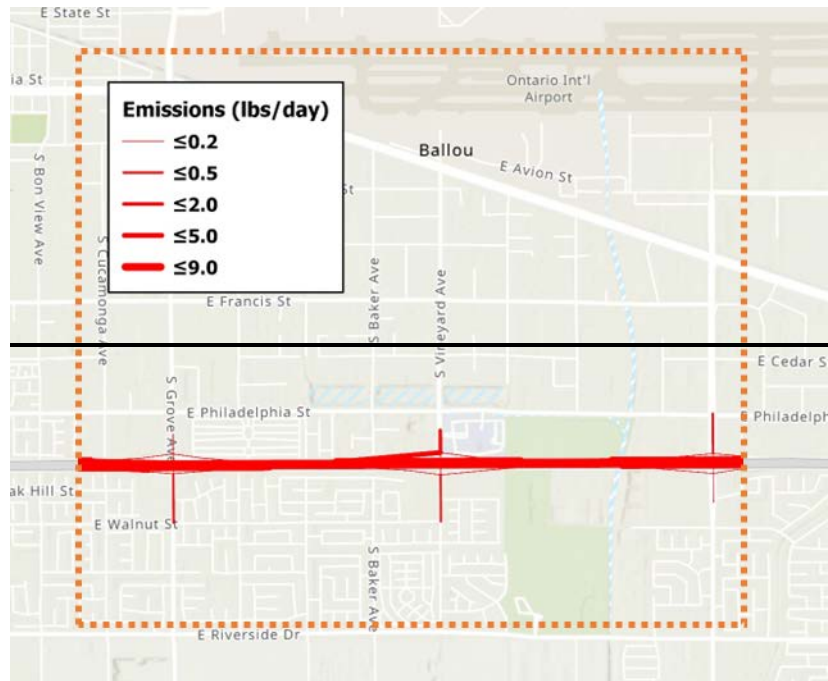


FIGURE II-6-4

DISPERSION MODELING DOMAIN SET-UP



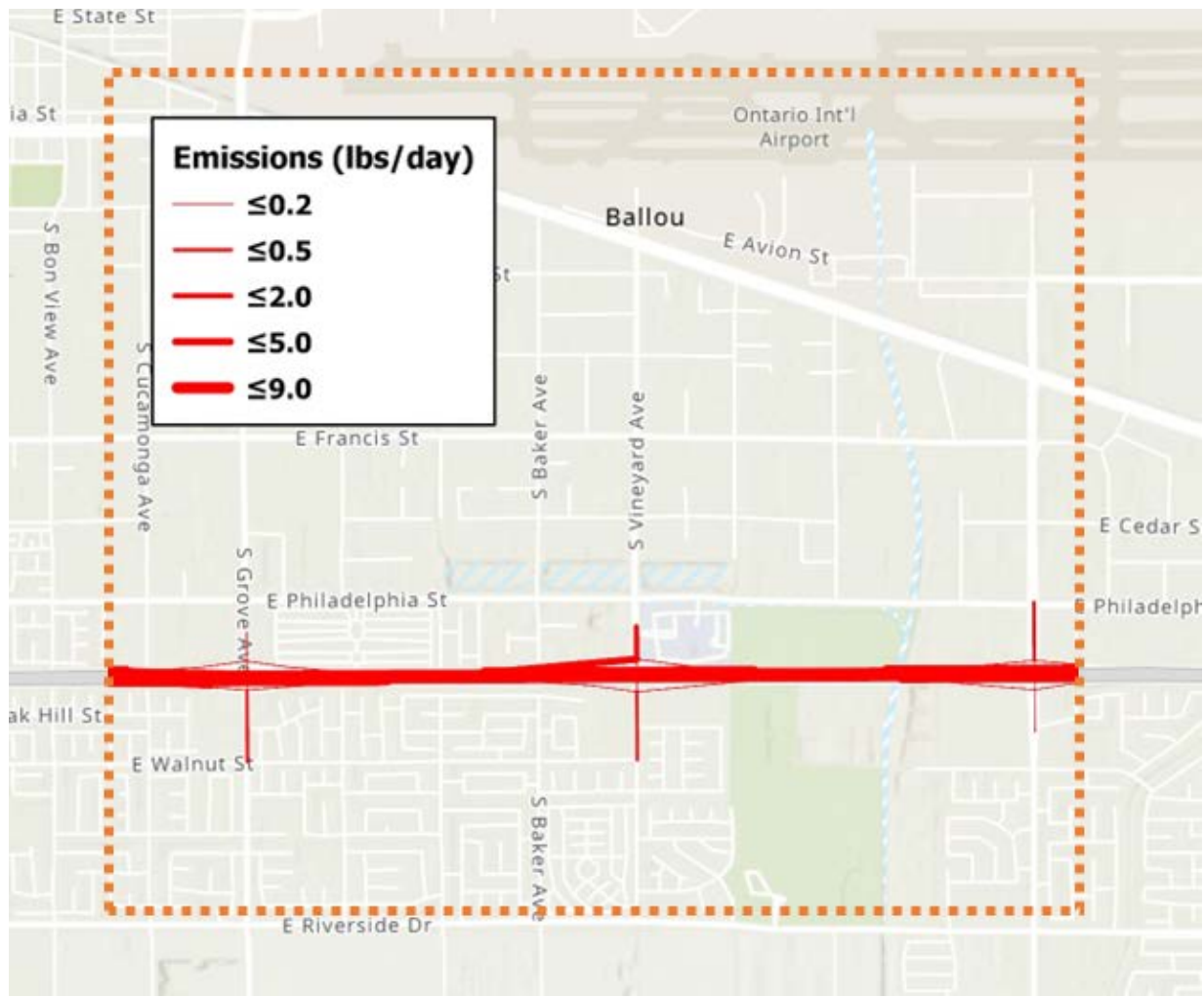


FIGURE II-6-5

SPATIAL DISTRIBUTION OF ON-ROAD PRIMARY PM_{2.5} EMISSIONS IN THE DISPERSION MODELING DOMAIN

Concentrations of total PM_{2.5} for all 10 emission sources are calculated on an hourly basis for the entire year of 2018. Daily emissions are calculated using average-day emission factors for the total PM_{2.5}. Temporal and chemical speciation profiles are applied as a post-processing step because both profiles are multipliers to the emissions. Because dispersion of pollutants is directly proportional to the emission flux, concentrations at different times and for different species are the product of the hourly estimated concentration and the temporal and chemical profile factors.

All emission sources were modeled as lines with constant emission rates. The initial vertical dimension for vehicle emissions was set at 5.1 meters, following examples from U.S. EPA's Conformity Hotspot

Guidance, Appendix J.3.⁷ The release height of vehicle emissions was set at 2.6 meters per the guidance suggestion, whereas road dust emissions release height was set at 0.5 meters above ground level. Hourly POST files (Post-Processing File) were generated for different source groups. These files contain detailed information about pollutant concentrations and dispersion patterns over time and space and are used for subsequent temporal scaling and analysis.

Table II-6-12 lists the annual average PM2.5 emissions from vehicle exhausts and paved road dust along the CA-60 freeway within the 4km-by-4km CMAQ model grid cell where the monitoring station is located. The total PM2.5 emissions from vehicle exhaust significantly drop from 39.31 lbs/day in the base year 2018 to 20.11 lbs/year in the 2030 attainment scenario primarily due to the adoption of cleaner vehicles. In contrast, PM2.5 emissions from paved-road dust slightly increase from 25.73 lbs/day in 2018 to 27.29 lbs/day in 2030 because of higher vehicle activity rates in the future.

TABLE II-6-12. ANNUAL AVERAGE PM2.5 EMISSIONS ALONG CA-60 FREEWAY IN THE DISPERSION MODELING DOMAIN

Source	Annual Average PM2.5 Emissions (pounds per day)	
	Base Year 2018	2030 Attainment
Road Dust		
Light and Medium Duty Vehicles	11.3	9.8
Light Heavy-Duty Trucks	1.2	0.7
Medium Heavy-Duty Trucks	2.3	2.9
Heavy Heavy-Duty Trucks	10.8	13.9
Buses	0.0	0.0
Total Road Dust	25.7	27.3
Vehicle Emissions, Exhaust + Tire and Brake Wear		
Light and Medium Duty Vehicles	10.9	8.5
Light Heavy-Duty Trucks	3.1	1.9
Medium Heavy-Duty Trucks	7.6	1.5
Heavy Heavy-Duty Trucks	17.7	8.3
Buses	0.0	0.0
Total Vehicle Emissions	39.3	20.1
Total Emissions	65.0	47.4

⁷ PM Hot-spot Guidance. Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas, Office of Transportation and Air Quality, U.S. Environmental Protection Agency, EPA-420-B-21-037

Figure II-6-6 presents the mass fractions of primary PM_{2.5} speciation in the near-road emission sources. Speciation for vehicle emissions changes from 2018 to the 2030 attainment scenario, because exhaust emissions decline and tire and brake wear emissions become a relatively larger contributor to total vehicle emissions. As shown, crustal components (including primary particulates containing silicon, calcium, aluminum, iron, and titanium) dominate emissions from paved road dust, accounting for approximately 90% of the total mass of paved road dust emissions and contribute significantly to emissions from light-duty vehicles, accounting for approximately 50%. Following crustal components, organic carbon (OC) is the next significant contributor to light-duty vehicle emissions, accounting for over 25%. In heavy-duty vehicle emissions, elemental carbon (EC) is the largest contributor in 2018, followed by crustal components and OC. Because exhaust emissions from heavy-duty vehicles are substantially reduced in the future, the EC fraction declines substantially, and the tire and break wear contribution in the 2030 attainment becomes more prominent, increasing the crustal fraction.

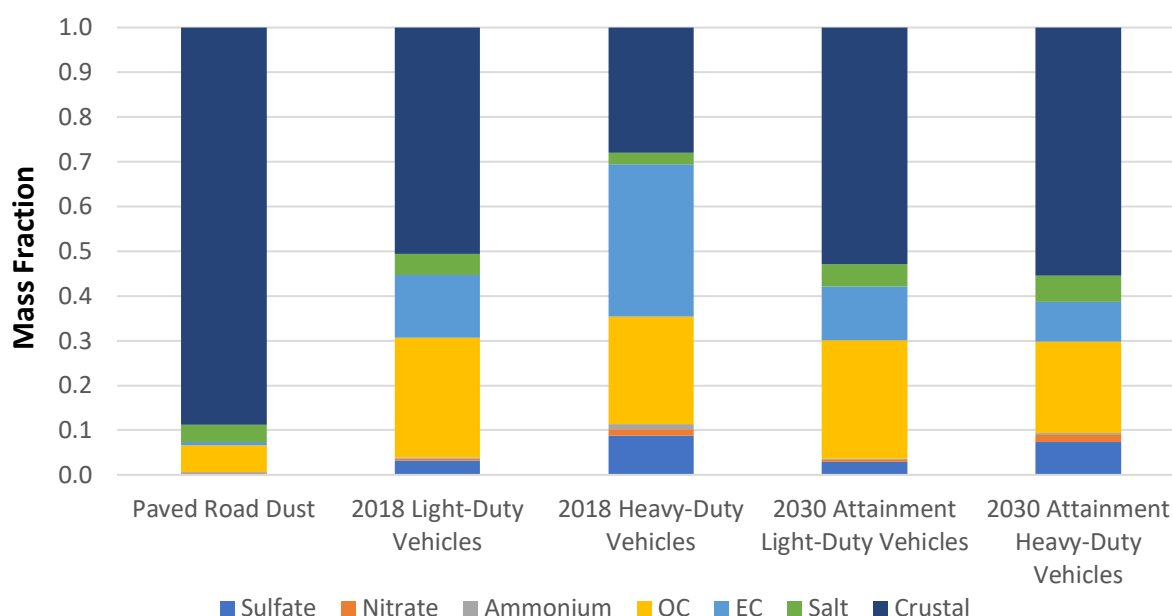


FIGURE II-6-6

SPECIATION OF NEAR-ROAD EMISSION SOURCES

PM_{2.5} simulation with AERMOD

Figure II-6-7 shows the average PM_{2.5} concentration map calculated by AERMOD that represents the contribution of the direct PM_{2.5} emissions from on-road sources. The results indicate that the most significant impacts of on-road emissions are concentrated along the freeway near off-ramps, and the dispersion of PM_{2.5} is highly localized within a 300-meter radius from the freeway. Specifically, on-road

sources contribute $3.13 \mu\text{g}/\text{m}^3$ to PM_{2.5} levels at the monitoring site, while the average contribution across the entire 4 km-by-4 km grid cell is $0.32 \mu\text{g}/\text{m}^3$ (Figure II-6-8).

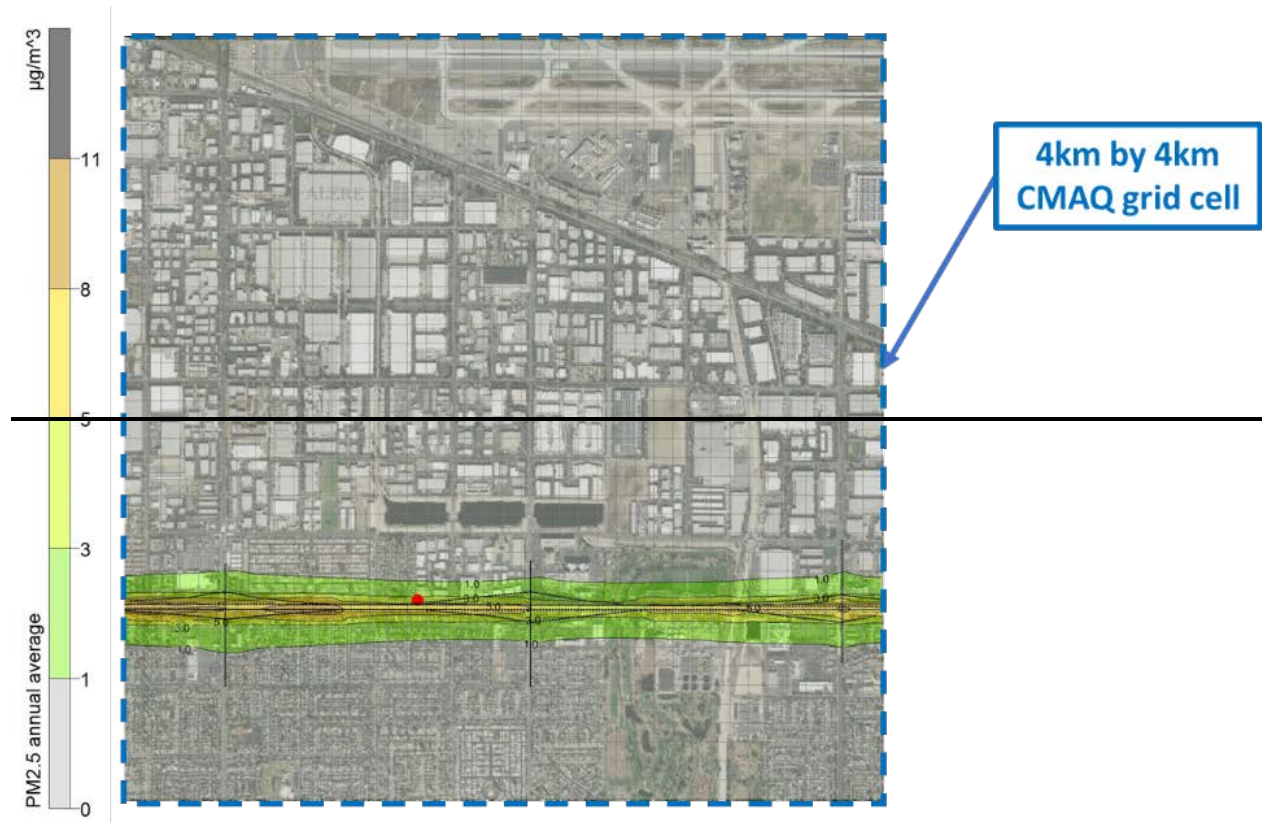
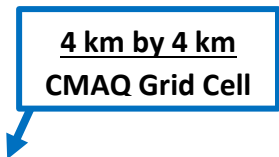


FIGURE II-6-7

ESTIMATES BASED ON DISPERSION MODELING OF THE CONTRIBUTION OF DIRECT PM_{2.5} EMISSIONS FROM CA-60 FREEWAY TO ANNUAL PM_{2.5} AROUND THE CA-60 NEAR ROAD MONITOR

Figure II-6-8 shows the contribution of on-road sources to annual PM_{2.5} at the monitoring station and as a grid-wide average across the 4 km-by-4 km grid cell where the monitor is located. The difference between the contribution at the monitor and the grid average contribution is the near-road increment calculated by AERMOD (NRI_{AERMOD}). The contribution is disaggregated by chemical components, showing that primary PM_{2.5} species are the dominant contributors. Crustal species are emitted largely from dust resuspension, whereas OC and EC are emitted from vehicle exhaust. Projections for the future year 2030 with the addition of emission controls targeting vehicle exhaust emissions are also shown in Figure II-6-8. Because of the introduction of cleaner vehicles in the future, the contribution of vehicle exhaust to OC and EC is substantially reduced by 2030. However, the contribution to crustal species, which is proportional to vehicle activities, increases slightly due to increased vehicle miles travelled (VMT) from 2018 through 2030.



4 km by 4 km
CMAQ Grid Cell

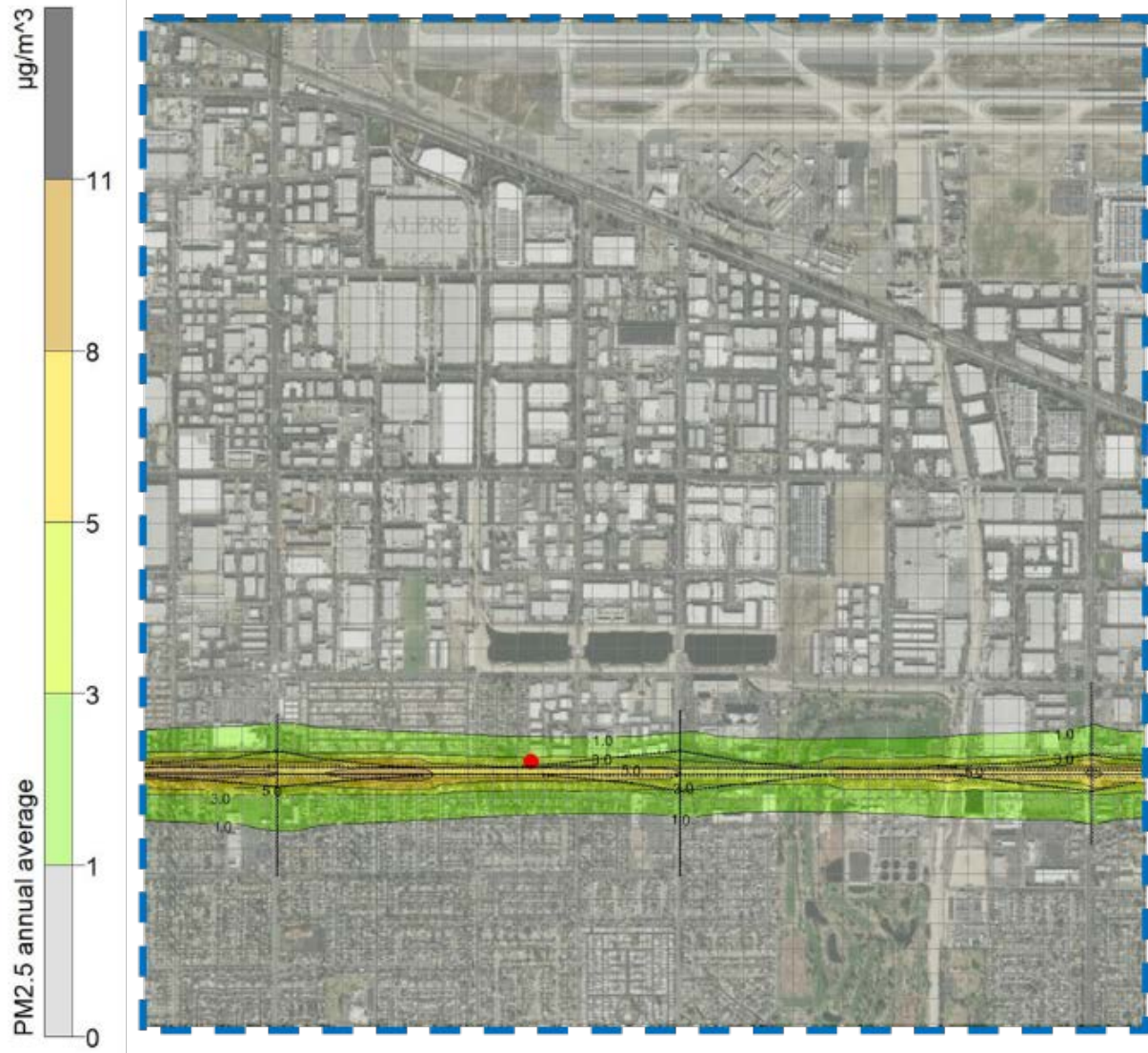


FIGURE II-6-7

ESTIMATES BASED ON DISPERSION MODELING OF THE CONTRIBUTION OF DIRECT PM_{2.5} EMISSIONS FROM CA-60 FREEWAY TO ANNUAL PM_{2.5} AROUND THE CA-60 NEAR-ROAD MONITOR

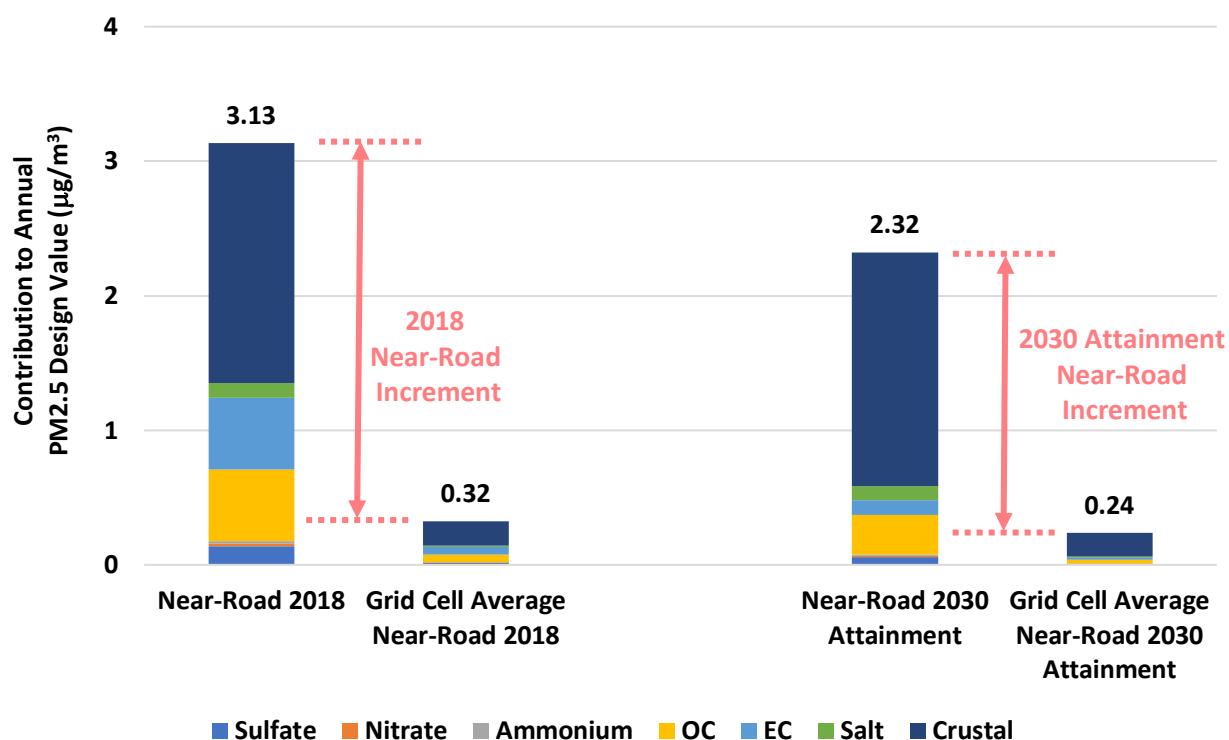


FIGURE II-6-8

CONTRIBUTION OF DIRECT PM_{2.5} EMISSIONS ESTIMATED BY DISPERSION MODELING FROM CA-60 FREEWAY TO ANNUAL PM_{2.5} AT THE CA-60 NEAR-ROAD MONITOR AND GRID AVERAGE, FOR BASE YEAR 2018 AND FUTURE YEAR 2030 CONTROL SCENARIO

Model Evaluation of Hybrid Model

The use of the combination of regional modeling with CMAQ and local source dispersion modeling with AERMOD is motivated by the fact that the regional model CMAQ can only predict changes in concentrations averaged over a 4 km-by-4 km cell, whereas AERMOD can model the steep gradients in primary PM_{2.5} that occur between the freeway and the nearby monitor. As described above, AERMOD is used to determine the near-road increment in PM_{2.5} that is caused by the monitor being close to route CA60. To assess the performance of this hybrid approach, observations at the monitor are compared to hybrid modeling results (C_{Hybrid}) defined as the CMAQ modeled PM_{2.5} plus the NRI calculated with AERMOD:

$$C_{Hybrid} = C_{CMAQ,Base} + NRI_{AERMOD-CMAQ} \quad (II.6.9)$$

Equation II.6.9 is equivalent to the following expression:

$$C_{Hybrid} = C_{CMAQ,NoCA60NR} + C_{AERMOD,CA60NR} \quad (II.6.10)$$

Where $C_{CMAQ, NoCA60NR}$ is the modeled concentrations from the simulation with all the near-road source emissions included in the AERMOD setup removed from base year emissions. The difference between $C_{CMAQ, Base}$ and $C_{CMAQ, NoCA60NR}$ represents the contribution of near-road sources estimated by CMAQ, $C_{CMAQ, CA60NR}$. The annual average contribution from CA60NR near-road sources to total PM_{2.5} estimated by CMAQ is shown in Figure II-6-9. The impact of those sources is limited within the grid cells surrounding the CA60NR station and ranging from 0.01 to 0.15 $\mu\text{g}/\text{m}^3$.

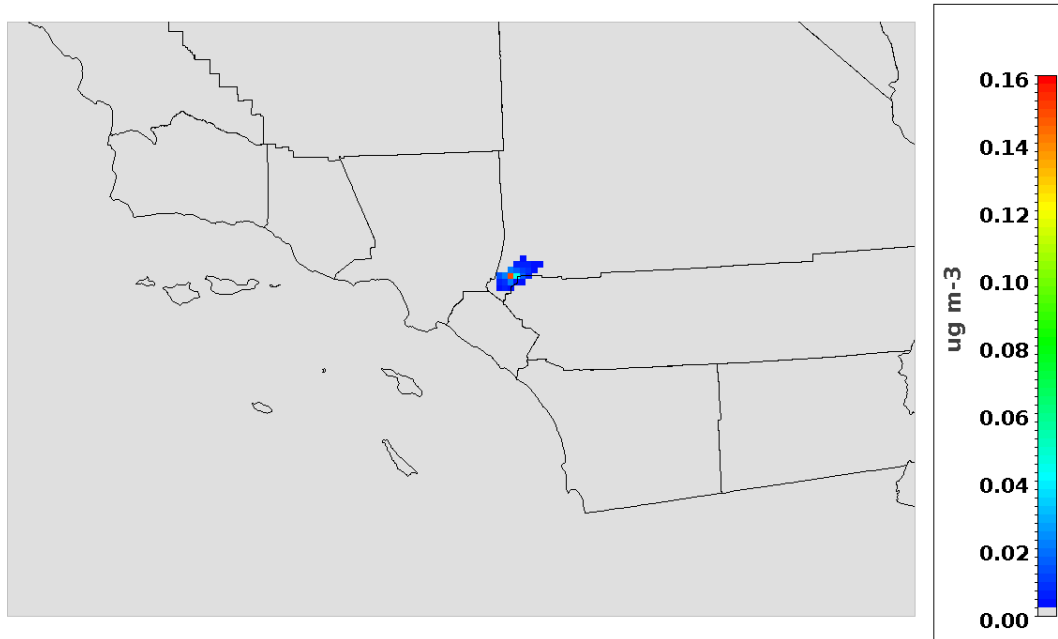


FIGURE II-6-9

CONTRIBUTION OF DIRECT PM_{2.5} EMISSIONS FROM NEAR-ROAD SOURCES AROUND CA60NR TO ANNUAL PM_{2.5} CONCENTRATIONS ESTIMATED BY CMAQ FOR BASE YEAR 2018

Figure II-6-10 shows the time series of daily PM_{2.5} comparing observations with modeled concentrations obtained with CMAQ and the hybrid modeling approach. In general, both CMAQ and the hybrid modeling approach capture the seasonal variation, showing higher concentrations in the first and fourth quarters of the month, and lower concentrations in spring and summer. Figure II-6-11 shows the daily near-road source contribution to CA60NR PM_{2.5} concentrations as modeled by AERMOD. As in the case of CMAQ modeling, PM_{2.5} concentrations modeled with AERMOD show higher peaks in the first and fourth quarters, due to stagnation that happens in colder months.

While seasonal trends are modeled reasonably well, the base CMAQ model overestimates PM_{2.5} concentrations, especially in the colder months. These biases may be attributed to biases in seasonal variations of emissions and/or mixing layer heights in the model. Because hybrid modeling adds approximately 3 $\mu\text{g}/\text{m}^3$ to the CMAQ base modeling to account for the contribution of the NRI, the hybrid modeling approach further overestimate PM_{2.5} concentrations, compared to CMAQ base modeling. As a

result, hybrid modeling shows higher bias and error than the CMAQ base modeling. However, CMAQ underestimates PM_{2.5} concentrations in spring and summer, and the hybrid modeling approach shows improvements by narrowing the gaps between modeling and observations during the spring and summer seasons. Table II-6-13 shows the modeling performance metrics for both CMAQ and the hybrid modeling approach. The metric definitions are included in Chapter 5 of Appendix II.

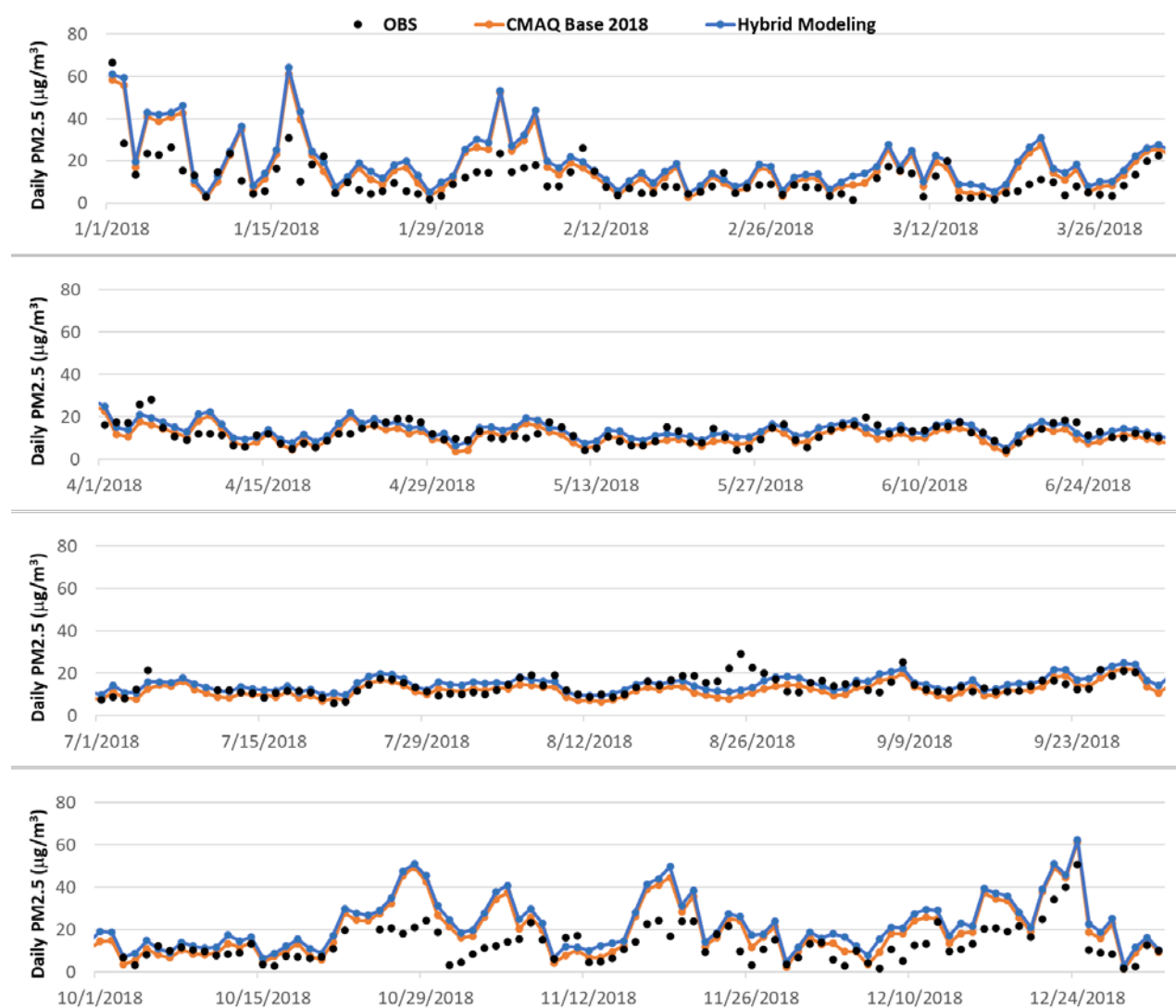


FIGURE II-6-10

DAILY PM_{2.5} AS OBSERVED AND SIMULATED WITH THE CMAQ AND AERMOD-CMAQ HYBRID MODELING SYSTEMS AT THE CA60NR MONITORING STATION IN 2018

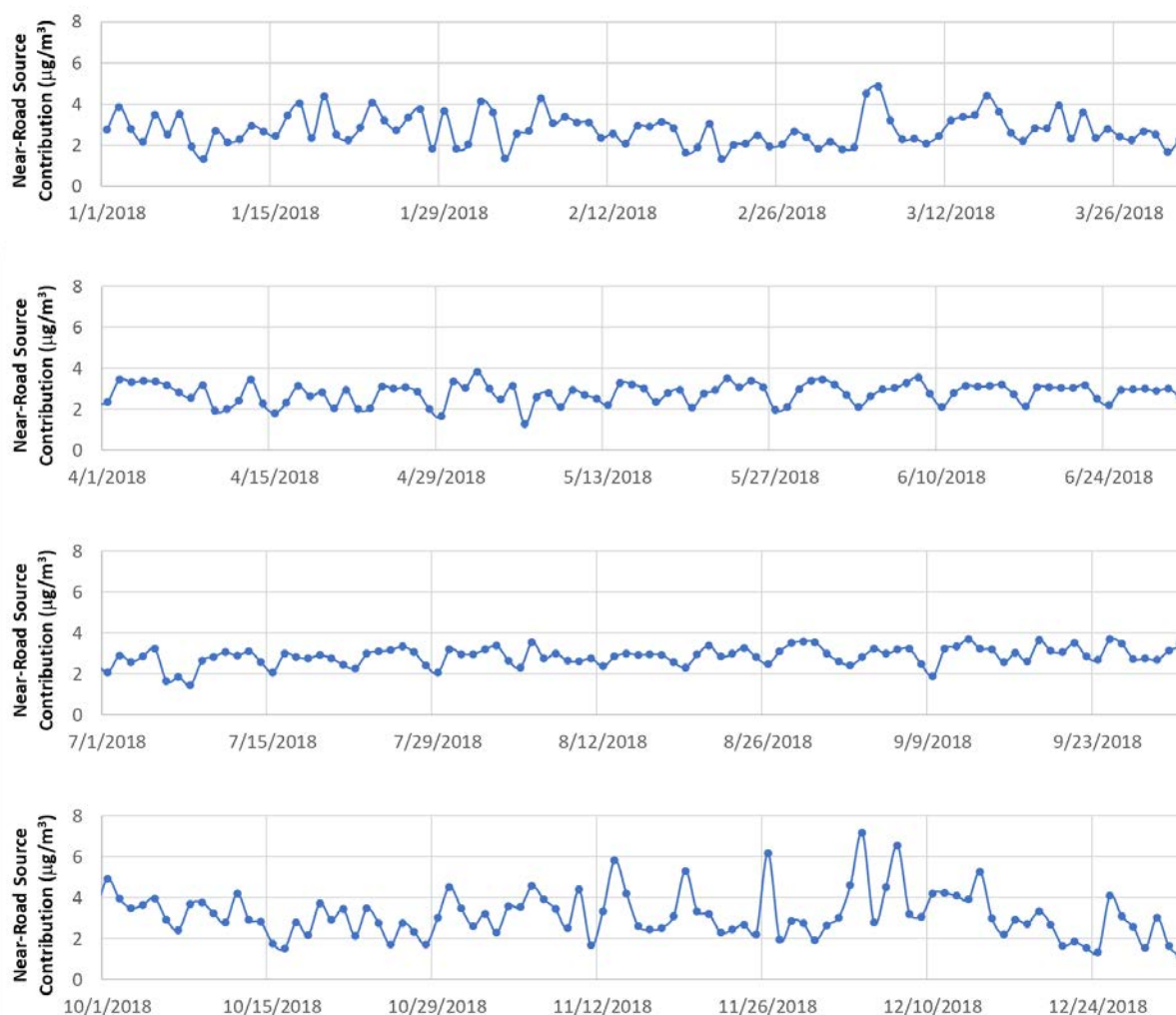


FIGURE II-6-11

DAILY CONTRIBUTION FROM NEAR-ROAD SOURCES TO DAILY PM_{2.5} AT THE CA60NR MONITOR AS MODELED BY AERMOD.

TABLE II-6-13. MODELING PERFORMANCE EVALUATION OF CMAQ AND HYBRID MODELING AT THE CA60NR MONITOR

CMAQ						
Period	Obs	Average ($\mu\text{g}/\text{m}^3$)	Mean Bias ($\mu\text{g}/\text{m}^3$)	NMB (%)	Mean Error ($\mu\text{g}/\text{m}^3$)	NME (%)
Annual	12.5	15.0	2.4	19%	5.1	41%
Q1	11.2	17.2	6.0	54%	7.1	63%
Q2	12.1	11.0	-1.1	-9%	2.8	23%
Q3	13.8	12.1	-1.8	-13%	3.0	22%
Q4	13.1	19.6	6.5	50%	7.4	57%
Hybrid						
Period	Obs	Average ($\mu\text{g}/\text{m}^3$)	Mean Bias ($\mu\text{g}/\text{m}^3$)	NMB (%)	Mean Error ($\mu\text{g}/\text{m}^3$)	NME (%)
Annual	12.5	17.7	5.2	41%	6.2	50%
Q1	11.2	19.7	8.5	76%	9.0	81%
Q2	12.1	13.7	1.6	13%	3.1	26%
Q3	13.8	14.9	1.1	8%	3.0	22%
Q4	13.1	22.5	9.5	73%	9.7	75%

Annual PM_{2.5} Design Values using the Hybrid Approach

The resulting future design values using the four different NRI estimates are compared to the DV calculated using the traditional approach and are shown in Figure II-6-12. While the traditional approach suggests that the CA-60 near-road monitor fails to attain the standard under the 2030 control scenario, the hybrid approach, designed to capture the steep gradients in direct PM_{2.5} concentrations around the freeway, shows that the projected annual PM_{2.5} concentration will be below the NAAQS of 12 $\mu\text{g}/\text{m}^3$. The hybrid approach using the $NRI_{\text{AERMOD-CMAQ}}$ based on AERMOD and CMAQ modeling projects the DV at 11.59 $\mu\text{g}/\text{m}^3$, demonstrating that CA60NR would meet the annual PM_{2.5} by a wide margin. The DV calculated using the NRI_{AERMOD} estimated purely from AERMOD modeling is projected to be 11.63 $\mu\text{g}/\text{m}^3$. The DV calculated using $NRI_{\text{RelativeModel}}$, based on combining both AERMOD and CMAQ modeling in relative terms to determine the NRI, is 11.75 $\mu\text{g}/\text{m}^3$. Even with the most conservative estimate of NRI based on monitoring data at neighboring sites, NRI_{Monitor} , the hybrid approach still shows that the DV at CA60NR would be 11.91 $\mu\text{g}/\text{m}^3$, well below the annual PM_{2.5} standard.

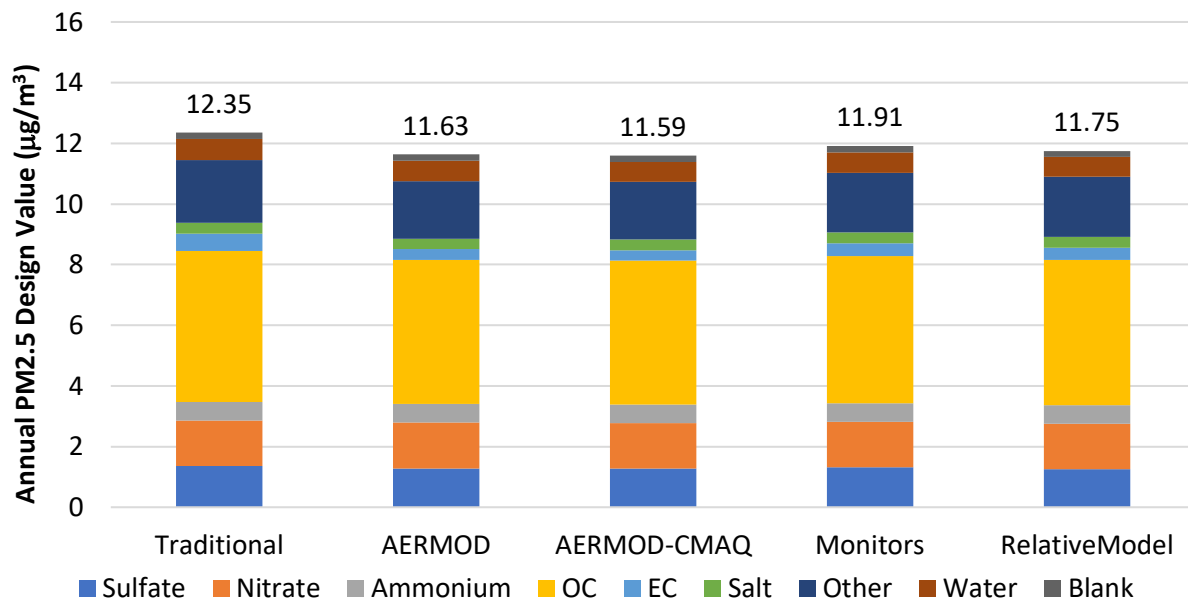


FIGURE II-6-12

COMPARISON OF DESIGN VALUE PROJECTIONS BETWEEN THE TRADITIONAL APPROACH AND THE HYBRID APPROACH USING DIFFERENT NRI ESTIMATES

Summary

The near-road monitoring site in Ontario (CA60NR) has recorded elevated PM_{2.5} levels since its data has been used for design value calculations in 2015. Annual PM_{2.5} concentrations at this near-road site consistently exceed those at the previous design site in Mira Loma, making CA60NR the new design site for annual PM_{2.5} in the South Coast Air Basin. However, accurately simulating PM_{2.5} and demonstrating potential future PM_{2.5} attainment at this near-road site are challenging due to substantial influence from nearby road-related sources and sub-grid scale spatial variation. This chapter focuses on the methodology and findings of PM_{2.5} attainment assessment at CA60NR by using a hybrid modeling system that combines a regional model (CMAQ) with a dispersion model (AERMOD). To address the unique challenges posed by near-road sites, a novel hybrid methodology is developed to quantify the contribution of PM_{2.5} emissions from vehicles and road dust to the near-road monitor's PM_{2.5} concentrations and to calculate the future annual PM_{2.5} design values using the hybrid approach. Results show that the hybrid approach estimates the future design value at the CA-60 near-road site is 11.59 µg/m³. Taking uncertainties into account to quantify the near-road increment, projections of design values at the Ontario CA-60 near-road site range between 11.59 and 11.91 µg/m³, and even with the most conservative NRI, the Ontario CA-60 near-road site is expected to attain the annual PM_{2.5} standard. This affirms that with the controls proposed in the Plan, all the locations including Ontario CA-60 near-road in the South Coast Air Basin will attain the 2012 annual PM_{2.5} NAAQS in 2030.

Chapter 7

~~EXCEPTIONAL EVENT DEMONSTRATION~~

ATYPICAL EVENTS ANALYSIS

Introduction

Fireworks Emissions

Professional Fireworks

Historical Analysis

Fireworks Summary for 2016-07-05

Fireworks Summary for 2017-07-04 and 2017-07-05

Fireworks Summary for 2018-07-05

Fireworks Summary for 2019-07-05

Conclusions

Introduction

The EPA Memorandum “Additional Methods, Determinations, and Analyses to Modify Air Quality Data Beyond Exceptional Events” (U.S. EPA, 2019)¹ published in 2019 establishes that ambient data that is not representative to characterize the base year design value may be excluded for the purposes of attainment demonstrations.

This report describes five 24-hour PM_{2.5} exceedances at the 60 Near Road monitor caused by Independence Day Fireworks that meet the exceptional event criteria established by the U.S. EPA (U.S. EPA, 2016²; U.S. EPA 2007³). The events occurred in the South Coast Air Basin, within the jurisdiction of the South Coast Air Quality Management District (South Coast AQMD). The table below shows a list of exceedances described in this report.

¹ Clarification Memo on Additional Methods, Determinations, and Analyses to Modify Air Quality Data Beyond Exceptional Events. 2019. Environmental Protection Agency. <https://www.epa.gov/air-quality-analysis/clarification-memo-additional-methods-determinations-and-analyses-modify-air>.

² October 3, 2016. “Treatment of Data Influenced by Exceptional Events.” Fed. Reg. 68216 (40 C.F.R. pts 50 & 51): Vol. 81. https://www.epa.gov/sites/default/files/2018-10/documents/exceptional_events_rule_revisions_2060-as02_final.pdf.

³ Environmental Protection Agency. March 22, 2007. “Treatment of Data Influenced by Exceptional Events.” Fed. Reg. 13560 (40 C.F.R. pts 50 & 51): Vol. 72. <https://www.govinfo.gov/content/pkg/FR-2007-03-22/pdf/E7-5156.pdf>.

**TABLE II-7-1:
EXCEEDANCES FOR 2016-2019 INDEPENDENCE DAY FIREWORKS.**

Date	Local Site Name	AQS Site ID	POC	Parameter Code	Conc.*
2016-07-05	Ontario-Route 60 Near Road	06-071-0027	1	88101	49.5
2016-07-05	Ontario-Route 60 Near Road	06-071-0027	3	88101	55.9
2017-07-04	Ontario-Route 60 Near Road	06-071-0027	1	88101	39.2
2017-07-05	Ontario-Route 60 Near Road	06-071-0027	1	88101	67.8
2018-07-05	Ontario-Route 60 Near Road	06-071-0027	1	88101	55.7
2018-07-05	Ontario-Route 60 Near Road	06-071-0027	3	88101	70.6
2019-07-05	Ontario-Route 60 Near Road	06-071-0027	1	88101	57.7
2019-07-05	Ontario-Route 60 Near Road	06-071-0027	3	88101	71.2
*Conc. = Concentration ($\mu\text{g}/\text{m}^3$)					

Emissions from the 4th and 5th of July fireworks lead to high PM_{2.5} concentrations region-wide. Exceedances occurred at other monitors throughout the South Coast Air Basin on the same days that the exceedances that occurred at the Route 60 Near Road station. While these exceedances also increased annual PM_{2.5} design values at these other monitors, exclusion of these exceedances would not result in a reduced carrying capacity.

Fireworks Emissions

Fireworks use is ubiquitous across Southern California on Independence Day. Many municipalities host professional fireworks displays on the evening of July 4th to commemorate the holiday. In addition, there is a strong culture of using personal-use “backyard” fireworks on Independence Day, which are likely the dominant source of fireworks emissions throughout the region based on video evidence from aerial observations. For example, see KCAL News, “Fourth of July: Residents celebrate America’s birthday with fireworks of their own”

<https://youtu.be/e08V6Sw0L4I>. Transcript of KCAL news story from July 4, 2023:

“Welcome back, I’m Suzie Suh. Now at 9:30, illegal fireworks going off all over the Southland, as you can see from our picture. Desmond Shaw is live in Skycal tonight, Desmond. Well Suzie, Happy 4th of July. I’ll put up the Map Tracker for a bit to show where we are. At the 405 and 710 right now, looking to north towards Lynwood, Compton, South L.A., and look at this in the distance. It almost looks like a giant lightning storm. Those are all fireworks almost exclusively from illegal variety here. It’s always so amazing to see this every year. Must be hundreds of thousands of pounds worth of illegal fireworks going off. I’m always reminded when LAPD or another agency discovers a big stash of fireworks that they haul offsite, it makes you wonder how many other stashes there must be out there to be able to ignite this many fireworks here. This has been going on for an hour; it’s going to be going on for at least another couple hours. And of course, this layer is getting so thick you can practically taste the gunpowder in the air. This will be with us into the early morning hours. So, unfortunate for our air quality. Very impressive to look at, but don’t forget that about 90% of this is not of the legal variety on this Independence Day evening. Live at Skycal overhead, I’m Desmond Shaw. Suzie, back to you in the studio”.

Personal-use fireworks are illegal in Ontario, CA, and several neighboring cities, see

Table II-7-2. Personal-use fireworks are also illegal in several upwind cities throughout the Basin including the City of Los Angeles, the largest city in the region with nearly 4 million residents. However, ordinances prohibiting the use of these fireworks are difficult to enforce. Data are not available to quantify the use of illegal fireworks in the city of Ontario, CA or upwind areas. However, the city of Ontario, CA held a takeback event in June 2021 encouraging citizens to turn in illegal fireworks with no questions asked and a house exploded in March of 2021 due to illegal fireworks <https://abc7.com/illegal-fireworks-ontario-takeback-explosion/10810827/>, which suggests that citizens might not always abide by the fireworks ban. Personal-use fireworks are widely available to purchase in cities that do allow fireworks.

**TABLE II-7-2:
EXAMPLE OF CITIES NEAR ONTARIO WITH PROHIBITION LAWS REGARDING CONSUMER-
GRADE FIREWORKS.**

City	Distance to 06-071-0027 site (miles)*	Link
Ontario, CA	0	https://www.ontarioca.gov/NoFireworks
Montclair, CA	5.3	https://www.cityofmontclair.org/fireworks/
Rancho Cucamonga, CA	5.4	https://www.cityofrc.us/news/all-fireworks-are-illegal-rancho-cucamonga
Jurupa Valley, CA	8.9	https://www.jurupavalley.org/467/Fireworks

* approximate distance

Professional Fireworks

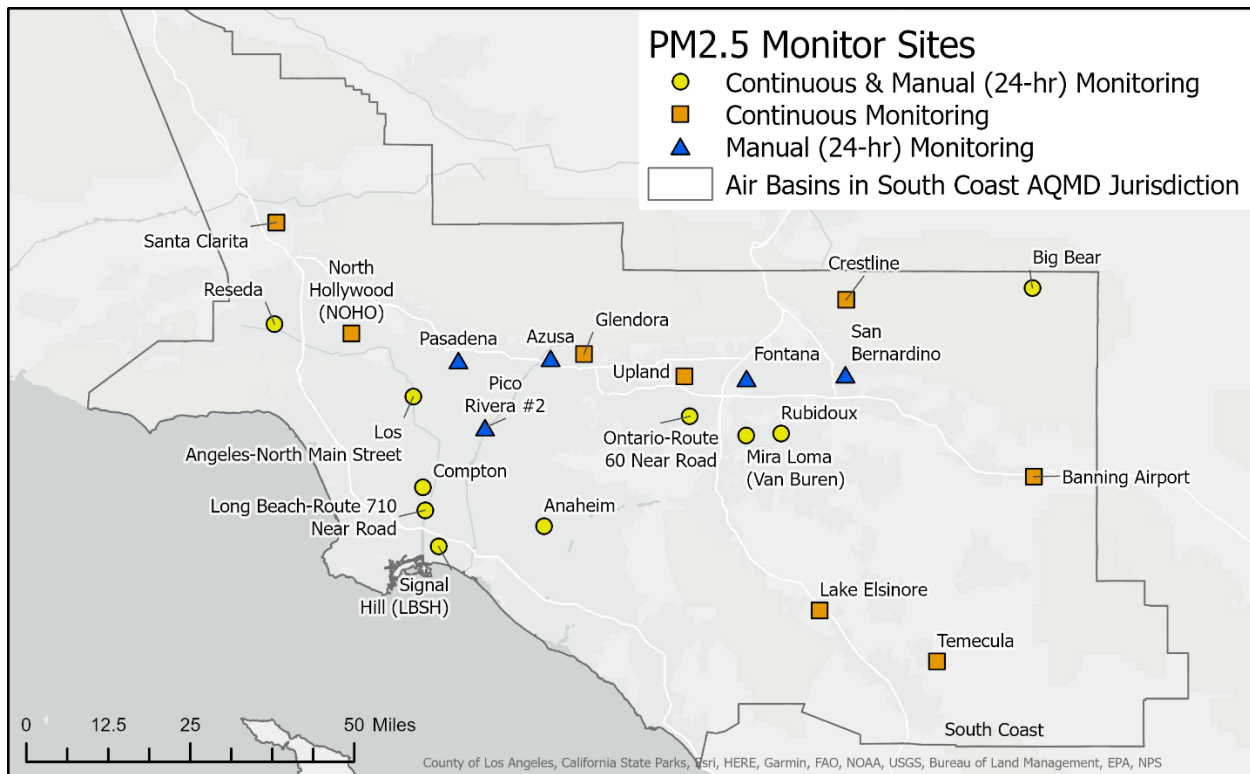
Table II-7-3 shows several examples of professional fireworks displays in Ontario, CA and neighboring cities planned for 2023 and in recent years. While we don't have complete records for professional grade fireworks events ~~for 2016–2019~~, such events are typically an annual event around July 4. The Fontana Herald News reported in June 2020 that Rancho Cucamonga would still launch fireworks despite no spectators being allowed to gather due to the COVID-19 pandemic, https://www.fontanaheraldnews.com/entertainment/rancho-cucamonga-will-have-fireworks-show-on-july-4/article_6eb09f5e-afec-11ea-b6cc-e325e7aee8a6.html. The article indicates that Rancho Cucamonga's fireworks typically occur at the LoanMart Field, which is located approximately 6.3 miles from the Ontario-Route 60 Near Road monitoring station. In addition to the professional fireworks displays near the monitoring station, professional fireworks displays are common throughout upwind areas in the Los Angeles metropolitan area.

**TABLE II-7-3:
EXAMPLE PAST PROFESSIONAL FIREWORKS DISPLAYS.**

Date	Location	Distance to 06-071-0027 site (miles)*	Link
2023-07-04	Westwind Park (Ontario, CA)	1.3	https://www.ontarioca.gov/independenceDay
2023-07-01	Ruben S. Ayala Park (Chino, CA)	4.8	https://www.cityofchino.org/346/Fireworks-Spectacular
2023-07-04	Fairplex (Pomona, CA)	9.4	https://fairplex.com/kaboom/
2023-07-05	Cable Airport (Upland, CA)	6.8	https://www.uplandca.gov/4th-of-july-festivities
2022-07-04	LoanMart Field (Rancho Cucamonga, CA)	6.3	https://patch.com/california/banning-beaumont/calendar/event/20220704/1869836/4th-of-july-concert-fireworks-spectacular-2022-rancho-cucamonga
2022-07-04	Miller Park Amphitheater (Fontana, CA)	11.6	https://www.fontanaca.gov/2158/4th-of-July-Celebration
2022-06-25	Eastvale Community Park	6.5	https://patch.com/california/banning-beaumont/calendar/event/20220625/1873637/picnic-in-the-park-carnival-fireworks-2022-eastvale
<u>2019-07-04</u>	<u>Los Angeles area</u>		https://www.nbclosangeles.com/the-scene/fourth-of-july-fireworks-2019/133056/
<u>2019-07-04</u> & <u>2019-07-05</u>	<u>Areas throughout the South Coast Air Basin and in the Coachella Valley</u>		https://www.coronaca.gov/Home/Components/News/News/4066/17
<u>2019-07-04</u>	<u>Throughout Los Angeles County</u>		https://ktla.com/news/local-news/socal-air-pollution-spikes-amid-haze-of-july-4-fireworks-air-quality-advisory-issued/
<u>2017-07-04</u>	<u>Inland Empire (CA)</u>		https://iecn.com/4th-july-inland-empire-2017-watch-fireworks/

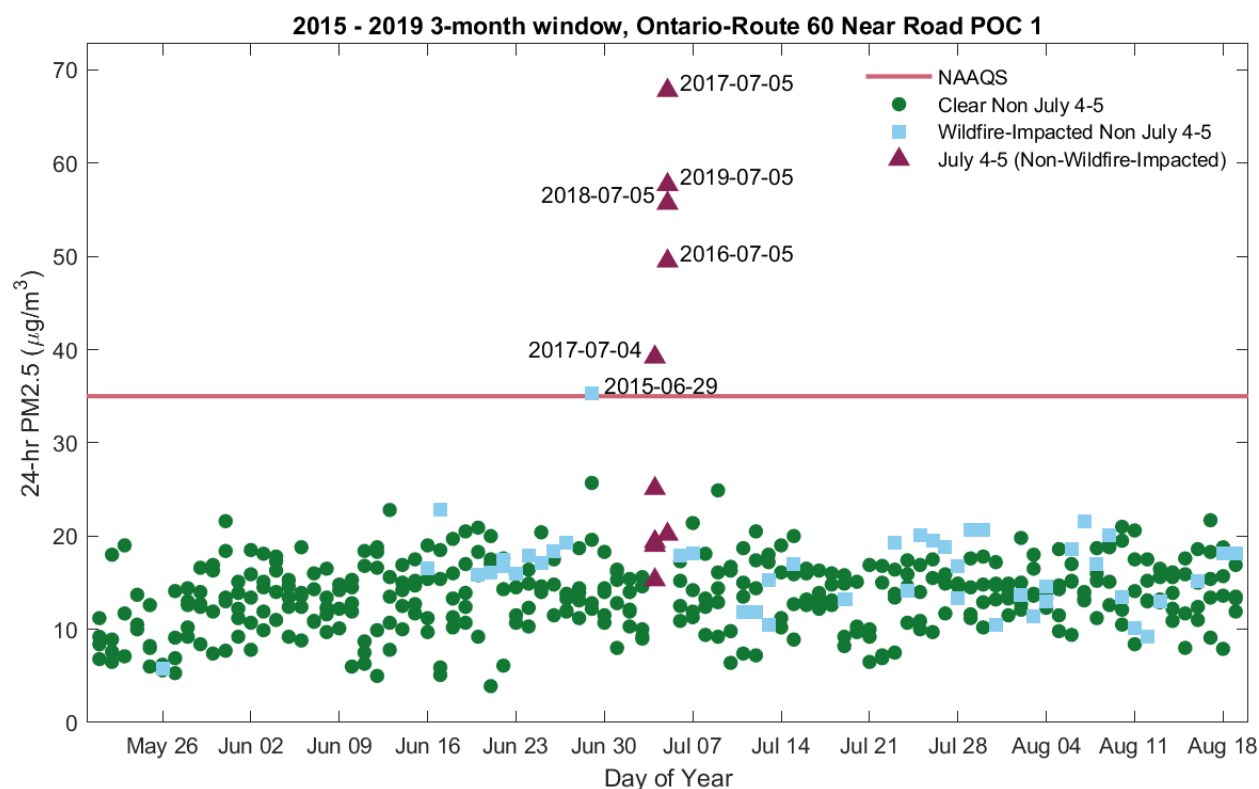
Historical Analysis

Figure II-7-1 shows a map of the regulatory PM_{2.5} monitors in the South Coast Air Basin. Figure II-7-2 through Figure II-7-13 show historical data during the 3-month period centered on July 4 and 5 for 2015-2019 for the Ontario-Route 60 Near Road, Mira Loma (Van Buren), Rubidoux, Anaheim, and Los Angeles-North Main monitoring stations. Data from stations other than Ontario-Route 60 Near Road are included to demonstrate the regional nature of these events. The data are plotted as both time series and boxplots. The lengths of the whiskers in the boxplots indicate the 1st and 99th percentiles. The exceedances in Table 1 are all anomalously high; all of the five exceedance events at the Ontario-Route 60 Near Road monitor are squarely above the 99th percentile. Hazard Mapping System (HMS)⁴ and NASA Worldview were used to categorize the data as wildfire-impacted and non-wildfire impacted; the data were also categorized as July 4 or 5 and other days, leading to four groupings of data. Note that the data used to calculate the boxplots do not include any July 4 or 5 data. This set of figures demonstrate that across multiple years, exceedances during the summer predominantly occur on July 4 and July 5 or on days with evidence of wildfire impacts.



⁴ National Oceanic and Atmospheric Administration, Office of Satellite and Product Operations, National Environmental Satellite, Data, and Information Service. 2023. "Hazard Mapping System Fire and Smoke Product." <https://www.ospo.noaa.gov/Products/land/hms.html>.

**FIGURE II-7-1:
LOCATION OF ALL REGULATORY PM_{2.5} MONITORS IN THE SOUTH COAST AIR BASIN.**



**FIGURE II-7-2:
HISTORICAL DAILY PM_{2.5} DATA DURING THE 3-MONTH PERIOD CENTERED ON JULY 4 AND 5
FOR 2015-2019 AT THE 60 NEAR ROAD STATION (POC 1).**

(THE FIVE EXCEEDANCE EVENTS THAT ARE THE SUBJECT OF THIS REPORT ARE LABELED WITH THE DATE OF THE EVENT AND INDICATED WITH A MAROON TRIANGLE. THE DATA ARE SEPARATED BY WILDFIRE/NON-WILDFIRE IMPACTS AND JULY 4 AND 5 OR OTHER DAYS. THE LINE IDENTIFIED AS "NAAQS" INDICATES THE 2006 24-HOUR PM_{2.5} STANDARD. HMS DID NOT IDENTIFY A SMOKE PLUME DURING THE ELEVATED VALUE RECORDED ON JUNE 29, 2015 POTENTIALLY DUE TO WIDESPREAD CLOUD COVER ACROSS THE REGION, HOWEVER, A LARGE WILDFIRE NEARBY IN THE SAN BERNARDINO MOUNTAINS CALLED THE LAKE FIRE LIKELY IMPACTED AIR QUALITY ON THIS DATE.)

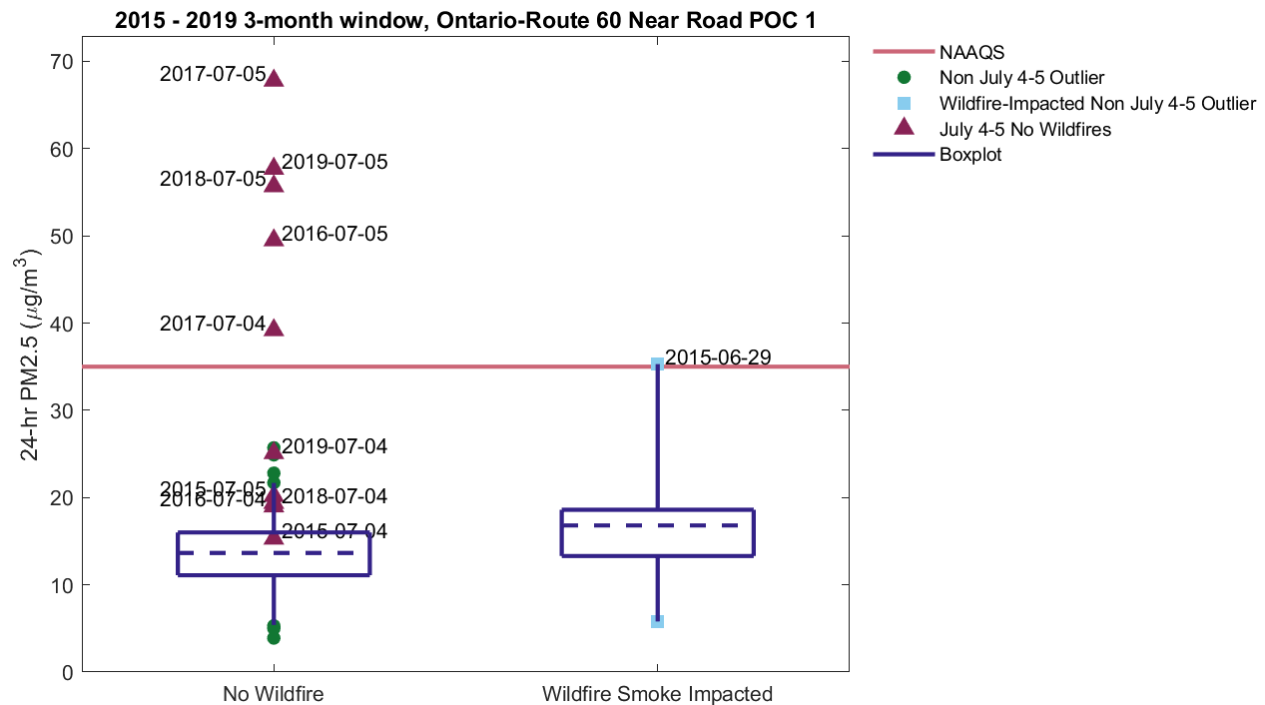


FIGURE II-7-3:

BOXPLOTS OF HISTORICAL DAILY PM_{2.5} DATA DURING THE 3-MONTH PERIOD CENTERED ON JULY 4 AND 5 FOR 2015-2019 AT THE 60 NEAR ROAD STATION (POC 1).

(THE DATA ARE SEPARATED BY WILDFIRE/NON-WILDFIRE IMPACTS AND JULY 4 AND 5 OR OTHER DAYS. NOTE THAT THE JULY 4 AND 5 DATA WERE NOT INCLUDED IN THE CALCULATION OF THE BOXPLOTS. THE LENGTHS OF THE WHISKERS INDICATE THE 1ST AND 99TH PERCENTILES OF THE NON-JULY-4/5 DATA. HMS DID NOT IDENTIFY A SMOKE PLUME DURING THE ELEVATED VALUE RECORDED ON JUNE 29, 2015 POTENTIALLY DUE TO WIDESPREAD CLOUD COVER ACROSS THE REGION, HOWEVER, A LARGE WILDFIRE NEARBY IN THE SAN BERNARDINO MOUNTAINS CALLED THE LAKE FIRE LIKELY IMPACTED AIR QUALITY ON THIS DATE)

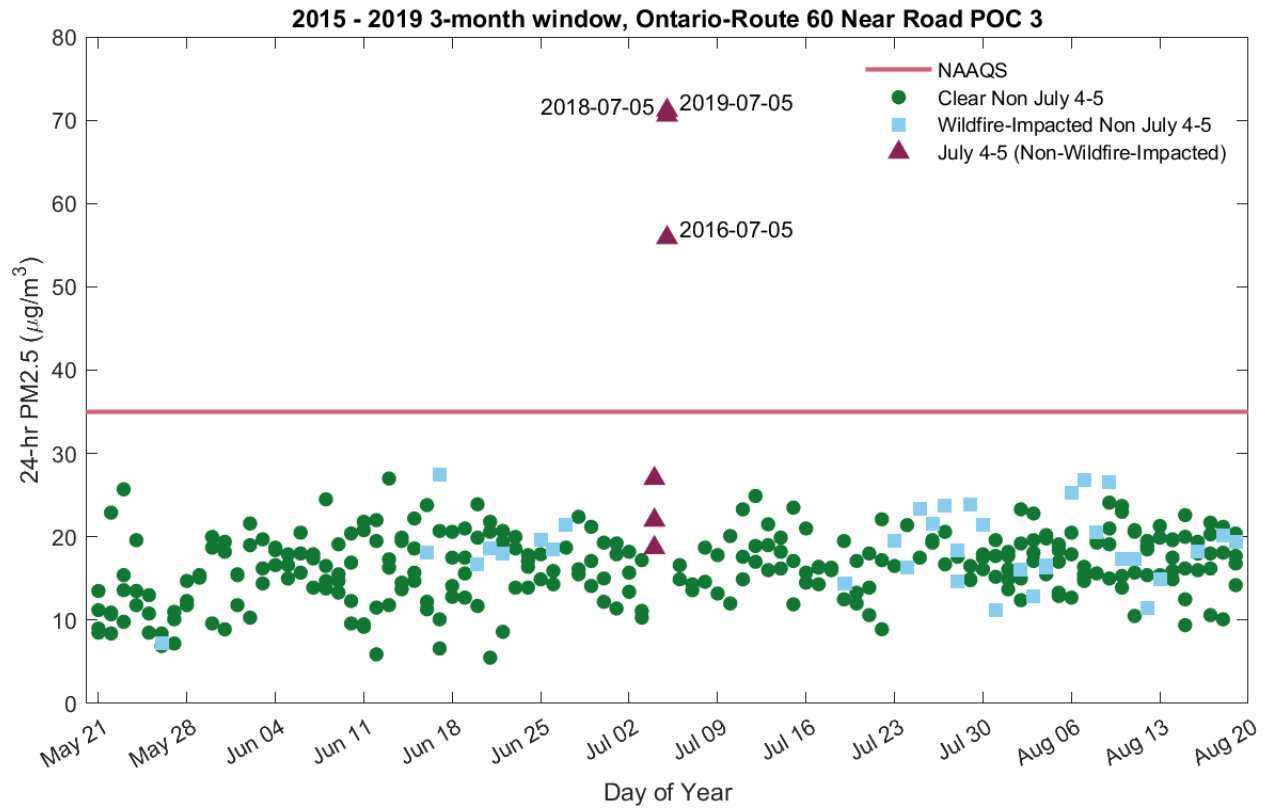
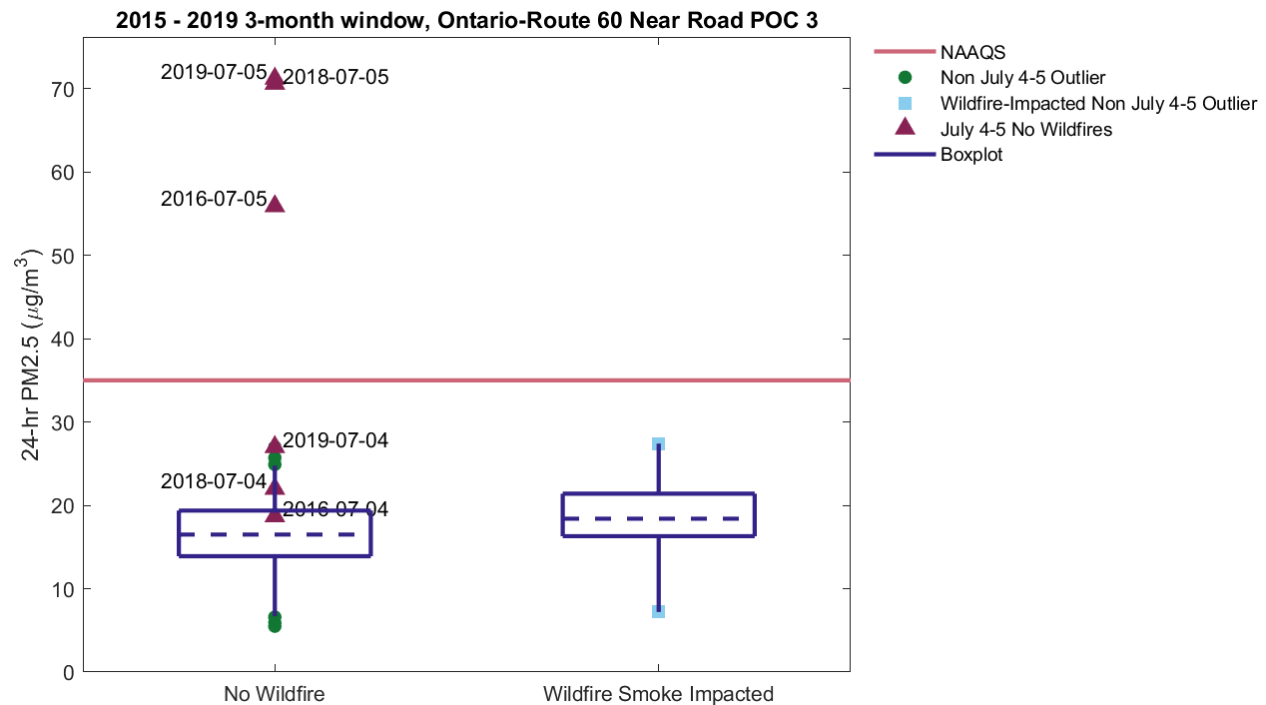


FIGURE II-7-4:
HISTORICAL DAILY PM_{2.5} DATA DURING THE 3-MONTH PERIOD CENTERED ON JULY 4 AND 5
FOR 2015-2019 AT THE 60 NEAR ROAD STATION (POC 3).
 (THE DATA ARE SEPARATED BY WILDFIRE/NON-WILDFIRE IMPACTS AND JULY 4 AND 5 OR
 OTHER DAYS)



**FIGURE II-7-5:
BOXPLOTS OF HISTORICAL DAILY PM_{2.5} DATA DURING THE 3-MONTH PERIOD CENTERED ON
JULY 4 AND 5 FOR 2015-2019 AT THE 60 NEAR ROAD STATION (POC 3).**

(THE DATA ARE SEPARATED BY WILDFIRE/NON-WILDFIRE IMPACTS AND JULY 4 AND 5 OR OTHER DAYS. NOTE THAT THE JULY 4 AND 5 DATA WERE NOT INCLUDED IN THE CALCULATION OF THE BOXPLOTS. THE LENGTHS OF THE WHISKERS INDICATE THE 1ST AND 99TH PERCENTILES OF THE NON-JULY-4/5 DATA)

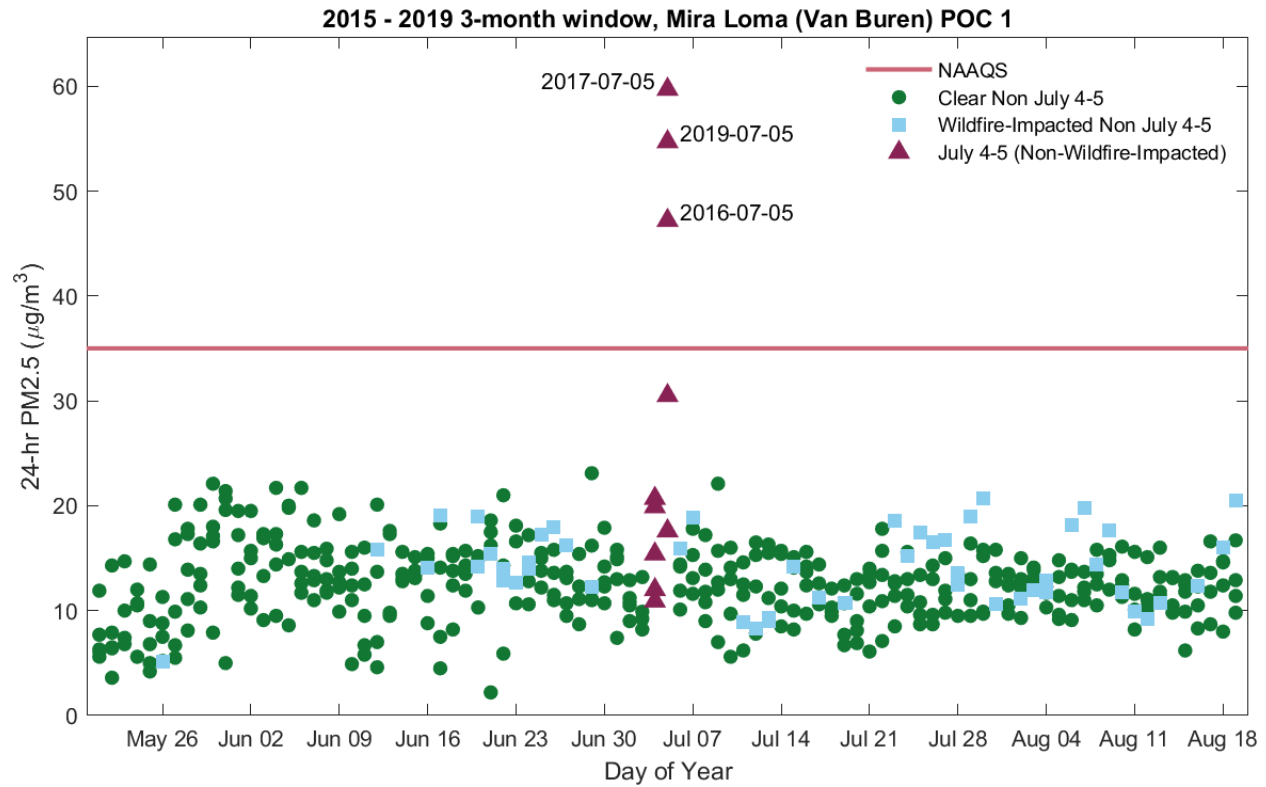


FIGURE II-7-6:
HISTORICAL DAILY PM_{2.5} DATA DURING THE 3-MONTH PERIOD CENTERED ON JULY 4 AND 5
FOR 2015-2019 AT THE MIRA LOMA (VAN BUREN) STATION (POC 1).
(THE DATA ARE SEPARATED BY WILDFIRE/NON-WILDFIRE IMPACTS AND JULY 4 AND 5 OR
OTHER DAYS)

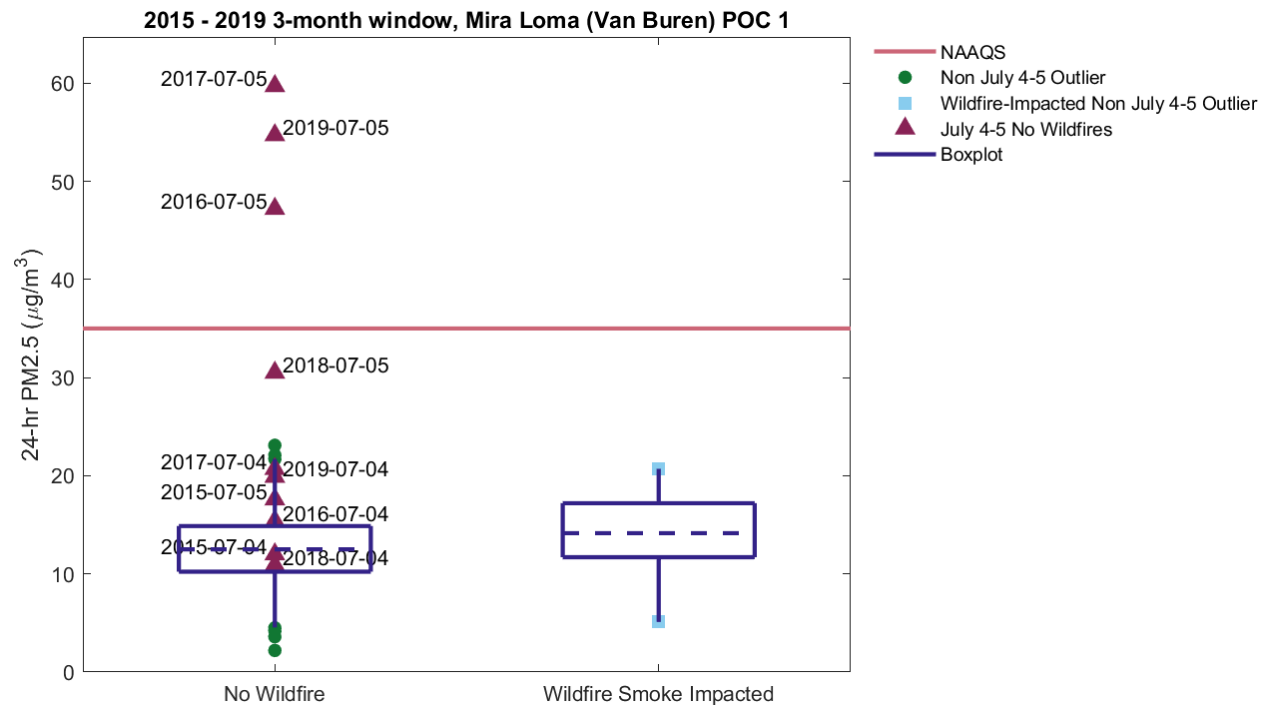


FIGURE II-7-7:

BOXPLOTS OF HISTORICAL DAILY PM_{2.5} DATA DURING THE 3-MONTH PERIOD CENTERED ON JULY 4 AND 5 FOR 2015-2019 AT THE MIRA LOMA (VAN BUREN) STATION (POC 1).

(THE DATA ARE SEPARATED BY WILDFIRE/NON-WILDFIRE IMPACTS AND JULY 4 AND 5 OR OTHER DAYS. NOTE THAT THE JULY 4 AND 5 DATA WERE NOT INCLUDED IN THE CALCULATION OF THE BOXPLOTS. THE LENGTHS OF THE WHISKERS INDICATE THE 1ST AND 99TH PERCENTILES OF THE NON-JULY-4/5 DATA)

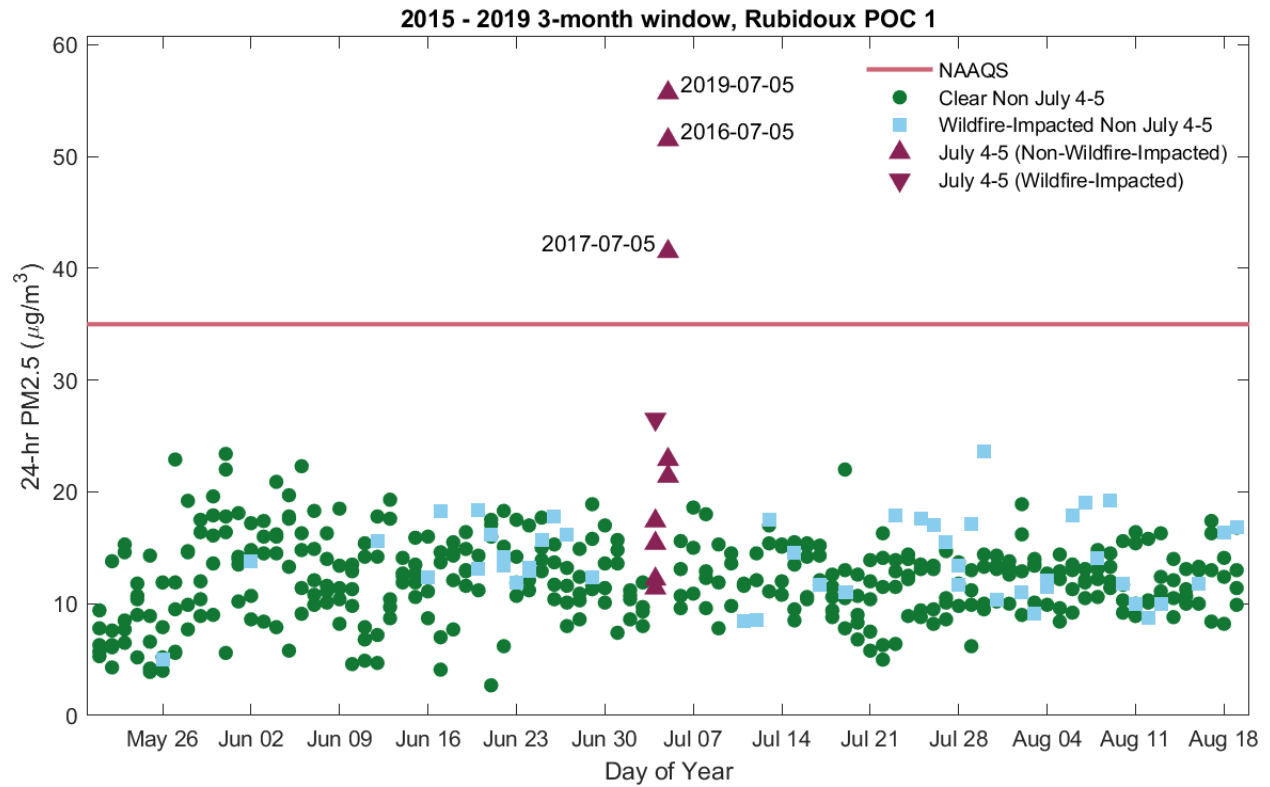


FIGURE II-7-8:
HISTORICAL DAILY PM_{2.5} DATA DURING THE 3-MONTH PERIOD CENTERED ON JULY 4 AND 5
FOR 2015-2019 AT THE RUBIDOUX STATION (POC 1).
 (THE DATA ARE SEPARATED BY WILDFIRE/NON-WILDFIRE IMPACTS AND JULY 4 AND 5 OR
 OTHER DAYS)

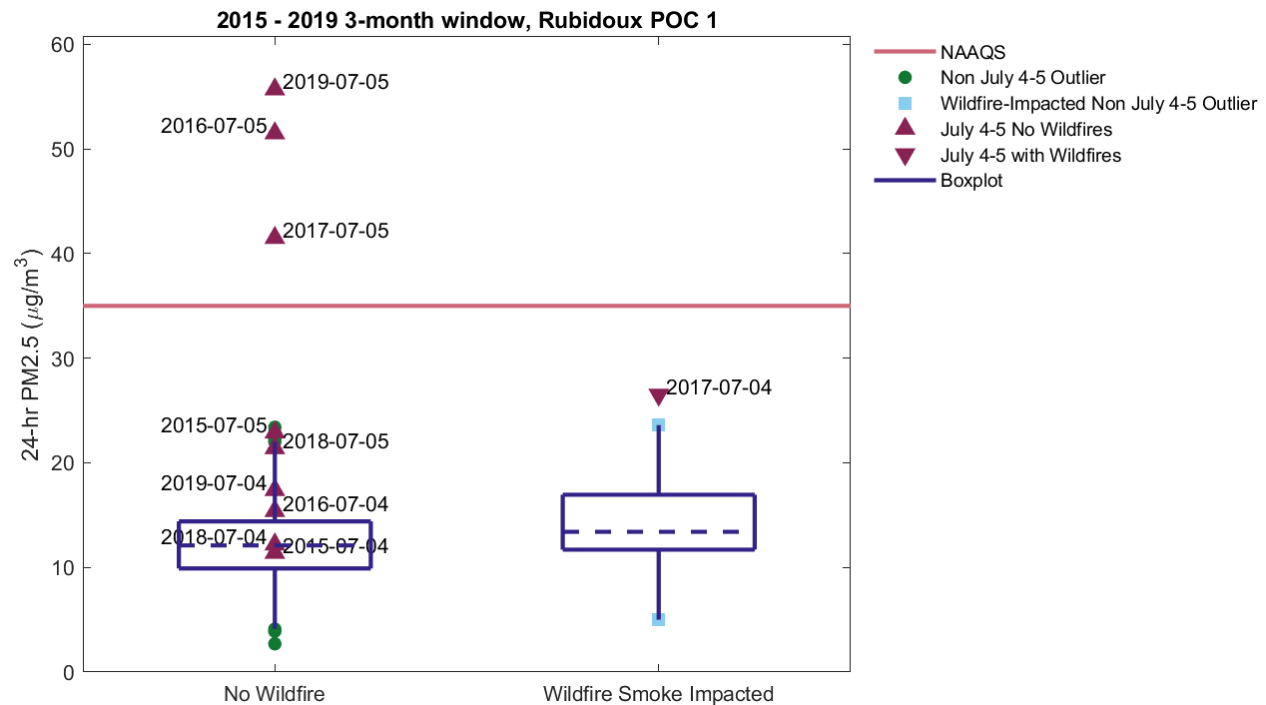


FIGURE II-7-9:

BOXPLOTS OF HISTORICAL DAILY PM_{2.5} DATA DURING THE 3-MONTH PERIOD CENTERED ON JULY 4 AND 5 FOR 2015-2019 AT THE RUBIDOUX STATION (POC 1).

(THE DATA ARE SEPARATED BY WILDFIRE/NON-WILDFIRE IMPACTS AND JULY 4 AND 5 OR OTHER DAYS. NOTE THAT THE JULY 4 AND 5 DATA WERE NOT INCLUDED IN THE CALCULATION OF THE BOXPLOTS. THE LENGTHS OF THE WHISKERS INDICATE THE 1ST AND 99TH PERCENTILES OF THE NON-JULY-4/5 DATA)

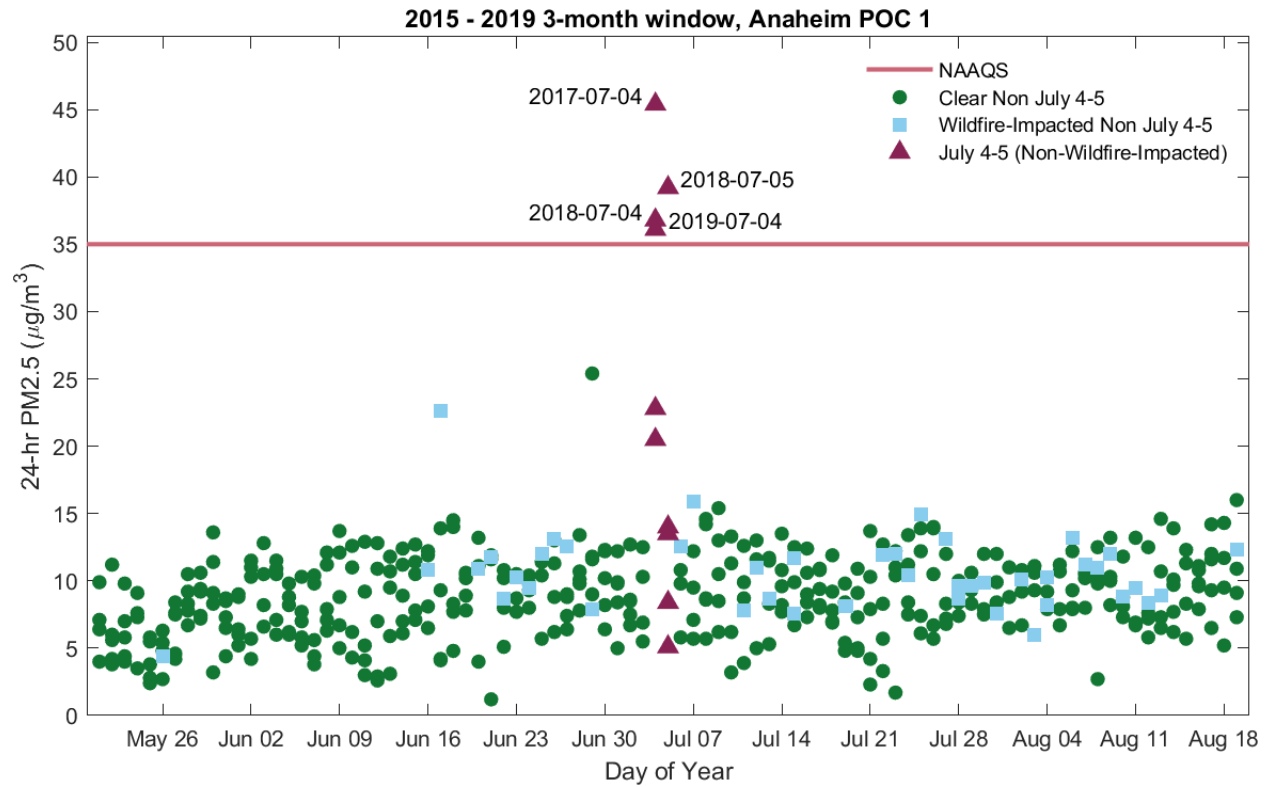


FIGURE II-7-10:
HISTORICAL DAILY PM_{2.5} DATA DURING THE 3-MONTH PERIOD CENTERED ON JULY 4 AND 5
FOR 2016-2019 AT THE ANAHEIM STATION (POC 1).
 (THE DATA ARE SEPARATED BY WILDFIRE/NON-WILDFIRE IMPACTS AND JULY 4 AND 5 OR
 OTHER DAYS)

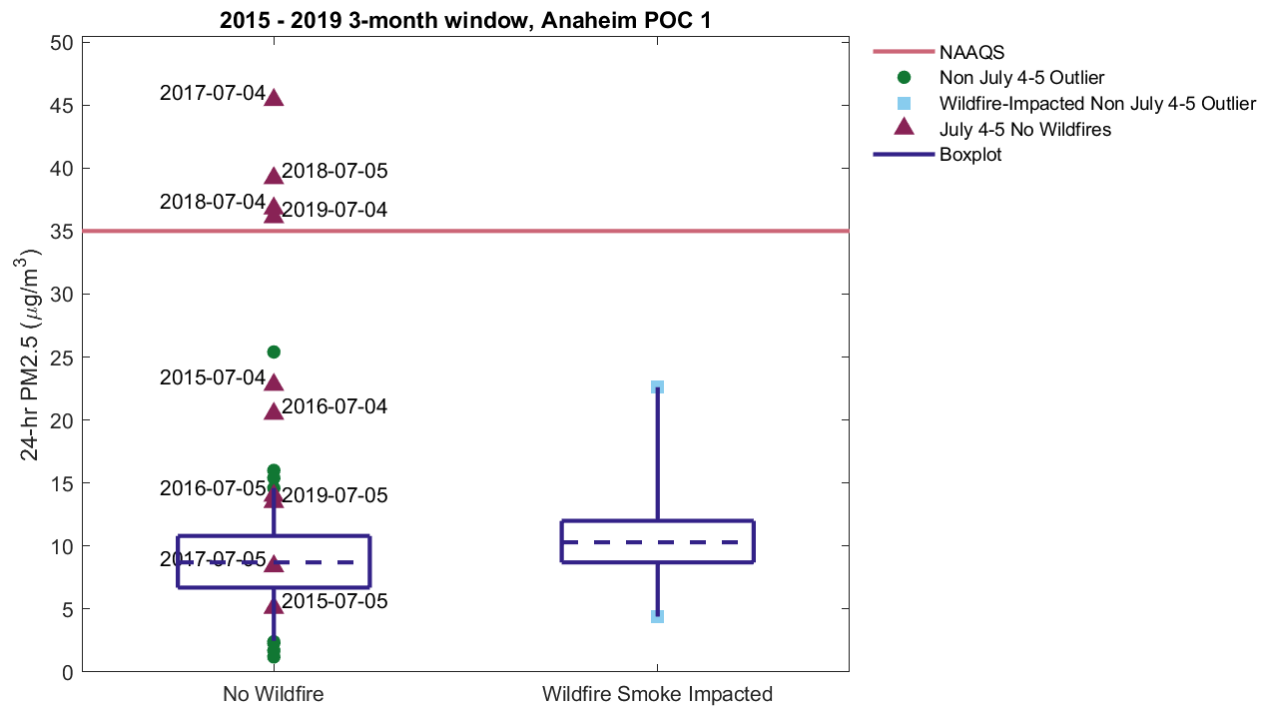


FIGURE II-7-11:

BOXPLOTS OF HISTORICAL DAILY PM_{2.5} DATA DURING THE 3-MONTH PERIOD CENTERED ON JULY 4 AND 5 FOR 2016-2019 AT THE ANAHEIM STATION (POC 1).

(THE DATA ARE SEPARATED BY WILDFIRE/NON-WILDFIRE IMPACTS AND JULY 4 AND 5 OR OTHER DAYS. NOTE THAT THE JULY 4 AND 5 DATA WERE NOT INCLUDED IN THE CALCULATION OF THE BOXPLOTS. THE LENGTHS OF THE WHISKERS INDICATE THE 1ST AND 99TH PERCENTILES OF THE NON-JULY-4/5 DATA)

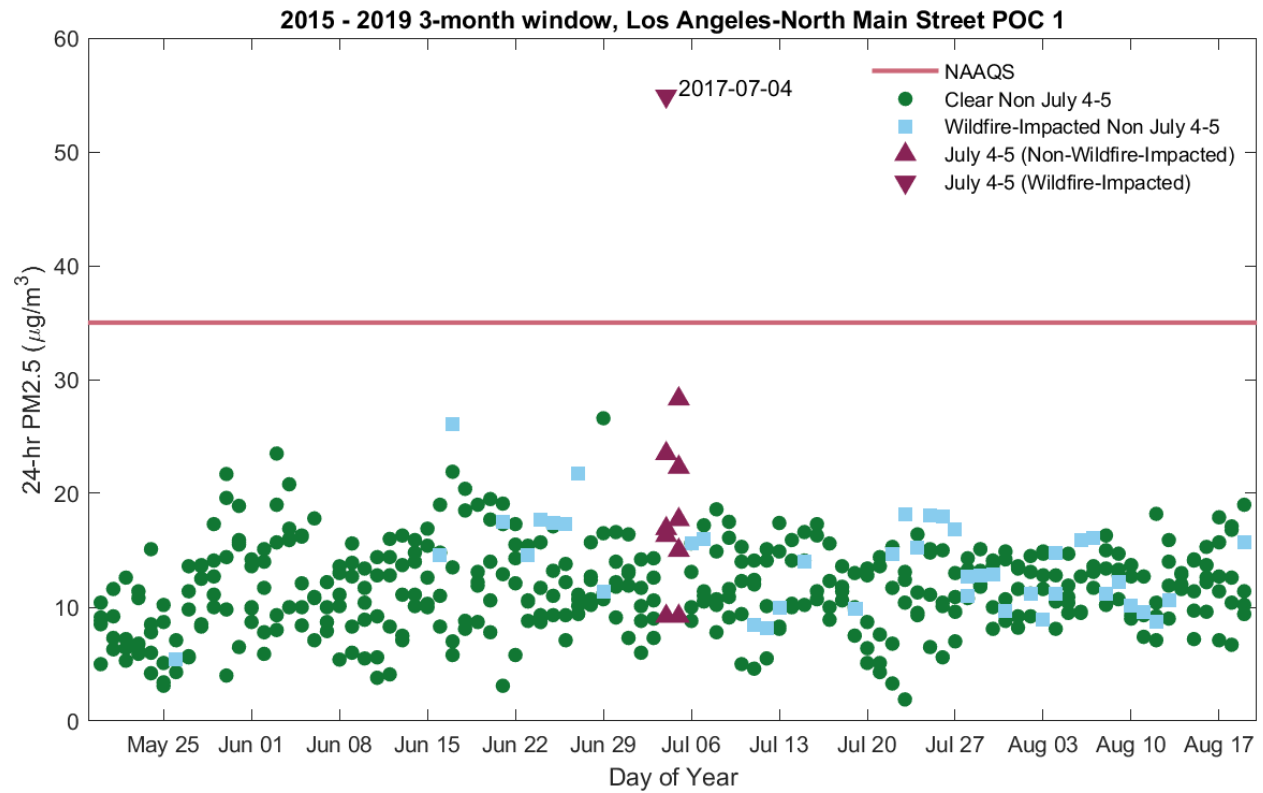


FIGURE II-7-12:
HISTORICAL DAILY PM_{2.5} DATA DURING THE 3-MONTH PERIOD CENTERED ON JULY 4 AND 5
FOR 2016-2019 AT THE LOS ANGELES-NORTH MAIN STATION (POC 1).
 (THE DATA ARE SEPARATED BY WILDFIRE/NON-WILDFIRE IMPACTS AND JULY 4 AND 5 OR
 OTHER DAYS)

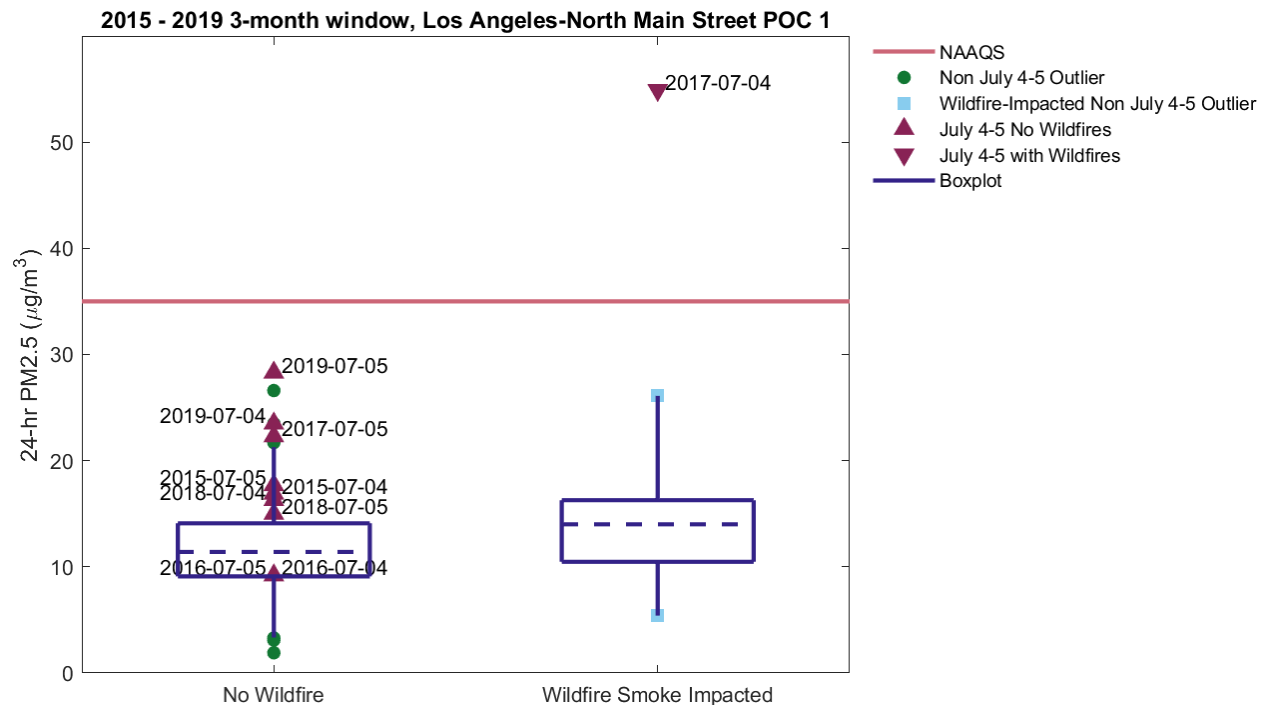


FIGURE II-7-13: BOXPLOTS OF HISTORICAL DAILY PM_{2.5} DATA DURING THE 3-MONTH PERIOD CENTERED ON JULY 4 AND 5 FOR 2016-2019 AT THE LOS ANGELES-NORTH MAIN STATION (POC 1).

(THE DATA ARE SEPARATED BY WILDFIRE/NON-WILDFIRE IMPACTS AND JULY 4 AND 5 OR OTHER DAYS. NOTE THAT THE JULY 4 AND 5 DATA WERE NOT INCLUDED IN THE CALCULATION OF THE BOXPLOTS. THE LENGTHS OF THE WHISKERS INDICATE THE 1ST AND 99TH PERCENTILES OF THE NON-JULY-4/5 DATA)

Fireworks Summary for 2016-07-05

As is documented earlier in this report, the use of personal fireworks is widespread throughout the Basin. Since personal fireworks are predominantly used in residential neighborhoods, residential land use serves as a proxy for locations of fireworks emissions. Residential land use from the 2019 annual land use dataset from the Southern California Association of Governments (SCAG;

https://hub.scag.ca.gov/datasets/ea9fda878c1947d2afac5142fd5cb658_0/about) is shown in Figure II-7-14. Residential land use, along with mixed residential and commercial land use are shown in the map. HYSPLIT⁵ back-trajectories using the National Oceanic and Atmospheric Administration (NOAA) High Resolution Rapid Refresh (HRRR) 3km meteorological model arriving 50m above the 60 Near Road monitoring station for July 4-5, 2016 are also shown in

⁵ HYSPLIT Trajectories. 2023. NOAA Air Resources Laboratory. https://www.ready.noaa.gov/HYSPLIT_traj.php.

Figure II-7-14. All the back-trajectories originate over the Pacific Ocean and cross large residential areas of the South Coast Air Basin. Figure II-7-15 shows wind roses throughout the South Coast Air Basin for 9 PM on July 4 through 2 PM on July 5, 2016 using wind data from South Coast AQMD monitoring stations and local airports. The wind roses in Figure II-7-15 confirm the onshore wind pattern shown in the HYSPLIT back-trajectories in Figure II-7-14.

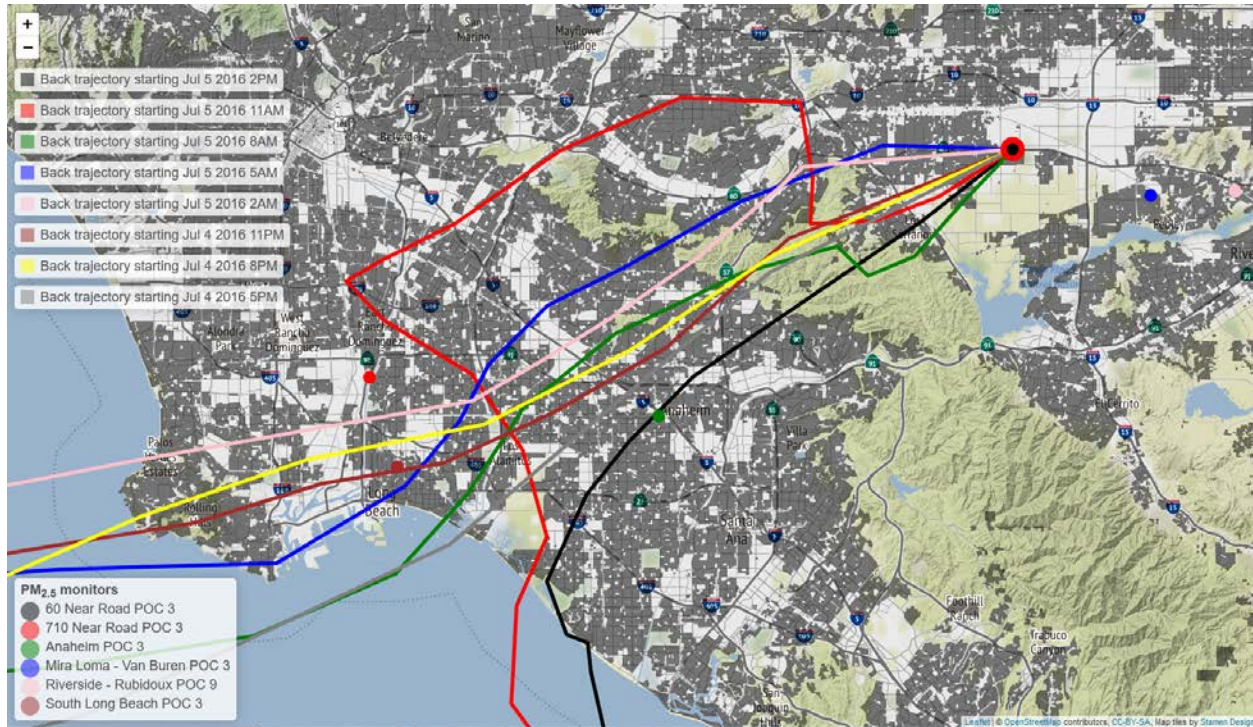


FIGURE II-7-14:
HYSPLIT BACK-TRAJECTORIES FROM 60 NEAR ROAD FOR JULY 4-5, 2016 OVERLAID ON A MAP OF THE SOUTH COAST AIR BASIN SHOWING RESIDENTIAL LAND USE (SHOWN IN GRAY).

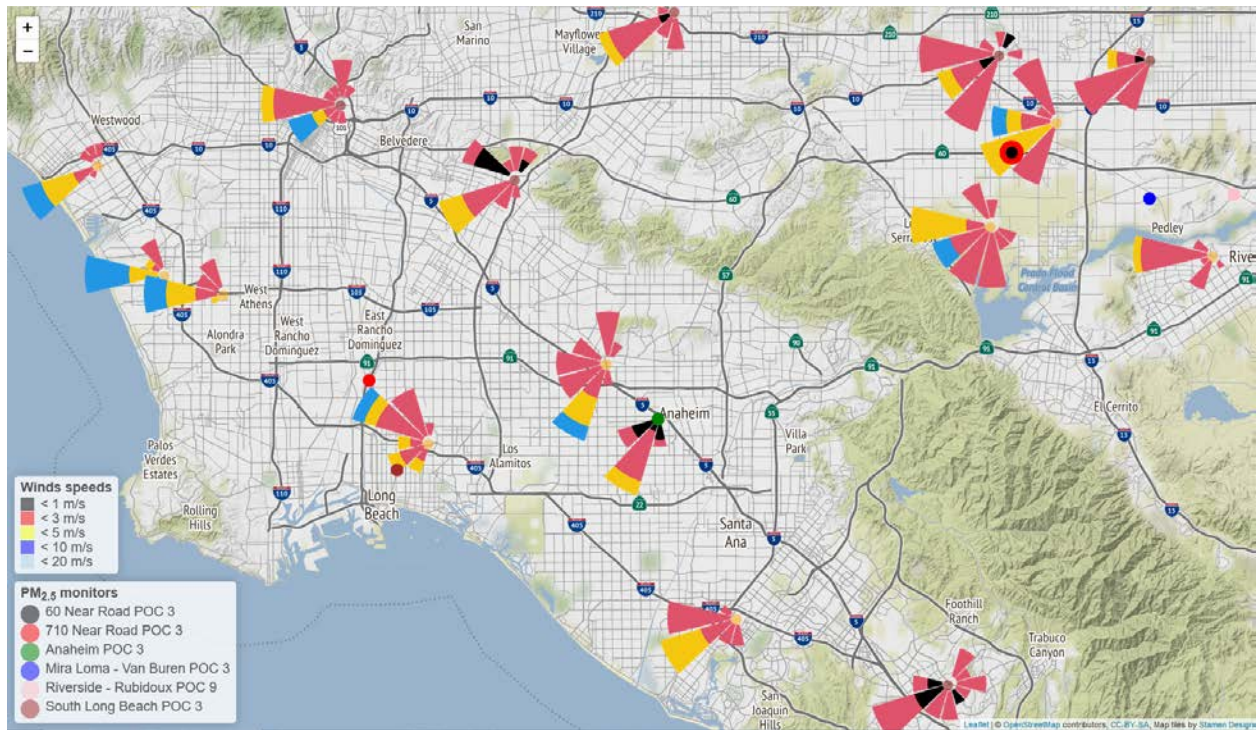


FIGURE II-7-15:
WIND ROSES FOR 9 PM ON JULY 4 THROUGH 2 PM ON JULY 5, 2016 THROUGHOUT THE SOUTH COAST AIR BASIN.

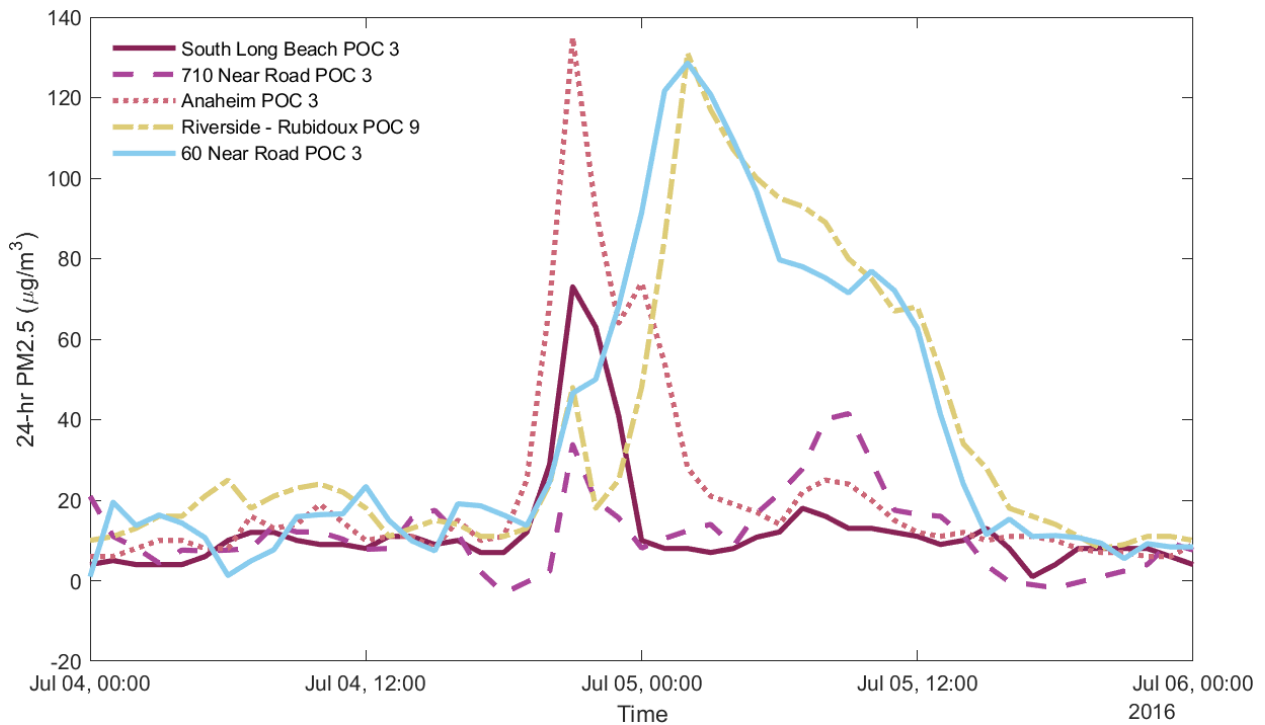


Figure II-7-16 shows time series plots of hourly PM_{2.5} data at selected stations with continuous PM_{2.5} instruments within the South Coast Air Basin for July 4-5, 2016. The concentrations peak

at stations closer to the coast earlier than in inland areas (see Figure II-7-14 for monitor locations). This is consistent with the combination of 1) extensive fireworks use across the Basin, especially the most populated areas closer to the coast and 2) the dominant onshore flow that transports these emissions inland. The inland areas have local emissions as well as transported emissions from upwind areas.

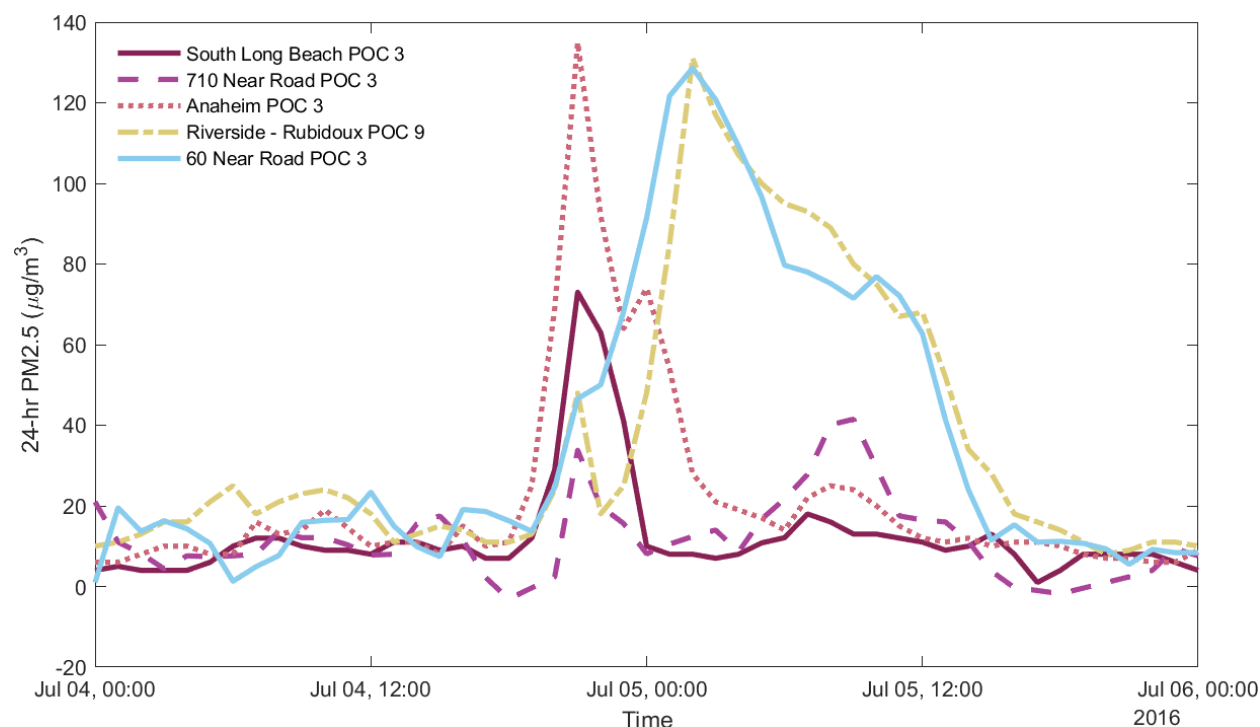


FIGURE II-7-16:
HOURLY TIME SERIES FOR JULY 4-5, 2016 FOR PM_{2.5} MONITORING STATIONS IN THE SOUTH COAST AIR BASIN.

Fireworks Summary for 2017-07-04 and 2017-07-05

Residential land use (a proxy for fireworks emissions locations) and HYSPLIT back-trajectories using the NOAA HRRR meteorological model arriving at the 60 Near Road monitoring station for July 4-5, 2017 are shown in Figure II-7-17. All the back-trajectories originate over the Pacific Ocean and cross large residential areas of the South Coast Air Basin. Figure II-7-18 shows wind roses throughout the South Coast Air Basin for 9 PM on July 4 through 2 PM on July 5, 2017 using wind data from South Coast AQMD monitoring stations and local airports. The wind roses in Figure II-7-18 confirm the onshore wind pattern shown in the HYSPLIT back-trajectories in Figure II-7-17.

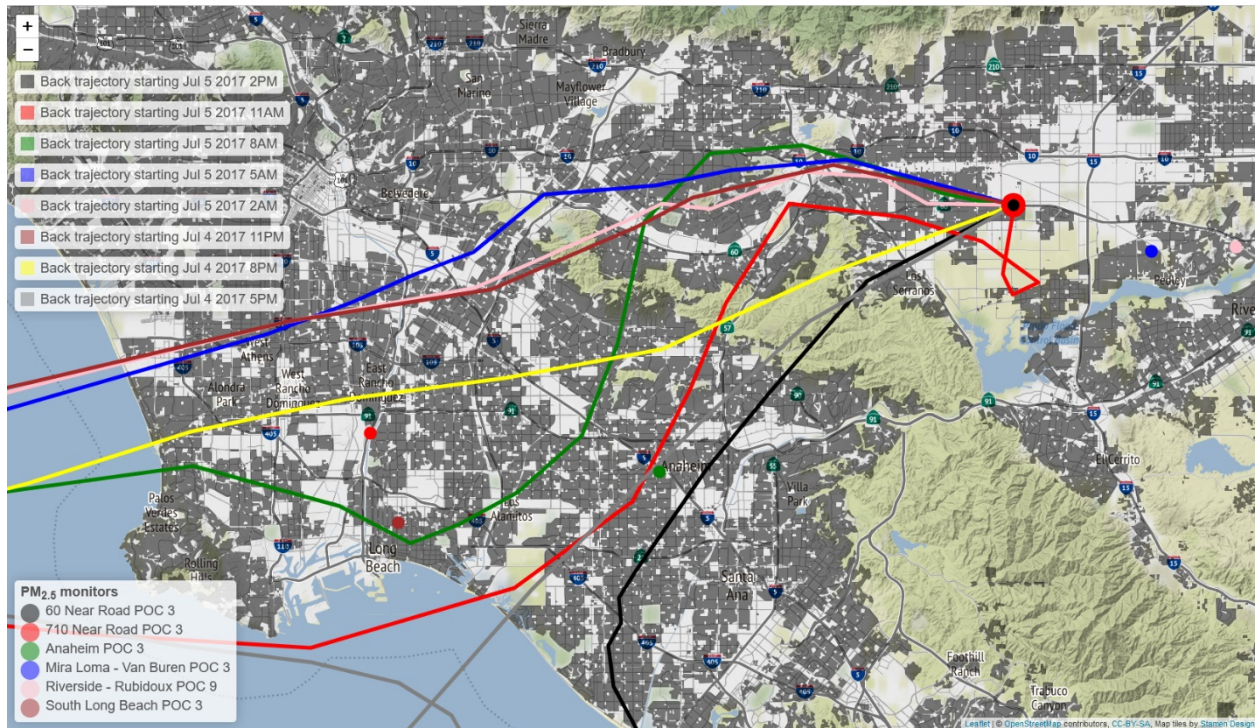


FIGURE II-7-17:
HYSPLIT BACK-TRAJECTORIES FROM 60 NEAR ROAD FOR JULY 4-5, 2017 OVERLAID ON A MAP OF THE SOUTH COAST AIR BASIN SHOWING RESIDENTIAL LAND USE (SHOWN IN GRAY).

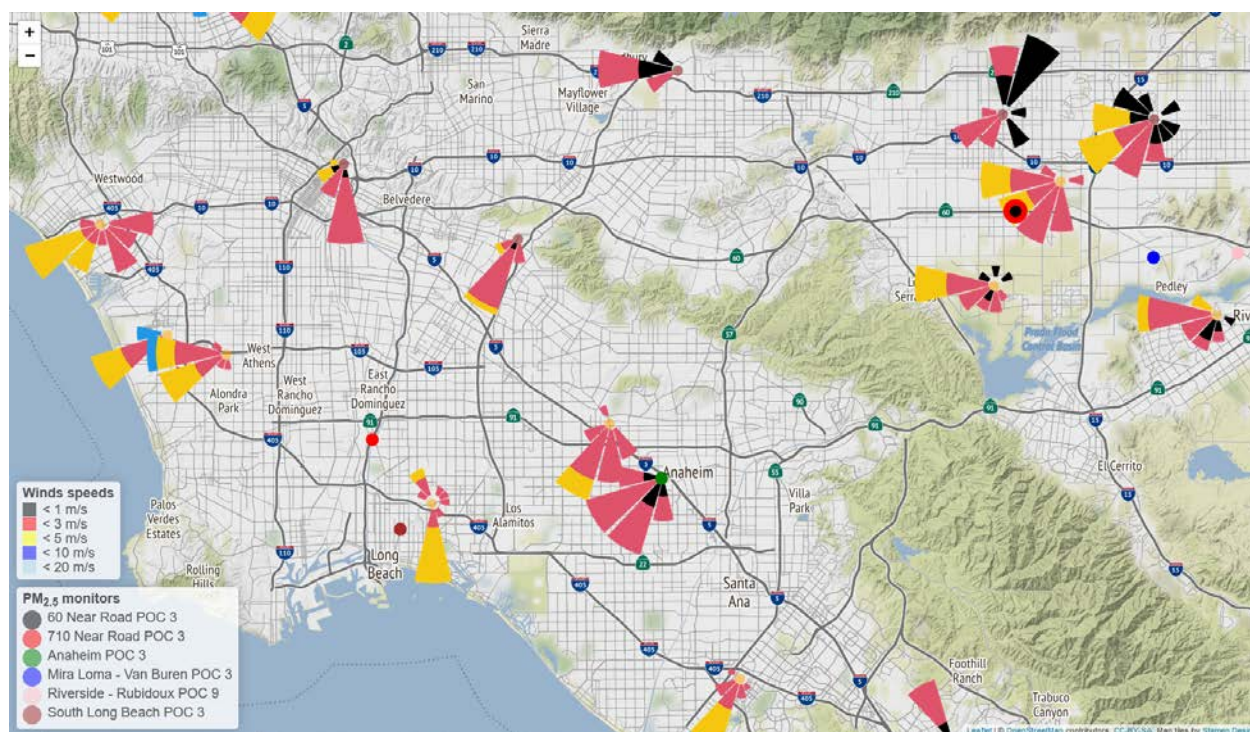
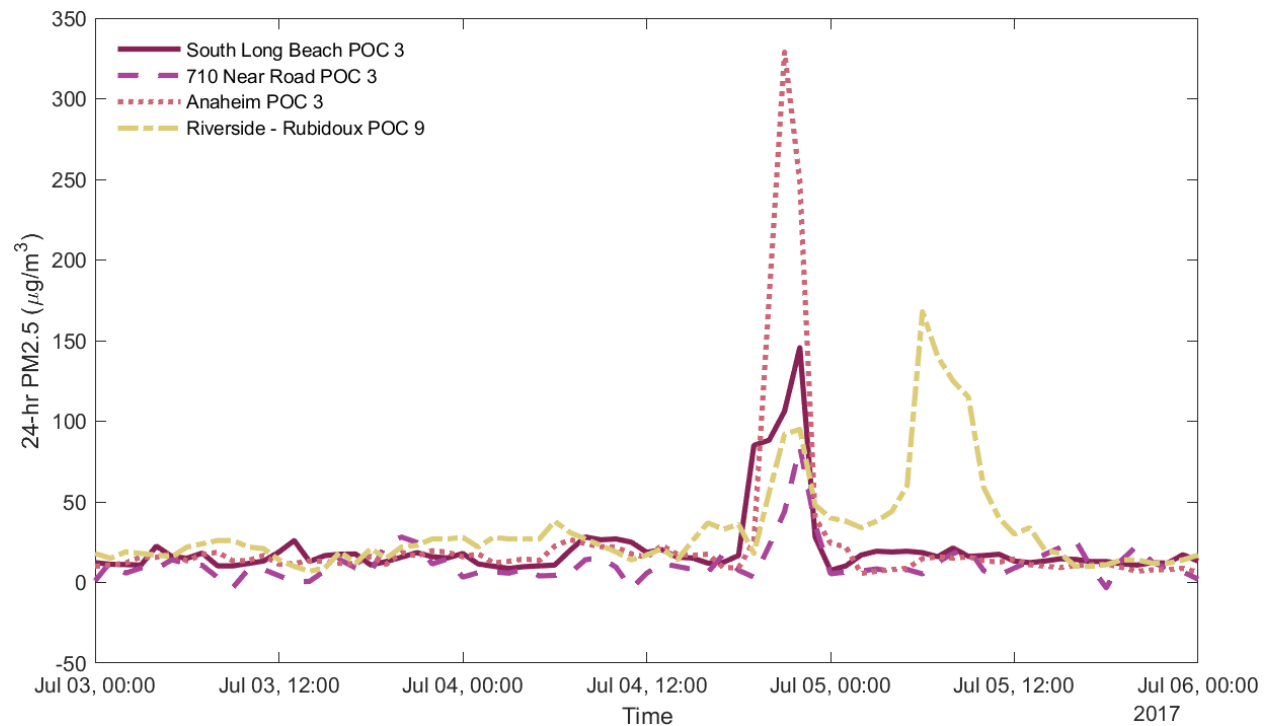


FIGURE II-7-18:
WIND ROSES FOR 9 PM ON JULY 4 THROUGH 2 PM ON JULY 5, 2017 THROUGHOUT THE SOUTH COAST AIR BASIN.

Figure II-7-19 shows time series plots of hourly PM_{2.5} data at selected stations with continuous PM_{2.5} instruments within the South Coast Air Basin for July 3-5, 2017. The concentrations peak at stations closer to the coast earlier than in inland areas (see Figure II-7-17 for monitor locations). This is consistent with the combination of 1) extensive fireworks use across the Basin, especially the most populated areas closer to the coast and 2) the dominant onshore flow that transports these emissions inland. The inland areas have local emissions as well as transported emissions from upwind areas.



**FIGURE II-7-19:
HOURLY TIME SERIES FOR JULY 3-5, 2017 FOR PM_{2.5} MONITORING STATIONS IN THE SOUTH
COAST AIR BASIN.**

Figure II-7-20 through Figure II-7-21 show time series plots of PM_{2.5} (left axes) and windspeed (right axes) for the stations shown in Figure II-7-19 that have co-located wind data. The PM_{2.5} concentrations tend to be the highest during the periods with lowest windspeeds. This is consistent with elevated nearby emissions, such as fireworks and reflects the emission patterns of fireworks, which are typically used at nightfall.

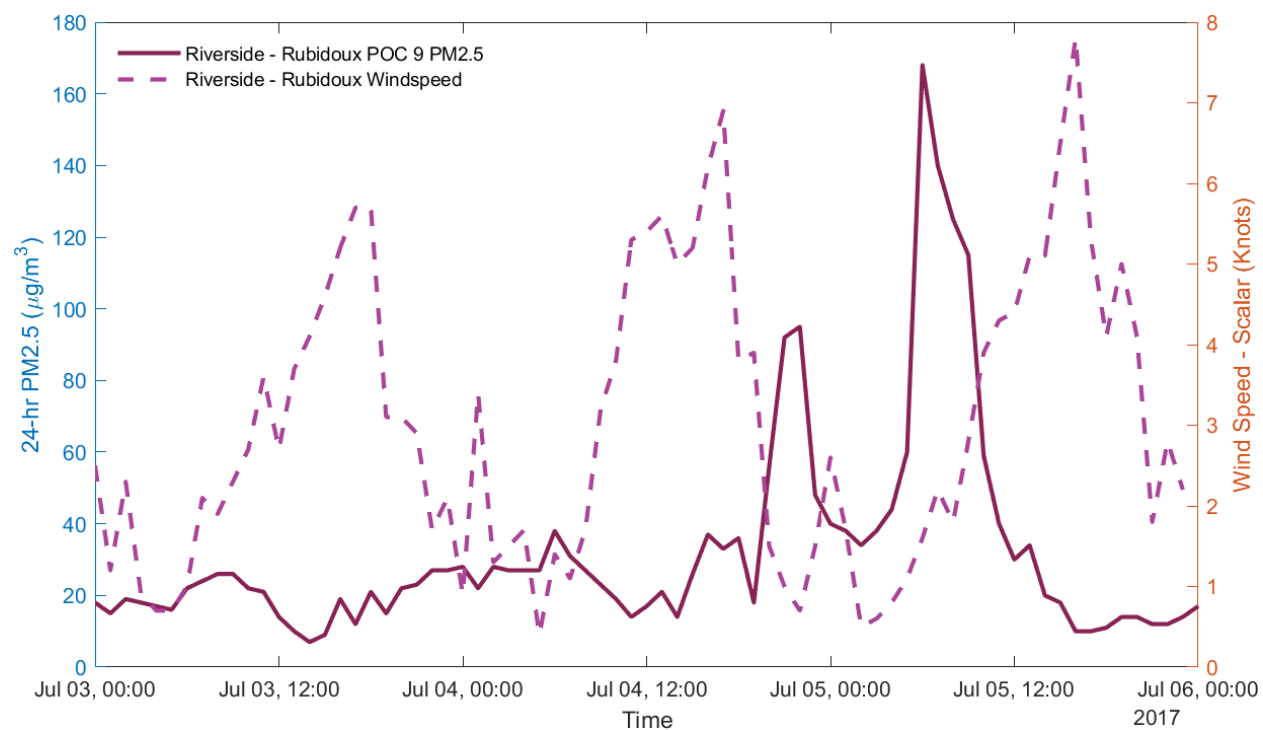
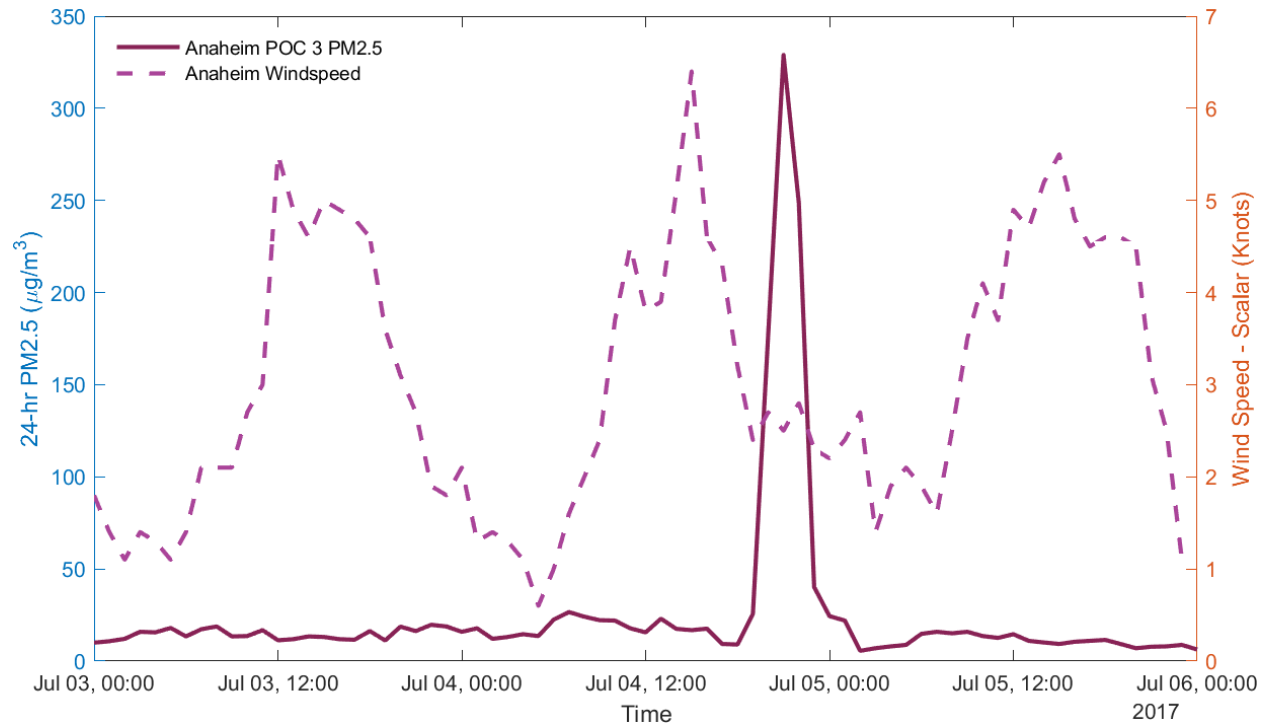


FIGURE II-7-20:
HOURLY PM2.5 AND WINDSPEED FOR JULY 3-5, 2017 AT THE RIVERSIDE - RUBIDOUX STATION.



**FIGURE II-7-21:
HOURLY PM_{2.5} AND WINDSPEED FOR JULY 3-5, 2017 AT THE ANAHEIM STATION.**

Figure II-7-22 through Figure II-7-23 show scatter plots of PM_{2.5} versus hourly windspeed. This is the same data as shown in Figure II-7-20 through Figure II-7-21, except that the data are limited to 9 PM on July 4 through 5 PM on July 5, 2017 when we expect the greatest impacts from fireworks emissions. The NAAQS value (35 µg/m³) is shown as a horizontal line. Most PM_{2.5} measurements were below the NAAQS value whenever the winds were above approximately 5 knots, with the highest concentrations occurring at lower wind speeds. This pattern is consistent with elevated nearby emissions from fireworks accumulating to high concentrations during periods of lower ventilation and then diluting during periods of increased ventilation at higher windspeeds.

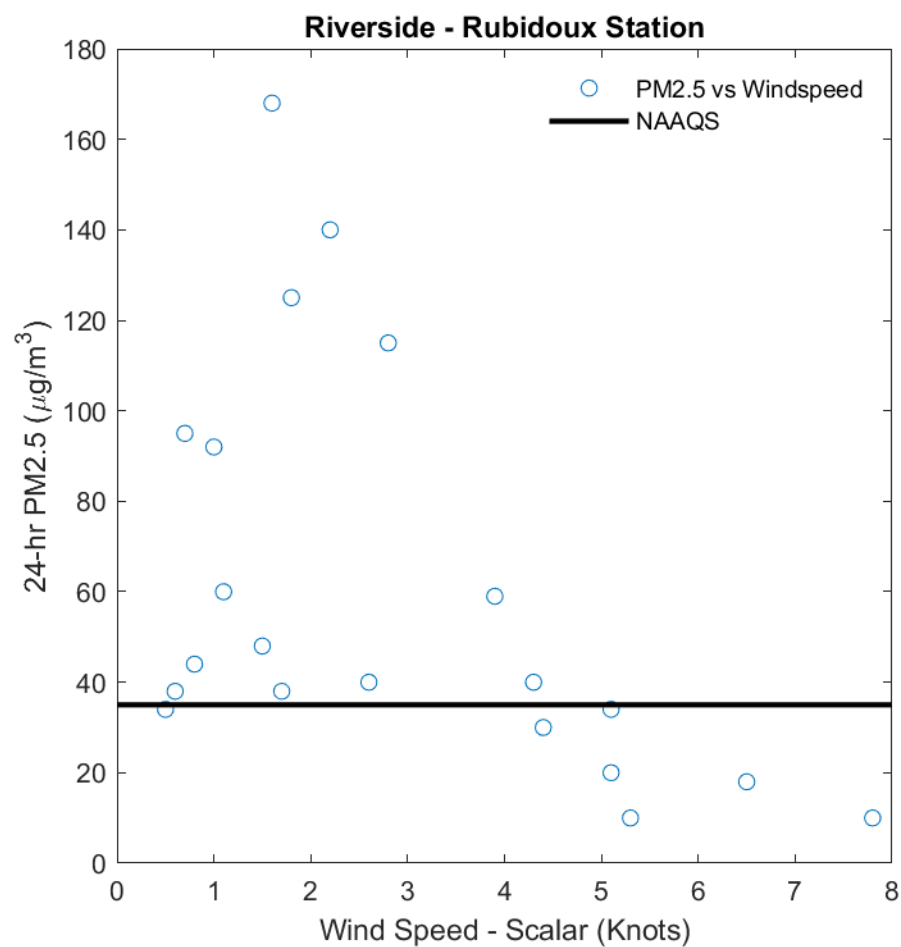


FIGURE II-7-22:
HOURLY PM2.5 VERSUS WINDSPEED FOR 9 PM ON JULY 4 THROUGH 5 PM ON JULY 5, 2017
AT THE RIVERSIDE - RUBIDOUX STATION.

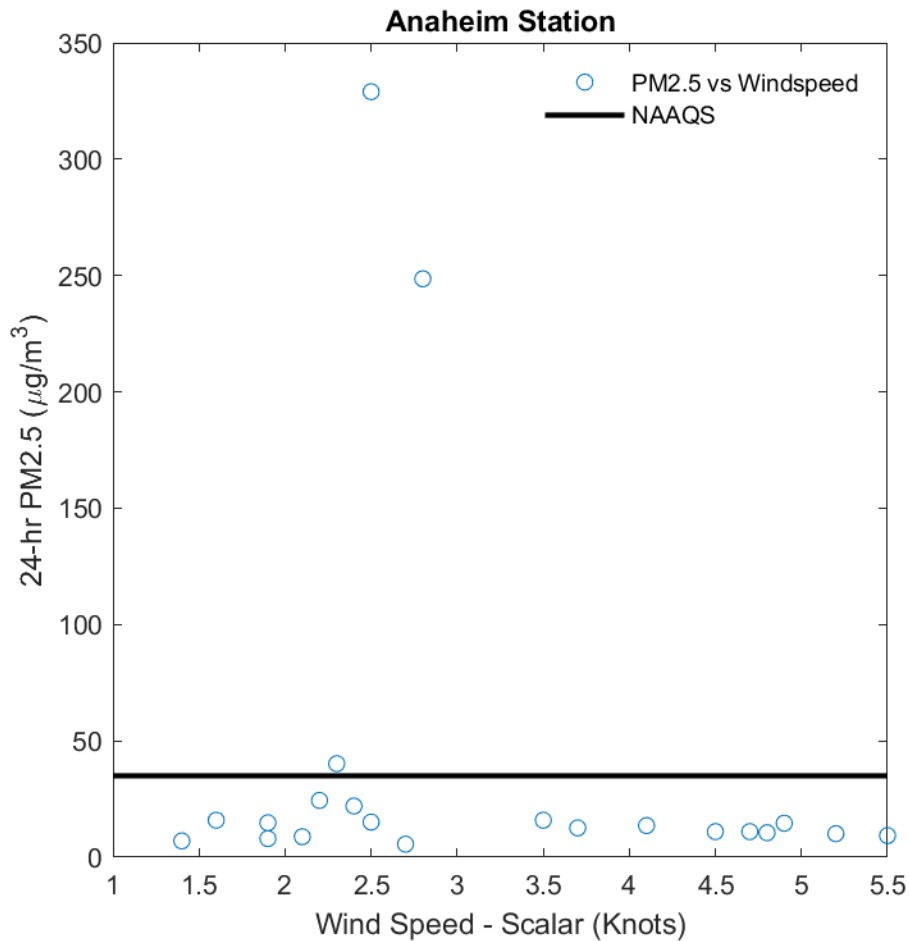


FIGURE II-7-23:
HOURLY PM_{2.5} VERSUS WINDSPEED FOR 9 PM ON JULY 4 THROUGH 5 PM ON JULY 5, 2017
AT THE ANAHEIM STATION.

Fireworks Summary for 2018-07-05

Residential land use (a proxy for fireworks emissions locations) and HYSPLIT back-trajectories using the NOAA HRRR meteorological model arriving at the 60 Near Road monitoring station for July 4-5, 2018 are shown in Figure II-7-24. All the back-trajectories originate over the Pacific Ocean or locally within the South Coast Air Basin and cross large residential areas of the South Coast Air Basin. Figure II-7-25 shows wind roses throughout the South Coast Air Basin for 9 PM on July 4 through 2 PM on July 5, 2018 using wind data from South Coast AQMD monitoring stations and local airports. The low windspeeds and onshore components shown in the wind roses in Figure II-7-25 are consistent with the meandering and ocean-sourced HYSPLIT back-trajectories in Figure II-7-24.

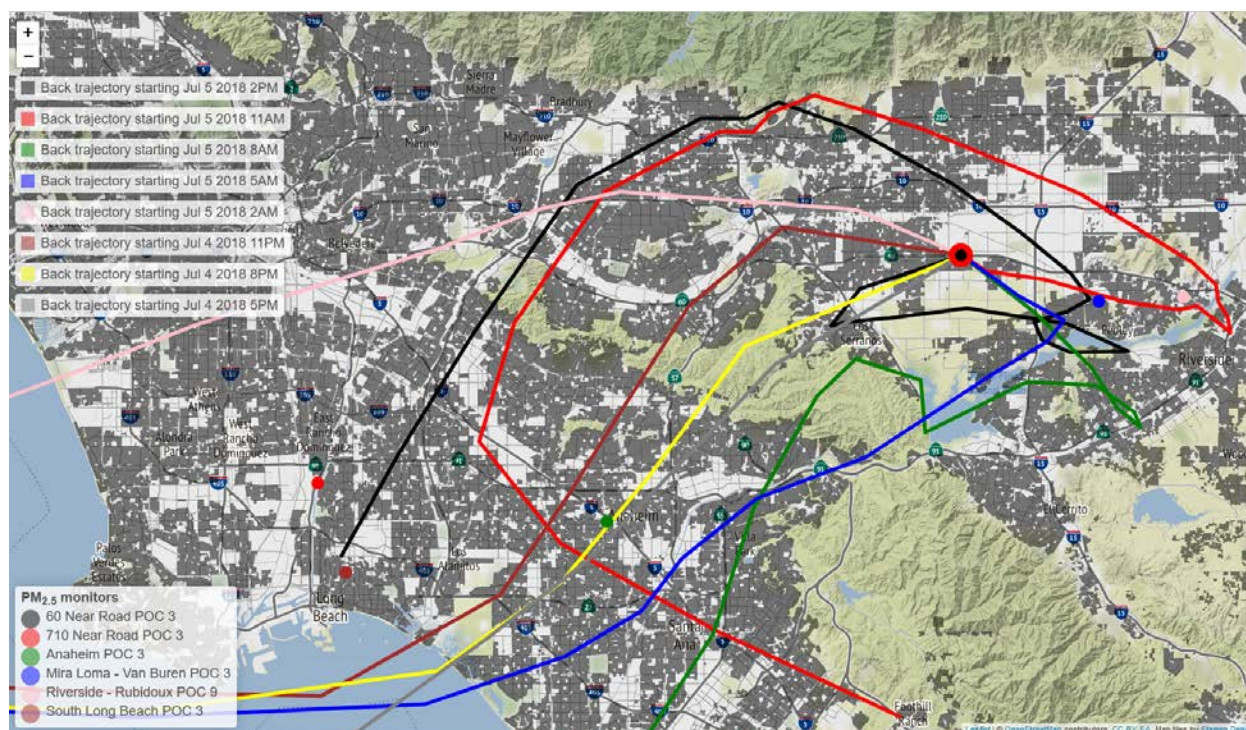


FIGURE II-7-24:
HYSPLIT BACK-TRAJECTORIES FROM 60 NEAR ROAD FOR JULY 4-5, 2018 OVERLAID ON A MAP
OF THE SOUTH COAST AIR BASIN SHOWING RESIDENTIAL LAND USE (SHOWN IN GRAY).

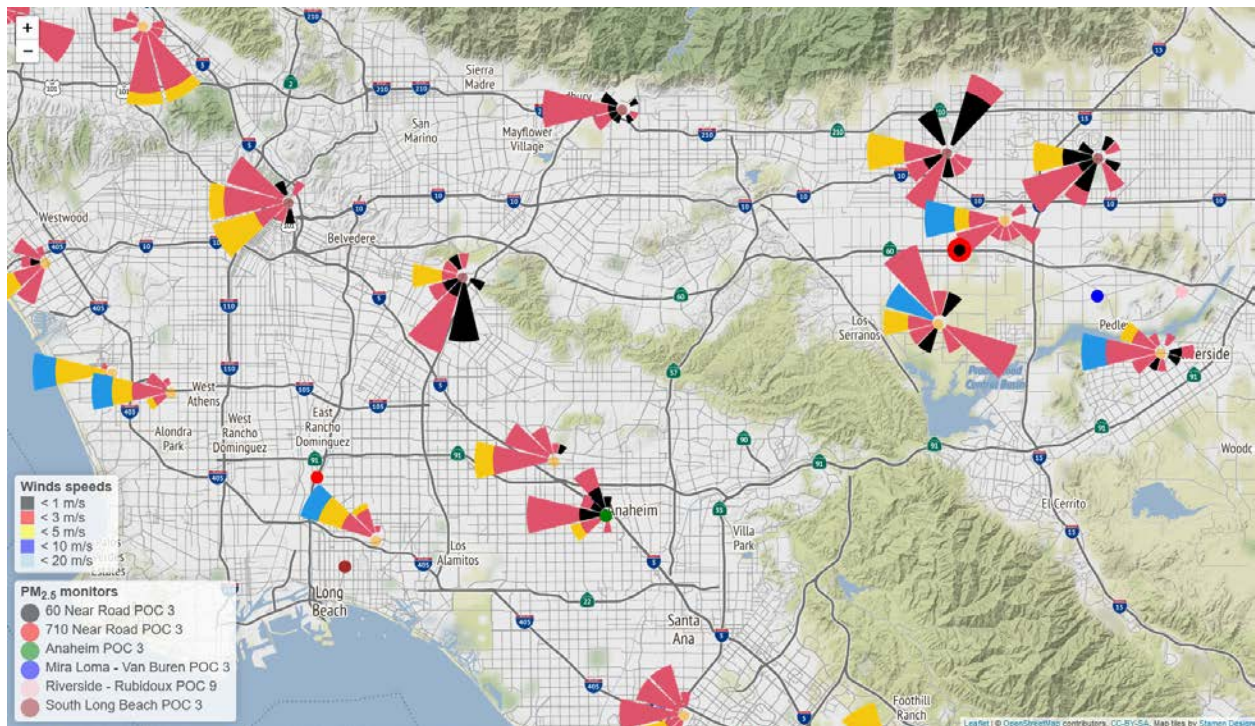


FIGURE II-7-25:
WIND ROSES FOR 9 PM ON JULY 4 THROUGH 2 PM ON JULY 5, 2018 THROUGHOUT THE SOUTH COAST AIR BASIN.

Figure II-7-26 shows time series plots of hourly PM_{2.5} data at selected stations with continuous PM_{2.5} instruments within the South Coast Air Basin for July 4-5, 2018. The concentrations peak at stations closer to the coast earlier than in inland areas (see Figure II-7-24 for monitor locations). This is consistent with the combination of 1) extensive fireworks use across the Basin, especially the most populated areas closer to the coast and 2) the dominant onshore flow that transports these emissions inland. The inland areas have local emissions as well as transported emissions from upwind areas.

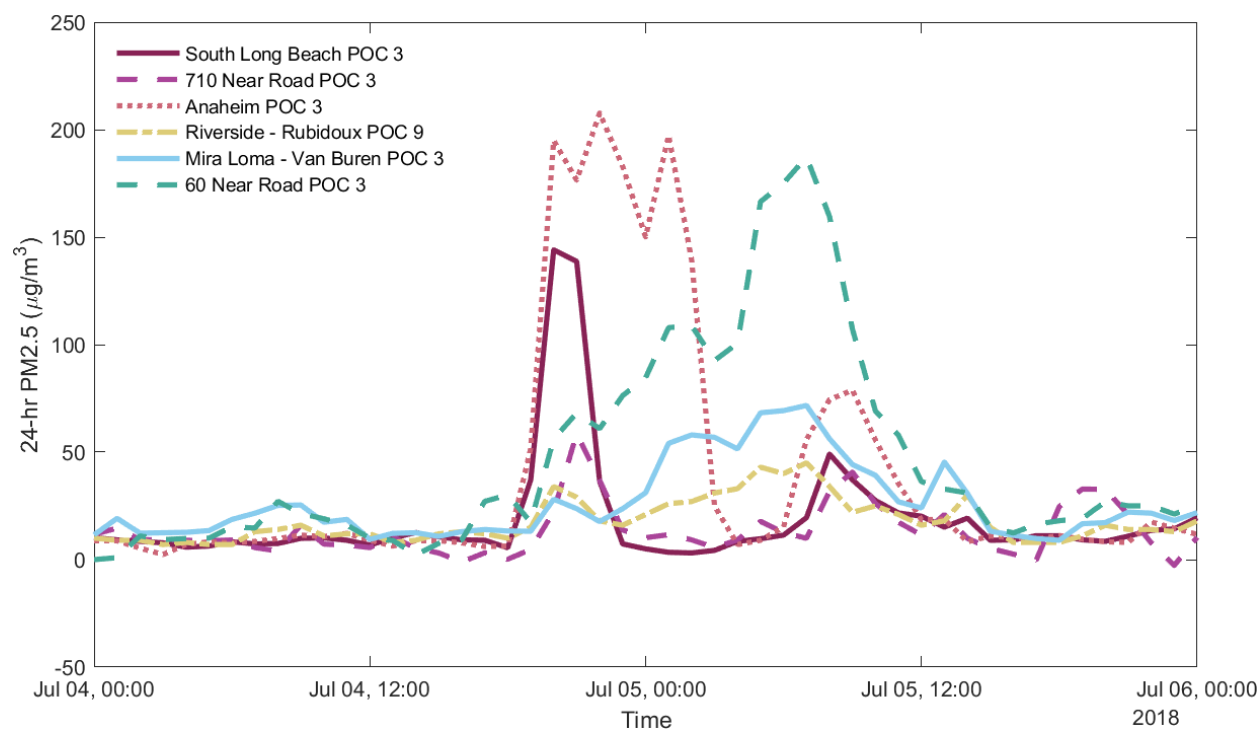


FIGURE II-7-26:
HOURLY TIME SERIES FOR JULY 4-5, 2018 FOR PM_{2.5} MONITORING STATIONS IN THE SOUTH COAST AIR BASIN.

Figure II-7-27 through Figure II-7-29 show time series plots of PM_{2.5} (left axes) and windspeed (right axes) for the stations shown in Figure II-7-26 that have co-located wind data. The PM_{2.5} concentrations tend to be the highest during the periods with lowest windspeeds. This is consistent with elevated nearby emissions, such as fireworks and reflects the emission patterns of fireworks, which are typically used at nightfall.

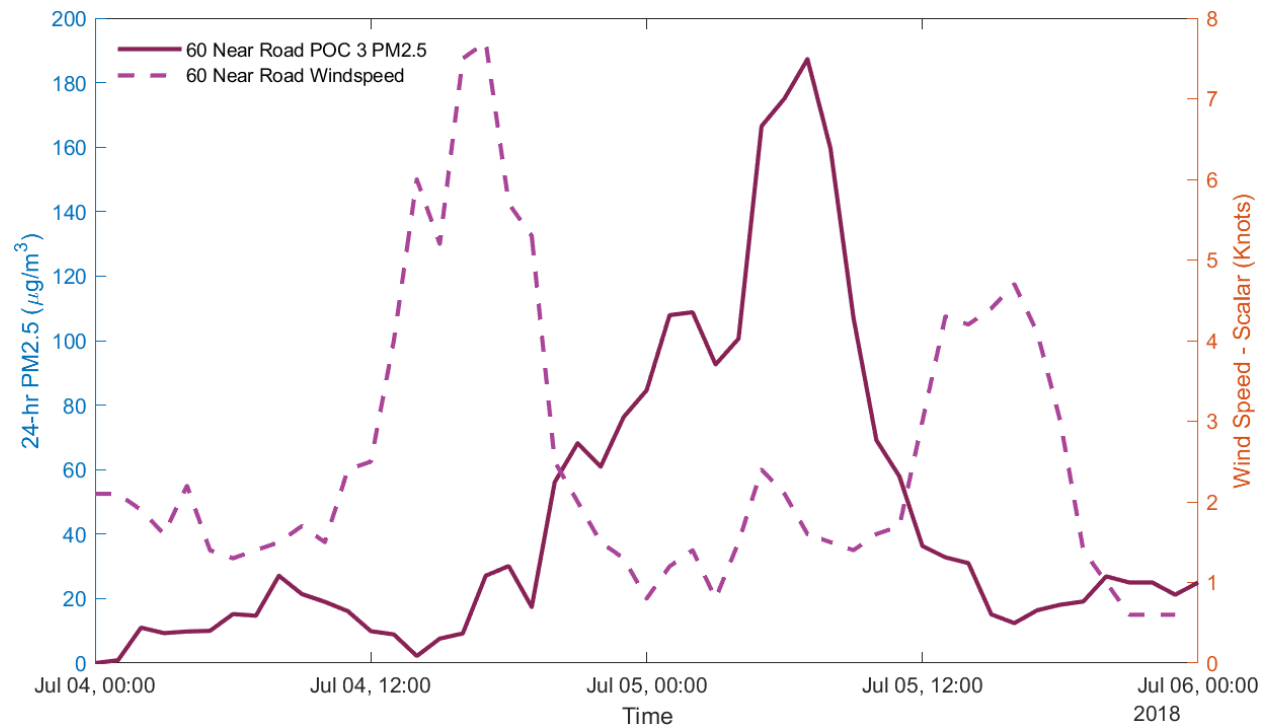


FIGURE II-7-27:
HOURLY PM2.5 AND WINDSPEED FOR JULY 4-5, 2018 AT THE 60 NEAR ROAD STATION.

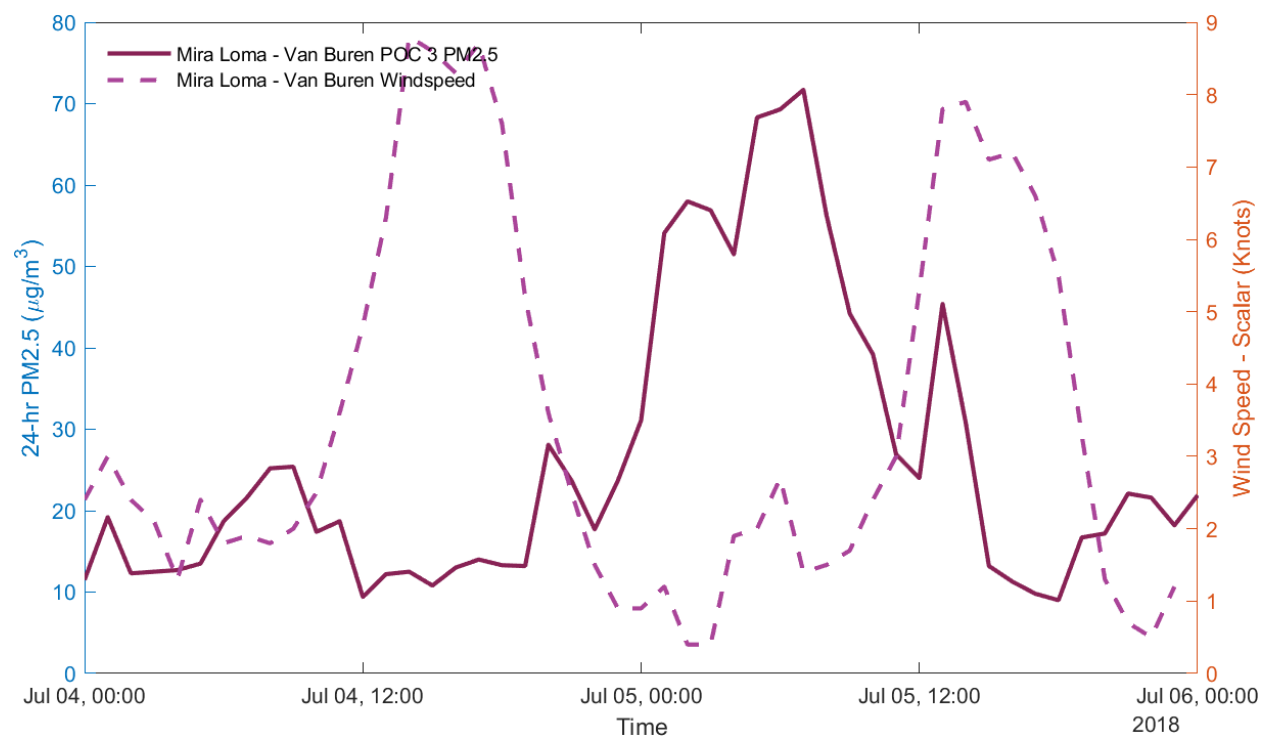
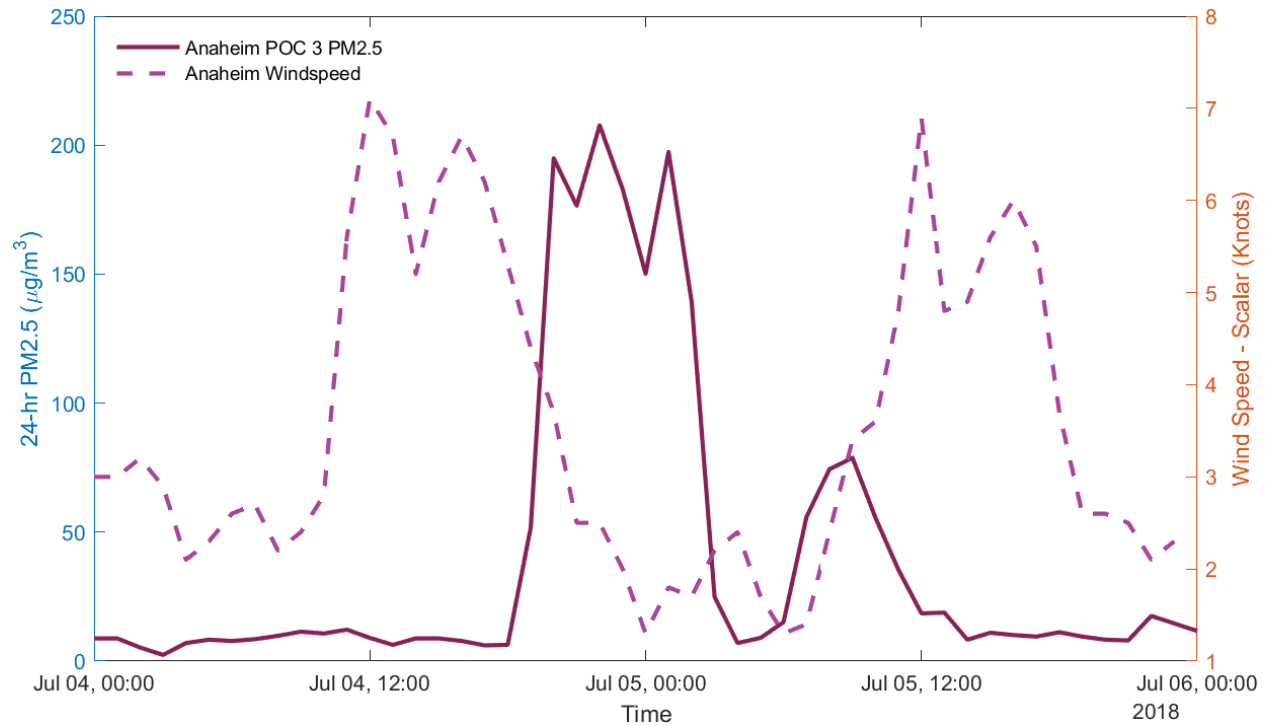


FIGURE II-7-28:
HOURLY PM2.5 AND WINDSPEED FOR JULY 4-5, 2018 AT THE MIRA LOMA – VAN BUREN STATION.



**FIGURE II-7-29:
HOURLY PM_{2.5} AND WINDSPEED FOR JULY 4-5, 2018 AT THE ANAHEIM STATION.**

Figure II-7-30 through Figure II-7-32 show scatter plots of PM_{2.5} versus hourly windspeed. This is the same data as shown in Figure II-7-27 through Figure II-7-29, except that the data are limited to 9 PM on July 4 through 5 PM on July 5, 2018 when we expect the greatest impacts from fireworks emissions. The NAAQS value (35 µg/m³) is shown as a horizontal line. Most PM_{2.5} measurements were below the NAAQS value whenever the winds were above approximately 5 knots, with the highest concentrations occurring at lower wind speeds. This pattern is consistent with elevated nearby emissions from fireworks accumulating to high concentrations during periods of lower ventilation and then diluting during periods of increased ventilation at higher windspeeds.

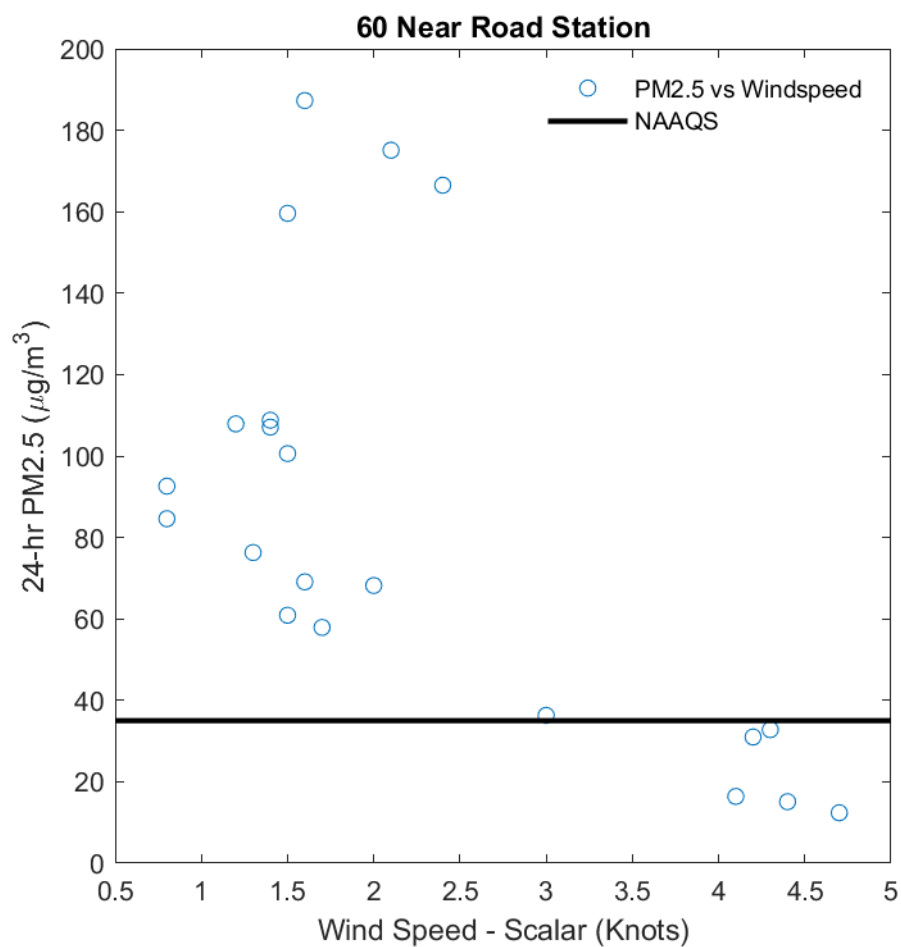


FIGURE II-7-30:
HOURLY PM_{2.5} VERSUS WINDSPEED FOR 9 PM ON JULY 4 THROUGH 5 PM ON JULY 5, 2018
AT THE 60 NEAR ROAD STATION.

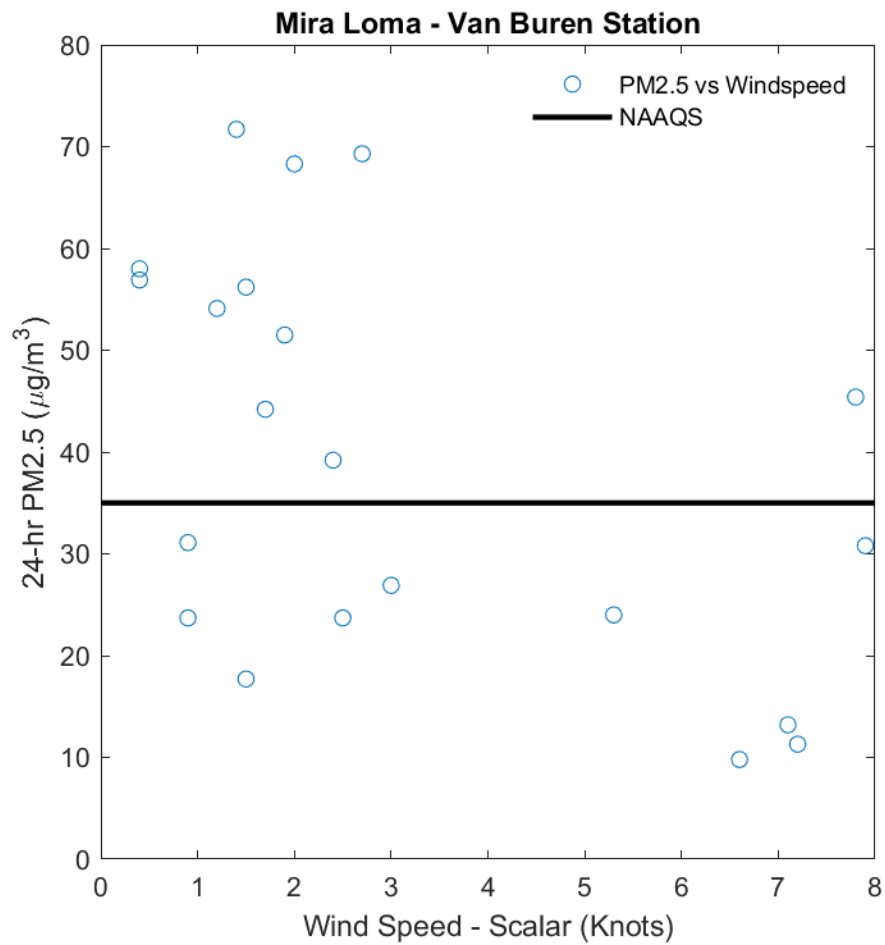


FIGURE II-7-31:
HOURLY PM_{2.5} VERSUS WINDSPEED FOR 9 PM ON JULY 4 THROUGH 5 PM ON JULY 5, 2018
AT THE MIRA LOMA – VAN BUREN STATION.

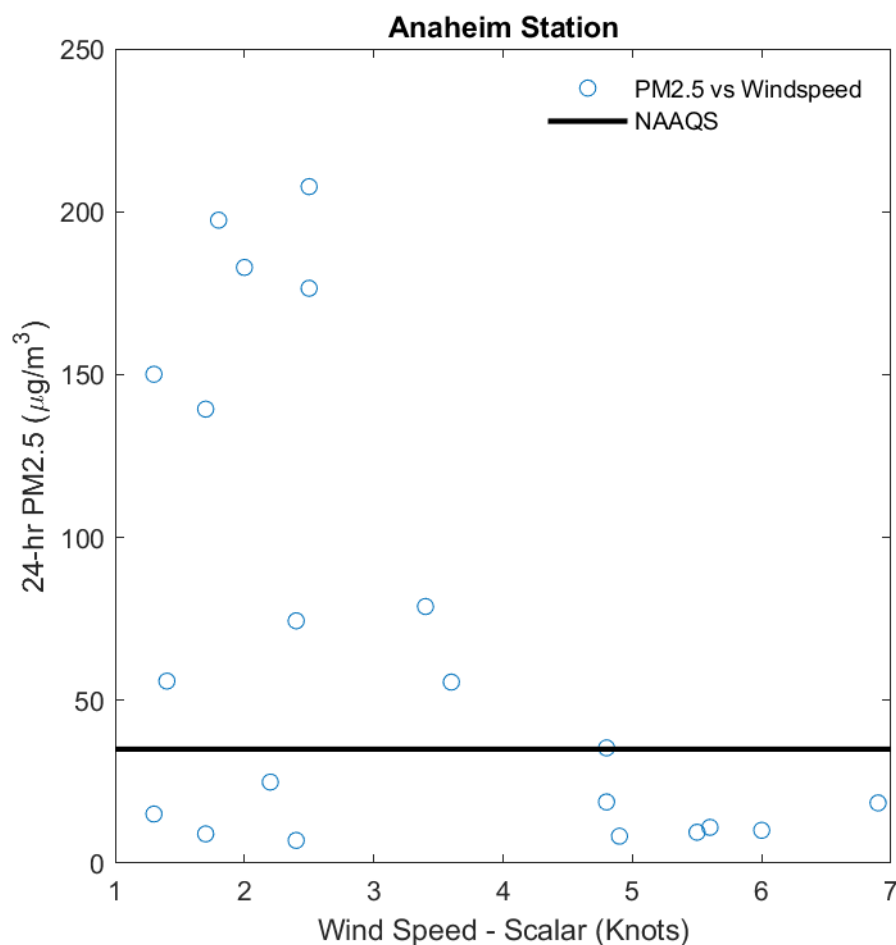


FIGURE II-7-32:
HOURLY PM2.5 VERSUS WINDSPEED FOR 9 PM ON JULY 4 THROUGH 5 PM ON JULY 5, 2018
AT THE ANAHEIM STATION.

Fireworks Summary for 2019-07-05

Residential land use (a proxy for fireworks emissions locations) and HYSPLIT back-trajectories using the NOAA HRRR meteorological model arriving at the 60 Near Road monitoring station for July 4-5, 2019 are shown in Figure II-7-33. All the back-trajectories originate over the Pacific Ocean and cross large residential areas of the South Coast Air Basin. Figure II-7-34 shows wind roses throughout the South Coast Air Basin for 9 PM on July 4 through 2 PM on July 5, 2019 using wind data from South Coast AQMD monitoring stations and local airports. The wind roses in Figure II-7-34 confirm the onshore wind pattern shown in the HYSPLIT back-trajectories in Figure II-7-33.

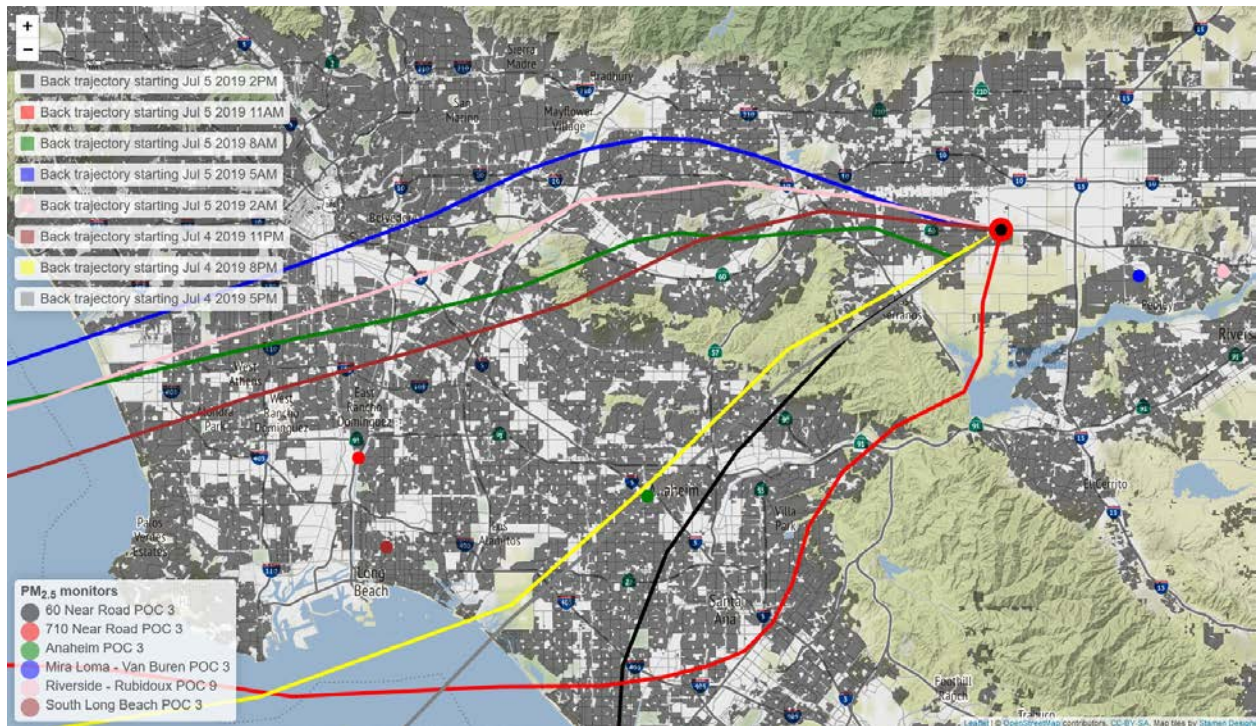


FIGURE II-7-33:
HYSPLIT BACK-TRAJECTORIES FROM 60 NEAR ROAD FOR JULY 4-5, 2019 OVERLAID ON A MAP OF THE SOUTH COAST AIR BASIN SHOWING RESIDENTIAL LAND USE (SHOWN IN GRAY).

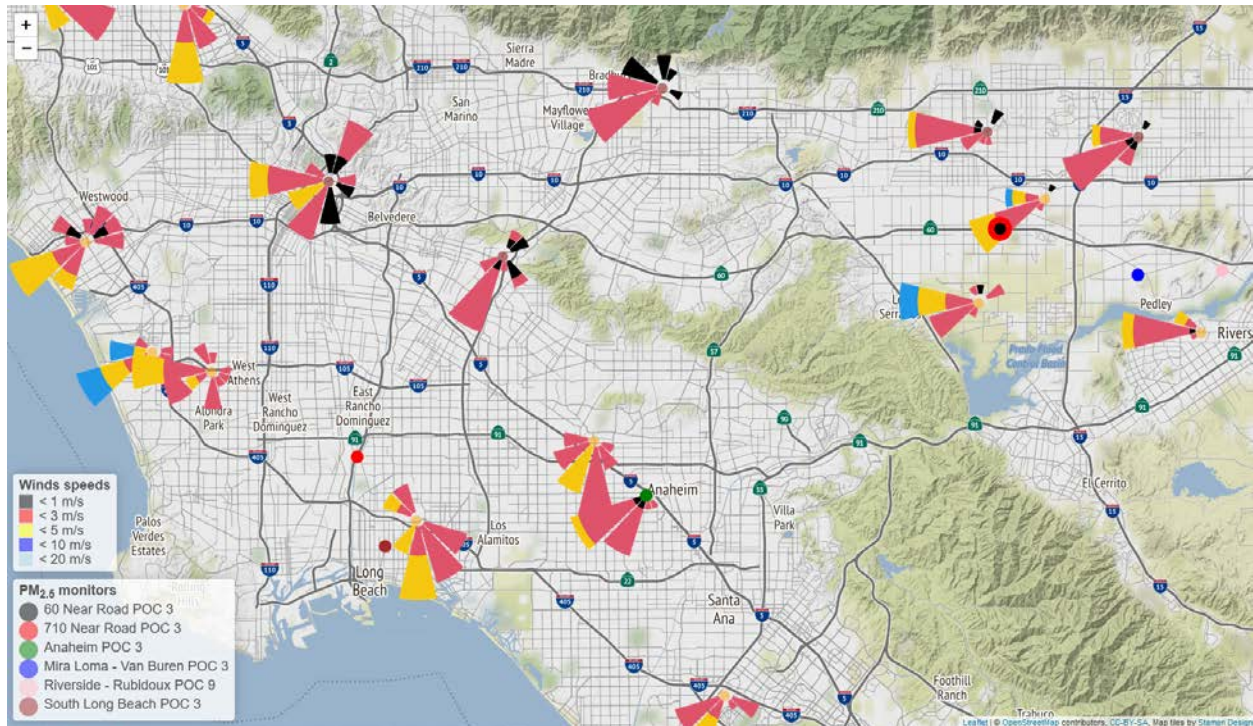


FIGURE II-7-34:
WIND ROSES FOR 9 PM ON JULY 4 THROUGH 2 PM ON JULY 5, 2019 THROUGHOUT THE SOUTH COAST AIR BASIN.

Figure II-7-35 shows time series plots of hourly PM_{2.5} data at selected stations with continuous PM_{2.5} instruments within the South Coast Air Basin for July 4-5, 2019. The concentrations peak at stations closer to the coast earlier than in inland areas (see Figure II-7-33 for monitor locations). This is consistent with the combination of 1) extensive fireworks use across the Basin, especially the most populated areas closer to the coast and 2) the dominant onshore flow that transports these emissions inland. The inland areas have local emissions as well as transported emissions from upwind areas.

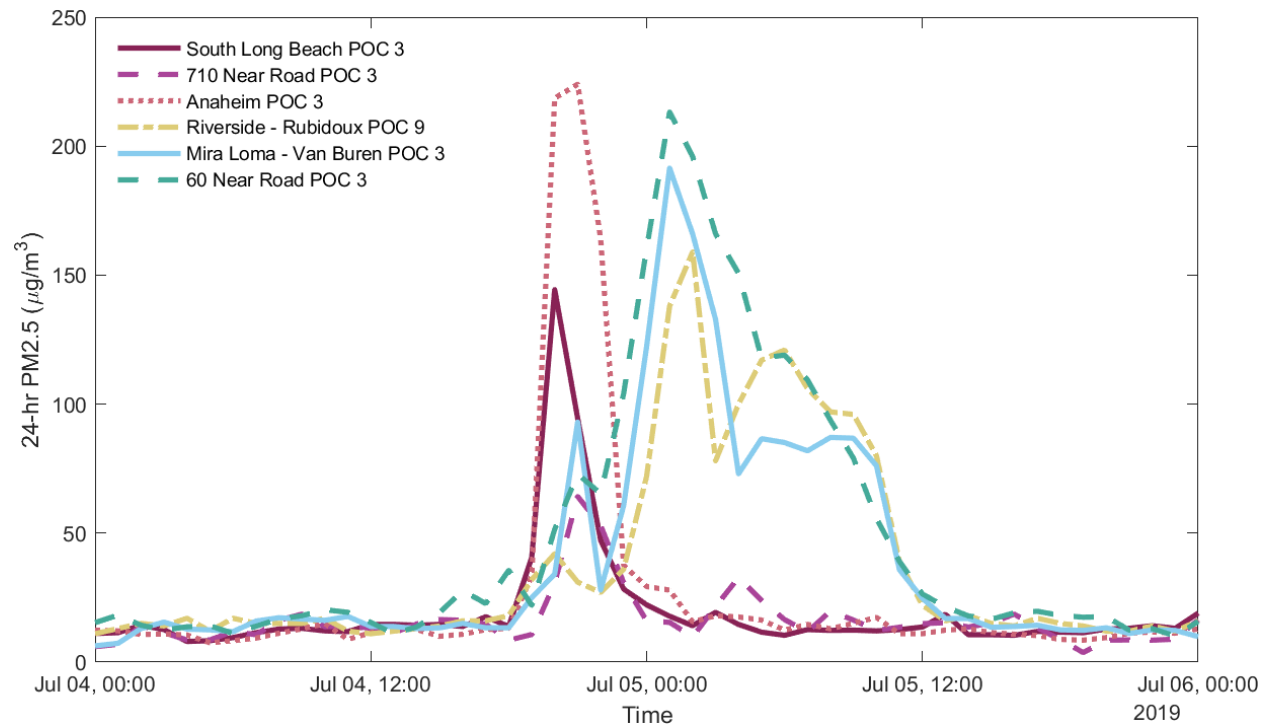


FIGURE II-7-35:
HOURLY TIME SERIES FOR JULY 4-5, 2019 FOR PM_{2.5} MONITORING STATIONS IN THE SOUTH COAST AIR BASIN.

Figure II-7-36 through Figure II-7-39 show time series plots of PM_{2.5} (left axes) and windspeed (right axes) for the stations shown in Figure II-7-35 that have co-located wind data. The PM_{2.5} concentrations tend to be the highest during the periods with lowest windspeeds. This is consistent with elevated nearby emissions, such as fireworks and reflects the emission patterns of fireworks, which are typically used at nightfall.

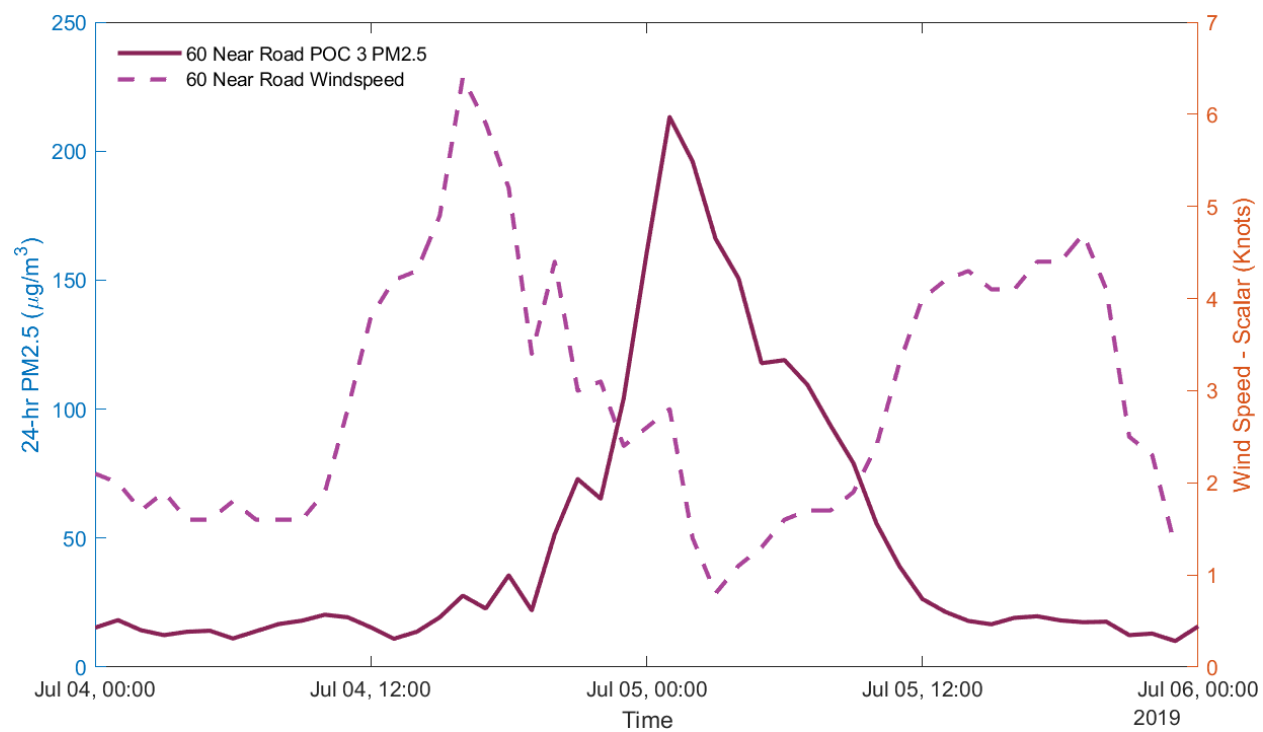


FIGURE II-7-36:
HOURLY PM2.5 AND WINDSPEED FOR JULY 4-5, 2019 AT THE 60 NEAR ROAD STATION.

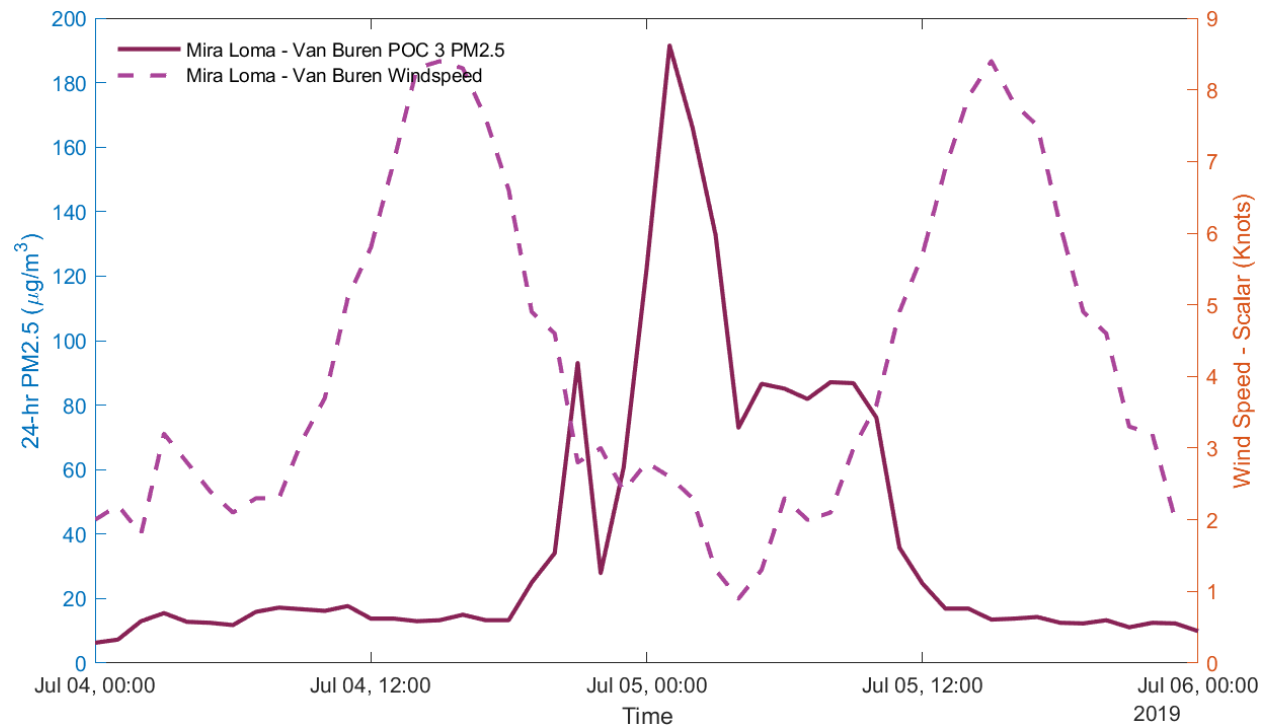


FIGURE II-7-37:
HOURLY PM2.5 AND WINDSPEED FOR JULY 4-5, 2019 AT THE MIRA LOMA – VAN BUREN STATION.

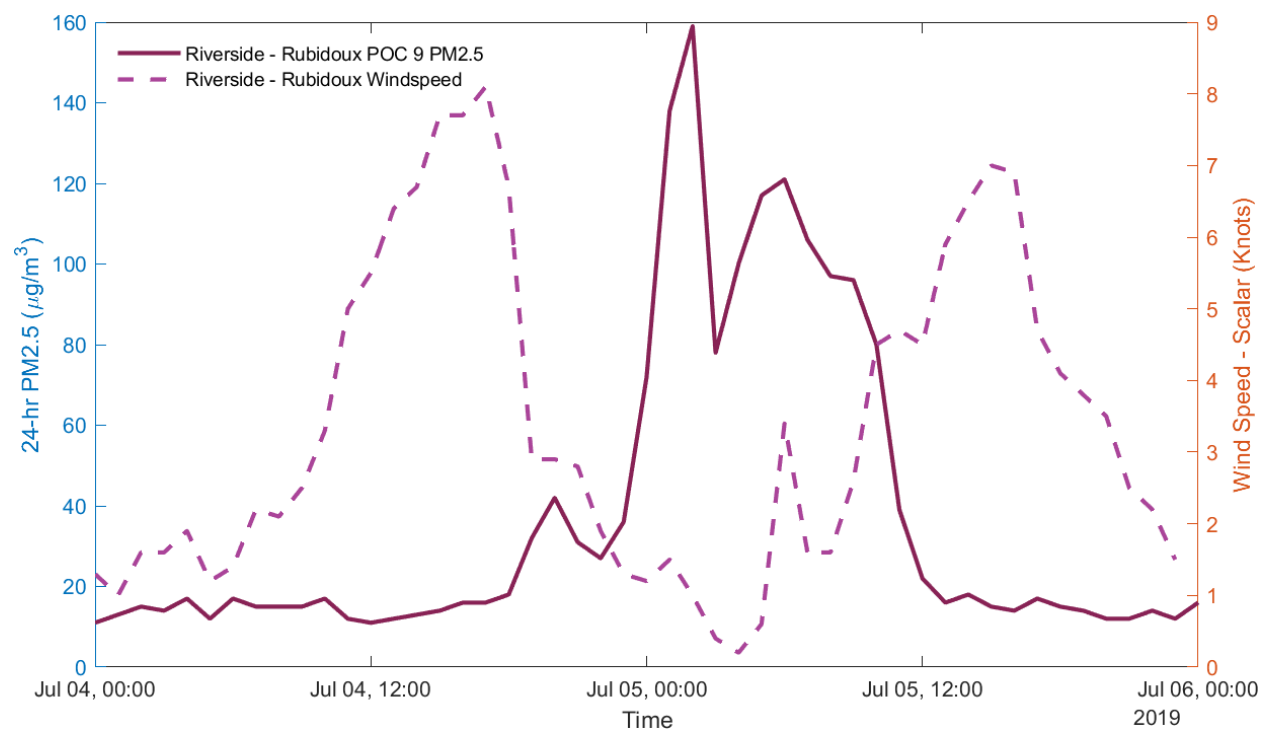
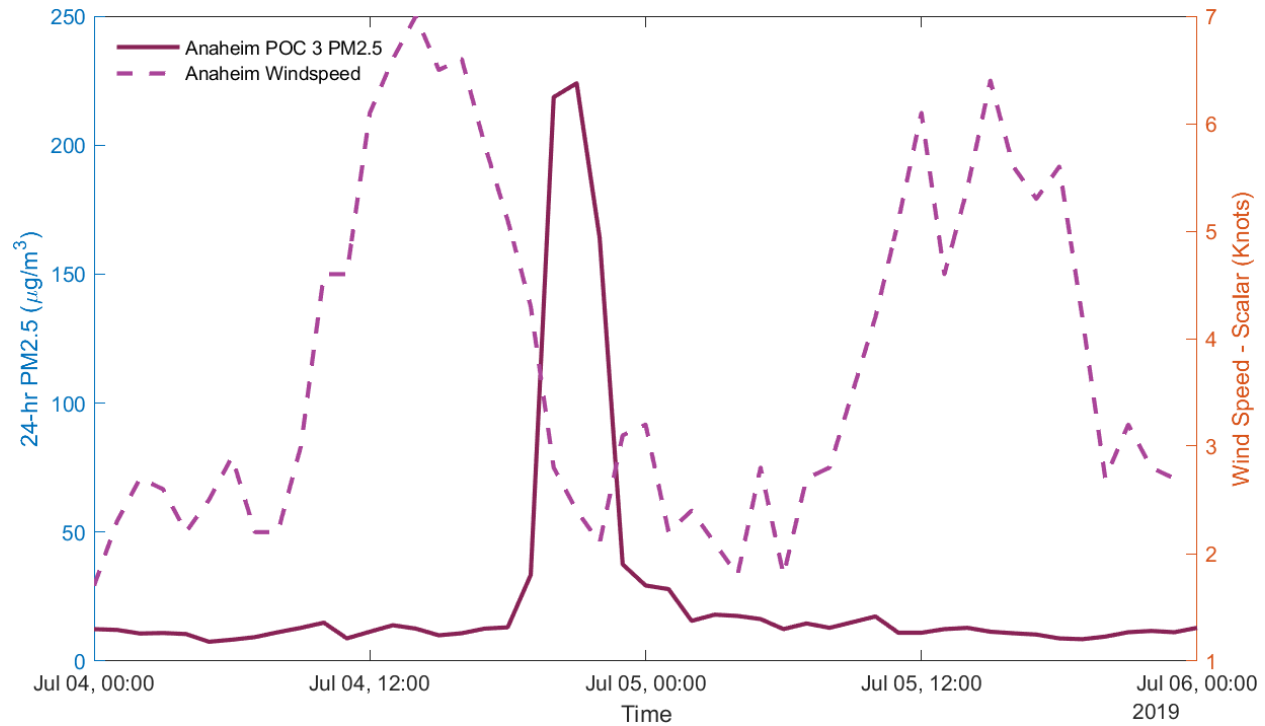


FIGURE II-7-38:
HOURLY PM2.5 AND WINDSPEED FOR JULY 4-5, 2019 AT THE RIVERSIDE - RUBIDOUX STATION.



**FIGURE II-7-39:
HOURLY PM_{2.5} AND WINDSPEED FOR JULY 4-5, 2019 AT THE ANAHEIM STATION.**

Figure II-7-40 through Figure II-7-43 show scatter plots of PM_{2.5} versus hourly windspeed. This is the same data as shown in Figure II-7-36 through Figure II-7-39, except that the data are limited to 9 PM on July 4 through 5 PM on July 5, 2019 when we expect the greatest impacts from fireworks emissions. The NAAQS value (35 µg/m³) is shown as a horizontal line. Most PM_{2.5} measurements were below the NAAQS value whenever the winds were above approximately 5 knots, with the highest concentrations occurring at lower wind speeds. This pattern is consistent with elevated nearby emissions from fireworks accumulating to high concentrations during periods of lower ventilation and then diluting during periods of increased ventilation at higher windspeeds.

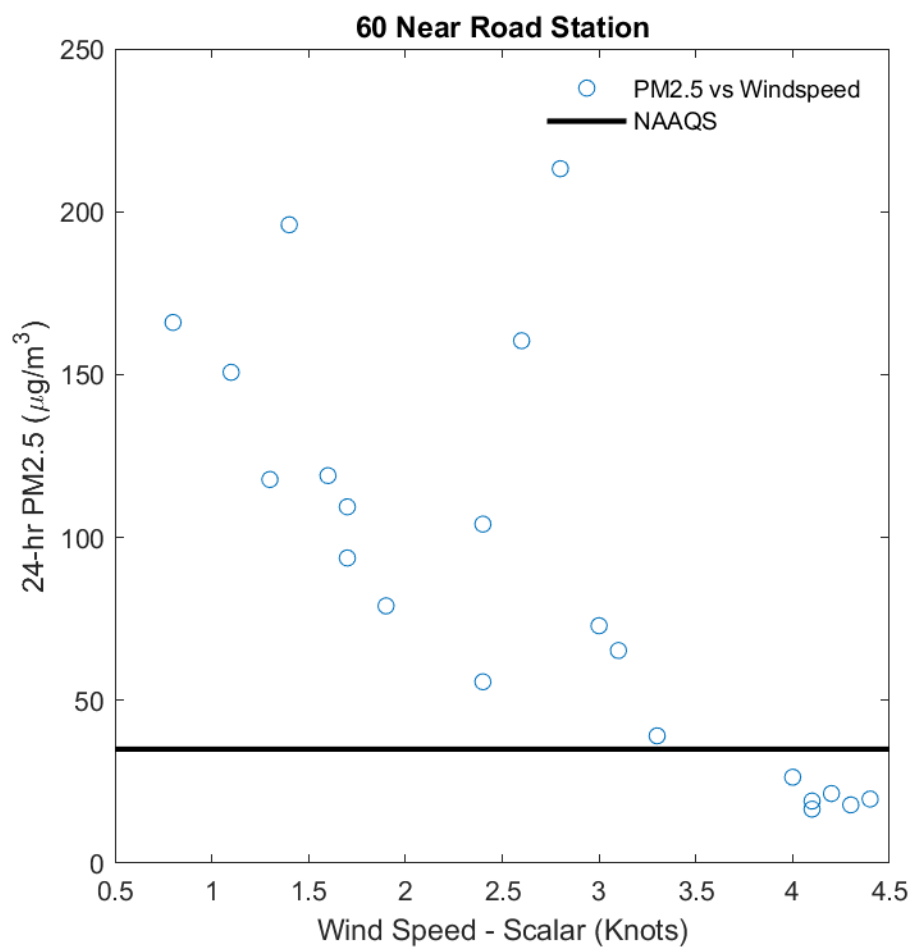


FIGURE II-7-40:
HOURLY PM_{2.5} VERSUS WINDSPEED FOR 9 PM ON JULY 4 THROUGH 5 PM ON JULY 5, 2019
AT THE 60 NEAR ROAD STATION.

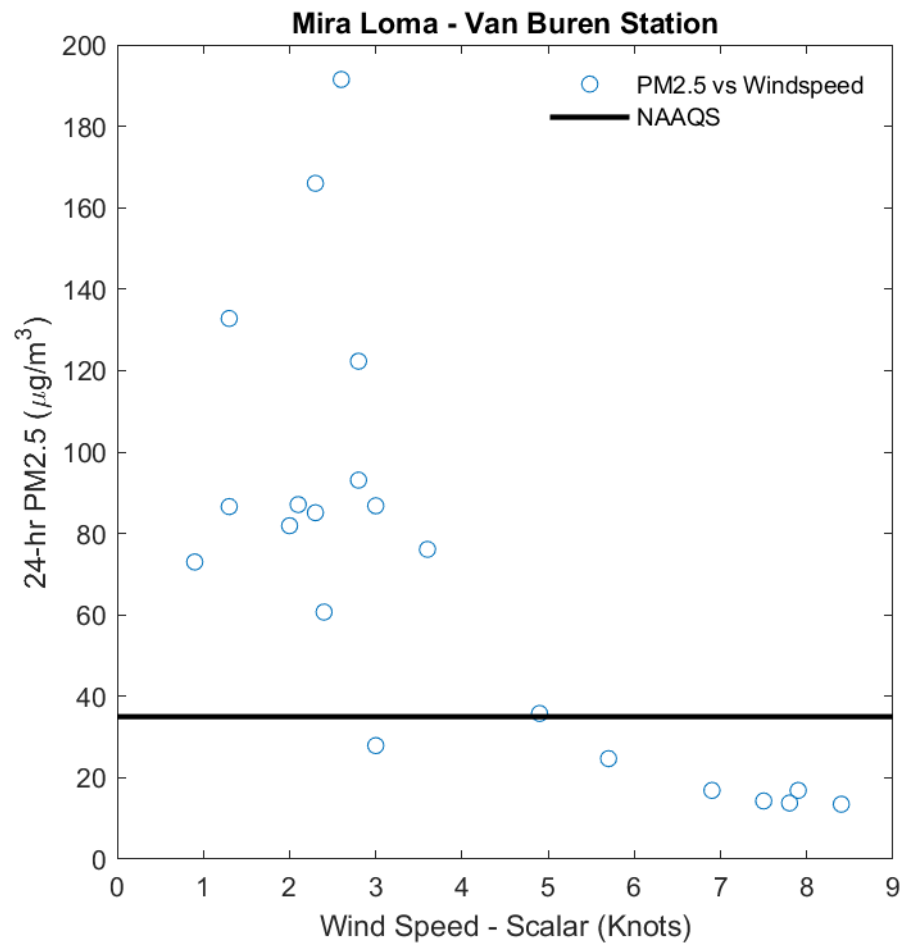


FIGURE II-7-41:
HOURLY PM_{2.5} VERSUS WINDSPEED FOR 9 PM ON JULY 4 THROUGH 5 PM ON JULY 5, 2019
AT THE MIRA LOMA – VAN BUREN STATION.

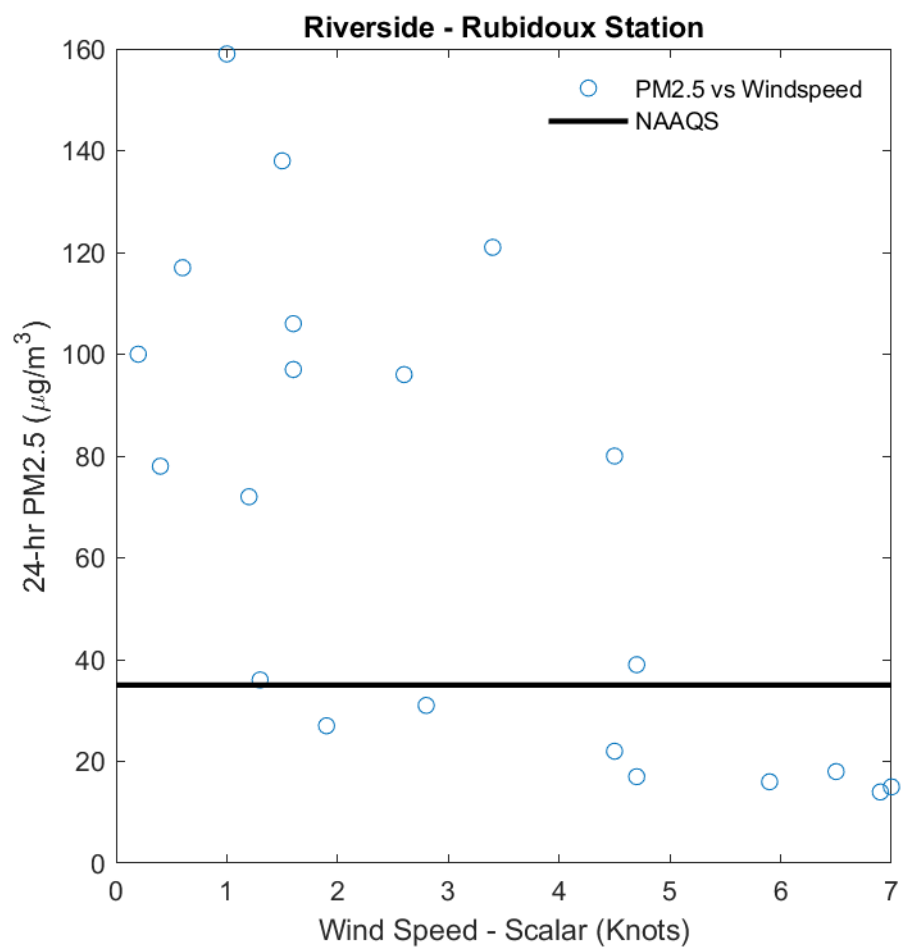
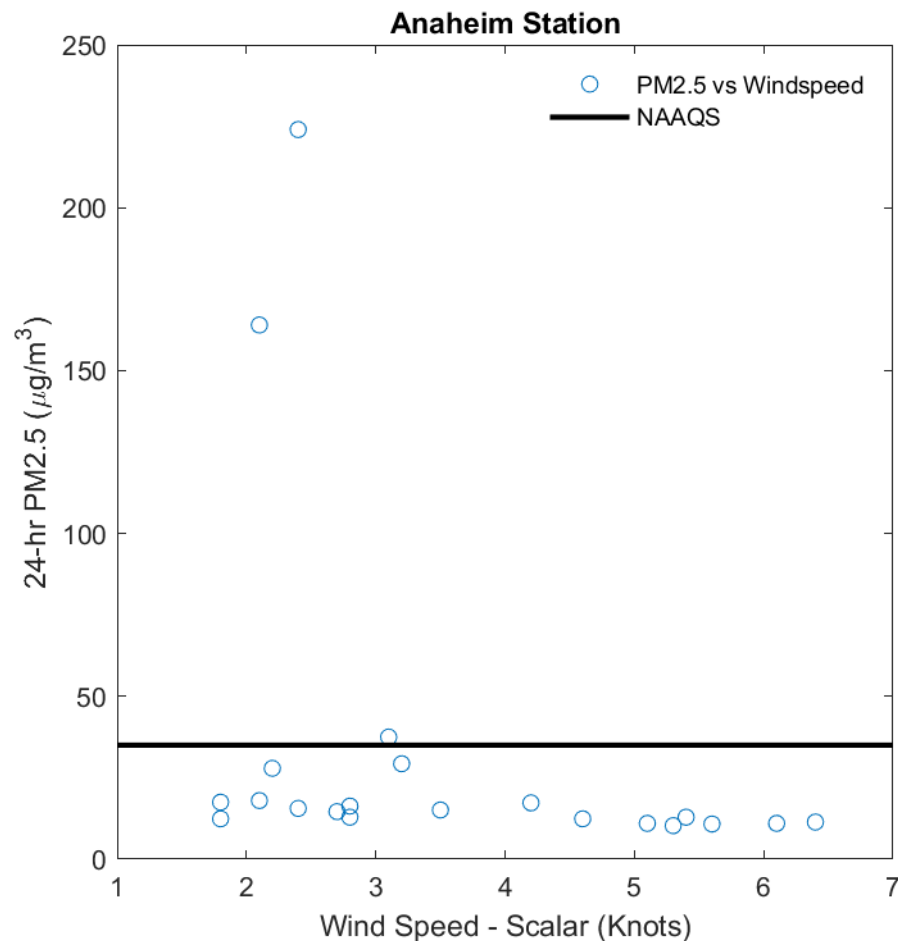


FIGURE II-7-42:
HOURLY PM_{2.5} VERSUS WINDSPEED FOR 9 PM ON JULY 4 THROUGH 5 PM ON JULY 5, 2019
AT THE RIVERSIDE - RUBIDOUX STATION.



**FIGURE II-7-43:
HOURLY PM2.5 VERSUS WINDSPEED FOR 9 PM ON JULY 4 THROUGH 5 PM ON JULY 5, 2019
AT THE ANAHEIM STATION.**

Conclusion

South Coast AQMD posits that the 24-hour PM2.5 exceedances listed in Table II-7-1 in this report qualify for exclusion for analyses estimating base and future year design values for the PM2.5 attainment demonstration because the ambient data are not representative to characterize base period concentrations (see Table 1 of U.S. EPA, 2019). The annual fireworks emissions during Independence Day celebrations throughout the South Coast Air Basin impacting PM2.5 concentrations on July 4-5 are atypical, extreme, and unrepresentative events compared to typical summer days.

Attachment 1

WRF MODEL PERFORMANCE TIME SERIES

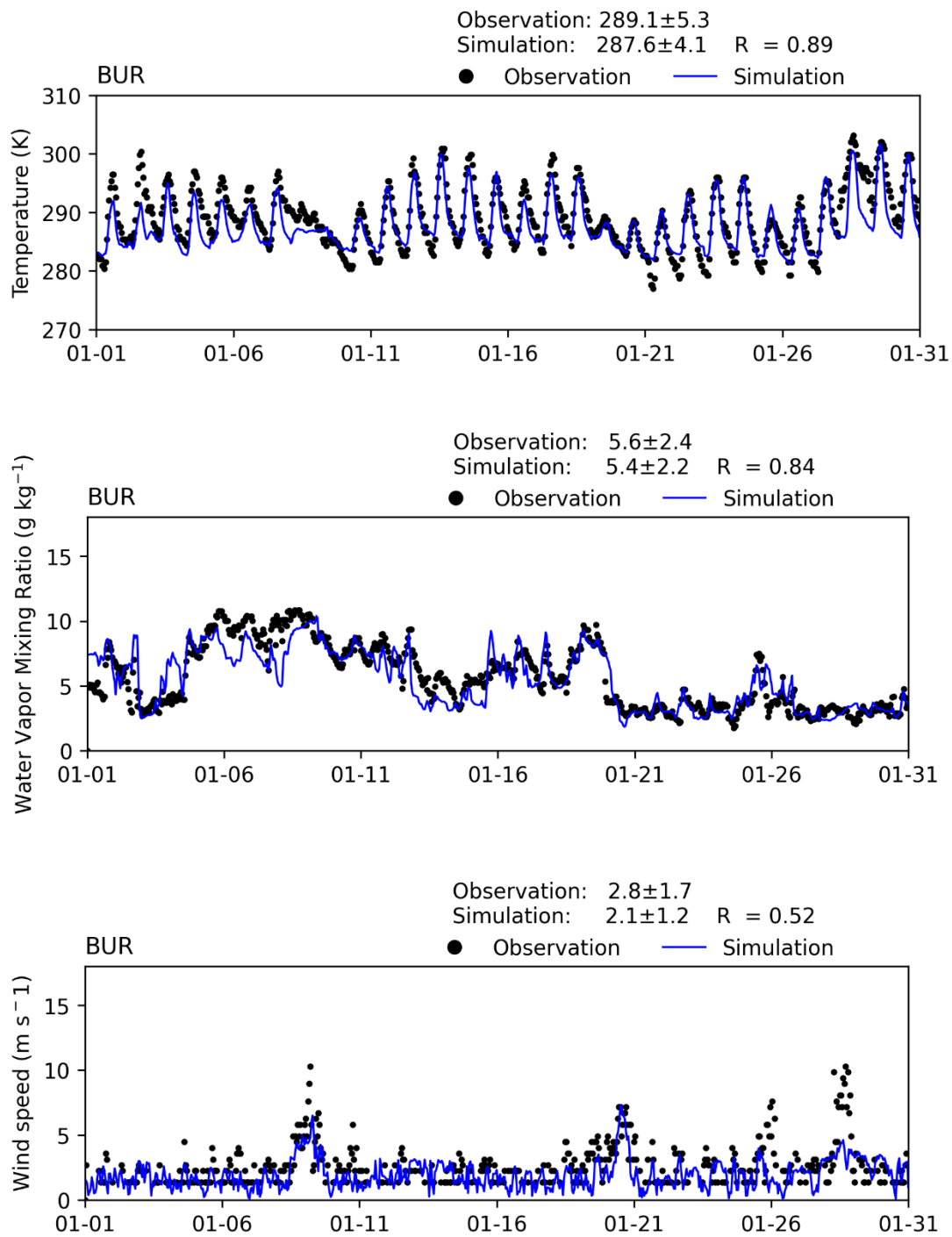


FIGURE V-A1
TIME SERIES OF HOURLY MEASUREMENTS AND WRF SIMULATIONS AT BURBANK AIRPORT (BUR) FOR
JANUARY 2018

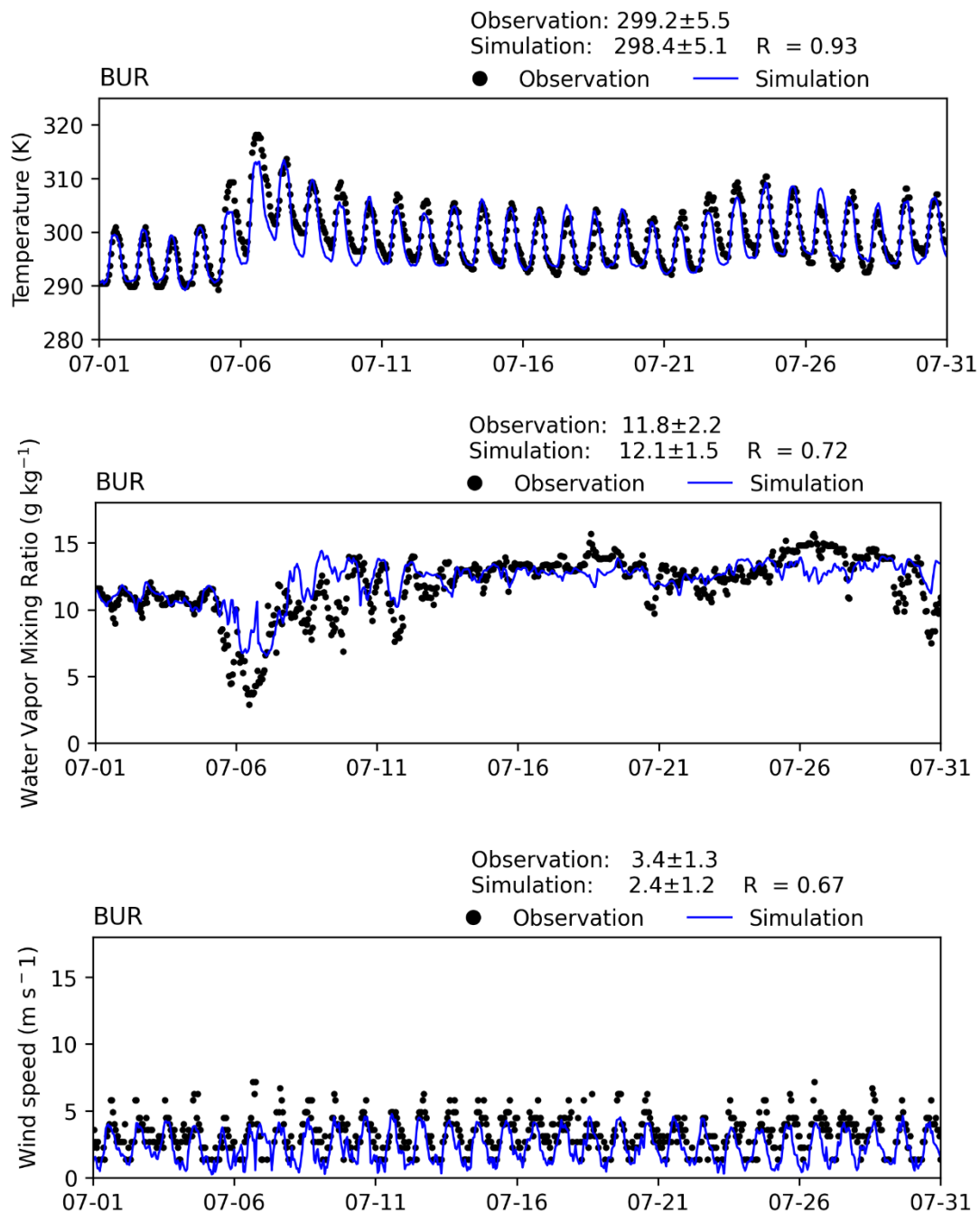


FIGURE V-A2
TIME SERIES OF HOURLY MEASUREMENTS AND WRF SIMULATIONS AT BURBANK AIRPORT (BUR) FOR JULY 2018

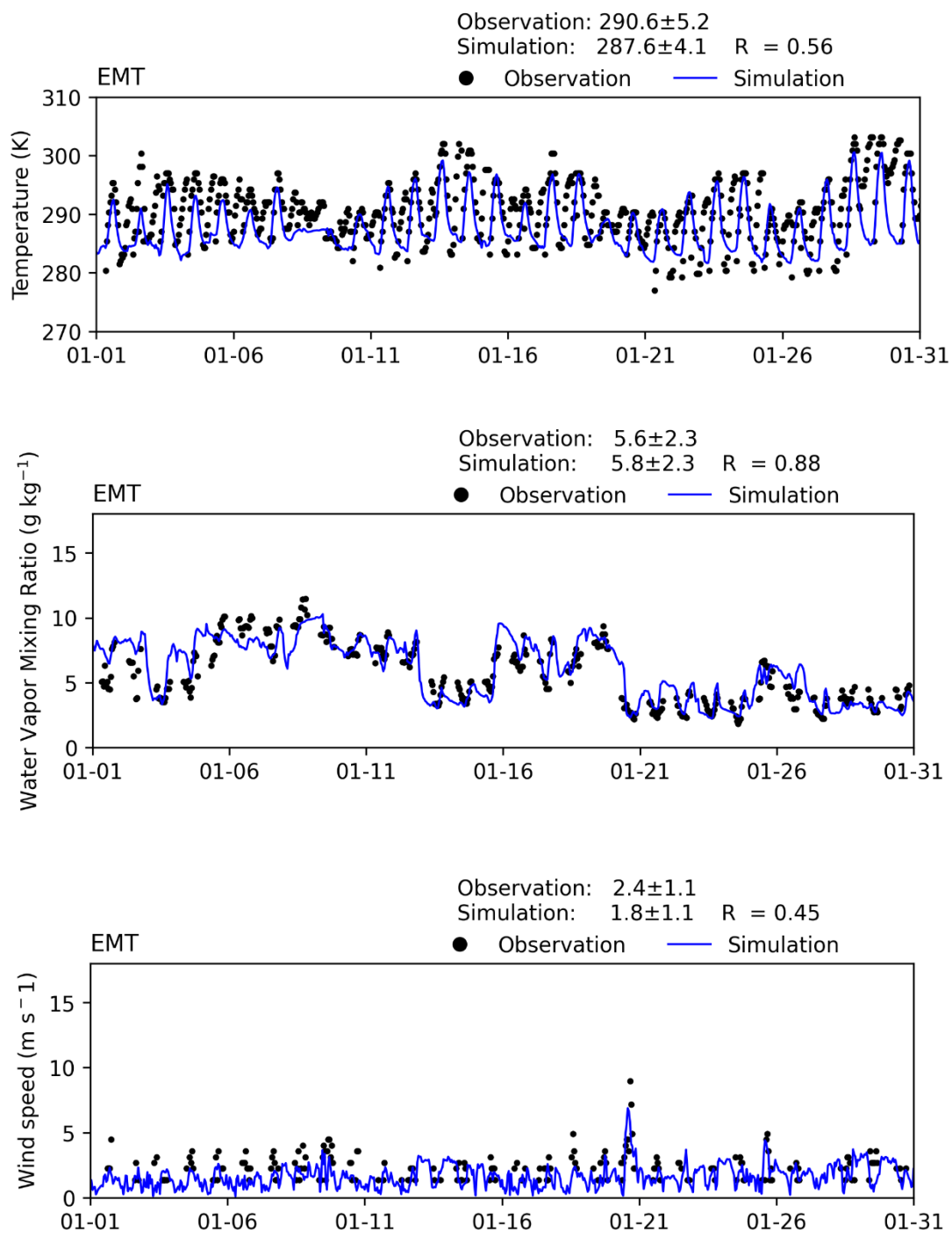


FIGURE V-A3
TIME SERIES OF HOURLY MEASUREMENTS AND WRF SIMULATIONS AT EI MONTE (EMT) FOR JANUARY 2018

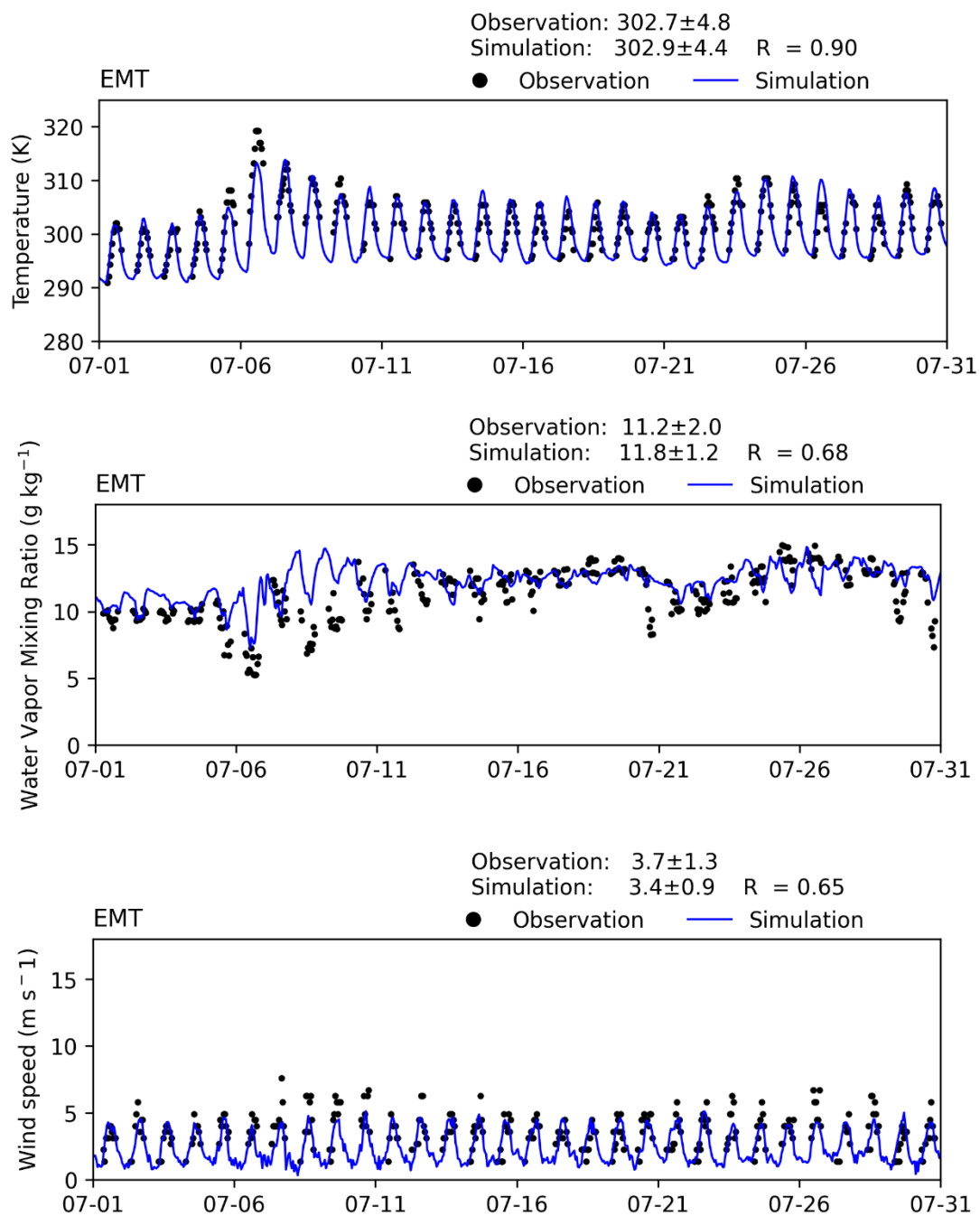


FIGURE V-A4
TIME SERIES OF HOURLY MEASUREMENTS AND WRF SIMULATIONS AT EI MONTE (EMT) FOR JULY 2018

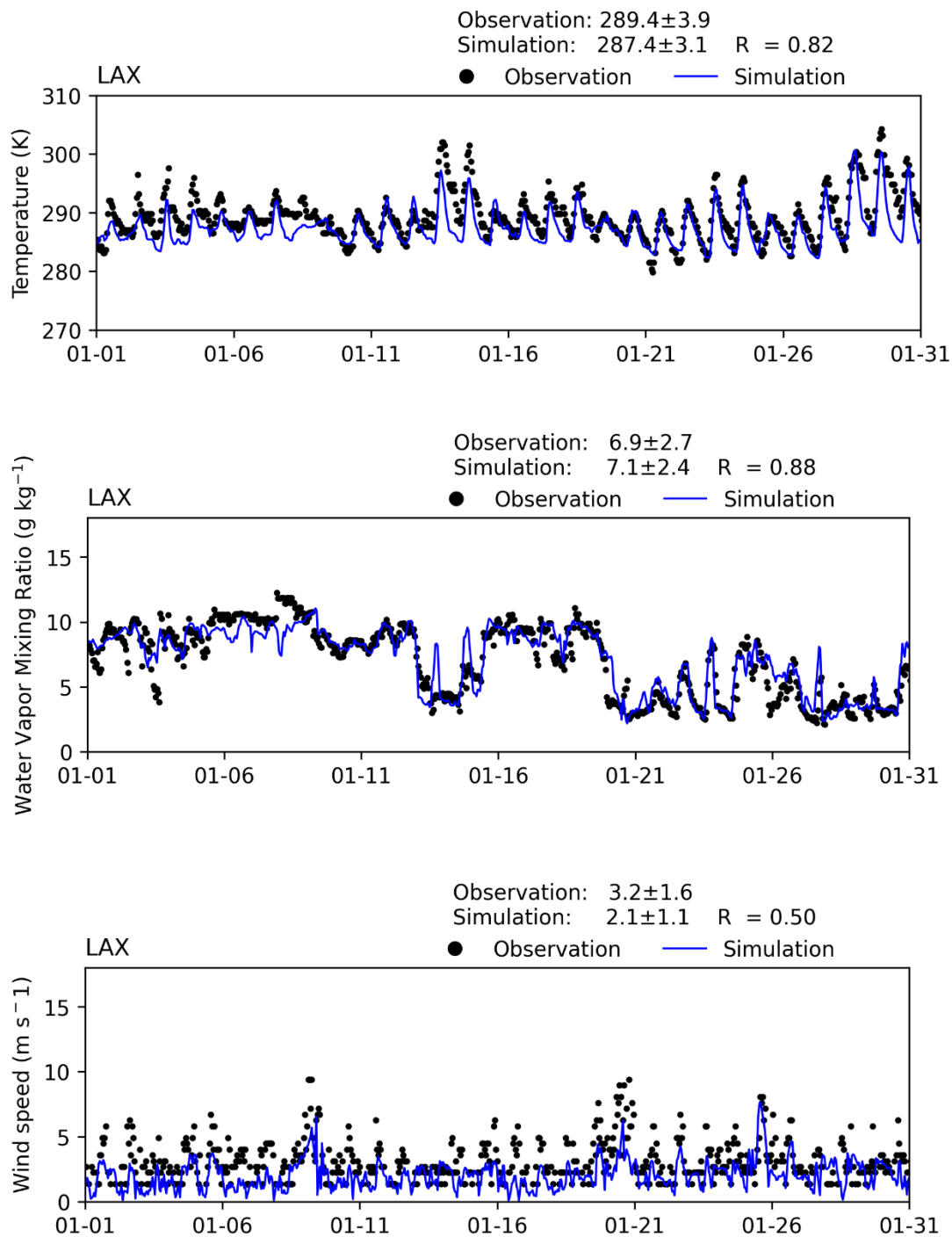


FIGURE V-A5
TIME SERIES OF HOURLY MEASUREMENTS AND WRF SIMULATIONS AT LOS ANGELES AIRPORT (LAX)
FOR JANUARY 2018

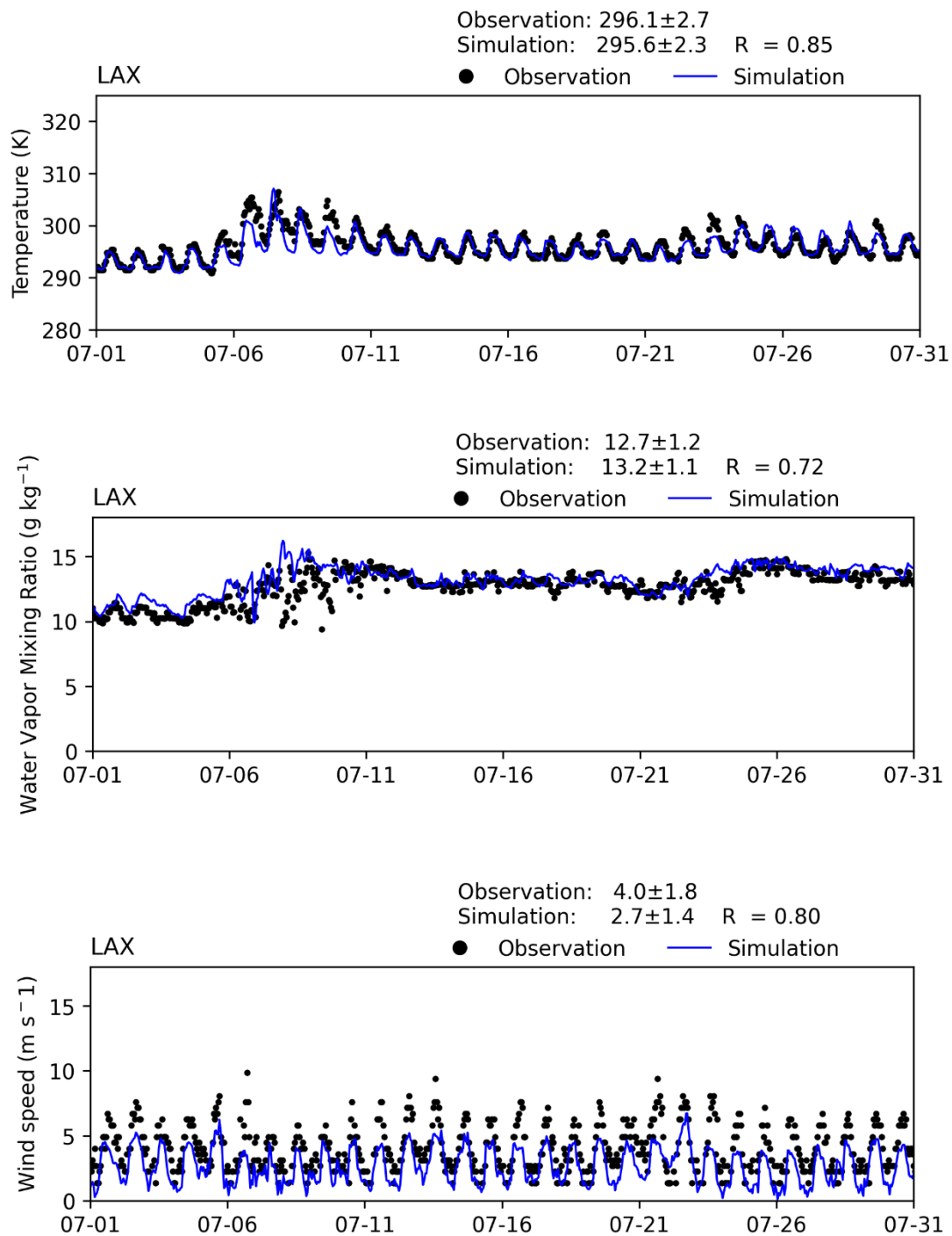


FIGURE V-A6
TIME SERIES OF HOURLY MEASUREMENTS AND WRF SIMULATIONS AT LOS ANGELES AIRPORT (LAX)
FOR JULY 2018

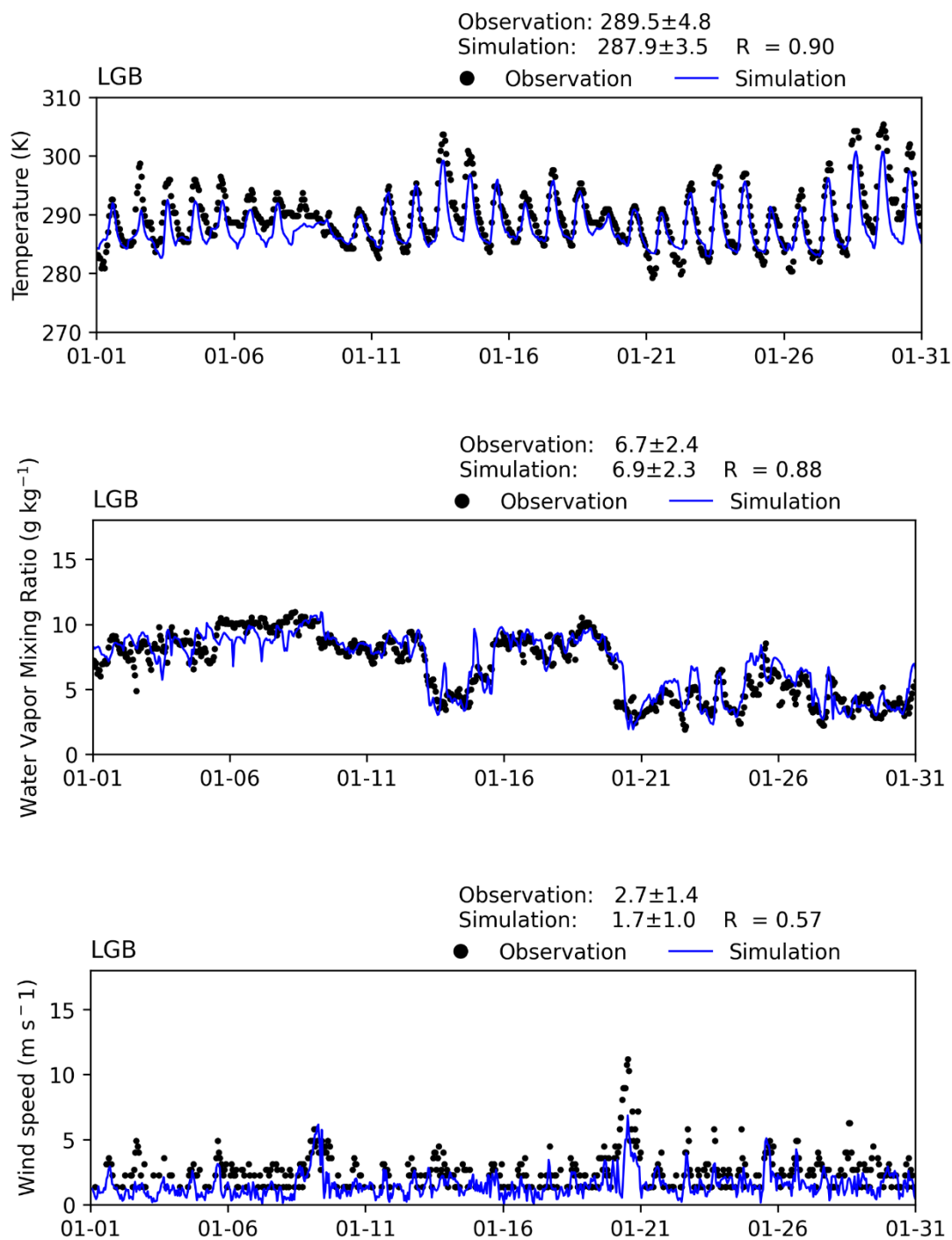


FIGURE V-A7
TIME SERIES OF HOURLY MEASUREMENTS AND WRF SIMULATIONS AT LONG BEACH AIRPORT (LGB)
FOR JANUARY 2018

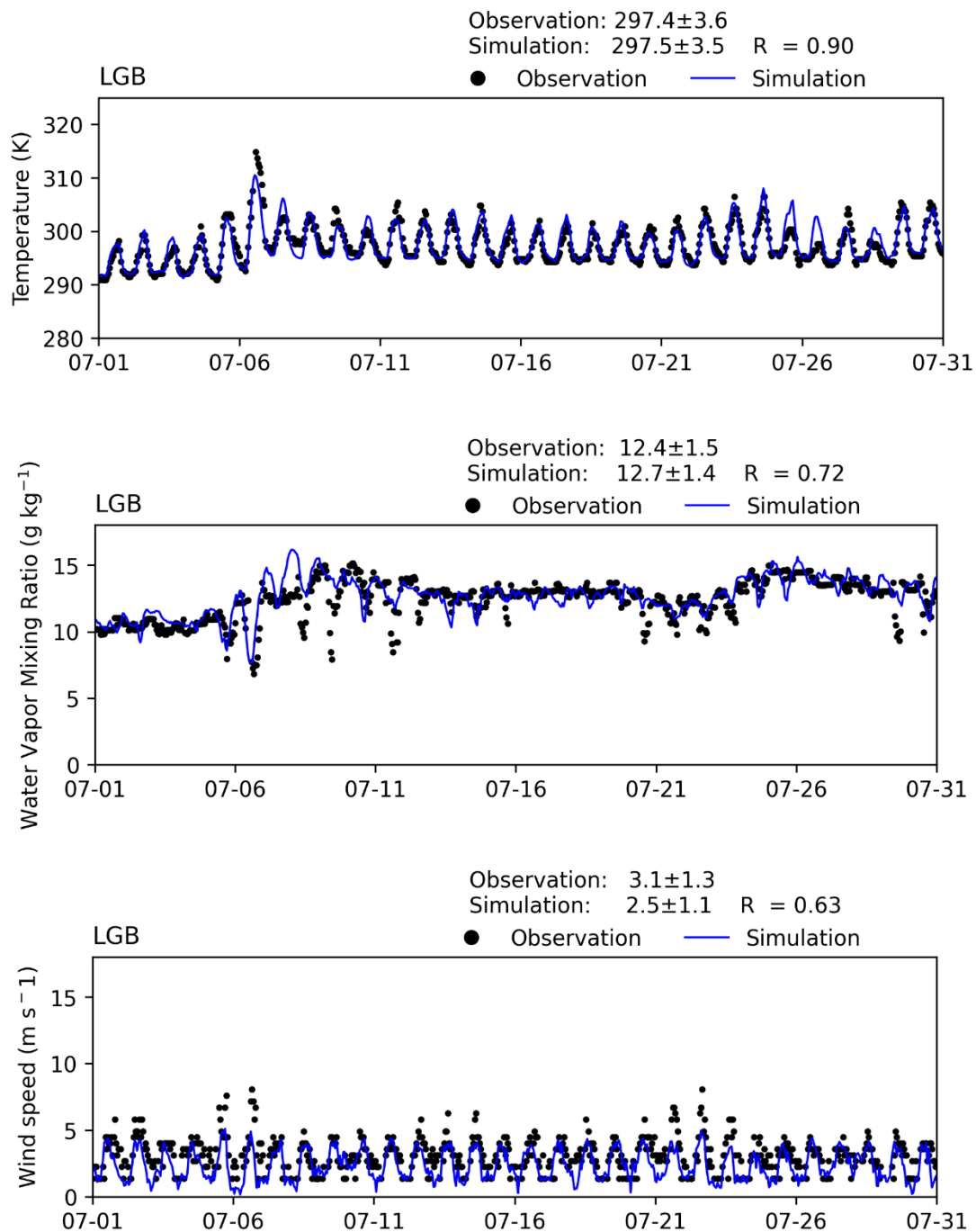


FIGURE V-A8
TIME SERIES OF HOURLY MEASUREMENTS AND WRF SIMULATIONS AT LONG BEACH AIRPORT (LGB)
FOR JULY 2018

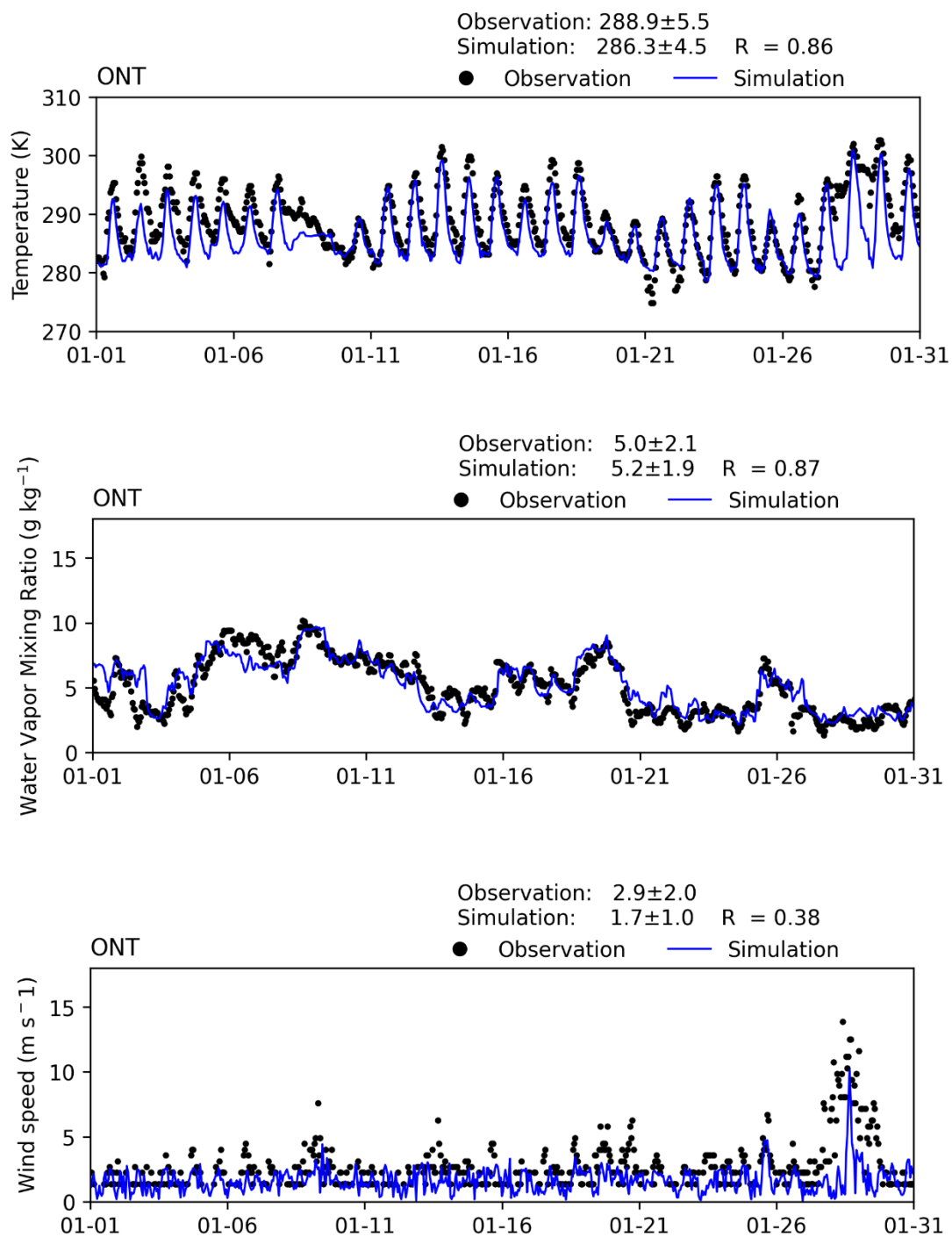


FIGURE V-A9
TIME SERIES OF HOURLY MEASUREMENTS AND WRF SIMULATIONS AT ONTARIO INTERNATIONAL AIRPORT (ONT) FOR JANUARY 2018

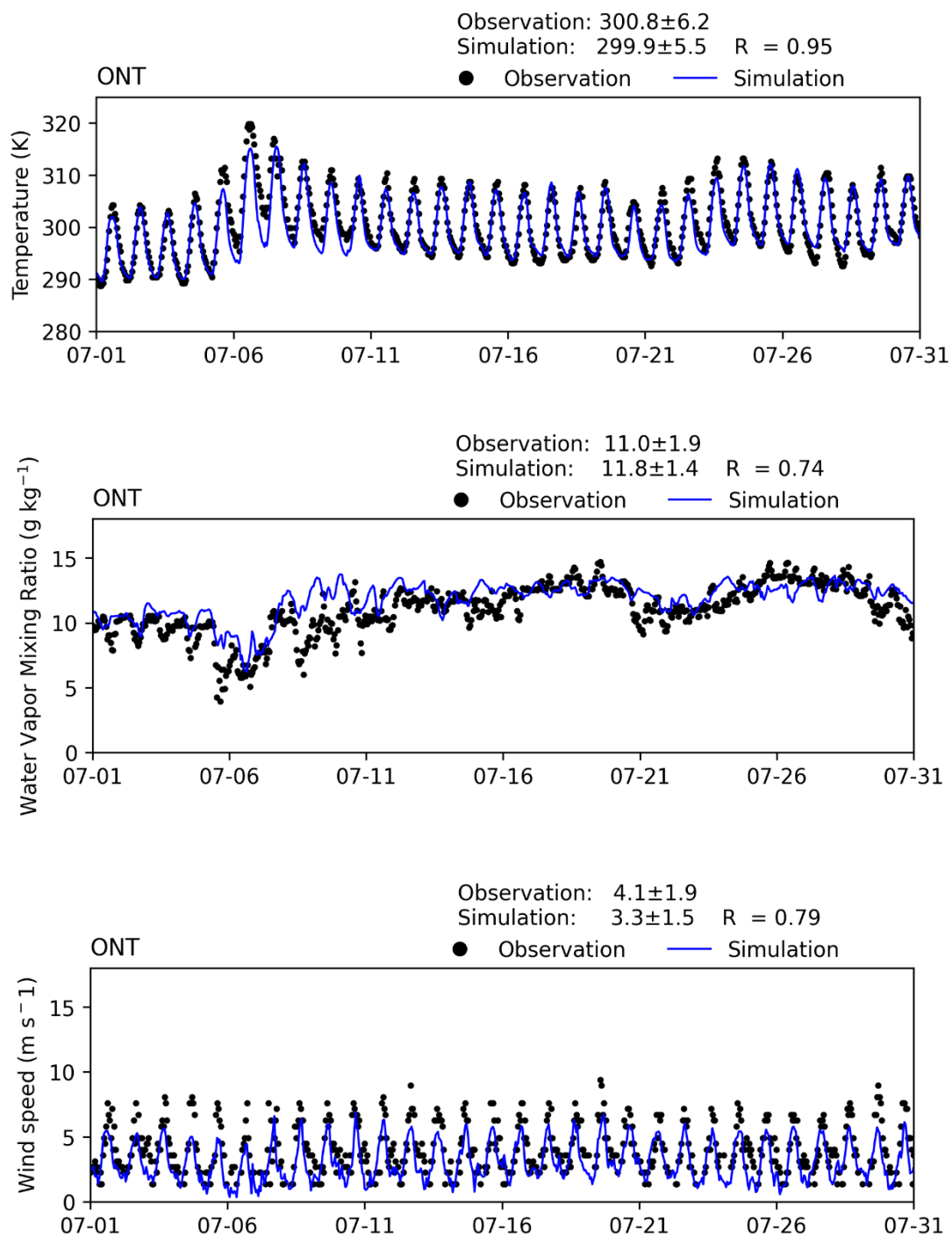


FIGURE V-A10
TIME SERIES OF HOURLY MEASUREMENTS AND WRF SIMULATIONS AT ONTARIO INTERNATIONAL AIRPORT (ONT) FOR JULY 2018

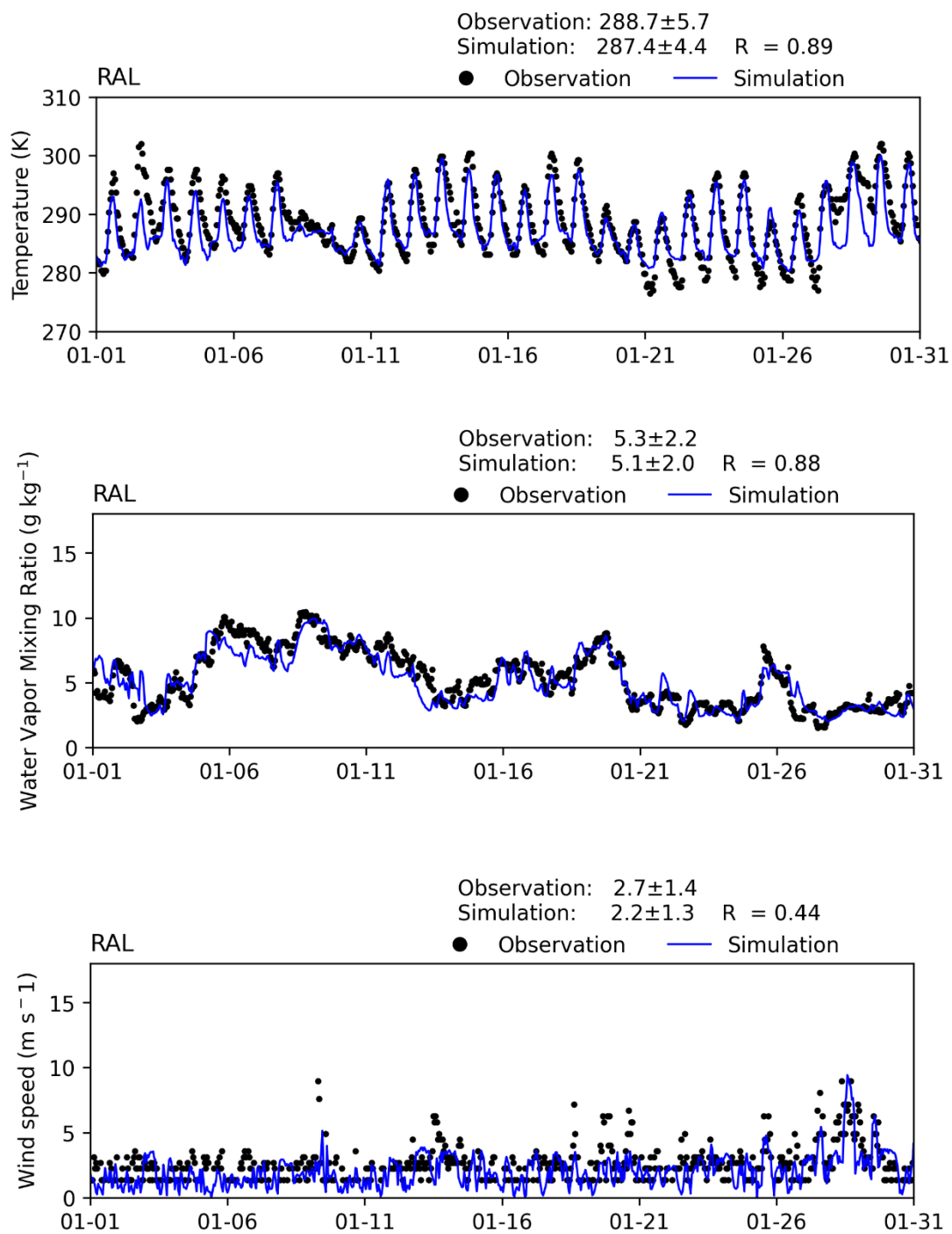


FIGURE V-A11
TIME SERIES OF HOURLY MEASUREMENTS AND WRF SIMULATIONS AT RIVERSIDE MUNICIPAL
AIRPORT (RAL) FOR JANUARY 2018

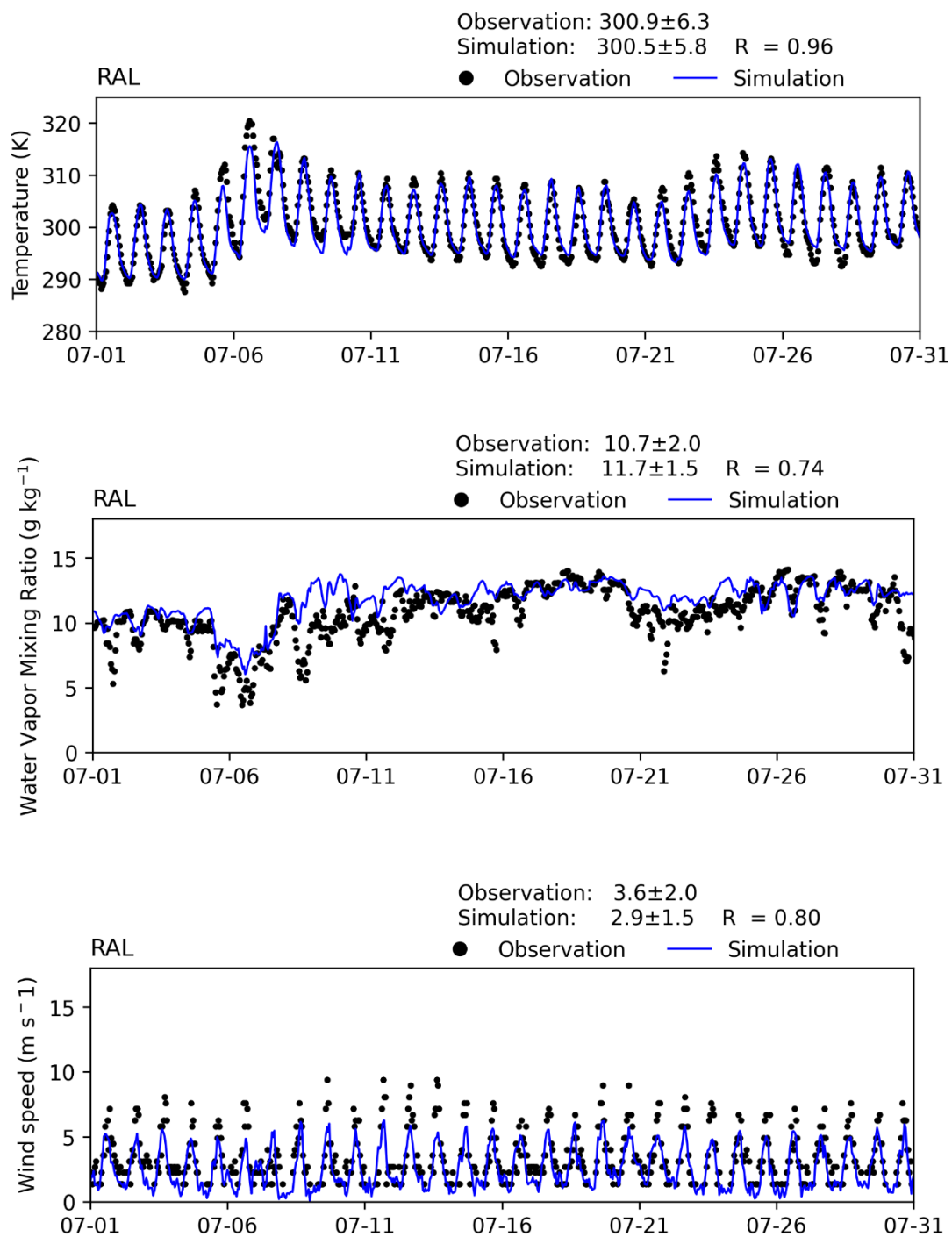


FIGURE V-A12
TIME SERIES OF HOURLY MEASUREMENTS AND WRF SIMULATIONS AT RIVERSIDE MUNICIPAL AIRPORT (RAL) FOR JULY 2018

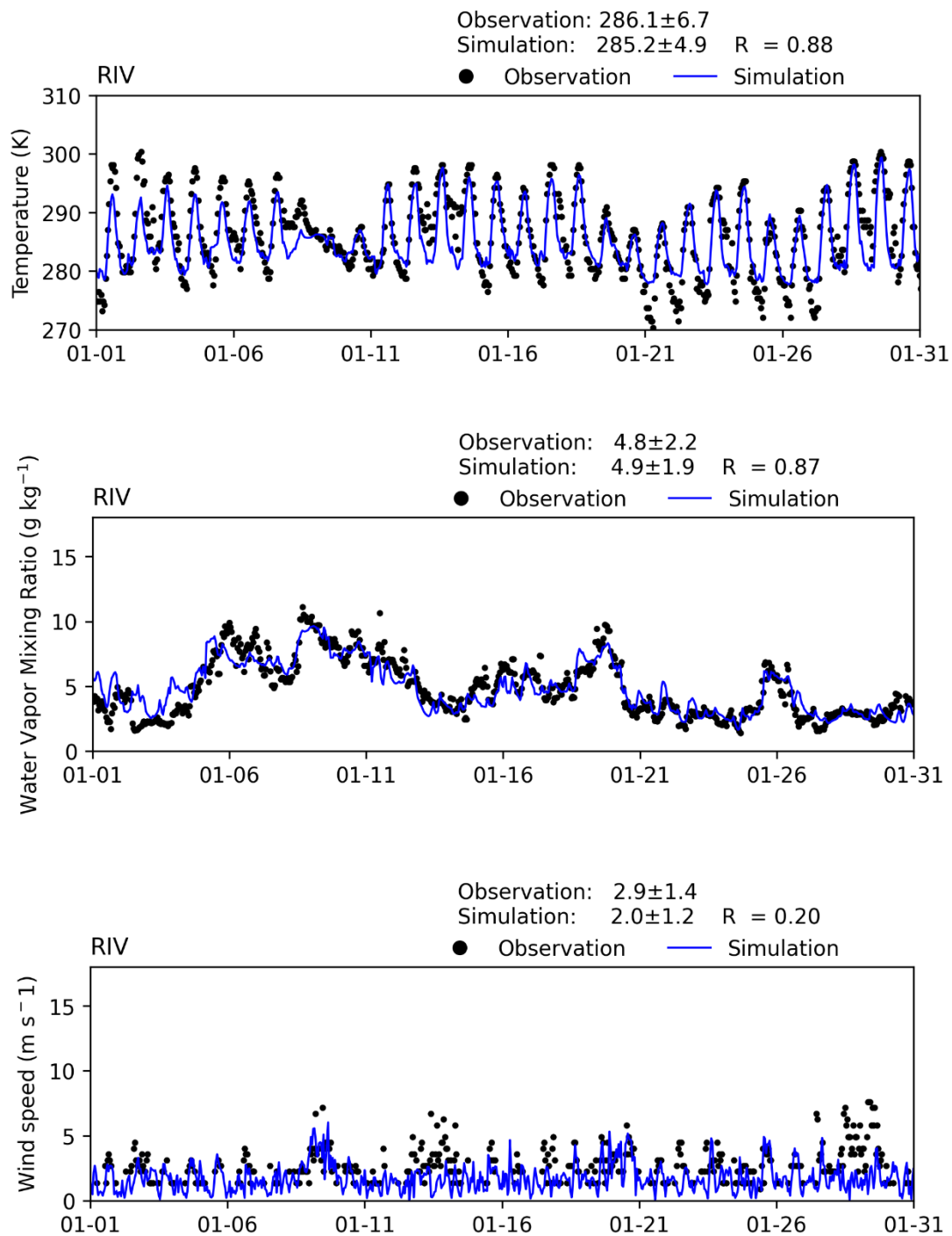


FIGURE V-A13
TIME SERIES OF HOURLY MEASUREMENTS AND WRF SIMULATIONS AT MARCH AIR RESERVE AIRPORT
(RIV) FOR JANUARY 2018

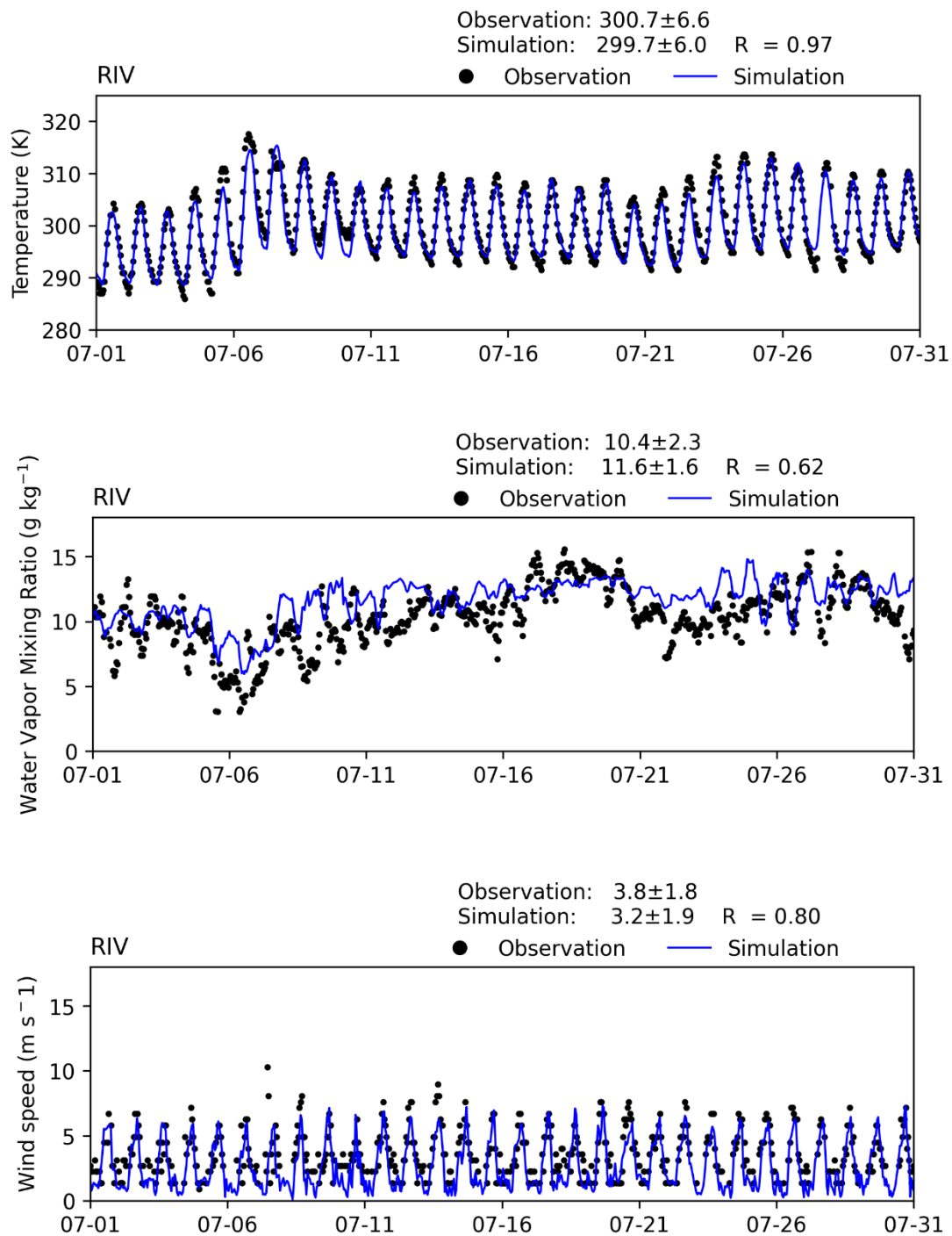


FIGURE V-A14
TIME SERIES OF HOURLY MEASUREMENTS AND WRF SIMULATIONS AT MARCH AIR RESERVE AIRPORT (RIV) FOR JULY 2018

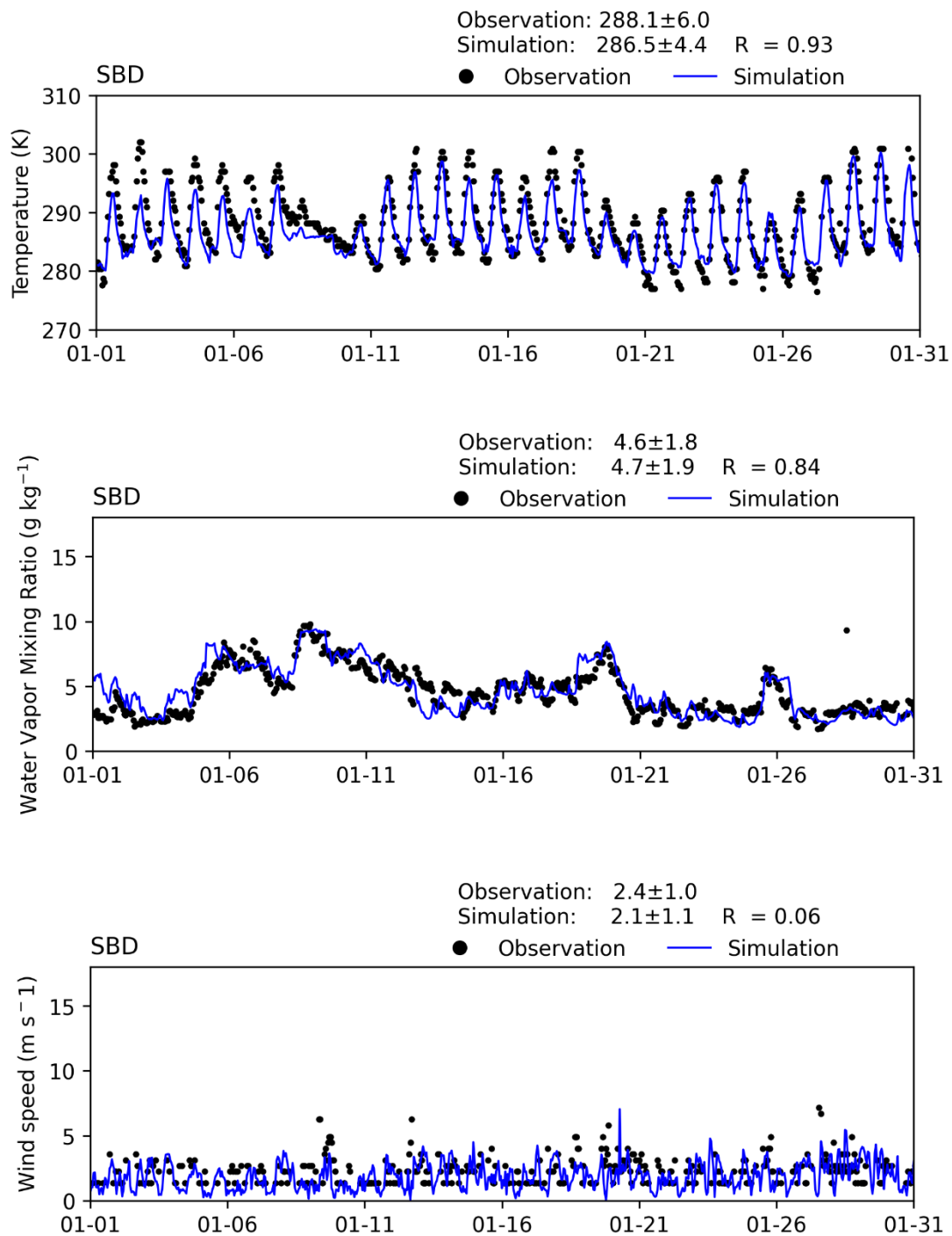


FIGURE V-A15
TIME SERIES OF HOURLY MEASUREMENTS AND WRF SIMULATIONS AT SAN BERNARDINO
INTERNATIONAL AIRPORT (SBD) FOR JANUARY 2018

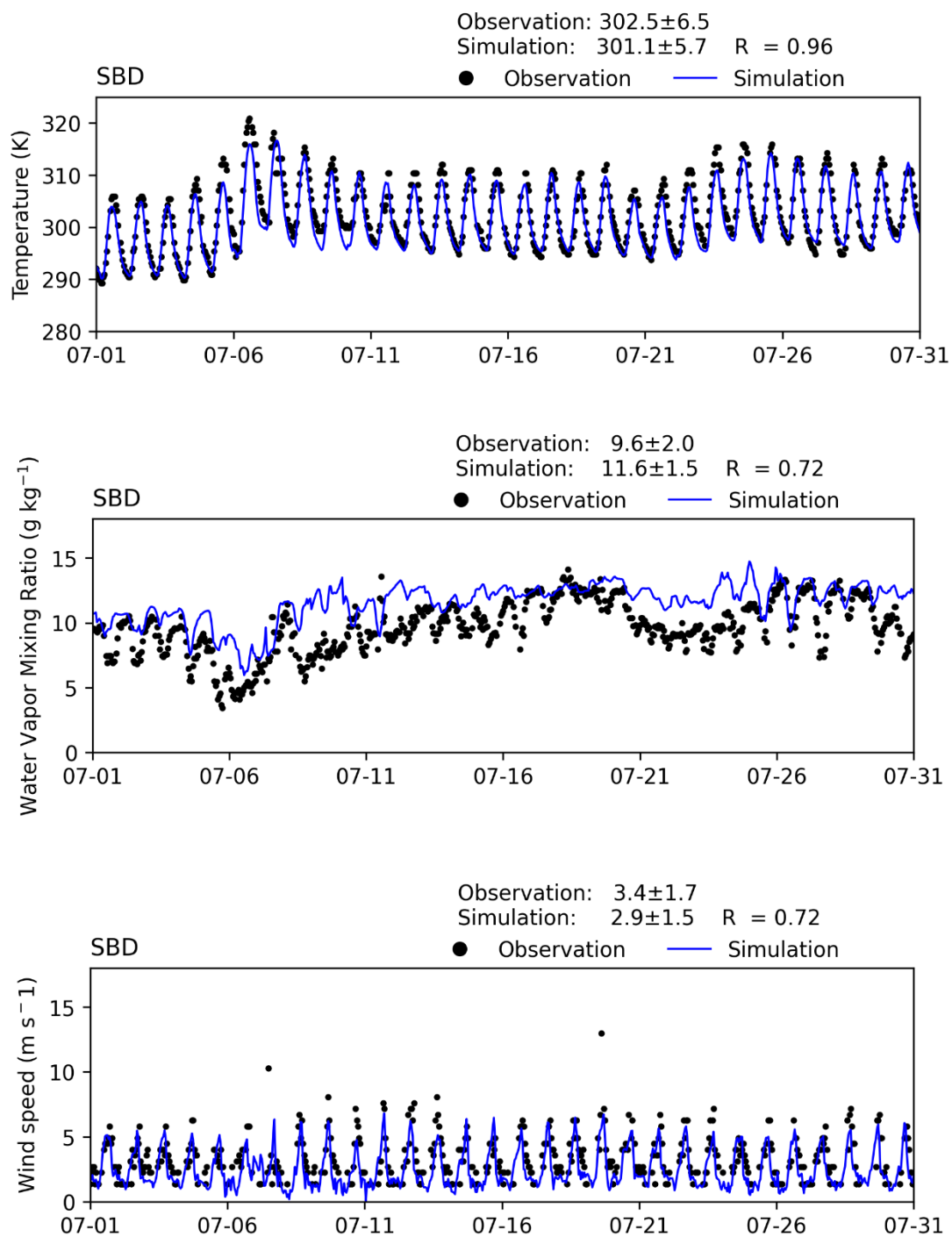


FIGURE V-A16
TIME SERIES OF HOURLY MEASUREMENTS AND WRF SIMULATIONS AT SAN BERNARDINO
INTERNATIONAL AIRPORT (SBD) FOR JULY 2018

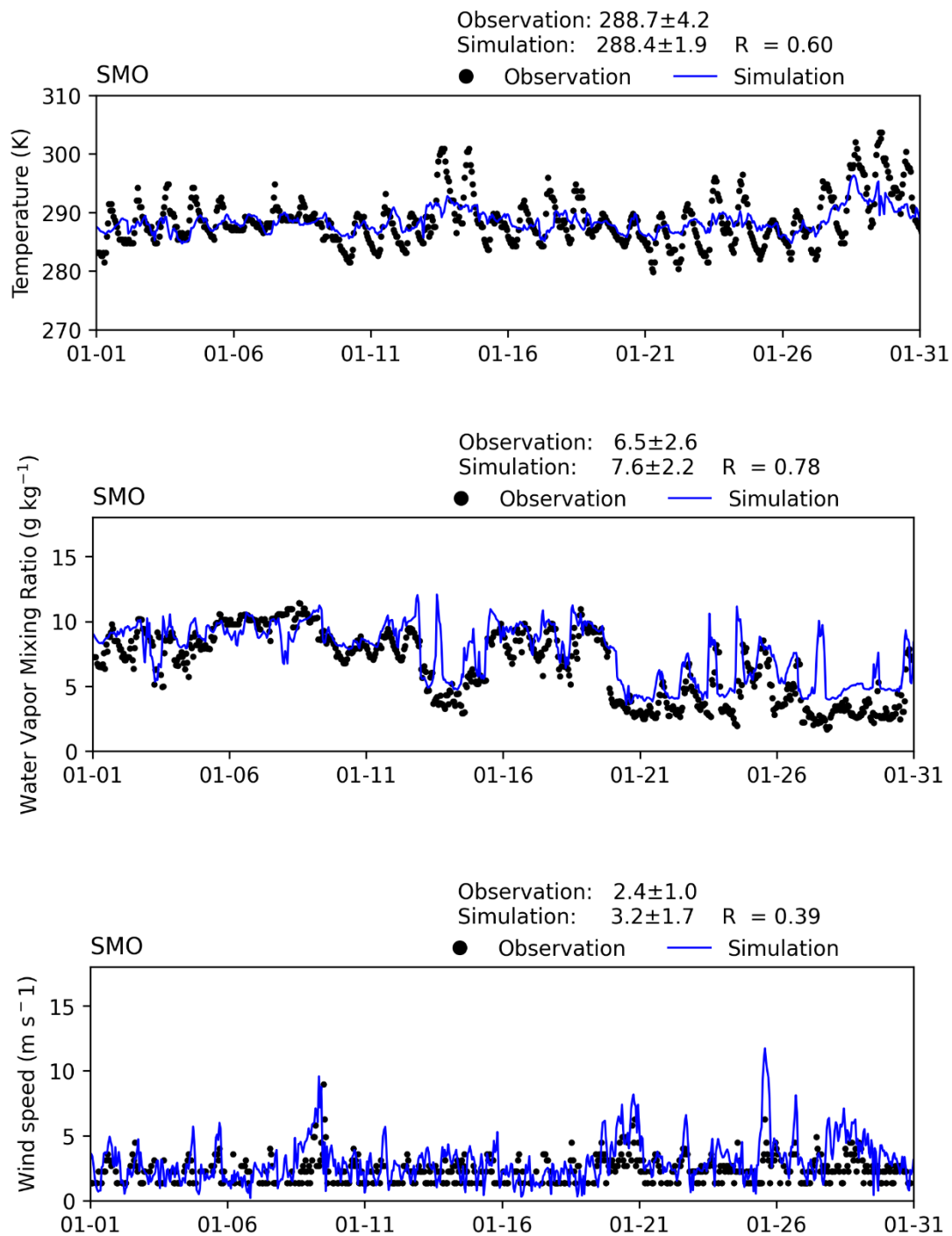


FIGURE V-A17
TIME SERIES OF HOURLY MEASUREMENTS AND WRF SIMULATIONS AT SANTA MONICA AIRPORT (SMO) FOR JANUARY 2018

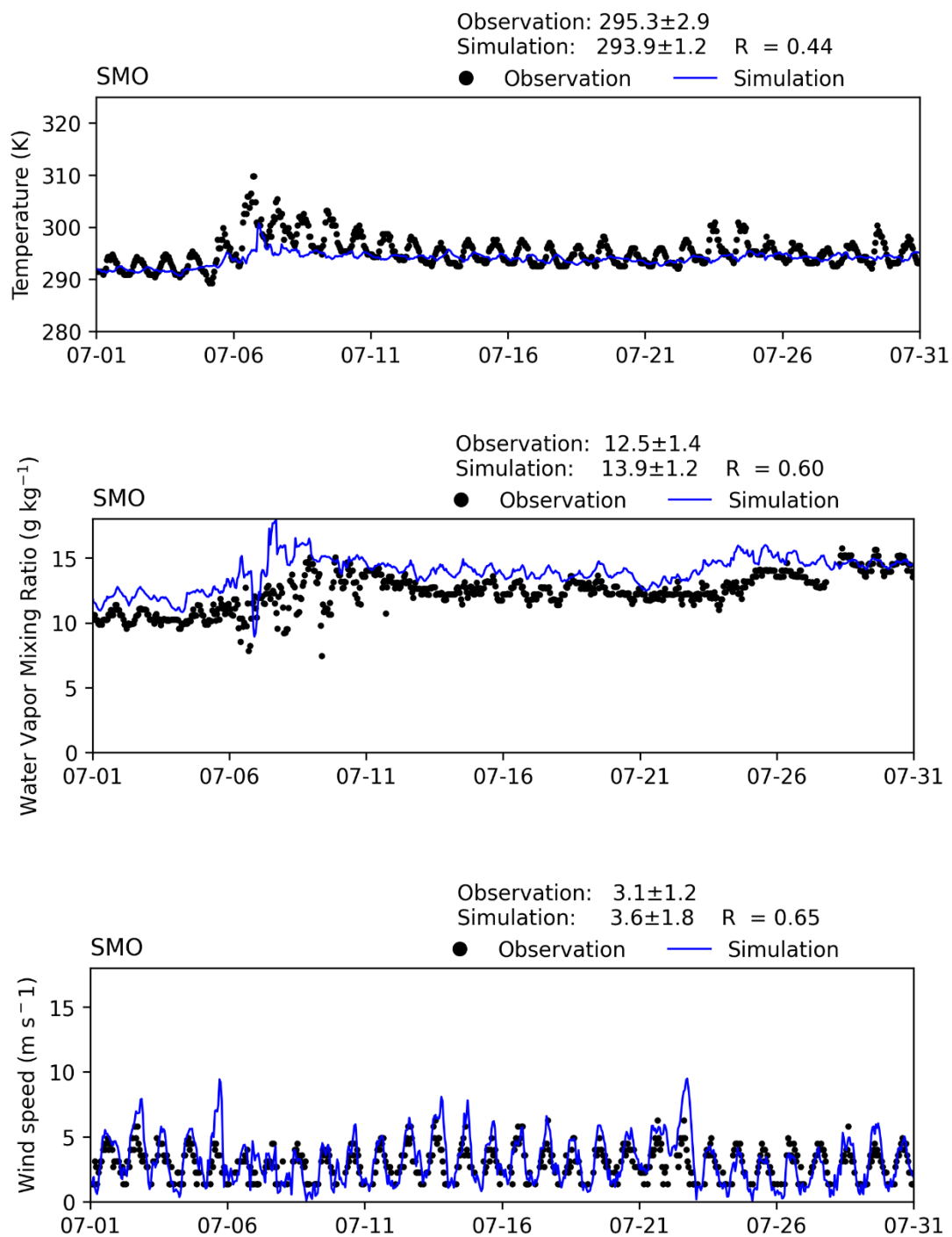


FIGURE V-A18
TIME SERIES OF HOURLY MEASUREMENTS AND WRF SIMULATIONS AT SANTA MONICA AIRPORT (SMO) FOR JULY 2018

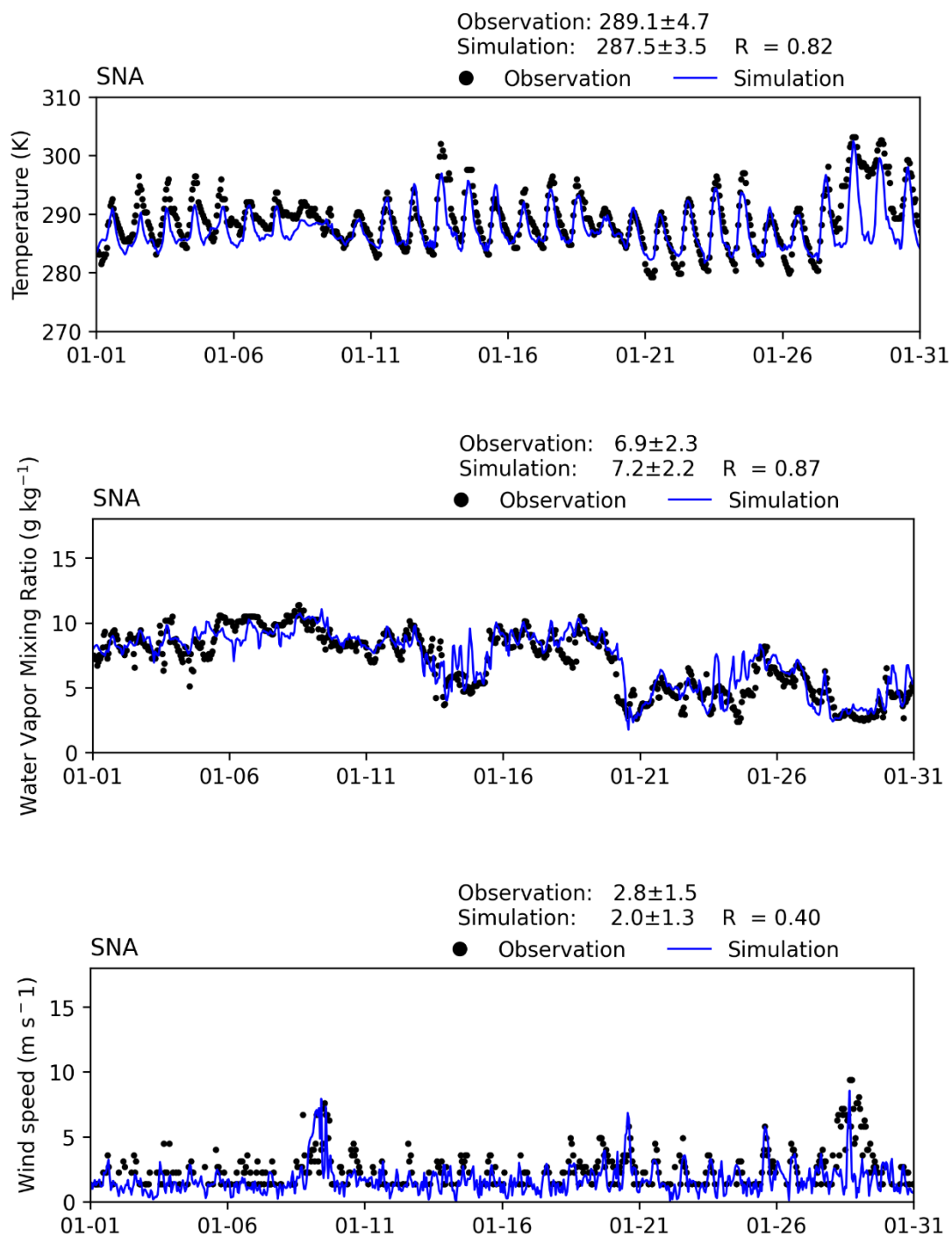


FIGURE V-A19
TIME SERIES OF HOURLY MEASUREMENTS AND WRF SIMULATIONS AT SANTA ANA JOHN WAYNE
AIRPORT (SNA) FOR JANUARY 2018

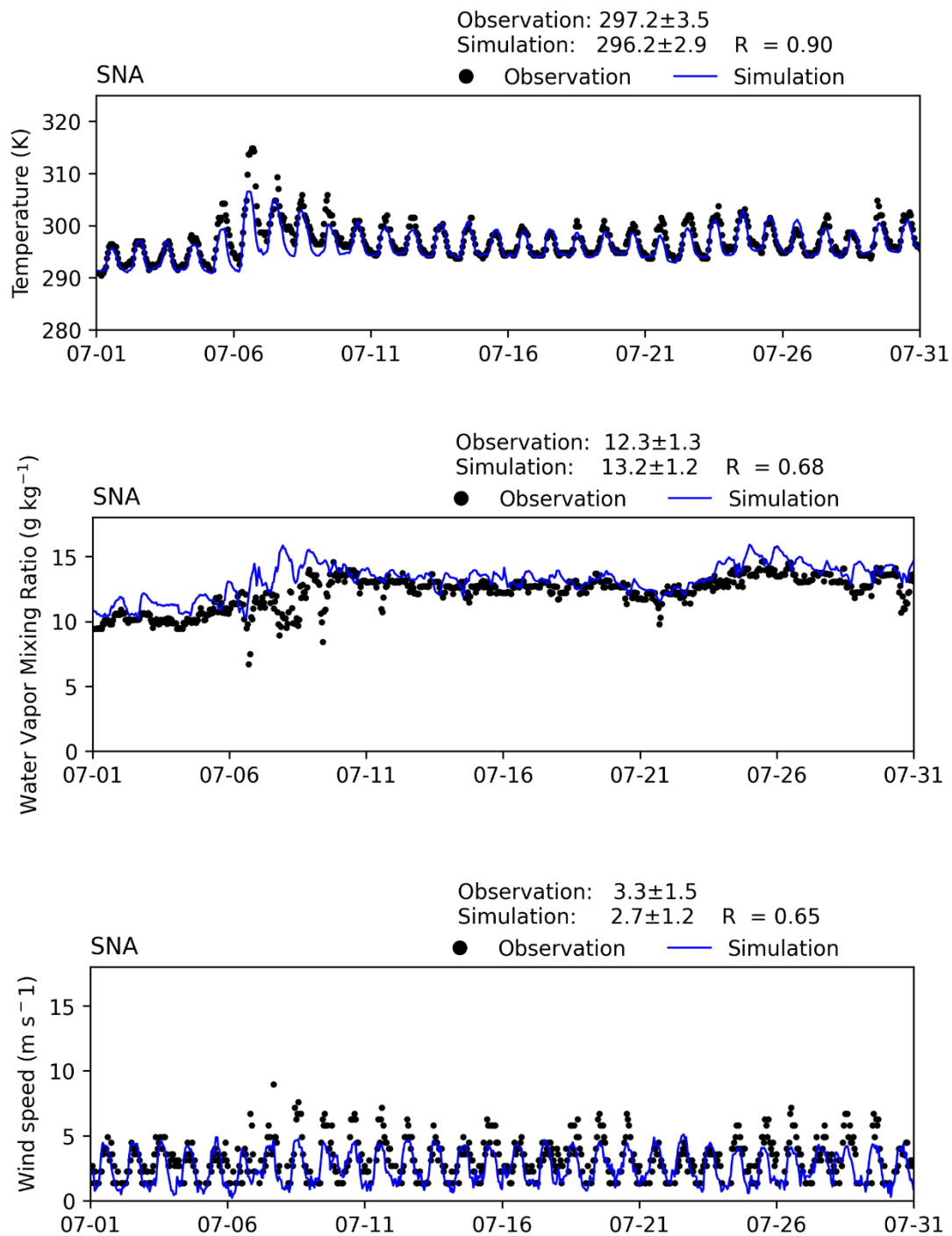


FIGURE V-A20
TIME SERIES OF HOURLY MEASUREMENTS AND WRF SIMULATIONS AT SANTA ANA JOHN WAYNE
AIRPORT (SNA) FOR JULY 2018

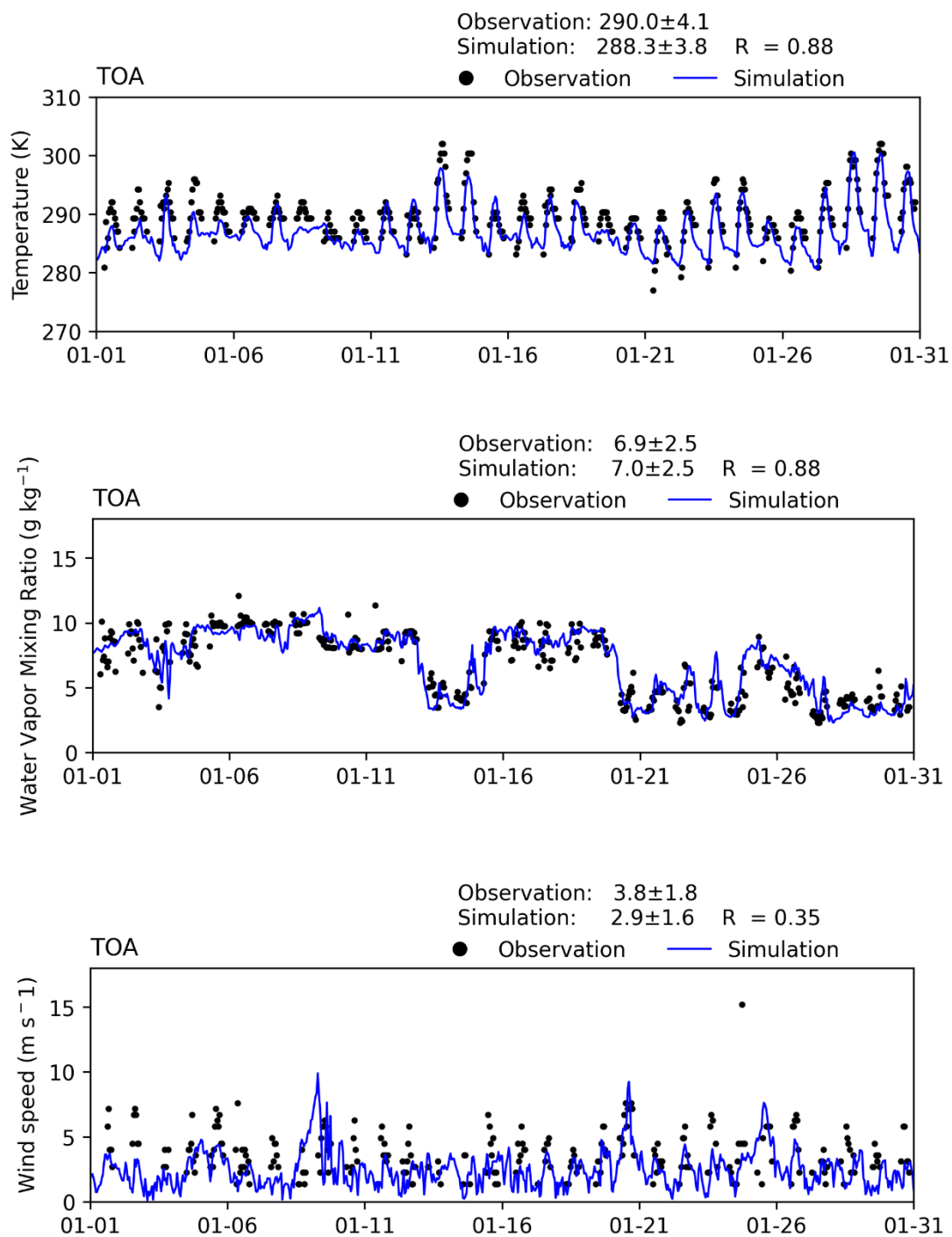


FIGURE V-A21
TIME SERIES OF HOURLY MEASUREMENTS AND WRF SIMULATIONS AT TORRANCE (TOA) FOR
JANUARY 2018

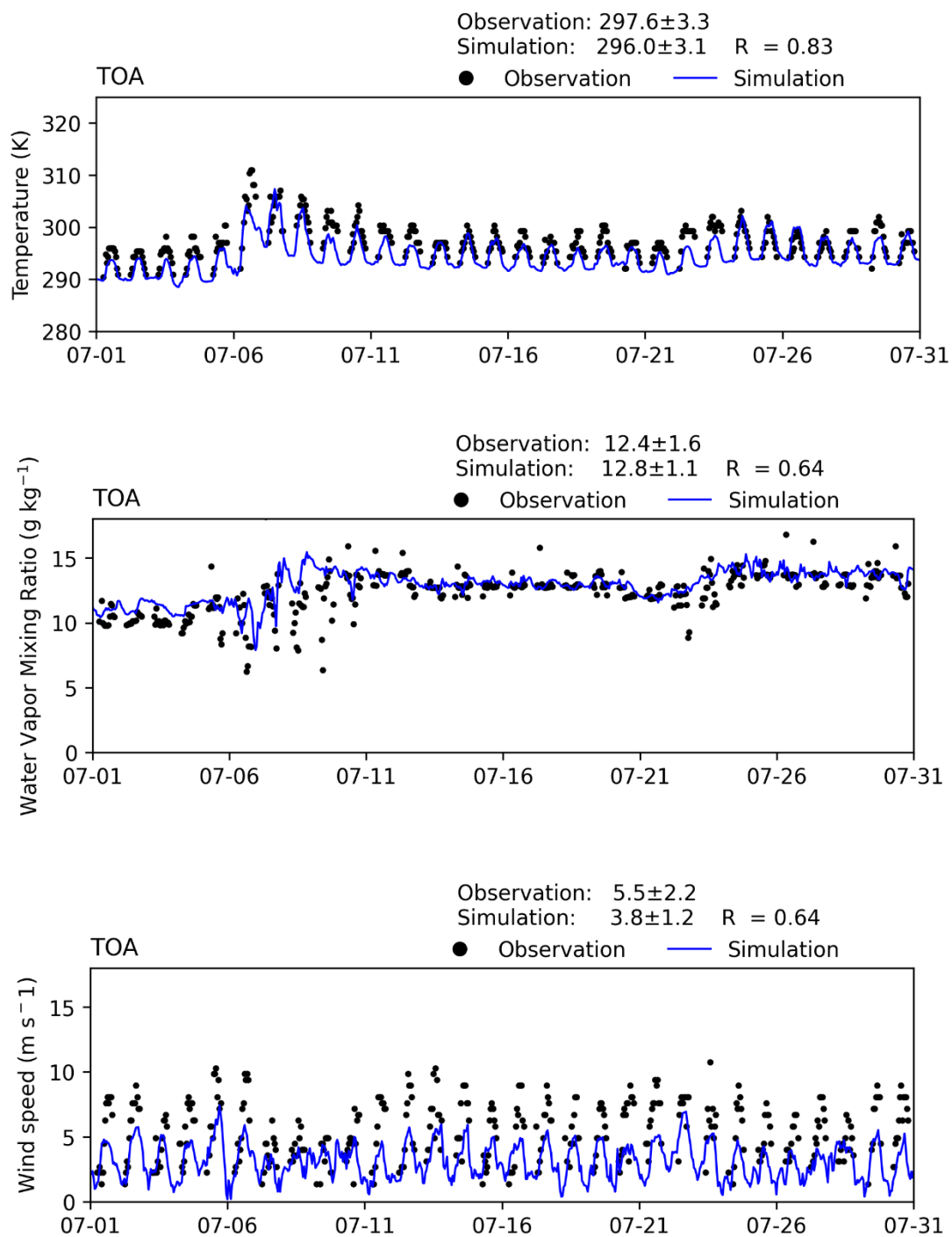


FIGURE V-A22
TIME SERIES OF HOURLY MEASUREMENTS AND WRF SIMULATIONS AT TORRANCE (TOA) FOR JULY 2018

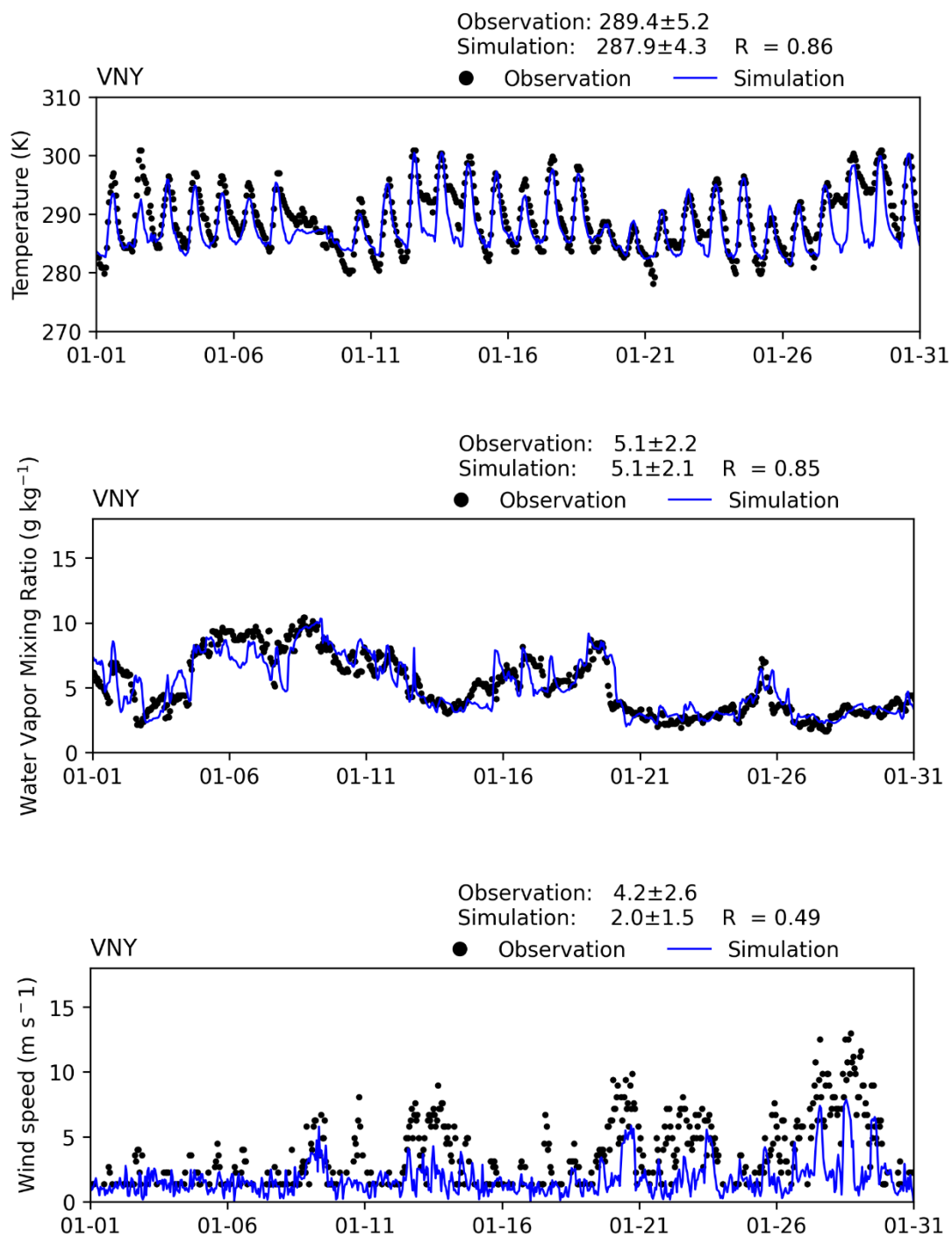


FIGURE V-A23
TIME SERIES OF HOURLY MEASUREMENTS AND WRF SIMULATIONS AT VAN NUYS AIRPORT (VNY) FOR
JANUARY 2018

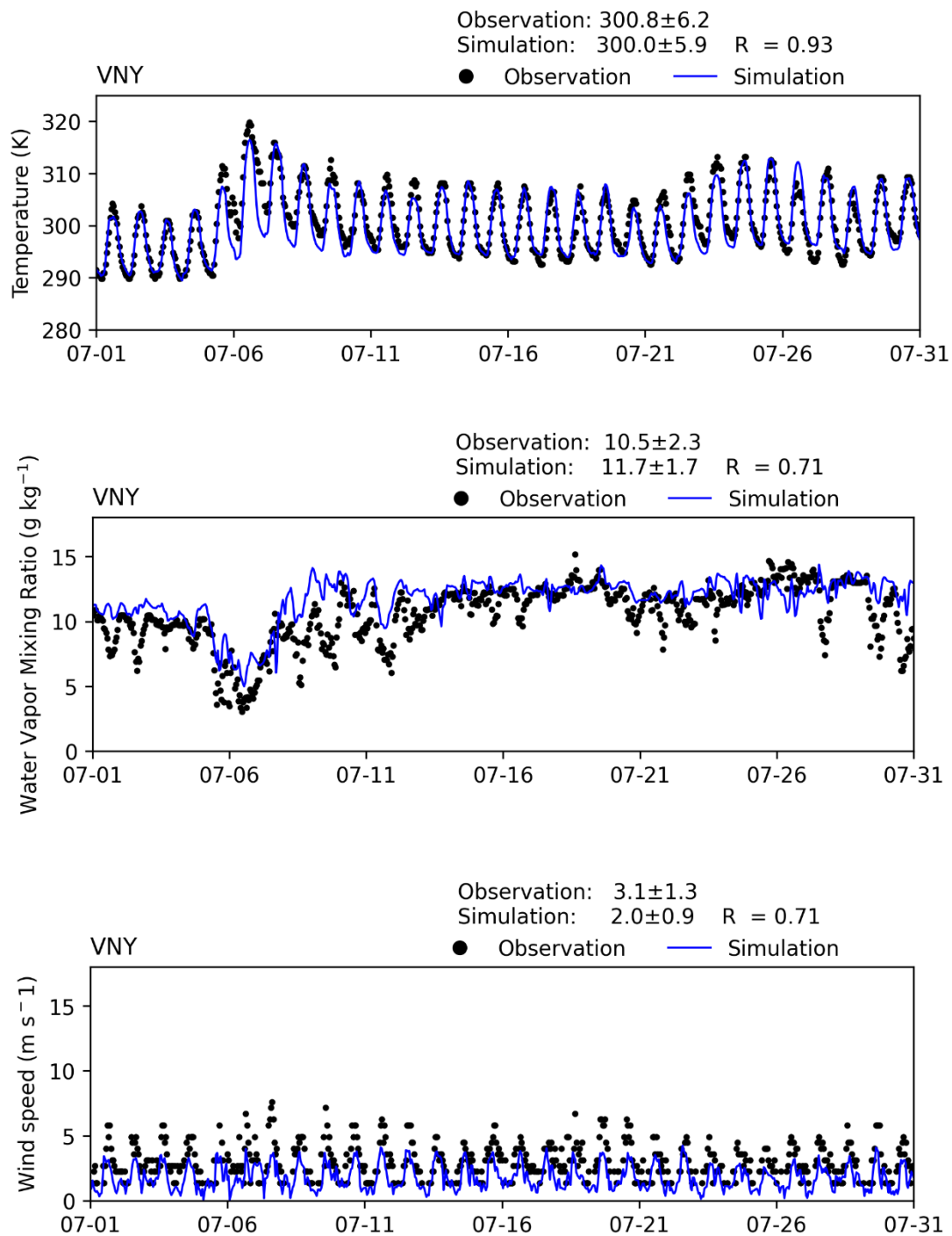


FIGURE V-A24
TIME SERIES OF HOURLY MEASUREMENTS AND WRF SIMULATIONS AT VAN NUYS AIRPORT WR(VNY)
FOR JULY 2018

Attachment 2

CMAQ MODEL PERFORMANCE TIME SERIES

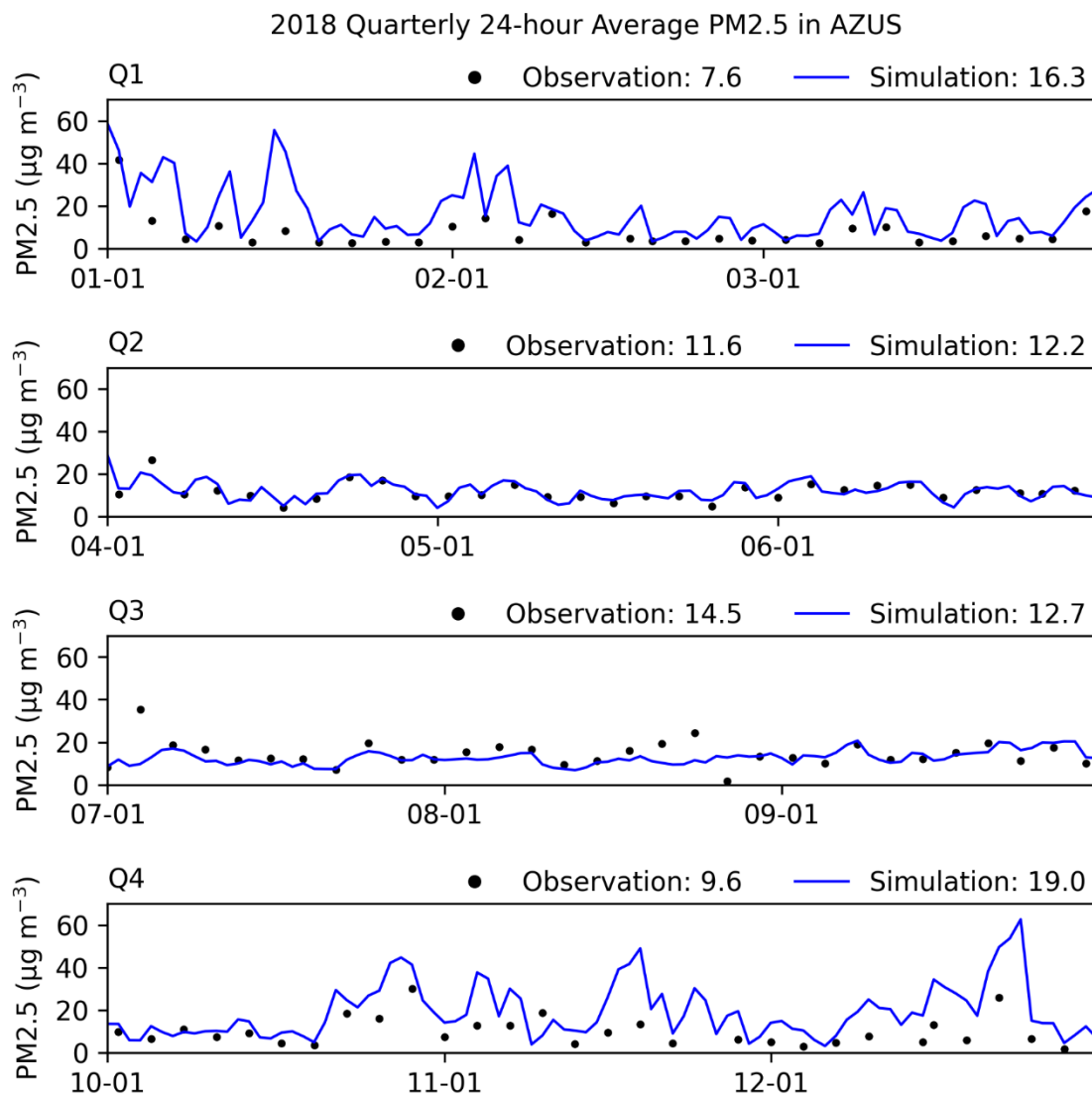


FIGURE 1

2018 Modelled and Measured 24-hour Average PM2.5 Concentrations in Azusa

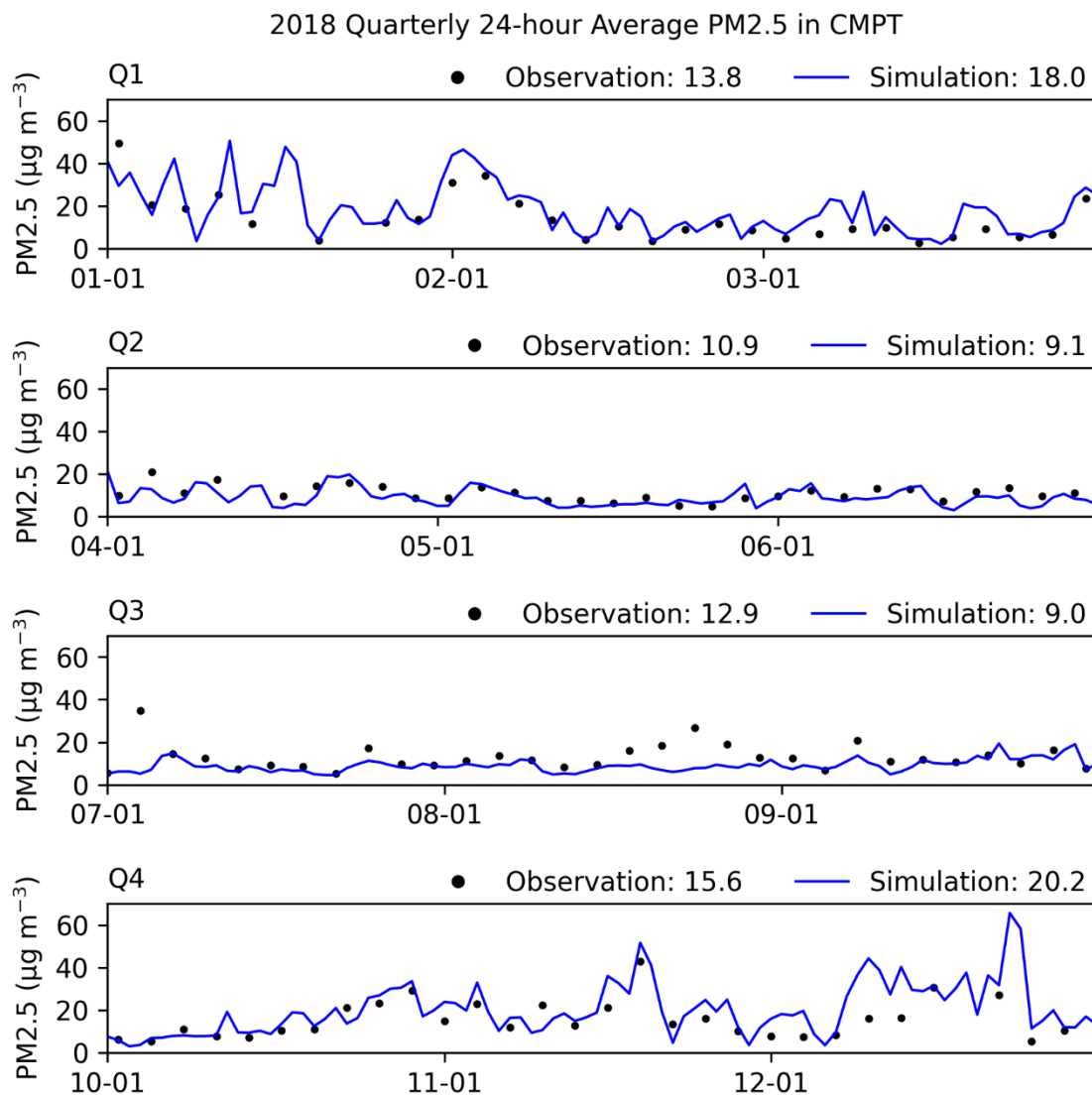


FIGURE 2

2018 Modelled and Measured 24-hour Average PM2.5 Concentrations in Compton

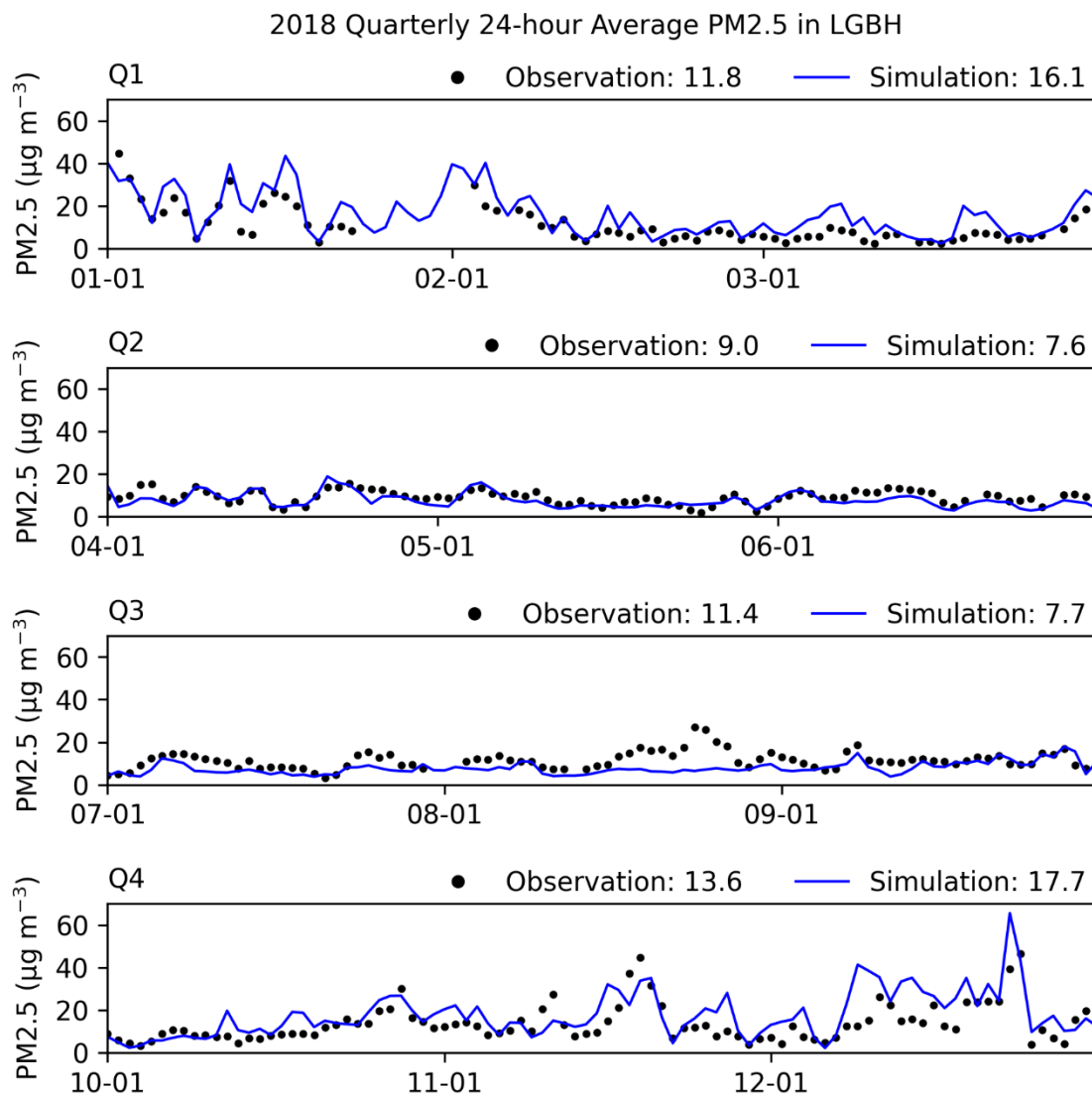


FIGURE 3

2018 Modelled and Measured 24-hour Average PM2.5 Concentrations in Long Beach

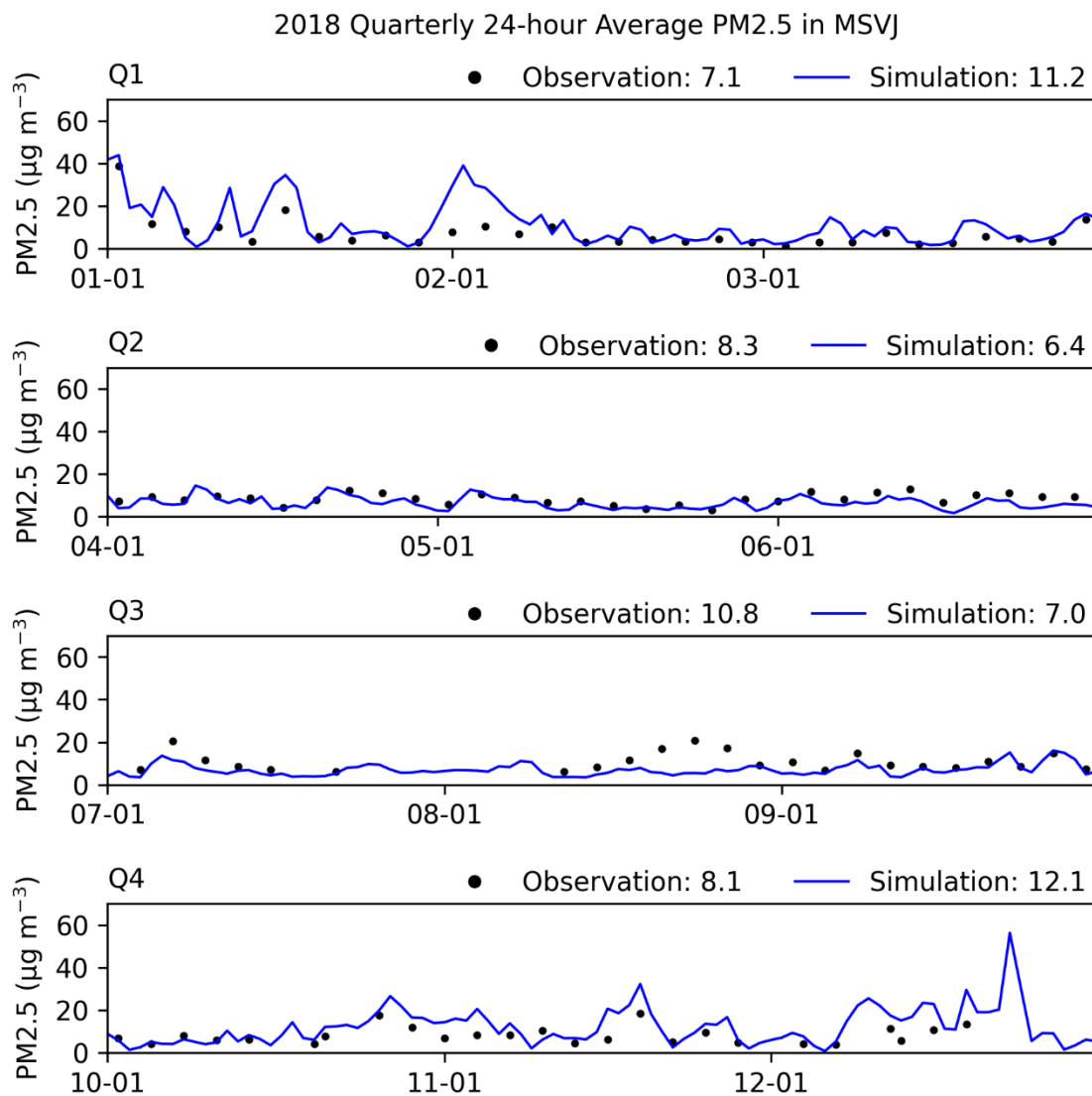


FIGURE 4

2018 Modelled and Measured 24-hour Average PM2.5 Concentrations in Mission Viejo

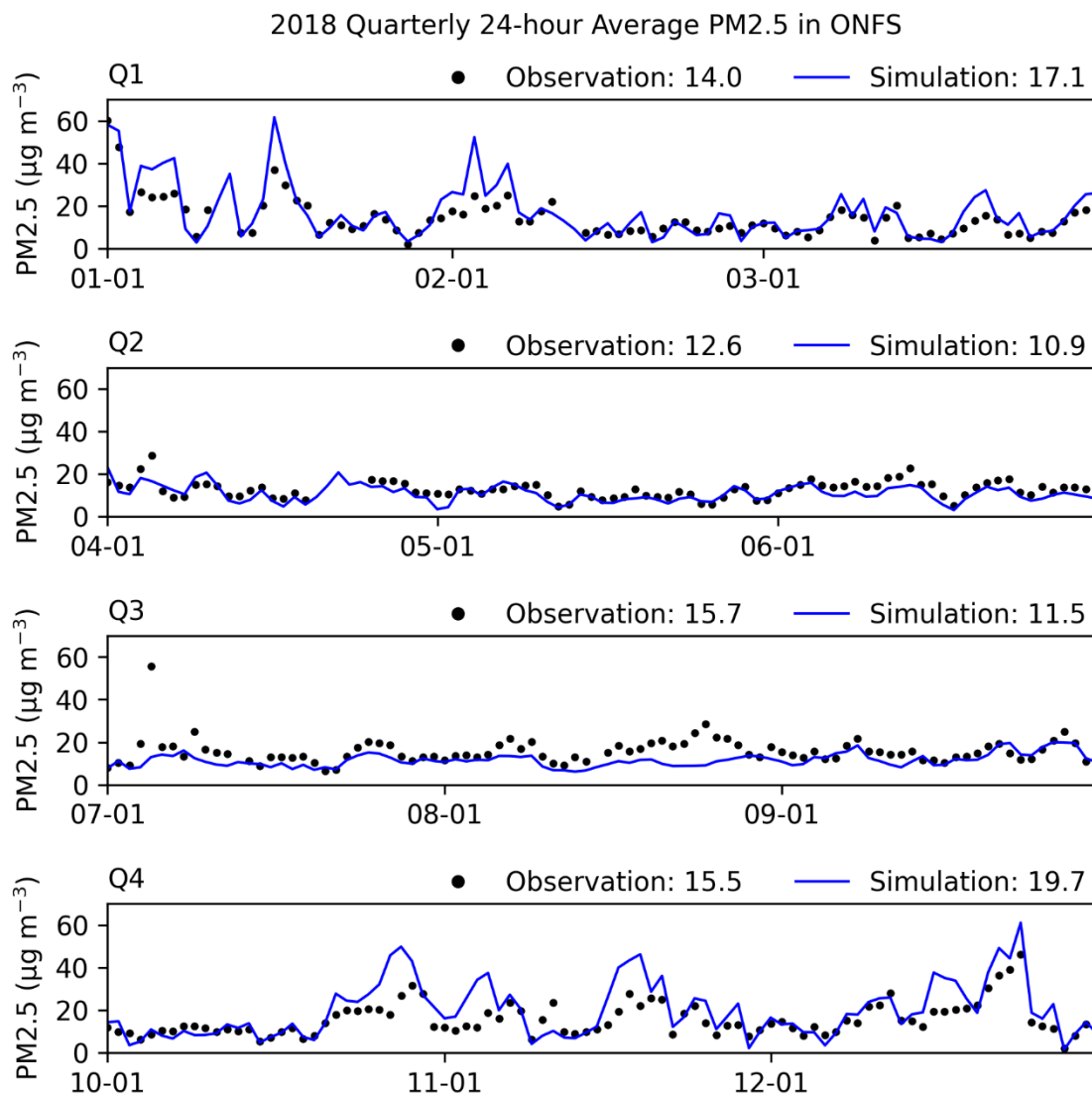


FIGURE 5

2018 Modelled and Measured 24-hour Average PM2.5 Concentrations in Ontario

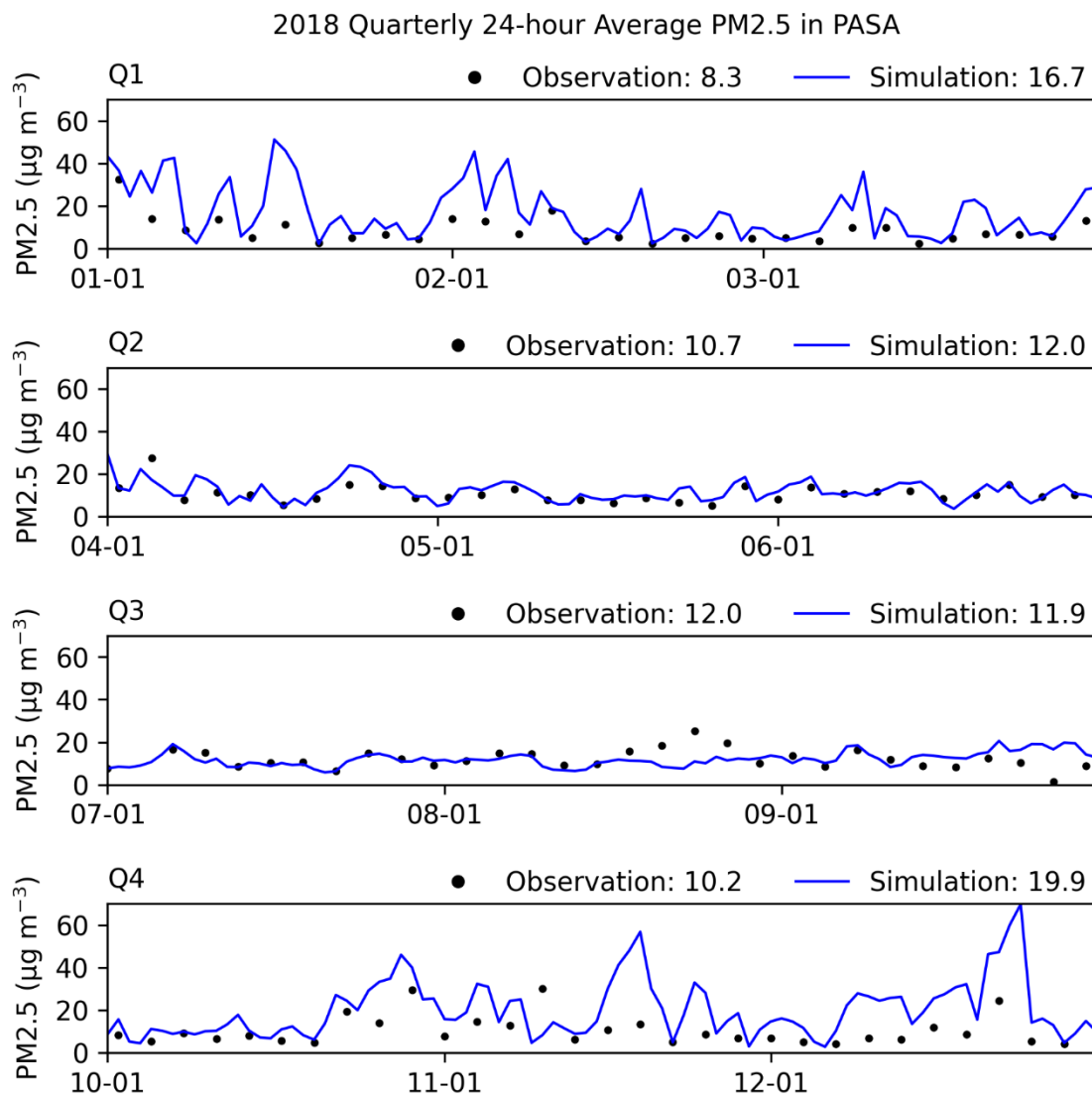


FIGURE 6

2018 Modelled and Measured 24-hour Average PM2.5 Concentrations in Pasadena

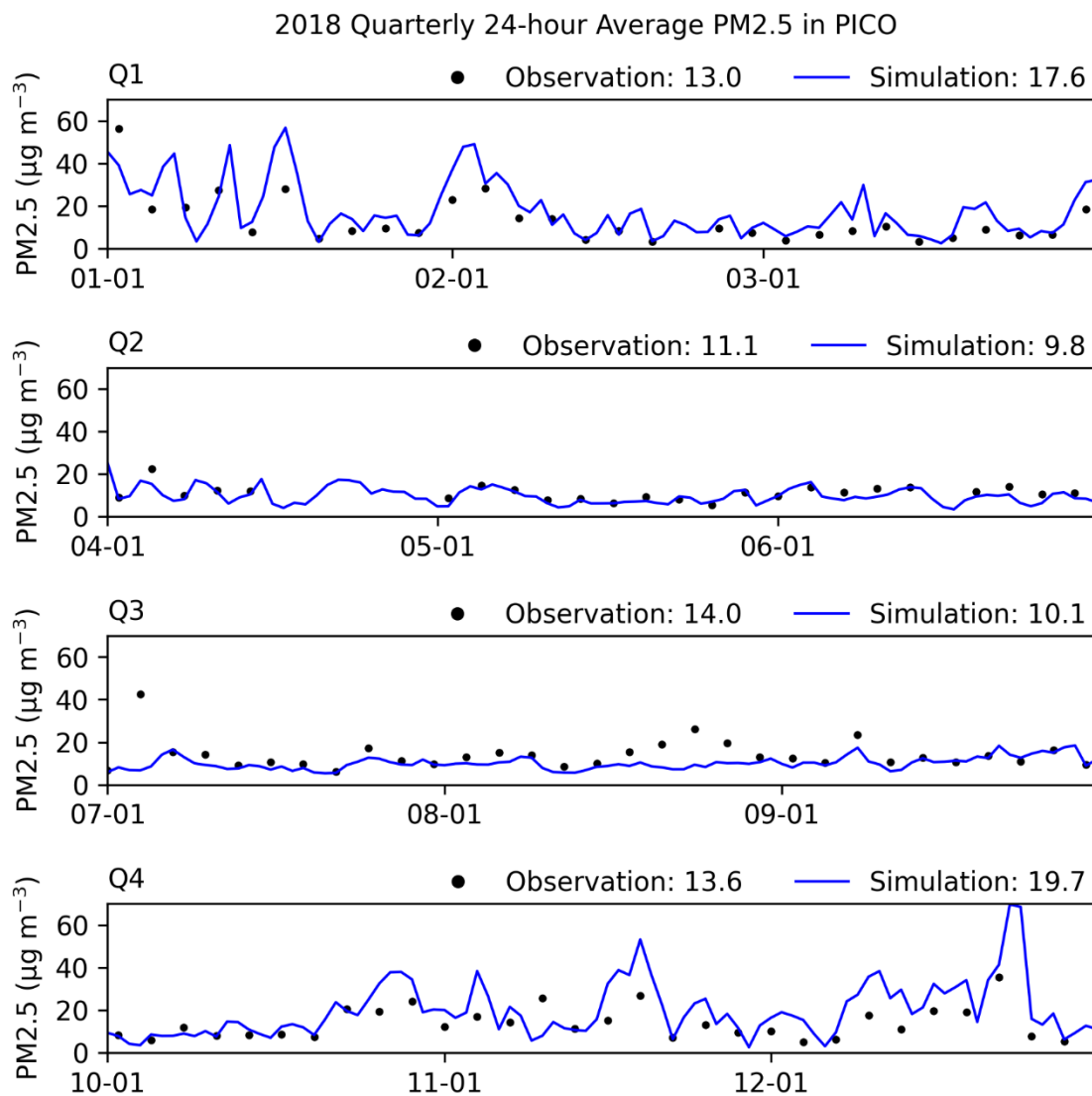


FIGURE 7

2018 Modelled and Measured 24-hour Average PM2.5 Concentrations in Pico Rivera

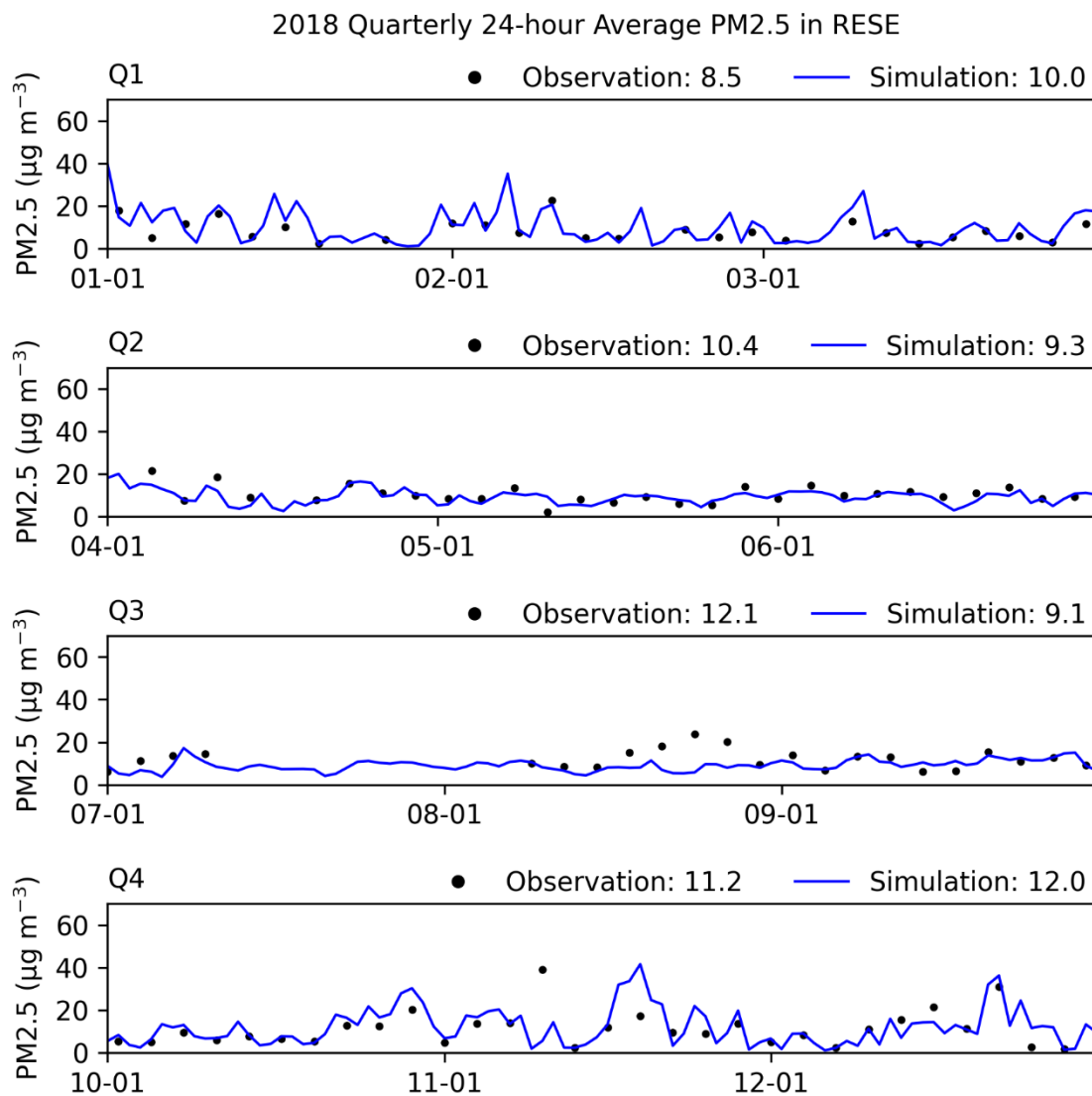


FIGURE 8

2018 Modelled and Measured 24-hour Average PM2.5 Concentrations in Reseda

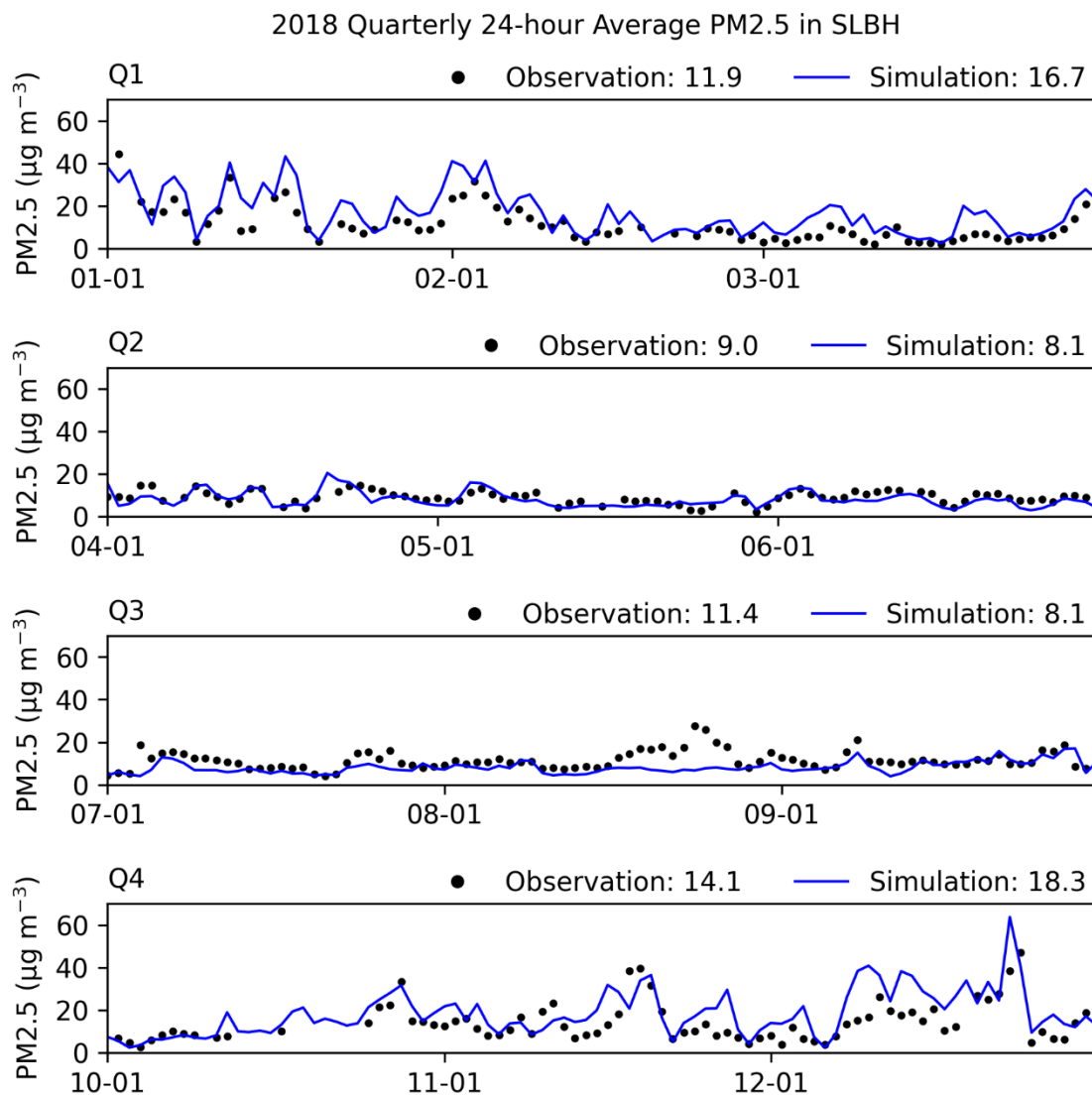


FIGURE 9

2018 Modelled and Measured 24-hour Average PM_{2.5} Concentrations in South Long Beach

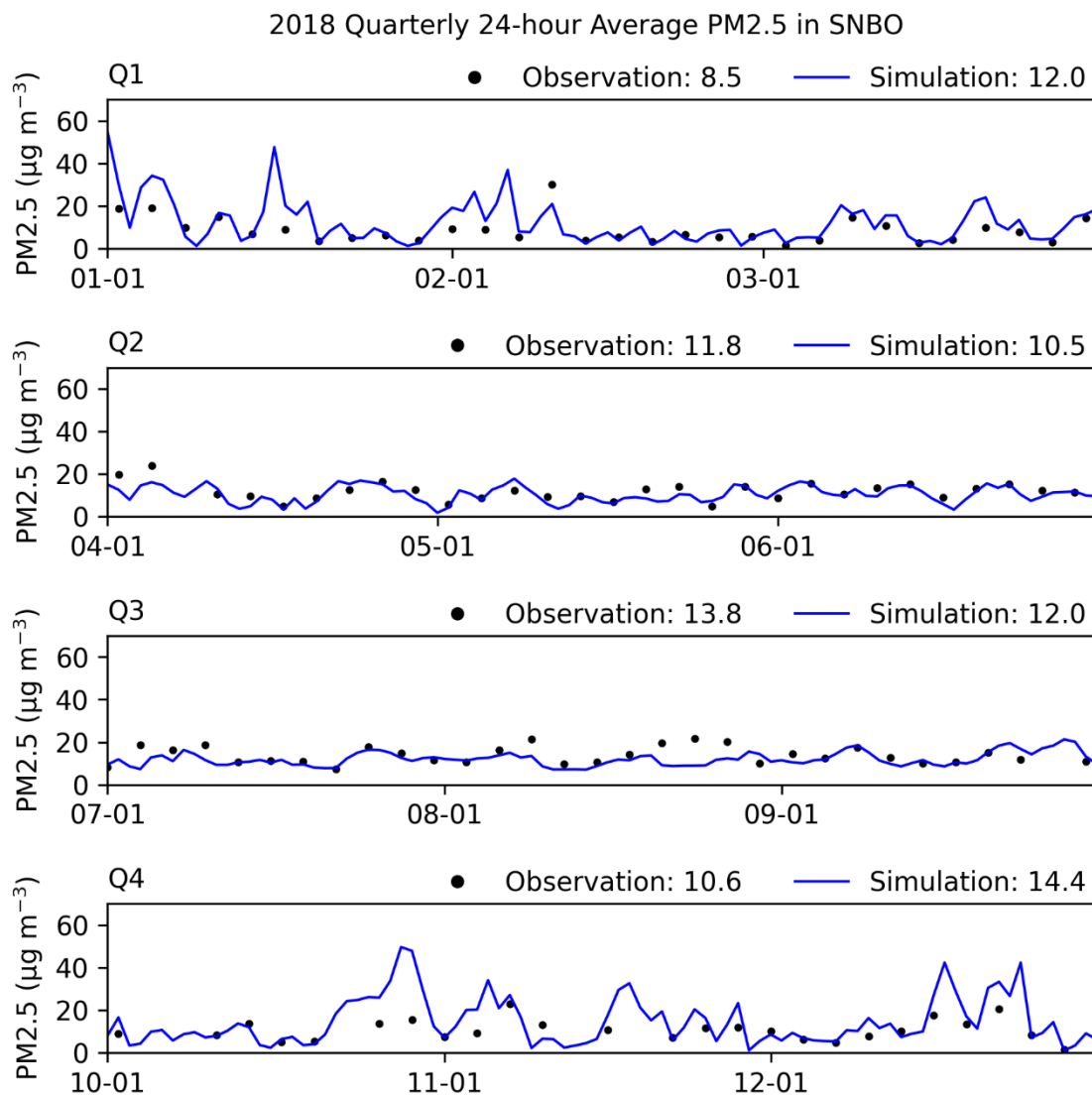


FIGURE 10

2018 Modelled and Measured 24-hour Average PM_{2.5} Concentrations in San Bernardino

Attachment 3

EMISSIONS REDUCTIONS SUMMARY FOR FUTURE CONTROL SCENARIOS

TABLE 1. EMISSIONS REDUCTIONS FROM THE PROPOSED CONTROL MEASURES FOR THE 2030 ATTAINMENT SCENARIO

Control Measures	Average composite CF ¹			2030 baseline (tons/day)			2030 remaining (tons/day)			2030 reduction (tons/day)		
	NOX	NH3	PM25	NOX	NH3	PM25	NOX	NH3	PM25	NOX	NH3	PM25
BCM-05: Emission Reductions from Emergency Standby Engines	0.91	1.00	0.73	3.96	0.01	0.15	3.60	0.01	0.11	0.36	0	0.04
BCM-06: Emission Reductions from Diesel Electricity Generating Facilities	0.92	1.00	1.00	2.06	0.52	0.34	1.90	0.52	0.34	0.16	0	0
BCM-07: Emission Reductions from Incinerators	0.29	1.00	1.00	1.13	0.24	0.05	0.33	0.24	0.05	0.81	0	0
TOTAL SOUTH COAST AQMD STATIONARY:	0.81	1.00	0.93	7.15	0.77	0.54	5.83	0.77	0.50	1.33	0.00	0.04
Zero-Emission Standard for Space and Water Heaters	0.79	1.00	0.76	12.07	0.01	1.71	9.49	0.01	1.30	2.58	0	0.41
TOTAL CARB STATIONARY:	0.79	1.00	0.76	12.07	0.01	1.71	9.49	0.01	1.30	2.58	0.00	0.41
Clean Mile Standard	1.00	1.00	1.00	24.37	14.69	2.47	24.33	14.69	2.47	0.04	0	0
On-Road Motorcycles New Emissions Standards	0.80	1.00	1.00	0.82	0.01	0.01	0.66	0.01	0.01	0.16	0	0
Advanced Clean Fleets	0.80	0.86	0.91	24.26	5.95	1.00	19.47	5.11	0.91	4.79	0.84	0.09
Zero Emission Trucks Measure	0.88	0.96	0.97	24.26	5.95	1.00	21.34	5.70	0.97	2.92	0.27	0.03
Advanced Clean Cars Program II	0.94	0.86	0.93	24.37	14.69	2.47	22.88	12.57	2.29	1.49	2.12	0.18
TOTAL CARB ONROAD:	0.81	0.84	0.91	49.45	20.66	3.49	40.05	17.45	3.14	9.4	3.21	0.30
EPA Clean Trucks Plan	0.97	1.00	1.00	24.26	5.95	1.00	23.65	5.95	1.00	0.61	0	0
TOTAL EPA ONROAD:	0.97	1.00	1.00	24.26	5.95	1.00	23.65	5.95	1.00	0.61	0	0

TABLE 1. EMISSIONS REDUCTIONS FROM THE PROPOSED CONTROL MEASURES FOR THE 2030 ATTAINMENT SCENARIO (CONCULDED)

Control Measures	Average composite CF ¹			2030 baseline (tons/day)			2030 remaining (tons/day)			2030 reduction (tons/day)		
	NOX	NH3	PM25	NOX	NH3	PM25	NOX	NH3	PM25	NOX	NH3	PM25
Cargo Handling Equipment Amendments	0.56	1.00	0.55	1.65	0.00	0.07	0.93	0.00	0.04	0.72	0.00	0.03
Spark-Ignition Marine Engine Standards	1.00	1.00	1.00	2.66	0.01	0.42	2.66	0.01	0.42	0.00	0.00	0.00
Commercial Harbor Craft Amendments	0.64	1.00	0.58	5.70	0.00	0.23	3.63	0.00	0.13	2.06	0.00	0.09
In-use Locomotive Regulation	0.44	1.00	0.32	17.58	0.01	0.35	7.68	0.01	0.11	9.90	0.00	0.24
Amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation	0.75	1.00	0.65	7.65	0.00	0.35	5.74	0.00	0.23	1.91	0.00	0.12
ZE Forklift Regulation	0.68	1.00	0.96	2.67	0.00	0.16	1.81	0.00	0.16	0.86	0.00	0.01
Tier 5 Off-Road New Compression-Ignition Engine Standards	0.95	1.00	0.96	5.34	0.02	0.13	5.09	0.02	0.12	0.25	0.00	0.01
Transport Refrigeration Unit Regulation Part I & II	0.58	1.00	0.28	4.97	0.00	0.16	2.86	0.00	0.04	2.11	0.00	0.12
TOTAL CARB OFFROAD:	0.63	1.00	0.67	48.21	0.04	1.87	30.39	0.04	1.26	17.82	0.00	0.61
Rule adopted/amened after 2022AQMP cut-off date										0.34	0.00	0.00
RECLAIM landing rules adjustments										2.86	0.00	0.00
TOTAL LINE ITMES ADJUSTMENT²:										3.20	0.00	0.00
GRAND TOTAL:	0.83	0.96	0.97	210.31	79.31	54.05	175.37	76.10	52.69	34.94	3.21	1.36

¹Average Composite CF (control factor) for each measure defined as the ratio between remaining emission and baseline emission per pollutants.

²See Appendix I Tables I-2-2C through I-2-2E for details.

ATTACHMENT 4

LIST OF WILDFIRES THAT AFFECTED THE SOUTH COAST AIR BASIN IN 2020

2020 Wildfire impacts in South Coast Air Basin

This list includes all the events that triggered smoke advisories in the Basin. For the smoke advisory announcements, see the following site: <https://www.aqmd.gov/home/news-events/news-and-media/2020-news-archives#>

1. 58 Fire
 - a. Burn dates: 2020-06-24 to 2020-06-27
 - i. <https://www.fire.ca.gov/incidents/2020/6/24/58-fire>
2. Soledad Fire
 - a. Burn dates: 2020-07-05 to 2020-07-10
 - i. <https://www.fire.ca.gov/incidents/2020/7/5/soledad-fire>
3. Dam Fire
 - a. Burn dates: 2020-07-30 to 2020-08-14
 - i. <https://www.fire.ca.gov/incidents/2020/7/30/dam-fire>
4. Apple Fire
 - a. Burn dates: 2020-07-31 to 2020-08-15 (90% contained)
 - i. <https://www.fire.ca.gov/incidents/2020/7/31/apple-fire>
 - ii. <https://www.nbclosangeles.com/news/local/apple-fire-90-contained-33424-acres-burned-full-containment-set-for-monday/2413461/>
 - b. Articles/Info:
 - i. <https://www.nasa.gov/image-article/nasa-satellites-show-two-views-of-californias-apple-fire/>
5. Lake Fire
 - a. Burn dates: 2020-08-12 to 2020-09-28
 - i. <https://www.fire.ca.gov/incidents/2020/8/12/lake-fire>
6. Ranch 2 Fire
 - a. Burn dates: 2020-08-13 to 2020-10-05
 - i. <https://www.fire.ca.gov/incidents/2020/8/13/ranch-2-fire>
7. Holser Fire
 - a. Burn dates: 2020-08-17 to 2020-08-21 (95% contained)
 - i. <https://www.fire.ca.gov/incidents/2020/8/17/holser-fire>
 - ii. <https://www.kclu.org/tags/holser-fire>
 - b. Note: this fire was in Ventura County, but South Coast AQMD issued a smoke advisory for it.
 - i. <http://www.aqmd.gov/docs/default-source/news-archive/2020/lake-and-holser-fires-aug19-2020.pdf?sfvrsn=9>
8. Snow Fire
 - a. Burn Dates: 2020-09-17 to 2020-11-16
 - i. <https://www.desertsun.com/story/news/2020/12/24/cal-fire-desert-water-agency-vehicle-sparked-snow-fire-september/4041755001/>
9. Bobcat and El Dorado Fires
 - a. Bobcat Fire:
 - i. Burn dates: 2020-09-06 to 2020-10-13 (92% contained)
 1. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd868759.pdf
 - ii. Articles/info:
 1. <https://fire.lacounty.gov/bobcat-fire-status/>

2. <https://www.nbclosangeles.com/news/california-wildfires/bobcat-fire-one-of-largest-in-la-history-grows-to-more-than-112000-acres/2432632/>

b. El Dorado Fire:

- i. Burn dates: 2020-09-05 to 2020-11-16

1. <https://www.fire.ca.gov/incidents/2020/9/5/el-dorado-fire>

- ii. Articles/info:

1. https://www.fs.usda.gov/research/sites/default/files/2023-05/el_dorado_narrative_final_508c.pdf

2. <https://wildfiretoday.com/tag/el-dorado-fire/>

10. Silverado and Blue Ridge Fires

a. Silverado Fire:

- i. Burn dates: 2020-10-26 to 2020-11-07

1. <https://www.fire.ca.gov/incidents/2020/10/26/silverado-fire>

- ii. News articles:

1. <https://www.latimes.com/california/story/2020-10-26/silverado-fire-ignites-in-orange-county>

2. <https://wildfiretoday.com/2020/11/12/report-released-on-burnover-of-firefighters-on-silverado-fire/>

b. Blue Ridge Fire

- i. Burn dates: 2020-10-26 to 2020-11-07

1. <https://www.fire.ca.gov/incidents/2020/10/26/blue-ridge-fire>

- ii. News articles:

1. <https://wildfiretoday.com/2020/10/26/blue-ridge-fire-spreads-toward-yorba-linda-california/>

2. <https://voiceofoc.org/2020/12/chino-hills-state-park-battered-from-recent-flames-in-blue-ridge-fire-this-year/>

11. Airport Fire

- a. Burn dates: 2020-12-01 to 2020-12-12

- i. <https://www.fire.ca.gov/incidents/2020/12/1/airport-fire>

12. Bond Fire

- a. Burn dates: 2020-12-02 to 2020-12-10

- i. <https://www.fire.ca.gov/incidents/2020/12/2/bond-fire>

13. Sanderson Fire

- a. Burn dates: 2020-12-13 to 2020-12-14

- i. <https://www.fire.ca.gov/incidents/2020/12/13/sanderson-fire>



APPENDIX III

Stationary and Mobile Source BACM/MSM



Table of Contents

INTRODUCTION	1
IDENTIFYING KEY PM SOURCE CATEGORIES	2
EXISTING RULES AND POTENTIAL CONTROL MEASURES FOR KEY PM SOURCE CATEGORIES	4
Residential Wood Combustion	4
Farming Operations – Livestock Waste	13
Paved Road Dust	15
Commercial Cooking	17
IDENTIFYING POTENTIAL CONTROL MEASURES	19
Step 1 – Other Districts’ Control Measures	19
Step 2 – U.S. EPA’s Technical Support Documents	272727
Step 3 – Potential Control Measures from Previous Plans	292928
<i>Emission Reductions from Replacement with Zero or Near-Zero NOx Appliances in Commercial and Residential Applications</i>	323231
<i>Emission Reductions from Cooling Towers</i>	323231
<i>Further Emission Reductions from Agricultural, Prescribed, and Training Burning</i>	323232
<i>Further Emission Reductions from Commercial Cooking</i>	323232
<i>Further Emission Reduction from Fugitive Dust Sources</i>	333332
<i>Further Emission Reductions from Wood-Burning Fireplaces and Wood Stoves</i>	333332
<i>Lowering the Curtailment Threshold in Rule 445</i>	333333
<i>Emission Reduction of PM from Asphalt Manufacturing</i>	333333
<i>Emission Reduction of PM from Wood Pulp and Paper</i>	343433
<i>Emission Reductions from Greenwaste Composting</i>	343433
<i>Reformulation and Process Modification for Cutback Asphalt</i>	343434
<i>Emission Reductions from Manure Management Strategies</i>	343434
<i>Lowering Emission Limits for Boilers, Steam Generators, and Process Heaters</i>	343434
Step 4 – U.S. EPA’s Menu of Control Measures	353534
Step 5 – U.S. EPA’s Guidance Documents	353535
Summary of Potential Control Measures	373737
CONCLUSION	393938
CONTROL MEASURE ASSESSMENT	
INTRODUCTION	40

POTENTIAL CONTROL MEASURE 1 - EMISSION REDUCTIONS FROM REPLACEMENT WITH ZERO NOX SPACE AND WATER HEATERS IN COMMERCIAL AND RESIDENTIAL APPLICATIONS	41
POTENTIAL CONTROL MEASURE 2 – EMISSION REDUCTIONS FROM GLASS MELTING AND SODIUM SILICATE FURNACES	444443
POTENTIAL CONTROL MEASURE 3 - EMISSION REDUCTIONS FROM COOLING TOWERS	45
POTENTIAL CONTROL MEASURE 4 - EMISSION REDUCTIONS FROM LIVESTOCK WASTE AT CONFINED ANIMAL FACILITIES	47
POTENTIAL CONTROL MEASURE 5 - FURTHER EMISSION REDUCTIONS FROM AGRICULTURAL, PRESCRIBED, AND TRAINING BURNING	585857
POTENTIAL CONTROL MEASURE 6 - FURTHER EMISSION REDUCTIONS FROM COMMERCIAL COOKING - CHARBROILERS.....	606059
POTENTIAL CONTROL MEASURE 7 - FURTHER EMISSION REDUCTIONS FROM PAVED ROAD DUST	626261
POTENTIAL CONTROL MEASURE 8 - FURTHER EMISSION REDUCTIONS FROM WOOD-BURNING FIREPLACES AND WOOD STOVES.....	656564
POTENTIAL CONTROL MEASURE 9 - EMISSION REDUCTIONS FROM ORGANIC WASTE COMPOSTING.....	666665
POTENTIAL CONTROL MEASURE 10 - EMISSION REDUCTION OF PM FROM ASPHALT MANUFACTURING.....	717168
POTENTIAL CONTROL MEASURE 11 - EMISSION REDUCTION OF PM FROM WOOD PULP AND PAPER	727270
POTENTIAL CONTROL MEASURE 12 - EMISSION REDUCTION OF NOX THROUGH REFORMULATION AND PROCESS MODIFICATION FOR CUTBACK ASPHALT	747471
POTENTIAL CONTROL MEASURE 13 - PAVING UNPAVED LOTS, ROADS, AND SHOULDERS .	767673
POTENTIAL CONTROL MEASURE 14 - PM CONTROLS FOR INDUSTRIAL AND COMMERCIAL COMBUSTION PROCESSES.....	797977
POTENTIAL CONTROL MEASURE 15 - LOWERING NOX EMISSION LIMITS FOR BOILERS, STEAM GENERATORS, AND PROCESS HEATERS	828279

Attachment A: Evaluation of South Coast AQMD Rules

Attachment B: Most Stringent Measures Analysis of CARB’s Control Programs

Attachment C: Quantitative Analysis for Wood Burning Curtailment Threshold

Introduction

The South Coast Air Basin (Basin) was reclassified from “moderate” to “serious” nonattainment for the 2012 annual PM2.5 National Ambient Air Quality Standard (NAAQS or standard) of 12 µg/m³ effective December 9, 2020, with an attainment date of December 31, 2025.¹ Subpart 4 of the federal Clean Air Act (CAA) Part D specifies additional provisions for PM2.5 nonattainment areas. In particular, CAA Section 189(b) requires states to submit an attainment plan that meets “serious” area plan requirements and address attainment strategies for the 2012 annual PM2.5 standard.

Under CAA Section 189(b)(1)(B), a “serious” nonattainment area must demonstrate provisions to ensure that Best Available Control Measures (BACM), which includes Best Available Control Technology (BACT), for the control of PM from stationary sources are implemented no later than four years after the designation (or reclassification). In the Addendum to the General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990 issued by U.S. EPA in 1994 (1994 Addendum),² BACM is defined as:

“The maximum degree of emissions reduction achievable from a source or source category which is determined on a case-by-case basis, considering energy, economic and environmental impacts and other costs.”

Similarly, BACT is defined as:

“An emission limitation which is based on the maximum degree of control that can be achieved. It is a case-by-case decision that considers energy, environmental and economic impact.”

The implementation of BACT is required for major stationary sources (i.e., sources that emit PM2.5 or any PM2.5 precursor in an amount exceeding 70 tons per year). BACT can be add-on control equipment or modification of the production processes or methods, including fuel cleaning or treatment and innovative fuel combustion techniques. In addition, BACT may be a design, equipment, work practice, or operational standard if imposition of an emissions standard is infeasible.

In addition to BACM and BACT, PM2.5 attainment plans must also include additional feasible measures that either assist with attainment or advance the attainment date by one year. Additional feasible measures may be implemented later than BACM/BACT but before the statutory “serious” area attainment date.

The control measure assessment for this plan seeks to evaluate the technological and economic feasibility of potential BACM and to identify additional feasible measures. The demonstration generally involves an analysis of South Coast AQMD’s control requirements as they compare to those in other jurisdictions. Other sources such as U.S. EPA guidance documents are also consulted. When South Coast AQMD’s

¹ 85 FR 71264

² 59 FR 41998, 42010

control requirements meet the BACM/BACT definition, no further analysis is required. When a regulation or control measure from another air basin or from U.S. EPA guidance is identified as more stringent than South Coast AQMD's regulation, the measure is analyzed for technological and economic feasibility. While South Coast AQMD is not required to adopt a measure just because it was adopted in another region, the rationale for rejecting such measures must be presented.

In addition to implementing BACM/BACT and additional feasible measures, "serious" nonattainment areas that request an extension under CAA Section 188(e) are required to demonstrate that the attainment plan includes the Most Stringent Measures (MSM). U.S. EPA defines MSM as:

"The maximum degree of emission reduction that has been required or achieved from a source or source category in any other attainment plans or in practice in any other states and that can feasibly be implemented in the area seeking the extension."

U.S. EPA notes that, "in some cases it may be possible for the MSM requirement to result in no more controls and no more emissions reductions in an area than result from the implementation of BACM and BACT." This is because the approach to identify potential MSM largely follows that of a BACM/BACT analysis except that more stringent criteria must be applied to reject Potential Control Measures (PCMs) based on technological or economic infeasibility. Therefore, staff first conducted a BACM/BACT analysis to identify a list of PCMs which were then analyzed by applying MSM criteria as detailed in the Control Measure Assessment section.

The 2016 AQMP included a BACM demonstration, which served both the 2006 and 2012 PM_{2.5} NAAQS. U.S. EPA approved the BACM demonstration for all sources of direct PM_{2.5} and PM_{2.5} precursors for the purposes of the 2006 PM_{2.5} NAAQS in accordance with the requirements of CAA Section 189(b)(1)(B) and 40 CFR 51.1010.³ As this represents the latest approved BACM demonstration for a PM_{2.5} NAAQS for the Basin, it was used as a starting point for this BACM demonstration. This demonstration sought to build upon and update the 2016 AQMP BACM demonstration, reflecting recent improvements in control technologies and identifying potential areas for improvements in South Coast AQMD rules. The analysis began with an overview of key PM stationary source categories which were identified through an examination of the emissions inventory. The applicable South Coast AQMD rules and corresponding rules in other air districts were also evaluated. Next, a multi-step process involving an evaluation of a wide range of sources was conducted to identify a list of PCMs. Finally, the PCMs were assessed for their technological and economic feasibility in the Control Measure Assessment section.

Identifying Key PM Source Categories

U.S. EPA recommends that the BACM analysis begin with a current detailed emissions inventory of the various sources that emit direct PM_{2.5} and PM_{2.5} precursors. Chapter 3 and Appendix III present a comprehensive emissions inventory which satisfies U.S. EPA's requirements. For the purposes of

³ 84 FR 3305

demonstrating BACM, control measures targeting only PM2.5, NOx, and NH3 were considered. However, although NOx and NH3 emissions contribute to PM2.5, air quality modeling demonstrates that direct PM2.5 emissions have the greatest impact on ambient PM2.5 concentrations. Therefore, identifying the top stationary source categories of direct PM2.5 emissions was taken as the first step and presented in Figure III-1.

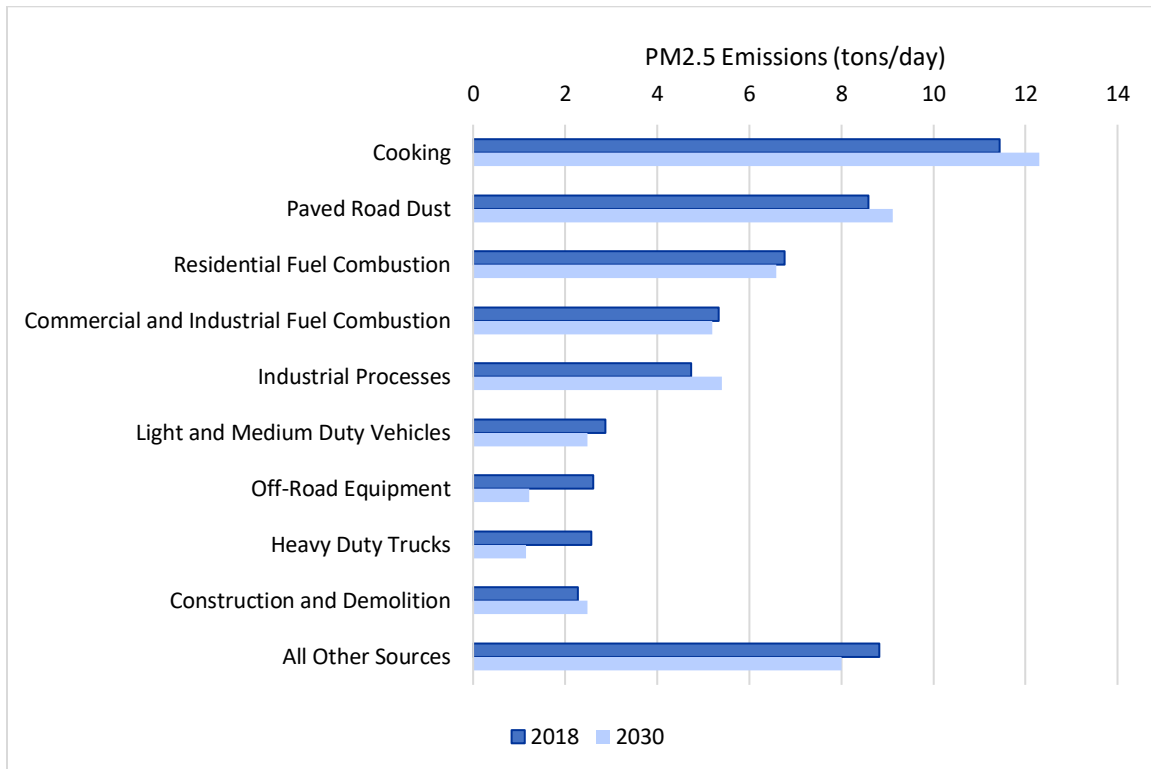


FIGURE III-1
TOP STATIONARY SOURCE CATEGORIES OF DIRECT PM2.5 EMISSIONS IN 2018 AND 2030

The top three stationary source categories are cooking, paved road dust, and residential fuel combustion. Emissions from the latter category are dominated by wood combustion while cooking emissions are dominated by restaurant charbroilers. Based on this analysis, staff selected the following three stationary source categories for an in-depth control measure analysis:

- Residential Wood Combustion
- Paved Road Dust
- Commercial Cooking

In addition, Farming Operations – Livestock Waste, was selected as a key PM stationary source category after staff became aware of U.S. EPA’s proposed disapproval of several plan elements in San Joaquin Valley Air Pollution Control District’s (SJVAPCD) 2018 PM2.5 Plan.⁴ A central issue in U.S. EPA’s proposed

⁴ 87 FR 60494

disapproval relates to SJVAPCD's BACM analysis for NH₃ control measures at Confined Animal Facilities. Livestock waste is the primary NH₃ emission source at these facilities. Staff determined that an in-depth evaluation of existing rule requirements was warranted for this source category.

Existing Rules and Potential Control Measures for Key PM Source Categories

Existing rule requirements for the four key stationary sources identified in the previous section are summarized below. PCMs were identified by comparing existing control measures to the requirements in federal and state regulations and guidance, as well as the analogous rules in other air districts and agencies.

Residential Wood Combustion

Existing rule

South Coast AQMD Rule 445 Wood-Burning Devices (Amended October 27, 2020)

Rule 445 was first adopted in 2008 to reduce the emissions of particulate matter from wood-burning devices. The rule establishes requirements for the sale, operation, and installation of these devices. Specifically, Rule 445:

- Prohibits the installation of wood burning devices in new developments;
- Requires that wood-burning devices sold or installed for existing residential and commercial developments (additions, remodels, etc.) to be U.S. EPA certified or equivalent;
- Prohibits the burning of any product not intended for use as a fuel (e.g., trash) in a wood-burning device and requires commercial firewood sellers to only sell seasoned firewood (20 percent or less moisture content) from July through February; and
- Imposes a mandatory winter burning curtailment program that extends from November 1 through the end of February.

In addition to these regulatory requirements, South Coast AQMD has also implemented the Healthy Hearths™ program that includes a comprehensive education and outreach effort as well as financial incentives to encourage the public to switch to cleaner, gaseous-fueled hearth products.⁵ This program has incentivized the conversion of more than 10,000 wood-burning fireplaces to gas or electric fireplaces and continues to provide up to \$1,600 per unit for low-income households.

⁵ <http://www.aqmd.gov/home/programs/community/community-detail?title=wood-device-incentive-program>

South Coast AQMD continues to implement a wood-burning curtailment program through Rule 445. As a consequence of *Bahr v. EPA*, 836 F.3d 1218 (9th Cir. 2016), Rule 445 was amended in June 2020 to establish PM_{2.5} contingency provisions that would be automatically triggered in the event that the U.S. EPA determines that the Basin failed to meet any RFP requirement, meet any quantitative milestone, submit a quantitative milestone report, or attain a PM_{2.5} NAAQS by the attainment date. The amendment also expanded the curtailment program to the entire Basin instead of using a source-receptor specific approach. U.S. EPA's finding of failure to attain the 2006 24-hour PM_{2.5} standard by 2019 triggered the contingency provision and lowered the curtailment threshold from 30 to 29 µg/m³.⁶ In October 2020, the rule was amended to add ozone contingency provisions that would be triggered in the event that the U.S. EPA determines that the Basin failed to meet an RFP milestone or attain an ozone NAAQS by the applicable deadline. The contingency provision for applicable ozone NAAQS ~~will~~ will expand the curtailment season from the existing November through February to September through April. U.S. EPA approved the latest amendment of Rule 445 on March 8, 2022, excluding paragraph (g), "Ozone Contingency Measures," and paragraph (k), "Penalties," as satisfying PM_{2.5} contingency requirements.⁷

Federal and State rules and regulations

On March 16, 2015, U.S. EPA finalized the amendments for New Source Performance Standards (NSPS) for New Residential Wood Heaters (40 CFR Part 60 Subpart AAA).⁸ The 2015 NSPS significantly lowered the certification emission limits for wood-burning heaters to 4.5 g/hr in Phase I (on or after May 15, 2015) and 2.0 g/hr in Phase II (on or after May 15, 2020). In April 2020, U.S. EPA amended the 2015 NSPS for New Residential Wood Heaters to include minimum requirements for pellet fuels, sell-through provisions, and a clarification of prohibited fuels.⁹ The PM emission limits remained unchanged. Rule 445 references the NSPS for emission standards in the definition of U.S. EPA certified wood-burning heaters and is therefore as stringent as the newly promulgated NSPS.

Colorado, Idaho, Michigan, Oregon, Washington, Wisconsin, and Vermont require or provide incentives for cleaner wood-burning devices.¹⁰ Oregon requires that uncertified solid fuel burning devices located at a residential property be removed, destroyed and reported to the state when the home is sold.¹¹ However, heating devices (e.g., fireplaces, masonry heaters, central furnaces, etc.) are exempt.

Analogous rules in other air districts

SJVAPCD Rule 4901 Wood Burning Fireplaces and Wood Burning Heaters (Amended June 20, 2019)

San Joaquin Valley Air Pollution Control District (SJVAPCD) Rule 4901 includes a tiered mandatory curtailment program that establishes different curtailment thresholds for each county based on the type

⁶ 85 FR 57733

⁷ 87 FR 12866

⁸ 80 FR 13672

⁹ 85 FR 18448

¹⁰ <https://www.epa.gov/burnwise/ordinances-and-regulations-wood-burning-appliances>

¹¹ <https://www.oregon.gov/deq/FilterDocs/10aq011heatsmart.pdf>

of devices. During a level one episodic wood-burning curtailment, operation of wood-burning fireplaces and unregistered wood-burning heaters is prohibited, but properly operated, registered wood-burning devices are allowed to be used. During a level two episodic woodburning curtailment, operation of any wood-burning device is prohibited. In the “hot spot” counties of Madera, Fresno, and Kern, the level one PM_{2.5} threshold is 12 µg/m³, and the level two PM_{2.5} threshold is 35 µg/m³. In the remaining counties in the San Joaquin Valley (San Joaquin, Stanislaus, Merced, Kings, and Tulare), the level one PM_{2.5} threshold is 20 µg/m³, and the level two PM_{2.5} threshold is 65 µg/m³. Areas within the San Joaquin Valley that do not have natural gas service are not subject wood burning curtailment.

Rule 4901 prohibits the sale or transfer of any real property which contains wood-burning heaters (i.e., wood stove, pellet-fueled wood burning heater, or wood burning fireplace insert) that are not U.S. EPA Phase II certified. Rule 4901 also prohibits remodeling of a fireplace or chimney where the total cost exceeds \$15,000 and a local building permit is required, unless a gas-fueled, electric, or U.S. EPA certified device is installed that meets requirements in Title 40 CFR Part 60 Subpart AAA. Finally, wood-burning fireplaces are not allowed to be newly installed in areas with natural gas service at or below 3,000 feet elevation.

SMAQMD Rule 417 Wood Burning Appliances (Adopted October 26, 2006)

Staff evaluated the requirements of Sacramento Metro Air Quality Management District (SMAQMD) Rule 417 and found no requirements that were more stringent than those already incorporated in Rule 445.

BAAQMD Regulation 6 Rule 3 Wood-Burning Devices (Amended November 20, 2019)

Under Bay Area Air Quality Management District (BAAQMD) Regulation 6-3, the BAAQMD can issue a Winter Spare the Air Alert and require a Mandatory Burn Ban when air quality is forecast to be unhealthy due to elevated levels of fine particulate matter with some exemptions that allow wood-burning. The rule provides for limited exemptions in the following areas: (i) sole source of heat, (ii) non-functional, permanently installed heater, and (iii) loss of natural gas and/or electric power. In 2019, BAAQMD revised its wood-burning rule to provide for curtailments year-round with a curtailment threshold of 35 µg/m³. Regulation 6-3 prohibits remodeling of a fireplace or chimney where the total cost exceeds \$15,000 and a local building permit is required, unless a gas-fueled, electric, or U.S. EPA certified device is installed that meets requirements in Title 40 CFR Part 60 Subpart AAA. Regulation 6-3 requires exempt households whose sole source of heat is a wood-burning device to have U.S. EPA certified devices.

Utah Wood Burning Curtailment Program – Department of Environmental Quality’s Division of Air Quality Utah Administrative Code R307-302 Solid Fuel Burning Devices

The Utah wood burning curtailment program is geographically based with curtailment limited to the nonattainment counties of Box Elder, Cache, Davis, Salt Lake, Tooele, Utah, and Weber. The curtailment threshold is set at 25 µg/m³ PM_{2.5} 24-hour concentration. Similar to SJVAPCD Rule 4901, only counties specified in the public notification of curtailment are required to curtail wood burning.

Puget Sound Clean Air Agency Article 13: Solid Fuel Burning Device Standards (Adopted 11/10/88, amended 10/25/12) or Chapter 173-433 Washington Administrative Code

For the Tacoma-Pierce (TP) region, curtailment is limited based on device certification and location. TP certified stoves are those certified by U.S. EPA or Oregon state which can be up to 25 years old. Curtailment is classified as Stage 1 or Stage 2 air quality burn bans. Under Stage 1, where a PM_{2.5} ambient concentration of 35 µg/m³ within a 48-hour time is forecast, uncertified wood-burning device use is prohibited for King and Kitsap counties. Additionally, a Stage 1 curtailment applies to Pierce and Snohomish counties if a PM_{2.5} ambient concentration of 30 µg/m³ within a 72-hour time is forecast. As of October 2015, the sale or use of uncertified wood stoves is prohibited, so Stage 1 burn bans would mostly apply to fireplaces. A Stage 2 air quality burn ban, which includes all device types, may be declared if air quality is worsening rapidly. Air quality bans are also geographically based in that they may be called on a county and sub-county level. Pierce county now has three different air quality burn ban zones, that can be declared independently for burn day bans.

City of Portola, Plumas County, Wood Burning Rule – Chapter 15.10 of the City of Portola Municipal Code (Amended 10/13/21)

The City of Portola has a wood stove and fireplace ordinance which mandates episodic wood-burning curtailment from November to February whenever the Northern Sierra AQMD determines that the 24-hour average PM_{2.5} concentrations may exceed 30 µg/m³ and when adverse meteorological conditions are expected to persist. The ordinance contains a contingency provision which was recently triggered due to the Plumas County nonattainment area failing to attain the 2012 annual PM_{2.5} standard.¹² The contingency provision expanded the curtailment season to September through April and lowered the curtailment threshold to 20 µg/m³ when adverse meteorological conditions are expected to persist. The contingency provision will remain in effect until a new attainment plan addressing the 2012 annual PM_{2.5} standard is submitted to U.S. EPA.

Evaluation

Staff identified multiple provisions in other districts' rules which are potentially more stringent than those in South Coast AQMD Rule 445. Analyses of each of those provisions are presented below.

1. The curtailment threshold of 29 µg/m³ is higher than that in other districts' rules.

The level one curtailment thresholds in SJVAPCD Rule 4901 are lower than the curtailment threshold in South Coast AQMD Rule 445. However, in contrast to the county-specific approach in Rule 4901, the prohibition on wood-burning in Rule 445 is Basin-wide and applies to all solid fuel devices, regardless of certification. Rule 4901 permits the operation of U.S. EPA certified and registered wood-burning heaters during a level one curtailment period. Similarly, the City of Portola municipal code chapter 15.10 permits the operation of U.S. EPA certified wood-burning devices during curtailment.

¹² 87 FR 80076

The differences in regulatory approaches make a direct comparison between Rule 445 and other agencies' rules difficult as a quantitative matter. However, some general inferences can be made to assess the stringency of different rules qualitatively. For example, direct comparison between Rule 445 and SJVAPCD Rule 4901 requires looking at SJVAPCD's full curtailment ($65 \mu\text{g}/\text{m}^3$ threshold) to account for both all device types and all geographic locations, as Rule 445 does (at a $29 \mu\text{g}/\text{m}^3$ threshold). In the Basin, for the years 2016 through 2019, the PM_{2.5} 24-hour ambient concentration exceeded $65 \mu\text{g}/\text{m}^3$ two days during the wood-burning season, and exceeded the $35 \mu\text{g}/\text{m}^3$ standard on 56 days, including 7 days when PM_{2.5} concentrations were affected by wildfire smoke. With 480 days during the Basin's wood-burning season between 2016 and 2019, this represents only 0.4 percent and 12 percent of the days, respectively, that a No-Burn Day would have been declared if SJVAPCD Rule 4901 Level Two Episodic Curtailment requirements were in effect in the Basin. In contrast, South Coast AQMD declared no-burn days, which applied to the entire Basin, on 22 percent of days during the same period. Since Rule 445 does not differentiate between registered or unregistered devices or individual counties, if a SJVAPCD Level Two Episodic Curtailment were in effect in the Basin, it would have resulted in fewer curtailment days and consequently an increase in ambient PM_{2.5} emissions. The curtailment exemption for areas without natural gas service is another issue to consider. While Rule 445 contains a similar exemption, the South Coast Air Basin is a heavily urbanized area with widespread availability of natural gas service. On the contrary, the San Joaquin Valley has larger rural and undeveloped areas, and a significant portion of those areas do not have natural gas service. For example, most residences in Madera County do not have natural gas service.¹³ Therefore, although the exemption itself is similar, San Joaquin Valley likely has a higher proportion of the population that qualifies for this exemption and therefore greater amounts of wood burning occur in the San Joaquin Valley on curtailment days.

Staff also evaluated wood burning curtailment programs implemented in other jurisdictions. Although Utah's curtailment is nominally lower ($25 \mu\text{g}/\text{m}^3$) than the Basin's, only counties specified in the public notification of curtailment are required to curtail wood burning. In this regard, Utah's program is similar to that in SJVAPCD and is less stringent than the Basin-wide approach in Rule 445. BAAQMD has a similar curtailment approach as South Coast AQMD (not limiting either device type or location), but BAAQMD has a higher curtailment threshold ($35 \mu\text{g}/\text{m}^3$). The City of Portola municipal code chapter 15.10 is less stringent in several ways compared to Rule 445. First, certified devices are exempt from curtailment. Additionally, curtailment requires not only that forecasted PM_{2.5} exceed a numeric value but also that adverse meteorological conditions will persist as determined by the National Weather Service. Rule 445 does not have a provision requiring the persistence of adverse meteorological conditions. Additionally, the contingency measure in Portola's code, which temporarily lowered the threshold to $20 \mu\text{g}/\text{m}^3$, will sunset once a new attainment plan is submitted to the U.S. EPA and the threshold will revert to $30 \mu\text{g}/\text{m}^3$. Rule 445 does not contain a sunset provision for contingency measures.

A quantitative analysis, presented in Attachment C, was conducted to provide a robust comparison of the curtailment programs in Rule 445 and SJVAPCD Rule 4901. The analysis demonstrated that the current $29 \mu\text{g}/\text{m}^3$ is as stringent as the SJVAPCD Rule 4901 using Source Receptor Area (SRA) as a geographical unit

¹³ <https://ww2.valleyair.org/media/jkhaefnp/06-pm25-contingency-measure-sip-revision.pdf>

to define hotspot in a similar way that SJVAPCD R4901 defined. The South Coast Air Basin has 35 SRAs, of which population is larger than a county in SJVAPCD's jurisdiction. In addition, our daily forecast is provided for individual SRA's while SJVAPCD provide one forecast value to an entire county except two counties that are divided to two subareas each. Therefore, SRA is the equivalent unit to the SJVAPCD's county. However, per the suggestion from U.S. EPA Region 9, South Coast AQMD will consider lowering the Basin-wide curtailment threshold in Rule 445 to 25 $\mu\text{g}/\text{m}^3$. Therefore, control measure BCM-18 proposes to lower the residential wood burning curtailment threshold to 25 $\mu\text{g}/\text{m}^3$ while, as a whole, South Coast Rule 445 is at least as stringent as wood-burning curtailment rules adopted in other areas since no wood-burning device (registered or unregistered, or in any geographic location) may be operated on any day during the wood-burning season if the ambient PM_{2.5} 24-hour concentration is forecast to equal or exceed 29 $\mu\text{g}/\text{m}^3$. ~~In addition, a quantitative analysis, presented in Attachment C, was conducted to provide a robust comparison of the curtailment programs in Rule 445 and SJVAPCD Rule 4901.~~

2. The wood-burning curtailment season in Rule 445 (November-February) is narrower than that in BAAQMD Regulation 6, Rule 3 (year-round).

The majority of wood-burning activities in the Basin occur during November-February with reduced activity during the shoulder months of September, October, March and April. Rule 445 has a contingency provision to expand the curtailment season to the shoulder months. The contingency provision to extend the curtailment season will be triggered upon the issuance of a final determination by U.S. EPA that the South Coast Air Basin has failed to:

(A) meet a Reasonable Further Progress (RFP) requirement in an approved attainment plan for an applicable ozone NAAQS; or

(B) attain an applicable ozone NAAQS by the applicable attainment date.

The Basin, due to its climate, has virtually no residential wood-burning during the summer and, as such, expanding the curtailment program year-round would have no air quality benefit. This is supported by temporal allocation factors used in air quality modeling which reveal that there are no residential wood burning emissions for May-September. Conversely, the climate within the BAAQMD jurisdiction is appreciably cooler during the summer and wood-burning is more prevalent year-round (see Figure III-2).¹⁴ Given that difference, a year-round wood-burning curtailment program would be expected to yield additional emission reductions in the BAAQMD, but not in the Basin.

¹⁴ National Weather Service. <https://www.weather.gov/wrh/Climate?wfo=mtr>

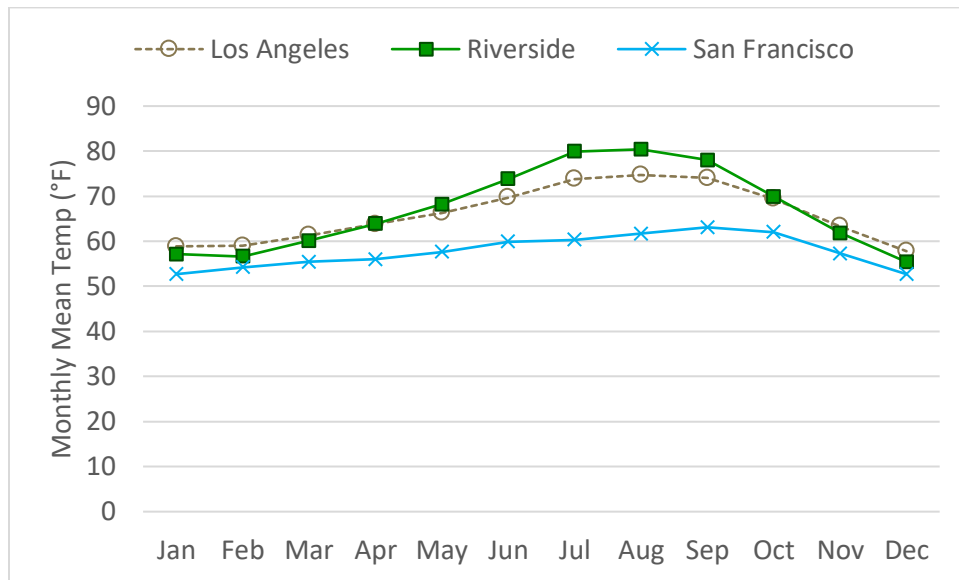


FIGURE III-2
MONTHLY MEAN TEMPERATURE IN LOS ANGELES, RIVERSIDE, AND SAN FRANCISCO
BASED ON 2000-2023 DATA

Overall, Rule 445 is as stringent as BAAQMD's Regulation 6, Rule 3 since virtually no reductions will be achieved from a year-round curtailment due to the lack of wood-burning activities during summer months.

3. Other districts do not have a low-income exemption for households with an alternative source of heat.

Removal of the low-income exemption was identified as a control method to reduce PM emissions and it is evaluated further in the Appendix IV-A BCM-18.

4. Rule 445 contains an exemption from curtailment requirements for devices above 3,000 feet.

Due to atmospheric dynamics and transport, emissions from mountain communities above 3,000 feet likely have minimal to no impact on air quality in populated communities in the Basin. This is especially true on cold winter nights since a shallow boundary layer that is only a few hundred feet deep or less is present. Any emissions from the mountain communities above 3,000 feet will enter the residual layer and will not entrain down to the surface layer due to thermal stratification. On the next day when the mixing layer is developed and entrained to the residual layer, prevailing surface wind shifts to onshore flow (from the sea toward mountain summit), which will disperse the wood smoke laden air further away from the Basin.

Additionally, rural mountain communities in the Basin above 3,000 feet experience significant challenges in heating their homes during winter, especially those that may not have access to reliable natural gas or electricity service. Therefore, removing this exemption would jeopardize public safety as homes can become snowed in and residents must have a reliable means to heat their homes.

One option staff considered involved requiring U.S. EPA certified devices to qualify for the elevation-based exemption from curtailment. However, there are concerns as to whether households in rural mountain communities have the financial resources to procure and install such devices as many of these households are likely low-income. The cost concern is further elaborated under item 5. Staff does not consider it economically feasible to mandate U.S. EPA certified devices to qualify for the exemption.

5. Rule 445 does not have a provision requiring U.S. EPA certified devices to qualify for the sole source of heat exemption.

Data suggests that a very limited number of households in the Basin use wood as a fuel. In Los Angeles County, approximately 5,914 households burn wood as a primary source of heat out of an approximate total of 3,375,587 households (0.18 percent) according to U.S. Census data.¹⁵ The limited applicability of the sole-source of heat exemption suggests that the small emission reductions from requiring these households to have U.S. EPA certified devices would have an inconsequential impact on air quality. Additionally, many households subject to the sole source exemption are low-income and therefore do not have the financial resources to purchase a U.S. EPA certified wood stove. Costs for these units vary but can easily exceed \$4,000 without considering installation costs. If the wood stove is replacing an existing unit, then installation costs depend on the condition and compatibility of the exhaust pipe. If a new pipe is required, installation costs can exceed \$2,000. The high cost burden for low-income households combined with the minimal emission reductions that would be achieved suggest that this measure is not economically feasible.

6. Rule 445 does not have a provision requiring replacement of uncertified devices upon transfer or sale of a property.

To enforce this provision, SJVAPCD Rule 4901 requires sellers of residential property to submit documentation regarding the wood-burning devices located on the property even if there are none. However, the requirement to replace uncertified devices only applies to wood-burning stoves and inserts, and does not extend to fireplaces. According to the emissions inventory, 97 percent of wood-burning devices in the Basin are fireplaces. Furthermore, wood stoves and inserts tend to be more prevalent in colder and higher altitude regions. As stated in the previous section, the emissions from wood burning in these areas are not anticipated to significantly impact PM2.5 air quality in the Basin, particularly in areas already characterized by high PM2.5 levels. As such, applying the resale requirement in Rule 4901 to the Basin would not result in appreciable additional emission reductions and, for most home sales, enacting the resale provision in Rule 445 would lead to no emission reductions.

Staff is further concerned with the level of effort required for the small number of uncertified stoves and inserts in homes being sold. Given the much greater housing stock in the Basin relative to the SJVAPCD, South Coast AQMD would not have the resources to implement such a program. In addition, staff has

¹⁵ [United States Census Bureau - B25040: HOUSE HEATING FUEL - Census Bureau Table](#)

faced strong resistance from trade and building association groups as well as realtor associations due to the high cost of mandating and enforcing such a program.

In lieu of implementing this provision, South Coast AQMD has instead focused on incentives to convert wood-burning fireplaces to gaseous fueled and will consider to expanding the program to electric devices. South Coast AQMD has incentivized the conversion of more than 10,000 fireplaces to gaseous fueled, where practicable, and continues to do so by providing up to \$1,600 per unit in areas that typically see the highest concentrations of ambient PM_{2.5}. The voluntary incentive program is currently being successfully implemented and staff is exploring ways to expand eligibility criteria to further encourage voluntary participation. Since the resale provision in Rule 4901 does not require removal or upgrade of fireplaces, the incentive approach has been more effective at achieving emission reductions in the Basin.

7. Rule 445 does not have provisions addressing major remodels of fireplaces and chimneys.

SJVAPCD Rule 4901 requires installation of a U.S. EPA certified, gas-fueled, or electric device during a remodel of a fireplace or chimney that exceeds \$15,000 and requires a building permit. BAAQMD Regulation 6-3 has a similar provision. Under Rule 445, remodels are permitted if a health or safety issue exists and the wood-burning device is repaired within its existing footprint.^{16,17} ~~However While, Rule 445 does not have explicit provisions addressing major remodels of fireplaces or chimneys, it does restrict the sale, supply, and installation of wood burning devices unlike rules in other air districts.~~

The provisions in other districts' rules referencing remodels that exceed \$15,000 and require a building permit suggest a substantial change to the appearance and/or functional utility of the fireplace. An example of such a change would be a homeowner who intends to demolish an existing fireplace to install a larger fireplace. In this instance, Rule 445 section (d)(2) is as stringent as, if not more stringent than, SJVAPCD Rule 4901 section 5.3 and BAAQMD Regulation 6, Rule 3 section 307 by requiring replacement units to be a U.S. EPA certified insert, masonry or pellet fueled heater, or a gaseous-fueled fireplace. Masonry and pellet fueled stoves have very low emission factors similar to U.S. EPA certified units. Importantly, Rule 445 does not have an up to \$15,000 cost exemption or building permit requirement to trigger the requirements under (d)(2). Rule 445 always requires a less polluting alternative when replacing any wood burning device. Rule 445 is also more stringent because it prohibits the sale or installation of anything other than the listed types, which applies regardless of the size of project or whether it needs a building permit. Rule 445 is likely more enforceable as a sale/installation ban, imposed on companies, than provisions addressing individual residential building projects.

¹⁶ <http://www.aqmd.gov/docs/default-source/rule-book/support-documents/rule-445/detailed-rule-445-information.pdf?sfvrsn=13>

¹⁷ South Coast AQMD, Final Staff Report for Proposed Amended Rule 445 – Wood-Burning Devices. June 5, 2020

Farming Operations – Livestock Waste

Existing rules

Emissions from livestock waste in farming operations are regulated by Rules 223 and 1127.

South Coast AQMD Rule 223 Emission Reduction Permits for Large Confined Animal Facilities (Adopted June 2, 2006)

Rule 223 requirements apply to large Confined Animal Facilities (CAFs) above certain size thresholds. Dairies with at least 1,000 milking cows, poultry facilities with at least 650,000 birds, and horse facilities with at least 2,500 horses qualify as large CAFs. Pertaining to manure management, the dairy provisions require that owners/operators implement at least six of 12 corral measures, two of seven solid manure or separated solids handling measures, one of eight liquid manure handling measures, and two of four land application measures. A poultry large CAF owner/operator must implement at least one of seven solid manure or separated solids handling measures, and one of eight liquid manure handling measures.

South Coast AQMD Rule 1127 Emission Reductions from Livestock Waste (Adopted August 6, 2004)

Rule 1127 was adopted on August 6, 2004 to reduce emissions of ammonia, VOC, and PM₁₀ emissions from dairy livestock waste. Rule 1127 applies to dairy farms with 50 or more cows, heifers, and/or calves and to manure processing operations, such as composting operations and anaerobic digesters. Rule 1127 requires the implementation of Best Management Practices (BMPs) to minimize fugitive dust, ammonia, and VOC emissions. Manure disposal is permitted only if the destination is a manure processing facility designed to reduce ammonia and VOC emissions from unprocessed manure, agricultural land within the South Coast AQMD approved for the spreading of manure, or a combination of the above options.

Federal and State rules and regulations

There are no federal or State regulations describing BACM for this source category. However, in 2017, U.S. EPA and the United States Department of Agriculture (USDA) published a reference guide that provides a compilation of control measures that achieve emission reductions from livestock and poultry operations.¹⁸

Analogous rules in other air districts

SJVAPCD Rule 4570 Confined Animal Facilities (Amended October 21, 2010)

Rule 4570 limits emissions of VOC and NH₃ from Confined Animal Facilities. Rule 4570's regulatory thresholds include facilities with at least 500 milking cows, 3,500 beef cattle, 7,500 calves, heifers, or other cattle, 400,000 heads of chicken and ducks, 100,000 heads of turkey, 3,000 heads of swine and horses, and 15,000 heads of sheep, goats, or any combination of the two. Rule 4570 is more stringent regarding applicability than Rule 223 for milk cows (1,000 milk cows in South Coast AQMD vs. 500 milk cows in

¹⁸ https://www.epa.gov/sites/default/files/2017-01/documents/web_placeholder.pdf

SJVAPCD), and for chickens and ducks (650,000 birds in South Coast AQMD vs. 400,000 birds in SJVAPCD). Rule 4570 also made certain feed and housing menu items mandatory for dairies and poultry facilities. However, South Coast AQMD Rule 1127 has lower applicability thresholds for cows, heifers and/or calves. Rule 223 also has a lower applicability for horse facilities (2,500 in South Coast AQMD vs. 3,000 in SJVAPCD), however there are no CAFs with greater than 2,500 horses in San Joaquin Valley.¹⁹

For corral mitigation measures in dairy operations, Rule 4570 has nine mitigation measures, six of which are mandatory and one additional measure that is required from the remaining three. South Coast AQMD Rule 223 requires at least six control measures from 10 Class One mitigation measures and two Class Two mitigation measures. For one Class One mitigation measure – inspect water pipes and troughs and repair leaks – South Coast AQMD Rule 223 has a higher frequency requirement than SJV Rule 4570. In addition, South Coast AQMD Rule 1127, which applies to dairies with 50 or more cows, requires facilities to choose at least five of the seven corral mitigation measures. Rule 4570 contains two solid waste control measures, from which facilities are required to choose at least one. South Coast AQMD Rule 223 has four Class One mitigation measures and three Class Two mitigation measures, from which facilities are required to choose at least two. With regard to liquid waste mitigation measures in dairies, operators are required to choose at least one of the four mitigation measures listed in Rule 4570. South Coast AQMD Rule 223 has five Class One mitigation measures and three Class Two mitigation measures, from which facilities are required to choose at least one. South Coast AQMD Rule 1127 requires that manure removed must be either treated at an approved manure processing operation or applied on agricultural land with local approval.

BAAQMD Regulation 2 Rule 10 Large Confined Animal Facilities (Adopted July 19, 2006)

Rule 2-10 is a permit rule that limits emissions of VOCs, NOx and PM10 from large CAFs. The applicability threshold is the same as in South Coast AQMD Rule 223. Rule 2-10 requires Reasonably Available Control Technology (RACT) to be implemented for a large CAF.

SMAQMD Rule 496 Large Confined Animal Facilities (Adopted August 24, 2006)

Rule 496 applies to large CAFs with the same regulatory threshold as South Coast AQMD Rule 223. Regarding corral mitigation measures in dairies, Rule 496 has 15 Class One mitigation measures and three Class Two mitigation measures from which facilities are required to choose at least six. South Coast AQMD Rule 223 requires the same number of control measures (at least six) from ten Class One mitigation measures and two Class Two mitigation measures. For controlling emissions from solid waste, Rule 496 requires the dairy operators to choose at least two mitigation measures from five Class One mitigation measures and three Class Two mitigation measures; South Coast AQMD Rule 223 has four Class One mitigation measures and three Class Two mitigation measures, from which facilities are required to choose at least two. Regarding liquid waste mitigation measures, Rule 496 has five Class One mitigation measures and five Class Two mitigation measures, from which facilities are required to choose at least

¹⁹ San Joaquin Valley Air Pollution Control District 2018 Serious Area Plan for the 2012 Annual PM2.5 Standard, Appendix C. <https://www.valleyair.org/pmplans/documents/2018/pm-plan-adopted/C.pdf>

one. South Coast AQMD Rule 223 has similar requirements at which operators are required to choose at least one measure from five Class One mitigation measures and three Class Two mitigation measures.

ICAPCD Rule 217 Large Confined Animal Facilities Permits Required (Amended February 9, 2016)

Imperial County Air Pollution Control District (ICAPCD) Rule 217 was adopted on October 10, 2006 and limits ammonia and VOC emissions from large confined animal facilities.²⁰ Following adoption of the 2016 amendment, the requirements are now equally stringent to SJVAPCD Rule 4750, and thus the applicability thresholds are lower than those in South Coast AQMD Rule 223.²¹

Evaluation

SJVAPCD Rule 4750 and ICAPCD Rule 217 have lower applicability thresholds than South Coast AQMD Rule 223. Staff evaluated the feasibility and effectiveness of lowering the rule applicability thresholds for dairies and poultry facilities. Staff also evaluated the control measures provided in the U.S. EPA and USDA reference guide. The evaluation can be found in the Control Measure Assessment section.

Paved Road Dust

Existing rules

Emissions from paved road dust are regulated by multiple South Coast AQMD rules.

South Coast AQMD Rule 1186 PM₁₀ Emissions from Paved and Unpaved Roads and Livestock Operations (Amended July 11, 2008)

Rule 1186 controls emissions of particulate matter from paved and unpaved public roads, and livestock operations. It establishes requirements to prevent material from being deposited on roadways and also requires local jurisdictions to procure certified street sweeping equipment. Rule 1186 requires new or widened roads to be constructed with curbing or, as an alternative, paved shoulders. Local governments are also required to remove material deposited onto roads as a result of wind, water erosion, or by other means, and are also required to use only South Coast AQMD Rule 1186-certified street sweepers which have a minimum pick-up efficiency of 80 percent and limit entrained PM₁₀ emissions to no more than 200 mg/m. Rule 1186 also requires unpaved access connections and unpaved feed lane access areas in livestock operations to be treated. All grinding activities are limited to 2 to 5 p.m. if visible emissions are detected.

²⁰ <https://apcd.imperialcounty.org/wp-content/uploads/2020/01/1RULE217.pdf>

²¹ San Joaquin Valley Air Pollution Control District 2018 Serious Area Plan for the 2012 Annual PM_{2.5} Standard, Appendix C. <https://www.valleyair.org/pmplans/documents/2018/pm-plan-adopted/C.pdf>

South Coast AQMD Rule 1157 PM10 Emission Reductions from Aggregate and Related Operations (Amended September 8, 2006)

Rule 1157 requires access improvements which are intended to reduce the amount of material tracked out from a facility onto surrounding paved public roads.

South Coast AQMD Rule 403 Fugitive Dust (Amended June 3, 2005)

Rule 403 requires access improvements for sites greater than 5 acres and all material tracked out from applicable sources must be removed at the conclusion of the workday or at any time it extends more than 25 feet from a site.

South Coast AQMD Rule 403.2 Fugitive Dust from Large Roadway Projects (Adopted June 3, 2022)

Rule 403.2 reduces potential fugitive dust impacts to communities near large roadway projects and prohibits certain large roadway project activities that generate dust and are in close proximity to sensitive receptors and areas of public exposure. Rule 403.2 includes additional requirements related to dust control, notification to nearby receptors, project signage, and recordkeeping.

Federal and State rules and regulations

Staff evaluated the requirements of U.S. EPA's Fugitive Dust Background Document and Technical Information Document for BACM and found no requirements that were more stringent than those already incorporated in the South Coast AQMD rules for this source category.²²

There are no State regulations/policies describing BACM for this source category.

Analogous rules in other air districts

SJVAPCD Rule 8061 Paved and Unpaved Roads (Amended August 19, 2004)

SJVAPCD Rule 8061 establishes a minimum sweeping frequency of once per month for roads with paved curbs that have been determined to have the greatest potential for dirt and silt loadings. For unpaved roads, on any unpaved road segment with 26 or more Annual Average Daily Traffic (AADT), the owner/operator shall limit visible dust emission to 20 percent opacity and comply with the requirements of a stabilized unpaved road or shall implement an APCO-approved Fugitive PM10 Management Plan. Within an urban area, Rule 8061 requires that all new roads be paved. For existing paved roads in urban areas with unpaved shoulders, Rule 8061 requires paving or stabilizing a 4-foot shoulder on 50% of the roads with the highest AADT.

²² <https://nepis.epa.gov/Exe/ZyPDF.cgi/2000JCJE.PDF?Dockey=2000JCJE.PDF>

SMAQMD Rule 403 Fugitive Dust (Adopted August 3, 1977)

Staff evaluated the requirements of SMAQMD Rule 403 and found no requirements that were more stringent than those already incorporated in the South Coast AQMD rules for this source category.

BAAQMD has no rule for this source category.

Evaluation

Staff evaluated the feasibility and effectiveness of establishing minimum street sweeping frequencies and enhancing street cleaning for roads with higher silt loadings. The evaluation can be found in the Control Measure Assessment section.

Commercial Cooking

Existing rule

South Coast AQMD Rule 1138 Control of Emissions from Restaurant Operations (Adopted November 14, 1997)

South Coast AQMD regulates VOC and PM emissions from chain-driven charbroilers through Rule 1138. Rule 1138 covers chain-driven charbroilers cooking 875 pounds of meat or more per week, applicable to mostly large (fast food) chain operations. The rule requires the installation of flameless catalytic oxidizers, or equivalent control devices, to chain-driven charbroilers. Currently, under-fired charbroilers are not regulated by Rule 1138.

Federal and State rules and regulations

There are no federal or State regulations/policies describing BACM for this source category.

Analogous rules in other air districts and local agencies

SJVAPCD Rule 4692 Commercial Charbroiling (Amended June 21, 2018)

Rule 4692 reduces PM emissions by requiring catalytic oxidizers for chain-driven charbroilers cooking 400 pounds of meat or more per week. This threshold is more stringent than South Coast AQMD Rule 1138 which applies to chain-driven charbroilers cooking 875 pounds of meat or more per week. Rule 4692 requires that chain-driven charbroilers be equipped with a catalytic oxidizer that achieves minimum control efficiencies of 83 percent for PM10 and 86 percent for VOCs. Catalytic oxidizers certified by South Coast AQMD are also deemed compliant. In its 2018 amendment, SJVAPCD expanded Rule 4692 applicability to include under-fired charbroilers. Operators of under-fired charbroilers are required to submit a one-time report and register the equipment in lieu of obtaining a permit. There are no registration and reporting requirements for under-fired charbroilers in Rule 1138. However, there are limited filing requirements for owners or operators of commercial charbroilers under Rule 222.

BAAQMD Regulation 6, Rule 2 Commercial Cooking Equipment (Adopted December 5, 2007)

Regulation 6-2 requires controls on chain-driven charbroilers and under-fired charbroilers meeting the requirements of: exempting less than 400 lbs of meat per week for chain-driven charbroilers and exempting less than 800 lbs of meat per week for under-fired charbroilers; installation of a certified catalytic oxidizer emitting 1.3 lbs of PM₁₀ and 0.32 lbs of VOC per 1,000 lbs of beef cooked, or a control device emitting 0.74 lbs of PM₁₀ per 1,000 lbs of beef cooked for chain-driven charbroilers; PM₁₀ emissions limit no more than 1.0 lb per 1,000 lbs of beef cooked and installation of a certified control device for new and existing under-fired charbroilers. These emission limits are similar to the limits that would be achieved by a South Coast AQMD certified catalytic oxidizer.

BAAQMD does have a lower exemption limit for chain-driven charbroilers (400 lb or less of beef cooked per week) in comparison to South Coast AQMD (875 lb or more per week). However, South Coast AQMD Rule 1138 is applicable to all types of meat (e.g., fish, chicken, pork, etc.). While beef (e.g., hamburger and steak) does have the highest amount of PM and VOC emissions per pound, a large portion of the overall types of meat cooked include meats other than beef. In the Bay Area, 58 percent of meat charbroiled is not beef.²³ Furthermore, the BAAQMD exemption threshold of 800 lb or less of beef for under-fired charbroilers is very close to the 875 lb or less exemption for chain-driven charbroilers since, at this volume of throughput, charbroilers tend to be chain-driven and not under-fired and a permit may be required.

Finally, no under-fired charbroiler emissions control device meeting the requirements of BAAQMD Regulation 6 Rule 2 has been certified in the Bay Area ~~and there is no active enforcement of this provision.~~²⁴

New York City Department of Environmental Protection (NYC DEP), Title 24 of the Administrative Code, Section 24-149.4 Commercial Char Broilers (Amended May 6, 2016)

Passed in May 2016, this code requires the installation of a control device which is certified to provide at least 75 percent emission reductions for new under-fired charbroilers and for any new or existing chain-driven charbroiler used to cook 875 lbs or more of meat per week. Registration and the payment of a \$100 administration fee are required for existing charbroiler units. Consideration of control requirements for existing under-fired charbroilers was pushed back due to feasibility questions and higher cost of retrofitting existing operations. Based on conversations with NYC DEP, there has been no active enforcement of the under-fired charbroiler provisions in this code.²⁵

City of Aspen, Colorado, Administrative Code Section 13.08.100. Restaurant Grills

This code applies to commercial charbroilers installed after April 25, 1983. Charbroilers installed after April 25, 1983 but before January 1, 1993 are required to be equipped with an emission control device

²³ 2007 Bay Area Air Quality Management District Staff Report, Regulation 6, Rule 2: Commercial Cooking Equipment

²⁴ Telephone call with Eric Pop, Compliance and Enforcement staff at BAAQMD, 5/5/23

²⁵ Email correspondence with staff at NYC DEP, 9/14/23

that reduces uncontrolled PM10 emissions by at least 90 percent if the charbroiler is used to cook high-fat-content meat. All charbroilers newly installed on or after January 1, 1993 are subject to PM10 emissions control at 90 percent efficiency, unless a charbroiler is replaced with another charbroiler that is less than or equal to the cooking surface of the charbroiler being replaced.

Ventura County Air Pollution Control District Rule 74.25 Restaurant Cooking Operations

All chain-driven charbroilers cooking over 875 lbs meat/week require catalytic oxidizers. Staff did not identify any more stringent provisions than those in Rule 1138.

Evaluation

Staff assessed the potential emission reduction opportunities of lowering the regulatory threshold for chain-driven charbroilers. The evaluation can be found in the Control Measure Assessment section. As of September 2023, staff confirmed that jurisdictions with measures in place that require installing control devices for under-fired charbroilers (BAAQMD and NYC DEP) do not have any known installations that meet the applicable measure requirements. As these jurisdictions were not able to identify an example of an installed certified control device, it makes it difficult to demonstrate that available technologies could achieve emission reductions in practice. Therefore, staff does not propose a potential control measure for under-fired charbroilers. Nevertheless, South Coast AQMD will continue discussions and collaboration with other air districts and CARB to continually assess the state of control technology for under-fired charbroilers.

Identifying Potential Control Measures

While the previous section focused on an in-depth analysis of several key PM source categories, the BACM demonstration is required to identify potential opportunities to reduce emissions across all applicable source categories. To accomplish this, U.S. EPA recommends that nonattainment air districts first identify the emission reduction programs that have already been implemented at the federal, state or local air district level. Next, U.S. EPA recommends that air districts examine additional control measures adopted for other nonattainment areas to attain the ambient air quality standards as expeditiously as practicable. To demonstrate that South Coast AQMD has considered all available measures, a multi-step analysis that consulted various sources was conducted. The following sections summarize the analysis.

Step 1 – Other Districts’ Control Measures

This portion of the analysis focused on the identification of air districts’ rule requirements that are more stringent than those in South Coast AQMD rules. A detailed evaluation of South Coast AQMD rule requirements can be found in Attachment A. It shows that, in general, South Coast AQMD’s current rules and regulations are equivalent to or more stringent than those developed by other air districts. However, in some areas, existing source-specific rules may be amended to lower exemption thresholds and/or emissions standards, promote cleaner technologies, or add additional best management practices. The

key findings are summarized in Table III-1, while the Control Measure Assessment section contains an in-depth feasibility discussion for each measure.

TABLE III-1
AIR DISTRICTS' RULE REQUIREMENTS THAT ARE MORE STRINGENT THAN THOSE IN SOUTH COAST AQMD RULES

Rule #	Evaluation
223	SJVAPCD Rule 4570 has lower applicability thresholds than those in Rule 223 for milk cows (1,000 milk cows in South Coast AQMD vs. 500 milk cows in SJVAPCD), and for chickens and ducks (650,000 birds in South Coast AQMD vs. 400,000 birds in SJVAPCD). Staff evaluated the feasibility and effectiveness of extending rule applicability to dairies and certain poultry facilities using a lower size threshold, and the assessment can be found in the Control Measure Assessment section.
445	SJVAPCD Rule 4901 and BAAQMD Regulation 6, Rule 3 have more stringent requirements. For details, refer to the previous section. Staff analyzed the feasibility of incorporating the more stringent requirements and the assessment can be found in the Control Measure Assessment section.
1111	BAAQMD Regulation 9, Rule 4 establishes a zero NOx emission limit for new natural gas-fired space heaters with a capacity < 175,000 Btu/hr beginning in 2029, which is more stringent than the 14 ng/J NOx emission limit in Rule 1111. Staff evaluated the feasibility and effectiveness of lowering the emission limit and the assessment can be found in the Control Measure Assessment section.
1117	SJVAPCD Rule 4353 contains emission limits for PM10 which are not in Rule 1117. Staff evaluated the feasibility of incorporating these emission limits and the assessment can be found in the Control Measure Assessment section.
1121	BAAQMD Regulation 9, Rule 6 establishes a zero NOx emission limit for new natural gas-fired water heaters and boilers, which is more stringent than the NOx emission limits in Rule 1121. Implementation of the zero NOx limit follows a phased approach depending on the capacity, but all new heaters and boilers up to 2 MMBtu/hr are required to comply by 2031. Staff evaluated the feasibility and effectiveness of lowering the emission limit and the assessment can be found in the Control Measure Assessment section.
1138	SJVAPCD Rule 4692 has a lower applicability threshold (400 vs. 875 lbs of meat or more per week in South Coast AQMD) for chain-driven charbroilers. BAAQMD Regulation 6, Rule 2 applies to under-fired charbroilers with combined total grill surface area of at least 10 square feet, purchasing 1,000 lbs of beef or more per week, and cooking 800 lbs of beef per week. Staff evaluated the feasibility of lowering the regulatory threshold of chain-driven charbroilers from 875 to 400 lbs of meat or more per week and extending applicability to under-fired charbroilers. The assessment can be found in the Control Measure Assessment section.
1146	SJVAPCD Rule 4320 has more stringent NOx emission limits than Rule 1146 for boilers, steam generators, and process heaters greater than or equal to 5 MMBtu/hr. For natural gas-fired boilers between 5 and 20 MMBtu/hr, the NOx limit is 5 ppm in Rule 4320, while

Rule #	Evaluation
	the corresponding NOx limits are 7 to 9 ppm in Rule 1146. In addition, for natural gas-fired units that are greater than 20 MMBtu/hr, the NOx limit is 2.5 ppm in Rule 4320 compared to 5 ppm in Rule 1146. Unlike Rule 1146, which sets mandatory emission limits, Rule 4320 has an option for facilities to pay an annual emission mitigation fee in lieu of meeting the NOx limits. Staff evaluated the feasibility of lowering emission limits in Rule 1146 and the assessment can be found in the Control Measure Assessment section.
1186	SJVAPCD Rule 8061 requires municipalities to sweep paved roads at least once per month with PM10 efficient units. For unpaved roads, on any unpaved road segment with 26 or more AADT, the owner/operator shall limit visible dust emission to 20 percent opacity and comply with the requirements of a stabilized unpaved road, or shall implement an APCO-approved Fugitive PM10 Management Plan. Within an urban area, this rule requires all new roads to be paved. Staff evaluated the feasibility of these requirements and the assessment can be found in the Control Measure Assessment section.

The following sections present an in-depth analysis of SIPs from other 2012 annual PM2.5 NAAQS nonattainment areas (see Table III-2). South Coast AQMD staff evaluated the control measures in these SIPs and analyzed the corresponding adopted or amended rules, if applicable. Evaluation of the control strategies for these nonattainment areas is a critical component of this BACM demonstration and ensures that South Coast AQMD incorporates the most effective PM2.5 measures being applied across the nation.

TABLE III-2
2012 ANNUAL PM2.5 NAAQS NONATTAINMENT STATUS AND ATTAINMENT YEAR

NONATTAINMENT AREA	2012 Annual PM2.5 Standard	
	Classification	Attainment Year
Los Angeles-South Coast Air Basin, CA	Serious	2025
San Joaquin Valley, CA	Serious	2025
Plumas County, CA	Serious	2025
Imperial County, CA	Moderate	2021
Allegheny County, PA	Moderate	2021

PM2.5 Nonattainment Areas, as of 1/30/2023, are posted in
<https://www3.epa.gov/airquality/greenbook/kbtcw.html>.

San Joaquin Valley, CA

On November 15, 2018, San Joaquin Valley APCD adopted the 2018 PM_{2.5} Plan to address U.S. EPA's 1997 (annual, 15 µg/m³ and 24-hour, 65 µg/m³), 2006 (24-hour, 35 µg/m³), and 2012 (annual, 12 µg/m³) PM_{2.5} standards.²⁶ The plan committed to adopt the following eight regulatory control measures.

- SJVAPCD Rule 4311 Flares

Rule 4311 controls emissions from flares at oil and gas production facilities, sewage treatment plants, waste incineration and petroleum refining operations. Flare operators are required to submit flare minimization plans, perform extensive monitoring and record keeping, submit reports of planned and unplanned flaring activities, and meet petroleum refinery SO₂ performance targets. In its 2018 PM_{2.5} Plan, SJVAPCD committed to pursue 0.05 tpd of additional NO_x emissions reductions.

Rule 4311 was amended on December 17, 2020 and has NO_x and VOC emissions limits that are 0.018 to 0.06 lbs/MMBtu and 0.008 to 0.038 lbs/MMBtu, respectively. South Coast AQMD Rule 1118 (Control of Emissions from Refinery Flares; amended 7/7/17) requires flare minimization plans, reports of planned and unplanned flaring activities, and record keeping for petroleum refineries. South Coast AQMD Rule 1118.1 (Control of Emissions from Non-Refinery Flares; adopted in January 2019, limits NO_x emissions at 0.018 to 0.06 lbs/MMBtu and VOC emissions at 0.008 to 0.038 lbs/MMBtu from non-refinery flare gases, including digester gas, landfill gas, produced gas, and other flare gas. The NO_x limits in South Coast AQMD Rule 1118.1 are as stringent as those in SJVAPCD Rule 4311.

- SJVAPCD Rule 4306 Boilers, Steam Generators, and Process Heaters – Phase 3 and Rule 4320 Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr.

A wide range of industries are subject to Rules 4306 and 4320, including electrical utilities, cogeneration, oil and gas production, petroleum refining, manufacturing and industrial processes, food and agricultural processing, and service and commercial facilities. The 2018 PM_{2.5} Plan considered potential measures including lowering emission limits and further lowering the more stringent advanced emission reduction option limit.

Both Rule 4306 and Rule 4320 were amended on December 17, 2020 to include the latest generation of ultra-low NO_x burners, SCR, and low NO_x burners combined with SCR. Rule 4306 has tiered NO_x emissions requirements. Tier 1 limits are required until December 30, 2023 and Tier 2 limits are enforced beginning December 31, 2023. For Tier 1 units operated on natural gas with a rated heat input equal to or less than 20 MMBtu/hr, a NO_x limit of 9 ppm for thermal fluid

²⁶ <https://www.valleyair.org/pmplans/documents/2018/pm-plan-adopted/2018-Plan-for-the-1997-2006-and-2012-PM2.5-Standards.pdf>

heaters with a total rated heat input between 5 and 20 MMBtu/hr to be implemented by 2023–2029. Rule 4320 requires fire-tube boilers and all other equipment greater than 20 MMBtu/hr to meet 2.5 ppm NO_x limit by 2023.

South Coast AQMD Rule 1146 (Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; amended 12/4/20) currently limits NO_x emissions from thermal fluid heaters to 12 ppm. While 9 ppm is feasible for new burners upon replacement, the 12 ppm NO_x emission limit was established at the time of rule development. Lowering the emission limit from 12 ppm to 9 ppm for retrofits involves higher costs ranging from \$58,000 to \$523,000 per ton of NO_x reduced.²⁷ SJVAPCD Rule 4320 provides the flexibility to comply with the lower NO_x emission limit through paying an annual mitigation fee as an option in lieu of meeting the limit, whereas the emission limits in Rule 1146 are mandatory.

- SJVAPCD Rule 4354 Glass Melting Furnaces

Rule 4354 limits emissions of NO_x, CO, VOC, SO_x, and PM₁₀ from glass manufacturing plants that make flat glass (window and automotive windshields), container glass (bottles and jars), and fiberglass (insulation). SJVAPCD committed to pursue the potential reductions of NO_x emissions for container glass furnaces using ultra-low NO_x control technologies such as catalytic filtration, oxy-fuel combined with SCR, and other methods.

Rule 4354 was amended on December 16, 2021 and requires container glass melting furnaces to meet a 1.5 lbs of NO_x limit per ton of glass produced until December 31, 2023. On and after January 1, 2024, the phase I NO_x limit is 1.1 lbs per ton of glass produced and the phase II NO_x limit is 0.75 lbs per ton of glass produced. For the same type of glass melting furnaces, the SO_x emission limit is 1.1 lbs per ton of glass produced until December 31, 2023 and 0.85 lbs per ton of glass produced on and after January 1, 2024.

South Coast AQMD Rule 1117 (Emissions from Container Glass Melting and Sodium Silicate Furnaces; amended 6/5/20) has comparable emission limits of NO_x and SO_x for container glass melting furnaces. Through 2023, NO_x (0.75 lbs per ton of glass produced) and SO_x (1.1 lbs per ton of glass produced) emission limits in Rule 1117 are at least as stringent as or even more stringent than Rule 4354. After 2024, the NO_x emission limit in Rule 1117 is as stringent as that in Rule 4354. SJVAPCD Rule 4354 has other emissions limits for CO, VOC, and PM₁₀ which are not in Rule 1117.

²⁷ <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/appendix-vi.pdf?sfvrsn=12>

- SJVAPCD Rule 4692 Commercial Charbroiling

The control measure included in the 2018 PM2.5 Plan sought to achieve additional emission reductions from commercial under-fired charbroilers through an incentive-based approach to fund the installation of controls for commercial under-fired charbroilers within urban boundaries in hot-spot areas, with a future year regulatory requirement to encourage participation by Valley businesses. As of April 2023, only one restaurant had completed a retrofit installation of under-fired charbroiler control technology as part of the Valley's incentive program.²⁸

Rule 4692 was amended on June 21, 2018, but requirements to install controls for under-fired charbroilers were not included in the rule. The details of the rule requirements are explained in the Cooking-Commercial Charbroiling section of Existing and Potential Control Measures for Key PM Source Categories.

- SJVAPCD Rule 4901 Wood Burning Fireplace and Wood Burning Heaters

The control measure included in the 2018 PM2.5 Plan sought potential enhancements to its wood-burning curtailment program including lowering curtailment levels, enhanced levels of incentives, prohibiting wood-burning devices in new construction, enhanced outreach and education efforts, and new requirements for significant remodels of a fireplace or chimney.

Rule 4901 was amended on June 20, 2019. The details of the rule requirements are explained in the Residential Fuel Combustion – Wood Combustion – Wood Stoves section of Existing and Potential Control Measures for Key PM Source Categories.

- SJVAPCD Rule 4352 Solid Fuel-Fired Boilers, Steam Generators and Process Heaters

Rule 4352 limits NOx and CO emissions from any boiler, steam generator or process heater that is fired on solid fuel including municipal solid waste (MSW), biomass, and other solid fuels.

Rule 4352 was amended on December 16, 2021 to lower NOx limits to 110 ppm on MSW and 65 ppm on biomass and all others, averaged over 24-hours, on and after January 1, 2024. South Coast AQMD Rule 1146 sets a NOx emission limit at 40 ppm on any non-gaseous fueled unit, averaged over 15 minutes, which is more stringent than the NOx limits set in Rule 4352.

- SJVAPCD Rule 4550 Conservation Management Practices (CMP)

Rule 4550, adopted in 2004, targets fugitive particulate emissions from agricultural operations (e.g., tillage practices, land preparation activities, etc.) to bring the Valley into attainment of the PM10 NAAQS. San Joaquin Valley APCD committed to evaluate the feasibility and effectiveness of control measures to achieve additional PM2.5 emission reductions from tilling and other land

²⁸ Email from Kyle Matsumura, SJVAPCD on April 17, 2023

preparation activities based on the research and through additional incentives under Rule 4550. However, there have been no recent amendments to Rule 4550 that would trigger reassessment of the rule provisions as they relate to those in South Coast AQMD rules.

South Coast AQMD Rule 403 aims to reduce the amount of PM entrained in the atmosphere as a result of man-made fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions. Rule 1186 further reduces PM emissions from livestock operations.

- SJVAPCD Rule 4702 Internal Combustion Engines

Rule 4702 applies to any internal combustion engine (ICE) rated at 25 bhp or greater and limits NOx, CO, VOC, and SOx emissions from applicable units including agricultural engines. In the 2018 PM2.5 Plan, SJVAPCD sought to further reduce NOx emissions from both agricultural and non-agricultural ICEs to the extent that such controls are technologically and economically feasible. Rule 4702 was amended on August 19, 2021 to establish emission limits for two engine ratings – one rated at least 25 bhp and up to 50 bhp and the other greater than 50 bhp. Stationary engines rated at up to 50 bhp must meet applicable requirements and emission limits specified in 40 CFR 60 Subparts IIII and JJJJ. Engines rated at greater than 50 bhp have separate emission limits by ignition type. Spark-ignited engines used in Agricultural Operations (AO) are required to meet 11 ppm NOx for rich-burn by 12/31/2023 and 43 ppm NOx for lean-burn engines by 12/31/2029 or 12 years after engine installation, whichever comes later. Non-AO spark-ignited engines are required to meet as low as 11 ppm NOx for both rich-burn and lean-burn engines with a full implementation date of 12/31/2023. South Coast AQMD Rule 1110.2 applies to all stationary and portable engines over 50 bhp and requires an 11 ppm NOx limit.

Plumas County, CA

Plumas County is part of the Northern Sierra AQMD. Staff did not identify any control measures to incorporate into the 2012 annual PM2.5 BACM analysis.

Imperial County, CA

South Coast AQMD staff reviewed Imperial County APCD's 2018 PM2.5 Plan and found no control measures that can potentially be incorporated into the 2012 annual PM2.5 BACM analysis.²⁹

Allegheny County, PA

Pennsylvania Department of Environmental Protection (PADEP) submitted the Allegheny County Area PM2.5 Plan³⁰ on September 30, 2019, on behalf of Allegheny County Health Department (ACHD), in order to meet the applicable CAA requirements for the 2012 annual PM2.5 NAAQS. U.S. EPA approved most

²⁹ <https://apcd.imperialcounty.org/wp-content/uploads/2020/01/2018-IC-PM25SIP.pdf>

³⁰ <https://downloads.regulations.gov/EPA-R03-OAR-2020-0157-0004/content.pdf>

required elements of the Allegheny County Area PM_{2.5} Plan, except for the contingency measures element of the plan, which U.S. EPA conditionally approved.³¹ Staff reviewed the RACM analysis³² and found the following measures to be potentially applicable to this BACM analysis.

- Commercial Cooking

Allegheny County has no existing control requirements for commercial cooking but evaluated HEPA filters for under-fired charbroilers as a technologically feasible emission control technology. The estimated cost-effectiveness was \$16,348 per PM_{2.5} ton reduced, and full implementation was anticipated to take 5 years. South Coast AQMD staff evaluated requiring the installation of fabric filters and other control technology for under-fired charbroilers in the Control Measure Assessment section.

- Fuel Combustion (Residential Wood)

Allegheny County has programs in place for residential wood stove and fireplace use, including wood stove change-out and “bounty” programs to replace existing wood stoves with new EPA-certified wood stoves, and a fireplace conversion program that offers discounts for fireplace inserts. The sale, installation, or purchase of non-Phase 2 outdoor wood-fired boilers is prohibited after May 31, 2011. An outdoor “no burn” policy is also in place when Air Quality Action Days are predicted.

Allegheny County noted in its analysis that some communities have required the removal and destruction of old wood stoves upon the sale of a home (e.g., Mammoth Lakes, CA; Washoe County, NV; and Jacksonville, OR). South Coast AQMD evaluates requiring replacement or removal of old wood-burning devices upon the sale or transfer of a property as discussed in the Control Measure Assessment section.

- Fugitive Dust

Dust suppressant applications are currently required at various locations within Allegheny County. Technologically feasible control measures include paving unpaved roads and unpaved parking lots and prohibiting the construction of new unpaved roads. Based on 80 percent rule penetration with unpaved roads representing 24 percent of the fugitive dust inventory, 0.19 tpd of PM_{2.5} emission reductions were estimated with this analysis. Cost-effectiveness was calculated based on SJVAPCD Rule 8061 to range between \$2,450 and \$6,725 per PM_{2.5} ton reduced and full implementation was anticipated one year after rule enactment.

South Coast AQMD Rule 1186 regulates vehicle trips on paved and unpaved public roads and at livestock operations and requires different control methods including certified street sweepers,

³¹ 86 FR 26388

³² <https://downloads.regulations.gov/EPA-R03-OAR-2020-0157-0014/content.pdf>

chemical stabilizers, and dust suppressants to reduce fugitive PM₁₀ emissions from roads. Between 1998 and 2006, Rule 1186 required annual treatment of unpaved public roads by either paving at least 1 mile of such roads, applying chemical stabilizer to 2 miles of such roads, or limiting vehicle speeds at 15 mph and/or installing speed bumps every 500 ft on 3 miles of such roads. Maintenance is required for chemically stabilized unpaved roads, but no such maintenance is required for paved roads. Paving unpaved public or private roads with maintenance of existing paved roads and prohibiting construction of new unpaved roads within urban areas is a potential control measure and the feasibility is assessed in the Control Measure Assessment section.

Step 2 – U.S. EPA’s Technical Support Documents

Newly adopted/amended rules to be incorporated into the California SIP have to be submitted for U.S. EPA’s review and approval. U.S. EPA prepares Technical Support Documents (TSDs) that review the State’s submittals of rules to be approved in the SIP, outline the CAA requirements for U.S. EPA to approve such submittal, and provide evaluation and recommendation for action on the State’s submittals. TSDs include U.S. EPA’s suggestions for future rule revisions that could be considered as potential control measures. In the 2016 AQMP, U.S. EPA’s TSDs finalized by December 2015 were reviewed as part of the 2016 AQMP BACM demonstration. Staff identified the following TSDs that have been issued since the 2016 AQMP:

- Rule 1111 (Reduction of NO_x Emissions from Natural Gas-Fired, Fan Type Central Furnaces; Approved March 29, 2016)
- Rule 1118 (Control of Emissions from Refinery Flares; Approved September 22, 2022)
- Rule 1118.1 (Control of Emissions from Non-Refinery Flares; Approved December 19, 2022)
- Rule 1147 (NO_x Reductions from Miscellaneous Sources; Approved December 28, 2016)
- Rule 1153.1 (Emissions of Oxides of Nitrogen from Commercial Food Ovens; Approved December 28, 2016)
- Rule 1168 (Adhesives and Sealant Applications; Approved February 24, 2021)

Of these TSDs, Rules 1118, 1118.1, and 1153.1 contained suggested rule amendments by U.S. EPA.

Below are U.S. EPA’s TSD recommendations for SIP-approved South Coast AQMD Rule 1118.

“Rule 1118 subparagraph (j) provides the Executive Officer the authority to approve another ASTM method. Without further specificity regarding how this authority will be exercised, it could functionally allow for a revision of the SIP without complying with the process for SIP revisions required by the CAA. As a result, this undermines the enforceability of the submission, constitutes a SIP deficiency, and conflicts with CAA Section 110. To resolve this deficiency, we recommend that Rule 1118 be amended to remove this clause, or the district would include sufficient detail in advance of the time of approval of the SIP provision, showing that the exercise of the director’s

discretion will not interfere with other CAA requirements. Another resolution would be for the language to include a requirement that the alternative test method also is federally approved.”

Rule 1118 was amended on January 6, 2023 to address U.S. EPA’s concern and now includes CARB and U.S. EPA approval for ASTM standards. Below are U.S. EPA’s TSD recommendations for SIP-approved South Coast AQMD Rule 1118.1.

“The following revisions are not currently the basis for rule disapproval, but are recommended for the next time the rule is amended. In Section (d)(3)(B), an owner or operator shall submit a Notification of Intent to the Executive Officer when the flare or flare station’s annual percent capacity is greater than the applicable threshold for two consecutive calendar years. According to the Final Staff Report after July 1st, 2024, most, if not all, of the flares and flare stations would have made changes to meet the thresholds listed in the rule; and ideally any exceedance of the thresholds in the rule would be uncommon. Therefore, we are recommending that in the future, after one calendar year (instead of the current 2 years) that a flare or flare station’s annual percent capacity is greater than the applicable threshold listed in Table 2 – Annual Capacity Thresholds, the owner or operator shall submit a Notification of Intent to the Executive.

In South Coast AQMD Rule 1118, BAAQMD Rule 12-11, BAAQMD Rule 12-12, SBCAPCD Rule 359, and SJVAPCD Rule 4311 there is a requirement that a pilot flame or an automatic ignition is operating at the time when combustible gases are vented through the flare. The NESHAP Subpart A for General Provisions § 60.18- General control device and work practice requirements and NSPS Subpart A for General Provisions § 63.11 – Control device and work practice requirements, both require flares to have a pilot flame present during flaring. Even though pilot flames or auto ignition are present during flaring in the non-refinery flares in South Coast, we recommend that this requirement be added during the next rule amendment.”

Below are U.S. EPA’s TSD recommendations for SIP-approved South Coast AQMD Rule 1153.1.

“In section (c)(1), consider adopting a lower NO_x limit similar to the limit in San Joaquin Valley APCD Rule 4309 for the next time rule revision. San Joaquin Valley APCD Rule 4309 (Dryers, Dehydrators, and Ovens) contains a NO_x limit of 4.3 ppm at 19 percent oxygen for applicable units and is lower than the NO_x emission limit of 60 ppm at 3 percent oxygen (6.5 ppm at 19 percent oxygen) in Rule 1153.1 for units run at temperatures greater than 500 °F.”

Rule 1153.1 was amended on August 4, 2023, to address as part of the Regional Clean Air Incentives Market (RECLAIM) transition to a command-and-control regulatory structure. The recently amended rule established new Best Available Retrofit Control Technology (BARCT) limits for all commercial food ovens which includes dryers, smokehouses, cooking ovens, and coffee roasters. The rule also establishes new zero- emission limits for several categories. All applicable units are now required to meet a NO_x limit of 30 ppm at 3 percent oxygen regardless of operating temperature. In addition, several categories are required to meet a zero- emission limit at a future date. The recent rule amendments address U.S. EPA’s concerns regarding the NO_x limit since the NO_x limits for Rule 1153.1 are more stringent than those in San Joaquin Valley APCD’s Rule 4309.

Based on the above recommendations, and considering recent rule amendments, staff did not identify any new PCMs that could be considered in this analysis.

Step 3 – Potential Control Measures from Previous Plans

BACM/BACT is a moving target that changes over time as new technologies and products become feasible and cost-effective. For this BACM demonstration, therefore, PCMs from previous plans were reassessed considering the latest emissions inventory, current state of technology, and cost data. Staff revisited the BACM evaluation for the 2012 annual PM_{2.5} standard and the Reasonably Available Control Measures (RACM) evaluation for the 2015 8-hour ozone standard in the 2016 and 2022 AQMPs, respectively. From the 2016 AQMP, staff identified several PCMs that were either rejected as infeasible or were otherwise not included and adopted as control measures. From the 2022 AQMP, one potential RACM that was determined to be technologically infeasible was reassessed. All remaining measures were not applicable based on precursor demonstrations, were incorporated into rule requirements, or were included as commitment in the plan. Precursor demonstrations presented in Appendix VI of this Plan evaluated the contribution of individual PM_{2.5} precursor to ambient PM_{2.5} levels. According to U.S. EPA's guidance and their implementation rule, the precursors with less than significant contribution are allowed to exclude exempted from control strategy analysis. As VOC and SO_x are not significant precursors in this PM_{2.5} Plan, VOC and SO_x measures were not considered. Table III-3 provides a summary of all measures that were reviewed and an explanation why some measures were omitted in this BACM demonstration.

The following section provides short descriptions of the control measures that were reconsidered in this analysis. A detailed analysis for each control measure is included in the Control Measure Assessment section.

**TABLE III-3
SUMMARY OF PCMS REVIEWED IN THE 2016 AND 2022 AQMPs**

PCM	Applicable AQMP	Reconsidered in this BACM demonstration?	If not, reason why
Lowering NO _x emission limits for boilers, steam generators, and process heaters	2022 AQMP	Yes, PCM 15	
VOC Emission Reductions from Cooling Towers	2022 AQMP	No	Precursor demonstration for VOC
Lowering NO _x emission limit for commercial food ovens	2022 AQMP	No	Rule 1153.1 was amended on 8/4/2023 to address this PCM

PCM	Applicable AQMP	Reconsidered in this BACM demonstration?	If not, reason why
Additional Enhancement in Reducing Existing Residential Building Energy Use	2016 and 2022 AQMPs	No	Included in control strategy; see ECC-03
Lowering VOC Emission Limit for Gasoline Bulk Terminals	2016 and 2022 AQMPs	No	Precursor demonstration for VOC
Lowering VOC Emission Limit for Auto and Light-Duty Truck Assembly	2016 and 2022 AQMPs	No	Precursor demonstration for VOC; Rule 1115 amended in March 2022 to address this PCM
Lowering VOC Limits Interior Body Sprays for Metal Container, Closure, and Coating Operations	2016 and 2022 AQMPs	No	Precursor demonstration for VOC
Co-Benefits from Existing Residential and Commercial Building Energy Efficiency Measures	2016 and 2022 AQMPs	No	Included in control strategy; see ECC-02
Co-Benefit Emission Reductions from GHG Programs, Policies, and Incentives	2016 and 2022 AQMPs	No	Included in control strategy; see ECC-01
Emission Reductions from Replacement with Zero or Near-Zero NOx Appliances in Commercial and Residential Applications	2016 AQMP	Yes, PCM 1	
Emission Reductions from Cooling Towers	2016 AQMP	Yes, PCM 3	
Ammonia Emission Reductions from NOx Controls	2016 AQMP	No	Ammonia slip limits are established through permitting. Additionally, this measure is included in the control strategy; see BCM-05.

PCM	Applicable AQMP	Reconsidered in this BACM demonstration?	If not, reason why
Further Emission Reductions from Agricultural, Prescribed, and Training Burning	2016 AQMP	Yes, PCM 5	
Emission Reductions from Non-Refinery Flares	2016 AQMP	No	Rule 1118.1 was adopted on January 4, 2019 to address this PCM
Further Emission Reductions from Commercial Cooking	2016 AQMP	Yes, PCM 6	
Further Emission Reduction from Fugitive Dust Sources	2016 AQMP	Yes, PCM 7	
Further Emission Reductions from Wood Burning Fireplaces and Wood Stoves	2016 AQMP	Yes, PCM 8	
Emission Reductions from Greenwaste Composting	2016 AQMP	Yes, PCM 9	
Emission Reduction of PM from Asphalt Manufacturing	2016 AQMP	Yes, PCM 10	
Emission Reduction of PM from Wood Pulp and Paper	2016 AQMP	Yes, PCM 11	
Emission Reduction of VOC and NO _x Through Reformation and Process Modification for Cutback Asphalt	2016 AQMP	Yes, PCM 12	
Emission Reductions from Manure Management Strategies	2016 AQMP	Yes, PCM 13	

Emission Reductions from Replacement with Zero or Near-Zero NO_x Appliances in Commercial and Residential Applications

This measure sought emission reductions through a zero NO_x standard for new commercial and residential water and space heaters. It has been updated based on recent amendments to BAAQMD Regulation 9 Rules 4 and 6. The measure examines the feasibility of introducing zero NO_x emission limits following a phased approach that depends on the appliance size and type.

Emission Reductions from Cooling Towers

This measure sought reductions of PM from industrial cooling towers by requiring use of the latest drift eliminator technologies. The control measure would reduce PM_{2.5} emissions from evaporative cooling towers by requiring all units to upgrade their drift eliminators to more efficient drift eliminators that keep drift losses to less than 0.001 percent of the recirculating water flow rate. Newly constructed cooling towers have demonstrated an ultra-low drift rate of 0.0005 percent. This drift rate has been achieved in practice and could be considered BACT for new construction. Although efficiency improvements are achievable through use of the newer drift eliminators, the proportion of PM_{2.5} in the overall drift is fairly small compared to the PM₁₀ fraction (PM_{2.5} estimated at ~3 percent of PM₁₀).

Further Emission Reductions from Agricultural, Prescribed, and Training Burning

This control measure sought further PM emission reductions from certain categories of open burning including agricultural and prescribed (e.g., forestry service) burning activities. Reducing agricultural burning by incentivizing alternatives (e.g., chipping/grinding or composting) is possible. Additional considerations were given to aligning burn prohibitions with any potential changes to the Rule 444 no burn day provisions which could further reduce open burning emissions during peak PM_{2.5} episodes. Burning alternatives such as chipping/grinding or composting are widely available in the Basin.

Further Emission Reductions from Commercial Cooking

South Coast AQMD Rule 1138 regulates VOC and PM emissions from restaurant operations by requiring the installation of flameless catalytic oxidizers, or equivalent control devices, to chain-driven charbroilers. Although under-fired charbroilers are another source of emissions from restaurant operations, no cost-effective control technology was identified for this type of equipment at the time of rule adoption. Staff continued efforts to find cost-effective and technologically feasible controls for the restaurant industry. Retrofitting control devices at existing restaurants may require a complete system overhaul including fire suppression, ventilation, and electrical components. The 2016 AQMP specified that this measure would serve as an attainment contingency measure. Therefore, it was not included in the attainment control strategy.

Further Emission Reduction from Fugitive Dust Sources

South Coast AQMD Rule 1186 establishes requirements to prevent material from being deposited on roadways and requires local jurisdictions to procure certified street sweeping equipment. Under Rule 1186, certified street sweepers must have a pick-up efficiency greater than or equal to 80 percent and achieve entrained PM₁₀ emissions of less than or equal to 200 mg/m. This control measure sought further PM emission reductions from entrained road dust, one of the major direct PM_{2.5} sources due to the large number of roadways and high traffic volumes in the region. Most cities in the Basin have regular street sweeping schedules so the emission reduction from mandating street sweeping frequency is expected to be minimal.

Further Emission Reductions from Wood-Burning Fireplaces and Wood Stoves

Rule 445 is designed to reduce PM emissions from wood-burning devices. The rule establishes requirements for the sale, operation, and installation of wood-burning devices. This control measure sought to include a provision that would apply to uncertified wood-burning devices during the sale or transfer of property similar to that in SJVAPCD Rule 4901.

Lowering the Curtailment Threshold in Rule 445

Under South Coast AQMD Rule 445, Basin-wide curtailment is mandatory when PM_{2.5} concentrations are forecast to exceed 29 µg/m³ from November through February. The South Coast AQMD curtailment threshold applies to all solid fuel devices, including wood-based residential cooking devices. This control measure sought to evaluate the feasibility of lowering the curtailment threshold to achieve further emission reductions.

Emission Reduction of PM from Asphalt Manufacturing

This control measure was based on U.S. EPA's 2012 version of the Menu of Control Measures.³³ The measure estimated a control efficiency of 99 percent in an asphalt manufacturing facility equipped with a fabric filter or baghouse placed in parallel inside of an enclosure. Asphalt manufacturing in the South Coast AQMD is currently regulated under Rule 1157 and Rule 1155, which require the use of filters. Rule 1157 targets all aggregate and related operations but does not require enclosure for all transfer points and activities. However, Rule 1155 regulates all baghouses (including those at asphalt manufacturing facilities), except for those with a filter area less than 100 sq. ft. and requires no visible emissions at any time except for start-up and shutdown. Enclosures and baghouses are generally technologically feasible. The standard (0.01 gr/dscf) for baghouses in asphalt manufacturing facilities was set forth in Rule 1155 and was fully implemented in 2013.

³³ <https://www3.epa.gov/ttn/naaqs/pdfs/MenuOfControlMeasures.pdf>

Emission Reduction of PM from Wood Pulp and Paper

This control measure was based on U.S. EPA's 2012 version of the Menu of Control Measures.³⁴ The measure estimated a control efficiency of 95 percent in wood pulp and paper facilities equipped with dry/wet electrostatic precipitators (ESPs). Currently, there are five permitted recycled paper and paperboard manufacturing facilities in South Coast AQMD. An electrostatic precipitator (ESP) is predominantly used to control PM emissions from Kraft recovery furnaces used at paper manufacturing facilities that process virgin raw materials. For the recycled material manufacturing facilities, little or no PM is emitted from the pulp dryer.

Emission Reductions from Greenwaste Composting

This control measure sought emission reductions of VOC and NH₃ from composting of greenwaste, foodwaste, and agricultural waste streams. Evaluated control approaches included improved emissions characterization via inventory and emission factor development, anaerobic digestion, pollution prevention technology, and restrictions for direct applications of uncomposted, chipped or ground non-curbide greenwaste to public lands.

Reformulation and Process Modification for Cutback Asphalt

The measure sought to examine the feasibility of requiring warm-mix asphalt. Warm-mix asphalt would reduce natural gas use by an estimated 20 to 25 percent from reduced processing and transportation temperatures compared to hot-mix asphalt. Although the reduction in natural gas use was found to reduce NO_x emissions, studies revealed mixed results for VOC emissions from warm-mix compared to hot-mix asphalt.

Emission Reductions from Manure Management Strategies

This measure sought NH₃ emission reductions by lowering the applicability thresholds in Rule 223 to be as stringent as those in SJVAPCD Rule 4750 for confined animal facilities. It also explored the feasibility of additional mitigation measures for livestock waste to further reduce NH₃ emissions.

Lowering Emission Limits for Boilers, Steam Generators, and Process Heaters

This measure is derived from the 2022 AQMP RACM demonstration and is based on the more stringent NO_x limits for boilers, steam generators, and process heaters greater than or equal to 5 MMBtu/hr in SJVAPCD Rules 4306 and 4320 compared to those in Rule 1146. For details on the emission limits, refer to the discussion regarding Rules 4306 and 4320 in Step 3 - Control Measures in Other Nonattainment Areas.

³⁴ Ibid

Step 4 – U.S. EPA’s Menu of Control Measures

The Menu of Control Measures (MCM)³⁵ compiled by the State and Local Programs Group within U.S. EPA’s Office of Air Quality Planning and Standards, was developed to provide information useful in the development of local emission reduction and NAAQS SIP scenarios. U.S. EPA’s MCM provides a broad listing of emission reduction measures to assist states in identifying and evaluating potential measures. The measures are based in part on the results of a literature review of the current and proposed measures of various air quality agencies, including CARB, California air districts, the Ozone Transport Commission, the Lake Michigan Air Directors Consortium, and others. For each source category, one or more emission reduction measures, the respective control efficiency, and cost effectiveness are provided.

At the time of writing, the MCM published on September 22, 2022 was the latest version available and it was therefore selected for this analysis. Staff reviewed the control measures for point and nonpoint sources of PM_{2.5}, NH₃, and NO_x. The review identified four measures from the MCM that exceeded the requirements of existing rules, were not included in the 2022 AQMP, and were not otherwise identified as part of this BACM demonstration. The identified measures are as follows:

- Increasing the fuel moisture for prescribed burns
- Requiring electrostatic precipitators, fabric filters, and scrubbers for various industrial and commercial processes
- Requiring Selective Catalytic Reduction (SCR) of NO_x for incinerators
- Requiring extended absorption to reduce NO_x from nitric acid manufacturing

Proposed Rule 1165, Control of Emissions from Incinerators, is under development and will include NO_x emission limits for incinerators consistent with the control efficiency specified in the MCM. There are no nitric acid manufacturing facilities located in the South Coast Air Basin and thus this measure was not evaluated. Staff evaluated the remaining control measures for potential emission reductions in the Basin and the assessment can be found in the Control Measure Assessment section.

Step 5 – U.S. EPA’s Guidance Documents

In March 2013, the U.S. EPA revised its document “*Strategies for Reducing Residential Wood Smoke*”³⁶ to provide new information and tools to help state, tribal, and local air officials reduce fine particle pollution from residential wood smoke. The document provides a comprehensive list of strategies to help identify appropriate wood smoke reduction measures. A combination of regulatory, voluntary, and educational strategies is encouraged to ensure a successful wood smoke program with measurable emission reductions. U.S. EPA recommends that each area determine the most appropriate measures given the

³⁵ <https://www.epa.gov/air-quality-implementation-plans/menu-control-measures-naaqs-implementation>

³⁶ <https://www.epa.gov/sites/default/files/documents/strategies.pdf>

nature and extent of their problem. Table III-4 is a list of regulatory options outlined in the guidance document, and the corresponding control strategies (where applicable) in South Coast AQMD.

TABLE III-4
U.S. EPA LIST OF REGULATORY OPTIONS FOR REDUCING RESIDENTIAL WOOD SMOKE AND
SOUTH COAST AQMD CURRENT CONTROL STRATEGIES

U.S. EPA Suggested List of Regulatory Options	South Coast AQMD Control Strategies
1. Wood-Burning Curtailment Programs	Rule 445 enacts a mandatory winter wood-burning curtailment when PM _{2.5} concentrations are forecasted to exceed 29 µg/m ³ .
2. Opacity and Visible Emission Limits	South Coast AQMD Rule 401 does not have a "no visible emissions" requirement. Instead, Rule 401 requires the Ringelmann Chart No. 1 or an equivalent (10 percent) opacity limit.
3. Wood Moisture Content	Rule 445 requires a commercial firewood seller to only sell seasoned wood (≤20 percent moisture) from July 1 through the end of February the following year.
4. Removal of Old Wood Stove Upon Resale of a Home	Currently, South Coast AQMD does not require the removal and destruction of old wood stoves upon the resale of a home. For further analysis of this regulatory option, refer to the discussion under Key PM Source Categories.
5. Require EPA Certification	For existing residential and commercial developments (additions, remodels, etc.), Rule 445 requires wood-burning devices sold or installed to be U.S. EPA certified or equivalent. Newly installed fireplaces must be gaseous-fueled or electric.
6. Ban the Use of Non-EPA-Certified Wood Stoves	Currently, South Coast AQMD does not prohibit the use of non-EPA certified wood stoves that have been installed in existing homes and businesses prior to the adoption of Rule 445. For further analysis of this regulatory option, refer to the discussion under Key PM Source Categories.
7. Restrictions on Wood-Burning Devices in New Construction	Rule 445 prohibits the installation of all wood-burning devices in new construction.
8. Hydronic Heater Rules	The use of hydronic heaters is very uncommon in South Coast AQMD; further restrictions on these devices would therefore not be expected to result in emission reductions.
9. Requirements for Wood-burning Fireplaces	For existing residential and commercial developments (additions, remodels, etc.), Rule 445 requires wood-burning devices sold or installed to be U.S. EPA certified or equivalent. Incentives are available to replace wood-burning devices with cleaner alternatives in some neighborhoods.

U.S. EPA Suggested List of Regulatory Options	South Coast AQMD Control Strategies
10. State/Tribal/Local Wood-Heating Emission Standards	U.S. EPA's New Source Performance Standards (NSPS) have the most stringent emission limit across the nation for residential wood heaters.
11. NSPS for New Residential Wood Heating Appliances	Rule 445 defines U.S. EPA certified heaters as those that comply with Title 40 Code of Federal Regulations, Part 60, Subpart AAA, March 16, 2015, or any subsequent revision. The NSPS for wood heating appliances are codified under this subpart.

In addition to the regulatory programs listed in Table VI-A-10, the South Coast AQMD has implemented the Healthy Hearths™ program that includes a comprehensive education and outreach effort to encourage the public to switch to cleaner, gaseous-fueled hearth products. An incentive program for cleaner hearth appliances is ongoing to encourage the public to switch to cleaner hearth products, including gaseous-fueled devices that are exempt from burning curtailments.³⁷ As part of the Healthy Hearths™ initiative, the “Check Before You Burn” program is designed to protect public health by reducing harmful wood smoke from residential wood-burning from November 1 through the end of February. Daily air quality forecast information can be found online on the South Coast AQMD’s “Check Before You Burn” map, through e-mail messages, or a toll-free number. Rule 445 also contains labeling requirements for commercial firewood or other wood-based fuel sellers to notify the public of South Coast AQMD’s Check Before You Burn program.

Summary of Potential Control Measures

After thorough review of the above listed sources, South Coast AQMD staff identified the following PCMs for stationary sources listed in Table III-5. The PCMs were assessed for technological and economic feasibility in the Control Measure Assessment section.

**TABLE III-5
POTENTIAL STATIONARY SOURCE CONTROL MEASURES**

#	Potential Control Measure	Target Pollutant	South Coast AQMD Current Control	Source of Information
1	Replacement with Zero NO _x Space and Water Heaters in Commercial and Residential Applications	NO _x	Rules 1111 and 1121	Step 1 – Other Districts’ Control Measures; Step 3 – Potential Control Measures from Previous Plans

³⁷ <http://www.aqmd.gov/home/programs/community/community-detail?title=wood-device-incentive-program>

#	Potential Control Measure	Target Pollutant	South Coast AQMD Current Control	Source of Information
2	Glass Melting and Sodium Silicate Furnaces	PM2.5	Rule 1117	Step 1 – Other Districts’ Control Measures
3	Cooling Towers	PM2.5	Not Applicable	Step 3 – Potential Control Measures from Previous Plans
4	Livestock Waste at Confined Animal Facilities	NH3	Rule 223	Step 1 – Other Districts’ Control Measures
5	Agricultural, Prescribed, and Training Burning	PM2.5	Rule 444	Step 3 – Potential Control Measures from Previous Plans
6	Commercial Cooking - Charbroilers	PM2.5	Rule 1138	Step 1 – Other Districts’ Control Measures Areas; Step 3 – Potential Control Measures from Previous Plans
7	Paved Road Dust	PM2.5	Rule 1186	Step 3 – Potential Control Measures from Previous Plans
8	Wood-Burning Fireplaces and Wood Stoves	PM2.5	Rule 445	Step 1 – Other Districts’ Control Measures; Step 3 – Potential Control Measures from Previous Plans
9	Organic Waste Composting	NH3	Rule 1133.3	Step 3 – Potential Control Measures from Previous Plans
10	Asphalt Manufacturing	PM2.5	Rule 1157	Step 3 – Potential Control Measures from Previous Plans
11	Wood Pulp and Paper	PM2.5	Not Applicable	Step 3 – Potential Control Measures from Previous Plans
12	Reformulation and Process Modification for Cutback Asphalt	NOx	Rule 1108	Step 3 – Potential Control Measures from Previous Plans
13	Unpaved Lots, Roads, and Shoulders	PM2.5	Rule 1186	Step 1 – Other Districts’ Control Measures; Step 4 – U.S. EPA’s Menu of Control Measures
14	Industrial and Commercial Combustion Processes	PM2.5	Not Applicable	Step 4 – U.S. EPA’s Menu of Control Measures
15	Lowering Emission Limits for Boilers, Steam Generators, and Process Heaters	NOx	Rule 1146	Step 3 – Potential Control Measures from Previous Plans

In addition to the above analyses, SCAG, CARB, and South Coast AQMD staff have completed the following analyses to meet the requirements of the CAA:

- BACM and MSM demonstrations conducted by CARB and SCAG for mobile sources and transportation control measures are included in Appendices III-B and IV-B, respectively.
- Cost-effectiveness analyses and schedules for implementation for each of the stationary source and mobile source control measures, if available, are provided in Chapter 4, and Appendix IV-A for South Coast AQMD's control measures and Appendix IV-B for CARB's control measures, respectively.

Conclusion

As required by the CAA and U.S. EPA's PM_{2.5} Implementation Rule, South Coast AQMD staff evaluated and analyzed a wide range of sources to develop a comprehensive list of PCMs. PCMs from the 2016 AQMP, potential RACM from the 2022 AQMP, attainment plans in other jurisdictions, rules and regulations implemented by other air districts, and multiple resources published by U.S. EPA were consulted. In general, South Coast AQMD's existing rules and regulations were found to require the most stringent level of control. There were, however, limited instances where rules could be strengthened to achieve further reductions. This resulted in the identification of 15 PCMs for which the technological and economic feasibility was assessed. A comprehensive assessment of all PCMs is presented in the next section of this Appendix.

CONTROL MEASURE ASSESSMENT

Introduction

The PCMs identified in the preceding section are evaluated to advance South Coast AQMD’s emission control strategies. A comprehensive feasibility analysis is conducted for all PCMs. Each measure is independently assessed to determine whether it can be considered as BACM, an additional feasible measure, or MSM while complying with U.S. EPA’s requirements.³⁸ U.S. EPA requires that BACM be adopted and the controls be partially or fully implemented within four years of reclassification to “serious” nonattainment. Since the South Coast Air Basin was reclassified effective December 2020, the area has until December 2024 to partially or fully implement BACM. If the analysis concludes that a measure cannot be feasibly implemented within this timeframe, it is reassessed as an additional feasible measure, or one that can be implemented by 2025, the statutory “serious” area attainment year. Finally, measures that cannot be implemented as either BACM or additional feasible measures are reassessed as potential MSM. While this analysis is allowed to consider technological and economic feasibility, U.S. EPA recommends that the analysis “apply more stringent criteria for determining the feasibility of potential MSM than that described for BACM and BACT.”³⁹ Furthermore, the feasibility analysis for potential MSM must consider the longer timeframe allowed for implementation (up to 4 years after the statutory “serious” area attainment date). For measures that cannot be feasibly implemented as MSM, a reasoned justification for rejecting the potential MSM is included.

The emissions inventories, emission reduction estimates, and cost-effectiveness are based on the best information available at this time. Quantified emissions and estimated reductions are based on a variety of data sources, including, but not limited to, the emissions inventory presented in Chapter 3 and Appendix I of this Plan, South Coast AQMD’s Annual Emissions Reporting program, archived equipment statistics obtained from South Coast AQMD’s past rulemaking, and data libraries of public energy policy and planning agencies and utilities (e.g., California Public Utilities Commission, California Energy Commission, Southern California Edison, etc.). Staff commits to refine these estimates as new information becomes available during subsequent rulemaking and control measure implementation.

³⁸ 81 FR 58009

³⁹ Ibid

Potential Control Measure 1 - Emission Reductions from Replacement with Zero NOx Space and Water Heaters in Commercial and Residential Applications

Target Pollutant

NOx

Synopsis

This control measure, based on recent amendments to BAAQMD Regulation 9, seeks NOx emission reductions through a zero NOx standard for new commercial and residential water and space heaters. Zero NOx requirements would follow a phased approach that depends on the appliance size and type. This control measure applies to manufacturers, distributors, sellers, installers and purchasers of these appliances.

Potential Emission Reduction

The 2030 baseline inventory is 12.22 tpd of NOx for this source category.

Estimated emission reductions are 2.58 tpd by 2030.

Technological Feasibility

There are currently a wide variety of zero NOx electric heat pump water heaters and heat pump space conditioning (heating and cooling) systems available on the market that operate on a 240-volt circuit.^{40,41}

A limited number of space and water heaters are also available for residences that only have 120-volt service (see Table III-6). Manufacturers are actively developing new heat pump systems and it is therefore expected that the number of new models will increase substantially over the next several years.

⁴⁰ Energy Star Certified Water Heaters. <https://www.energystar.gov/productfinder/product/certified-water-heaters/results>

⁴¹ Energy Star Certified Central Heat Pumps. <https://www.energystar.gov/productfinder/product/certified-central-heat-pumps/results>

**TABLE III-6
COMMERCIALLY AVAILABLE 120-VOLT SPACE AND WATER HEATERS**

Manufacturer	Model	Type
Pioneer	WYT012ALFI19RL, WYT009ALFI19RL (and others)	Space heater
Hessaire	H12E1	Space heater
LG	LS120HXV2, LS090HXV2	Space heater
Mitsubishi	MZ-JP12WA, MZ-JP09WA	Space heater
Fujitsu	9RL2, 12RL2	Space heater
General Electric	AS09CRA, AS12CRA	Space heater
Senville	LETO series	Space heater
MRCOOL	DIY-12-HP-115B	Space heater
LBG Products	LBH12ATO, LBH09ATO	Space heater
AUX	Inverter series	Space heater
Daizuki	DXTH12C416-20	Space heater
Nyle Water Heating Systems	E8	Water heater
Rheem	ProTerra (Plug-In)	Water heater

Economic Feasibility

A comprehensive cost analysis for residential and commercial space and water heating appliances was conducted as part of the 2022 State SIP Strategy, Appendix A: Economic Analysis.⁴² These measures were determined to be economically feasible with a cost-effectiveness value of \$496,600/ton NO_x.

Summary Table

Type of Analysis	Emission Reduction	Technological Feasibility	Economic Feasibility	Feasible Measure
BACM/BACT	2.58 tpd of NO _x by 2030	No	No	No
Additional feasible measure		No	No	No
MSM		Feasible Yes	Feasible Yes	Yes

For the purposes of satisfying MSM, this measure is included in CARB's commitment as the Zero-Emission Standard for Space and Water Heaters with implementation beginning January 1, 2030. Independent of MSM, South Coast AQMD's control measures BCM-01 and BCM-02, which overlap with CARB's measure, are also included in the PM_{2.5} Plan since these measures will implement before CARB's measure and also

⁴² https://ww2.arb.ca.gov/sites/default/files/2022-09/2022_State_SIP_Strategy_App_A.pdf

target accelerated turnover of appliances through incentives. A comparison of South Coast AQMD control measures and BAAQMD rules targeting space and water heaters is shown in Table III-7. In many cases, South Coast AQMD's proposed rules implement zero emission requirements ahead of BAAQMD's rules.

**TABLE III-7
COMPARISON OF SOUTH COAST AQMD CONTROL MEASURES AND BAAQMD RULES
REGULATING NOX EMISSIONS FROM SPACE AND WATER HEATERS**

Category	South Coast AQMD BCM-01 and BCM-02 Proposed Control*	BAAQMD Rules 9-4 & 9-6
Residential Space Heating (< 175,000 Btu/hr)	(1) 0 ng/J by 1/1/2029 6 (new buildings) where feasible, and 1/1/2028 (existing buildings) 7 ng/J where not (2) incentivize zero emission technologies with a focus on electric panel upgrades needed for older homes	0 ng/J by 1/1/2029
Commercial Space Heating (> 175,000 Btu/hr)	<u>0 ng/J by 1/1/2026 (new buildings) and 1/1/2028 (existing buildings)</u> —	---
Residential Water Heating (< 75,000 Btu/hr)	(1) <u>0 ng/J by 1/1/2026 (new buildings) and 1/1/2028 (existing buildings)</u> 0 ng/J by 1/1/2029 where feasible, 5 ng/J where not (2) incentivize zero emission technologies with a focus on electric panel upgrades needed for older homes	0 ng/J by 1/1/2027
Commercial Water Heating (≥75,000 Btu/hr and ≤2 MMBtu/hr)	<u>0 ng/J between 1/1/2026 and 1/1/2033 following a —phased approach that depends on the size and temperature of the heater</u>	0 ng/J by 1/1/2031

*Implementation dates are based on preliminary rule concepts and are subject to change. Refer to: <https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111-and-1121/par-1111-and-1121-wgm4-april-2024.pdf?sfvrsn=14> and <https://www.aqmd.gov/docs/default-source/Agendas/ssc/ssc-agenda-3-15-2024.pdf>.

Potential Control Measure 2 – Emission Reductions from Glass Melting and Sodium Silicate Furnaces

Target Pollutant

PM2.5

Synopsis

In the South Coast Air Basin, there are two facilities that operate a total of two container glass melting furnaces and one sodium silicate furnace. These furnaces are subject to NO_x and SO_x emission limits in South Coast AQMD Rule 1117; however, Rule 1117 does not enforce PM₁₀ emission limits unlike SJVAPCD Rule 4353, which sets a limit at 0.20 lb/ton for container glass furnaces. A significant fraction of PM₁₀ emissions from these facilities is emitted as PM_{2.5}. This measure therefore seeks to evaluate the feasibility of requiring glass melting and sodium silicate furnaces to meet PM₁₀ emission limits.

Potential Emission Reduction

The 2030 baseline inventory is 0.0641 tpd of PM_{2.5} for this source category.

Potential emission reductions are 0 tpd.

Technological Feasibility

It is technologically feasible to achieve the emission limit specified in SJVAPCD Rule 4353 for gas-fired container glass melting furnaces. The feasibility is further supported by an identical emission limit enforced at the federal level.⁴³ However, there are no applicable federal emission limits for sodium silicate furnaces and the PM₁₀ emission limits in SJVAPCD Rule 4353 also do not apply to sodium silicate furnaces.

Economic Feasibility

It is economically feasible to achieve a PM₁₀ emission limit of 0.20 lb/ton for container glass melting furnaces.

Summary Table

Type of Analysis	Emission Reduction	Technological Feasibility	Economic Feasibility	Feasible Measure*
BACM/BACT	0 tpd PM _{2.5}	<u>Yes</u> Feasible	<u>Yes</u> Feasible	No
Additional feasible measure		<u>Yes</u> Feasible	<u>Yes</u> Feasible	No
MSM		<u>Yes</u> Feasible	<u>Yes</u> Feasible	No

⁴³ CFR Title 40, Chapter I, Subchapter C, Part 60, Subpart CC

* While this measure is technologically and economically feasible in practice it is currently infeasible due to other considerations.

Other Considerations

Staff reviewed source test results, conducted between 2018 and 2022, for the two container glass furnaces and all source tests measured an emission factor ≤ 0.20 lb PM/per ton (see Table III-8). Since actual emission rates comply with both SJVAPCD Rule 4353 and the federal limit, no further emission reductions would occur by incorporating a PM₁₀ emission limit for container glass furnaces in Rule 1117. Therefore, staff concludes that this control measure is not warranted.

**TABLE III-8
PM SOURCE TEST RESULTS FOR GLASS MELTING FURNACES
AT OWENS-ILLINOIS (FACILITY ID: 7427)**

Test Date	Furnace	PM Result (lb PM/ton produced)
11/9/2022	B	0.08
12/8/2021	B	0.15
10/6/2020	B	0.04
12/19/2018	B	0.05
11/7/2022	C	0.20
12/7/2021	C	0.18
10/7/2020	C	0.08
11/16/2018	C	0.06

Potential Control Measure 3 - Emission Reductions from Cooling Towers

Target Pollutant

PM_{2.5}

Synopsis

This measure would seek reductions of PM_{2.5} from industrial cooling towers by requiring operators to use the latest drift eliminator technologies. Reducing PM_{2.5} emissions from cooling towers could involve a simple upgrade: requiring all units to install more efficient drift eliminators. These upgraded eliminators would ensure that drift losses are kept to a minimum, specifically less than 0.001 percent of the re-circulating water flow rate. This not only reduces emissions but also leads to significant water savings. Currently, industrial cooling towers are required to submit information on total dissolved solids (TDS) via a registration filing under Rule 222 - Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II. The information that has been collected would be evaluated during the rule development process and used to allow PM_{2.5} emissions to be calculated. Appendix IV-A of the 2016 AQMP contained a potential control measure to reduce cooling tower PM emissions but concluded that PM_{2.5} emission reductions were not cost-effective. The 2016 AQMP did, however, include Control Measure BCM-02 (Emission Reductions from Cooling Towers) so this PM_{2.5} Plan also includes a control measure, BCM-13, that proposes a further evaluation of cooling tower PM_{2.5} emissions.

In addition to the high costs, a recent study conducted for the California Energy Commission (CEC) found that cooling towers may act as scrubbers for surrounding areas and emit negative emissions of coarse particulate matter (between 2.5 and 10 microns), and potentially have the same effect on PM_{2.5} emissions.⁴⁴ The study also found that drift eliminators may vastly outperform their efficiency specifications. These findings should be examined prior to implementing controls.

Potential Emission Reduction

Potential emission reduction is to be determined.

Technological Feasibility

Newly constructed cooling towers have demonstrated ultra-low drift rates of 0.0005 percent. However, overall drift eliminator efficiencies and cooling tower effects on emissions in surrounding areas should be further examined prior to implementing controls.

Economic Feasibility

The 2016 AQMP included a cost estimate of \$1.37 million to retrofit a local refinery cooling tower with a high efficiency drift eliminator. The reduction in total PM, PM₁₀, and PM_{2.5} was also previously estimated at approximately 173, 11, and 0.4 tons per year, respectively. Cost effectiveness for BCM-02 in the 2016 AQMP was estimated at approximately \$15,000 per ton of PM₁₀, but was determined not cost-effective for reducing PM_{2.5} at over \$400,000 per ton. Adjusting previous AQMP cost assumptions to 2022 costs would result in a cost-effectiveness estimate higher than \$400,000 per ton of PM_{2.5}. Additionally, it is

⁴⁴ Wexler, A., Wallis, C. D., Chuang, P., and Leandro, M. (2023). Assessing Particulate Emissions from Power Plant Cooling Towers. <https://www.energy.ca.gov/publications/2023/assessing-particulate-emissions-power-plant-cooling-towers>

possible that the cost effectiveness may be even higher if the existing drift elimination efficiencies installed at cooling towers are greater than specified, as outlined in the CEC study.

Summary Table

Type of Analysis	Emission Reduction	Technological Feasibility	Economic Feasibility	Feasible Measure
BACM/BACT	TBD	Yes	No	No
Additional feasible measure		Yes	No	No
MSM		Yes	No	No

Other Considerations

South Coast AQMD has determined that further evaluation is required prior to implementing this control measure. Control measure BCM-13 proposes development of an emissions inventory, equipment universe, and improved emission factors for cooling towers.

References

South Coast Air Quality Management District. (2017). 2016 Air Quality Management Plan, Appendix IV-A Stationary and Mobile Source Control Measures. (Published March 2017).

United States Environmental Protection Agency. (2015). *Compilation of Air Pollutant Emission Factors (AP-42), Fifth Edition, Volume I: Stationary Point and Area Sources, Chapter 5.1 Petroleum Refining*. <https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors>.

Wexler, A., Wallis, C. D., Chuang, P., and Leandro, M. (2023). Assessing Particulate Emissions from Power Plant Cooling Towers. <https://www.energy.ca.gov/publications/2023/assessing-particulate-emissions-power-plant-cooling-towers>

Potential Control Measure 4 - Emission Reductions from Livestock Waste at Confined Animal Facilities

Target Pollutant

NH₃

Synopsis

There are two components to this control measure. The first component seeks to lower the applicability threshold in South Coast AQMD Rule 223 to align with the more stringent thresholds in SJVAPCD Rule 4570 (1,000 milk cows in South Coast AQMD vs. 500 milk cows in SJVAPCD, and 650,000 birds in South

Coast AQMD vs. 400,000 birds in SJVAPCD). The second component seeks to introduce more stringent requirements to reduce ammonia emissions at dairies and other Confined Animal Facilities (CAFs).

Given the larger presence of dairies and CAFs in SJV, South Coast AQMD consulted U.S. EPA's recent actions on SJVAPCD's 2018 PM_{2.5} SIP to develop a comprehensive list of ammonia control strategies that apply to this source category. U.S. EPA published a proposed rule on December 29, 2021 to approve SJVAPCD's 2018 Serious Area Plan for the 2012 annual PM_{2.5} NAAQS.⁴⁵ However, based on adverse public comments, U.S. EPA reversed course and proposed disapproval of several plan requirements on October 5, 2022.⁴⁶ A central issue in U.S. EPA's proposed disapproval relates to SJVAPCD's BACM analysis for Rule 4570. U.S. EPA referenced several research studies and guidance documents for ammonia reductions from CAFs that were not evaluated as part of the process to develop potential control measures. One of the referenced guidance documents was developed by U.S. EPA and the U.S. Department of Agriculture (USDA) in 2017 and is titled "*Agricultural Air Quality Conservation Measures: Reference Guide for Poultry and Livestock Production Systems*."⁴⁷ After consulting these sources, a comprehensive list of mitigation measures with the potential to reduce ammonia emissions from CAFs was developed (see Table III-9).

TABLE III-9
POTENTIAL AMMONIA CONTROL MEASURES FOR CONFINED ANIMAL FACILITIES (CAFS)

	Measure	Reference	Source
Nutrition and Feed Management			
1	Group and phase feeding; feed additives; feed processing, storage & delivery; dietary formulation changes	Agricultural Air Quality Conservation Measures, Reference Guide for Poultry and Livestock Production Systems	USDA-EPA
2	Reduce protein content; phase feeding; increase grazing time	The Impact of Ammonia Emissions from Agriculture on Biodiversity	<i>Rand Europe and the Royal Society, Guthrie, S., et al. 2018. doi: 10.7249/RR2695</i>
3	Phase-feed crude protein (beef steers)	Effects of Phase-Feeding of Crude Protein on Performance, Carcass Characteristics, Serum Urea Nitrogen Concentrations, and Manure Nitrogen of Finishing Beef Steers	<i>J. of Animal Science, Cole, N. A., et al. 2006. doi: 10.2527/jas.2006-150</i>
4	Reduce crude protein (beef cattle)	Reducing Crude Protein in Beef Cattle Diet Reduces Ammonia Emissions from Artificial Feedyard Surfaces	<i>J. of Environmental Quality, Todd, R. W., et al. 2006. doi: 10.2134/jeq2005.0045</i>

⁴⁵ 86 FR 74310

⁴⁶ 87 FR 60494

⁴⁷ https://www.epa.gov/sites/default/files/2017-01/documents/web_placeholder.pdf

	Measure	Reference	Source
5	Reduce dietary crude protein (beef cattle)	Influence of Dietary Crude Protein Concentration and Source on Potential Ammonia Emissions from Beef Cattle Manure	<i>J. of Animal Science</i> , Cole, N.A., et al. 2005. doi: 10.2527/2005.833722x
6	Reduce dietary crude protein (pigs)	The Influence of Diet Crude Protein Level on Odour and Ammonia Emissions from Finishing Pig Houses	<i>Bioresource Technology</i> , Hayes, E.T. 2004. doi: 10.1016/s0960-8524(03)00184-6
7	Reduce dietary protein	Reducing Dietary Protein Decreased the Ammonia Emitting Potential of Manure from Commercial Dairy Farms	<i>The Professional Scientist</i> , Hristov, A. N., 2015. doi: 10.15232/pas.2014-01360
Animal Confinement/Housing			
8	Litter amendments and manure additives; oil spraying/sprinkling; wet scrubbers; windbreaks and shelterbreaks	Agricultural Air Quality Conservation Measures, Reference Guide for Poultry and Livestock Production Systems	USDA-EPA
9	Scrub air; wash floors; increase outdoor grazing; floor design (slats, grooves, v-shaped gutters, sloping floors); acclimatize barn (insulation, auto-controlled natural ventilation); cool manure surface, acidify slurry / shift chem. balance from ammonia to ammonium; straw bedding for cattle housing	The Impact of Ammonia Emissions from Agriculture on Biodiversity	<i>Rand Europe and the Royal Society</i> , Guthrie, S., et al. 2018. doi.10.7249/RR2695
10	Clean lanes at dairies	Ammonia Fluxes from Animal Housing at a California Free Stall Dairy	California State University, Fresno Center for Irrigation Technology and Plant Science Depts., Beene, M. et al. 2005.
11	Clean lanes at dairies	Assessment of Reactive Organic Gases and Amines from a Northern California Dairy Using the USEPA Surface Emissions Isolation Flux Chamber	14th USEPA Annual Emissions Inventory Conference, Las Vegas, Schmidt, C. E., et al. 2005.
12	Corrals: constantly manage corrals	Dairy Air Emissions Report: Summary of Dairy Emission Estimation Procedures	Card, T. and Schmidt, C. 2006. Final Report to California Air Resource Board.

	Measure	Reference	Source
13	Corrals: frequency of corral manure management	2008 Dairy Emissions Study: Summary of Dairy Emission Factors and Emission Estimation Procedures	Schmidt, C. Card, T. 2009. August 2009. Final Report to San Joaquin Valley Air Pollution Control District.
14	Enclosed barns with biofiltration systems	Clearing the Air: Mitigating the Impact of Dairies on Fresno County's Air Quality and Public Health	California Institute for Rural Studies, Kresge. 2007.
15	Scrape /flush freestall lanes	Reduction of ammonia emissions from dairy cattle cubicle houses via improved management- or design-based strategies: A modeling approach	<i>Science of the Total Environment</i> , Mendes, L.B., et al. 2017. doi: 10.1016/j.scitotenv.2016.09.079
16	Separate urine/manure with 3 percent floor slope	Ammonia Emission from a Double-Sloped Solid Floor in a Cubicle House for Dairy Cows	<i>J. of Agricultural Engineering Research</i> , Braam, C.R., 1997. doi: 10.1006/jaer.1997.0215
Manure Management/Storage			
17	Manure storage covers; solid-liquid separation; oxygenation of liquid manure lagoons; composting; anaerobic digester	Agricultural Air Quality Conservation Measures, Reference Guide for Poultry and Livestock Production Systems	USDA-EPA
18	Solid cover; floating cover; natural crust; floating crust; replace lagoons with deep tanks; storage bags	The Impact of Ammonia Emissions from Agriculture on Biodiversity	<i>Rand Europe and the Royal Society</i> , Guthrie, S., et al. 2018. doi: 10.7249/RR2695
19	Anaerobic digesters	Clearing the Air: Mitigating the Impact of Dairies on Fresno County's Air Quality and Public Health	California Institute for Rural Studies, Kresge. 2007.
20	Cover manure piles	Emissions of Ammonia, Nitrous Oxide and Methane from Cattle Manure Heaps: Effect of Compaction and Covering	<i>Atmospheric Environment</i> , Chackdick, D.R. 2005. doi: 10.1016/j.atmosenv.2004.10.012
21	Farm lagoon effects on environmental health; sprayfields effect on environmental health	Cesspools of Shame: How Factory Farm Lagoons and Sprayfields Threaten Environmental and Public Health	Marks, R. Natural Resources Defense Council and the Clean Water Network, 2001.
Land Application			

	Measure	Reference	Source
22	Timing of land application; injection; incorporation; banding	Agricultural Air Quality Conservation Measures, Reference Guide for Poultry and Livestock Production Systems	USDA-EPA
23	Incorporate manure into soil (within minute, 4 hours, or 24 hours); lower slurry pH to 6 or less; band spreading; trailing hose; trailing shoe; injector	The Impact of Ammonia Emissions from Agriculture on Biodiversity	<i>Rand Europe and the Royal Society, Guthrie, S., et al.</i> 2018. doi: 10.7249/RR2695
24	Dilute liquid manure applied to land	Managing Dairy Manure in the Central Valley of California	University of California Division of Agriculture and Natural Resources Committee of Experts on Dairy Manure Management, 2005.
25	Incorporate manure into soil	Ammonia Volatilization from Manure Application	Atia, A. Agri-Facts. Agriculture Stewardship Division Alberta Agriculture and Food. 2008.

Brief descriptions of the measures listed in Table 4 that reduce NH₃ emissions from livestock waste are provided below. Measures previously considered as part of the 2016 AQMP are also discussed.

Dietary Manipulation/Feed Additives

Dietary formulation changes involve changes in feed ingredients or ration formulations to provide essential nutrients to meet animal requirements while minimizing excess amounts of nutrients. Dietary manipulation such as lowering the protein content and including high-fiber ingredients is a potential method to decrease ammonia emissions from monogastric animals' and ruminants' manure. However, lowering the dietary protein content of dairy cattle negatively impacts milk production according to UC Davis Extension Specialist Dr. Peter Robinson.⁴⁸

Group and Phase Feeding

Group and phase feeding practices involve separating animals by age or production state (phase), and/or by sex to provide diets that more closely match the different nutritional needs of each phase and sex to avoid providing excess nutrients in diets.

Litter Amendments and Manure Additives

⁴⁸ A list of selected scientific publications by Peter Robinson, PhD is available on the UC Davis website at: <https://animalscience.ucdavis.edu/people/faculty/peter-robinson/Articles/Scientific-Publications>

Litter amendments and manure additives address the generation of emissions by changing manure properties to prevent emissions from forming. Commonly used litter amendments and manure additive categories include: (1) chemicals (i.e., acidifiers); (2) adsorbents; and (3) biological compounds (i.e., microbes or enzymes).

Oil Spray/Sprinkling

Vegetable oil (crude canola, purified canola, flax, corn, sunflower or soybean oils) is sprayed into the air in animal production areas, and particles that stick to the droplets settle onto the building surfaces. While this practice originated as a measure to reduce PM emissions, smaller reductions of hydrogen sulfide and NH₃ emissions have also been observed with the use of oil sprinkling.

Biofilters

A biofilter is an air filtration and odor mitigation system that channels building exhaust through a mixture of organic materials (e.g., compost, wood chips) that support microbial growth. An air distribution system distributes the pollutant-laden air from the building exhaust to the biofilter bed (media) where microorganisms living on the biofilter media break down the pollutant gases into carbon dioxide (CO₂), water and salts.

Wet scrubbers

Wet scrubbers can be used to reduce emissions from mechanically ventilated animal production houses. The wet scrubbers used in animal production operations are usually custom designed and use either water droplets or chemical (e.g., acidic) droplets to capture pollutants.

Windbreaks and Shelterbreaks

Using upwind windbreaks or shelterbreaks can reduce exchange of fresh air over animal housing and manure storages, which can reduce the potential for emissions from these sources.

Manure Storage Covers

Manure is often stored prior to land application – either as a liquid or slurry in open earthen basins or tanks or as a solid in stacks or piles. Emissions are generated due to biological activity within the decomposing manure. Air exchange caused by wind passing over these storages is a source of emissions as pollutants are drawn by diffusion from areas of higher concentration (manure storages) to areas of lower concentration (fresh air). Additionally, the direct transport of pollutants from these storages by the wind is another source of emissions. The use of a cover allows producers to significantly limit the release and transport of these emissions.

Solid-Liquid Separation

The decomposition of manure solids during the anaerobic storage of liquid or slurry manures lead to increased emissions. For manure streams handled as a slurry, separation of the solid and liquid portions prior to storage, additional treatment and/or land application may reduce emissions.

Oxygenation of Liquid Manure Lagoons

Lagoons that treat and store manure as a liquid or slurry can be designed as either anaerobic or aerobic lagoons. As the manure in the lagoon decomposes anaerobically, it releases emissions. If sufficient oxygen is provided to the system, aerobic bacteria can break down these organic compounds into simpler forms.

Composting

Composting is a biological method of decomposition of manure in a controlled manner that involves maintaining specific carbon to nitrogen (C:N) ratios, moisture levels, temperature and aeration levels. Similar to the benefits of aeration for liquid or slurry manure, properly managed compost operations can reduce ammonia emissions from solid manure. Finished compost is a stable product that can serve as a valuable soil amendment.

Anaerobic Digester

Anaerobic digestion (AD) is a process in which microorganisms break down manure, but unlike composting, AD occurs in the absence of oxygen, or anaerobically. While AD occurs naturally in traditional manure storage and treatment lagoons under anaerobic conditions, it is usually incomplete and inefficient. By using a higher loading rate, incorporating mixing, heating the process and maintaining a consistent volume, anaerobic digestion will maximize reductions.

Timing of Land Application

Timing of land management practices such as application according to agronomic recommendation and application under cool and calm weather conditions can reduce emissions. Agronomic application is the application of nutrients to meet crop needs, including the timing of those nutrient needs. By matching crop needs to available nutrients, over-application of nitrogen can be reduced, which will minimize subsequent NH₃ and N₂O emissions.

Additionally, temperature, humidity, wind speed and precipitation influence the rate of NH₃, PM and odor losses. The application of manure during cool, calm weather with higher humidity will decrease the amount of NH₃ volatilized from the manure. Applying nutrients in the spring prior to planting when crops are ready to utilize the nitrogen can reduce NH₃ emissions compared to applying in the fall. Light precipitation events following application can also decrease NH₃ volatilization by binding NH₃ to soil clays.

Injection

Manure from animal production facilities is usually applied to fertilize crops on land. Liquid and/or slurry manure (e.g., manure from swine, dairy production) is injected beneath the soil surface at a minimum depth of four inches by a tractor-pulled tank wagon or dragline injection system to conserve nitrogen.

Incorporation

Incorporation involves mixing manure or litter with surface soil at a minimum depth of four inches such that at least 80 percent of applied manure is covered with soil. Broadcasting manure, either solid or liquid, without incorporation results in the highest emissions. Incorporation may be accomplished by using standard agricultural practices (e.g., tandem-disk tillage) or other equivalent practices that provide 80 percent soil coverage.

Banding

Banding of manure involves the application of liquid manure in narrow bands either directly from a spreader hose or through a sliding shoe that rides along the soil surface. Banding allows relatively low-pressure manure application with less soil disturbance than incorporation. Reduced volatilization of gases from the low pressure application results in reductions of NH₃ emissions.

Potential Emission Reduction

Table III-10
2030 Baseline Emissions from Livestock Waste

Facility type	NH ₃ Emissions (tpd)
Dairy Cattle	5.08
Range Cattle	0.13
Poultry - Layers	0.28
Swine	0.02
Sheep	0.08
Horses	0.51
Goats and Others	0.05
Total	6.13

As shown in Table III-10, the total inventory for this source category is 6.13 tpd of NH₃ in 2030, yet dairy cattle are responsible for over 80 percent of those emissions. Lowering Rule 223 applicability thresholds results in an estimated 5 percent NH₃ emission reduction (from additional 46,000 cows regulated relative to a threshold reduction from 1,000 cows to 500 and 650,000 chickens to 400,000). Thus, the estimated reduction from lowering the thresholds in Rule 223 for dairy cattle and poultry layers is 0.27 tpd.

Emission reductions are estimated for the incorporation of solid cattle manure within 24 hours and acidifying amendments for poultry litter. Assuming that 2.8 percent of dairy cattle NH₃ emissions are from solid manure land application and high-disturbance land incorporation within 24 hours reduces NH₃ emissions by 75 percent, the NH₃ reductions are estimated to be 0.11 tpd.⁴⁹ Regarding acidifying

⁴⁹ Ammonia: Supplemental Information for EPA in Support of 15 µg/m³ Annual PM_{2.5} Standard, CARB. March 2023

amendments, a recent study found that an application rate of 98 kg of aluminum sulfate per 100 square meters incorporated into poultry litter reduced overall ammonia emissions from poultry broilers by 35 percent.⁵⁰ Assuming the same control efficiency for poultry layers results in NH₃ emission reductions of 0.098 tpd.

Technological Feasibility

Lowering Rule 223 applicability thresholds is technologically feasible. The remainder of the feasibility assessment concerns the mitigation measures listed in Table III-9.

It is not feasible for all CAFs to implement the same mitigation measures due to various factors, such as infrastructure, conditional use permits, water quality regulations, production contracts, and other limitations. Furthermore, CAFs in the Basin face unique challenges including hot, dry summers, drought conditions, and strict water regulations, which render some measures infeasible. The mitigation measures included in Rule 223 provide the owners and operators of CAFs much needed flexibility to choose the mitigation measures that make the best environmental and economic sense for their facility, while maximizing the amount of emission reductions. Nonetheless, the mitigation measures listed in Table III-9 provide potential opportunities to further reduce emissions.

CARB recently conducted an exhaustive feasibility analysis of the mitigation measures listed in Table III-9.⁵¹ This feasibility analysis was relied upon as a screening tool to identify which of the mitigation measures deserve increased scrutiny in South Coast AQMD's analysis. CARB identified the following measures with theoretical potential to further reduce emissions from dairies and poultry operations:

1. Incorporation of solid cattle manure within 24 hours

Land incorporation reduces NH₃ emissions by decreasing the exposed surface area of manure. Rule 223 includes land incorporation of all manure within 72 hours of removal as a Class One Mitigation Measure. It is technologically feasible to reduce the window from 72 hours to 24 hours while allowing exceptions (e.g., for extreme weather). High-disturbance land incorporation, which requires chisel plowing followed by secondary tillage with a disk harrow or field cultivator, is expected to achieve the greatest reductions.

2. Acidifying amendments for poultry litter

Ammonia is a weak base and reducing the pH of litter binds ammonia and reduces its volatilization. Aluminum sulfate, also known as alum, is a common compound used to treat poultry litter to reduce ammonia emissions and bind phosphorous to prevent runoff. It is technologically feasible to require the application of alum to poultry litter.

⁵⁰ Anderson, K.; Moore, P.A., Jr.; Martin, J.; Ashworth, A.J. (2020) Effect of a New Manure Amendment on Ammonia Emissions from Poultry Litter. *Atmosphere*, 11, 257. <https://doi.org/10.3390/atmos11030257>

⁵¹ Ammonia: Supplemental Information for EPA in Support of 15 µg/m³ Annual PM_{2.5} Standard, CARB. March 2023

Economic Feasibility

The cost-effectiveness for high-disturbance incorporation of solid manure is estimated to range from \$26,400/ton to \$256,840/ton depending on whether only additional labor is required or a custom farm service must be used.⁵²

The application rate of alum on a per bird basis is 0.074 kg/bird⁵³ and the South Coast Air Basin NH3 emission factor for poultry layers is 0.19 lbs/head-year. Assuming a 35 percent reduction in NH3 emissions, the reduction is equivalent to 0.067 lbs/head-year. The application cost is estimated as \$0.63/head.⁵⁴ Alum must be applied prior to placing each flock and it is assumed that there is one poultry layers flock per year. Therefore, the cost-effectiveness is calculated as follows:

$$\$0.63/\text{head} \div 0.067 \text{ lbs/head-year} \times 2,000 \text{ lb/ton} = \$18,806/\text{ton}$$

Summary Table

Type of Analysis	Emission Reduction	Technological Feasibility	Economic Feasibility	Feasible Measure
BACM/BACT	0.48 tpd of NH3 by 2030	No	No	No
Additional feasible measure		No	No	No
MSM		Yes Feasible	Yes Feasible	Yes - partial

This PCM has been incorporated into the control strategy as BCM-08. For the purposes of satisfying MSM, South Coast AQMD commits to consider lowering the applicability threshold in Rule 223. As the Basin was reclassified to “serious” nonattainment effective December 2020, the deadline for implementation of BACM is December 2024. During that time, South Coast AQMD has developed multiple SIP revisions, including this PM2.5 Plan. Independent of MSM, the feasibility of the mitigation measures will be further explored during rulemaking. Considering South Coast AQMD’s robust, extensive and thorough rulemaking legally mandated public process and noticing requirements, rulemaking for this measure cannot be feasibly implemented-completed within 4 years of reclassification by December 2024, nor can it be implemented-completed by 2025, the statutory “serious” area attainment year. In addition, the time for CAFs to apply for permits and implement mitigation measures must be considered. It is unreasonable to expect that this measure could be adopted and implemented within the time constraints for BACM and additional feasible measures. However, considering the 5-year extension of the attainment year pursuant to CAA section 188(e), this measure can be feasibly implemented in whole or in part by 2030.

Independent of MSM, this measure will further assess the feasibility of the mitigation measures discussed, including acidifying amendments for poultry litter and high disturbance incorporation of cattle manure.

⁵² Ibid

⁵³ Ibid

⁵⁴ Ibid

Potential Control Measure 5 - Further Emission Reductions from Agricultural, Prescribed, and Training Burning

Target Pollutant

PM2.5

Synopsis

This control measure would seek further emission reductions from certain categories of open burning including agricultural and prescribed (e.g., forestry service) burning activities, as well as training burns. Agricultural burning involves the collection and combustion of vegetation produced from the growing and harvesting of crops. Prescribed burning is the planned burning of vegetation, usually conducted by a fire agency or the forest service to mitigate wildfire impacts or control plant disease and pests. Training burns are conducted by fire departments to practice suppressing fires. Rule 444 includes a Basin-wide no-burn provision when forecasted AQI is expected to exceed 150 in any area of the Basin. If the Basin-maximum forecasted AQI does not exceed 150, prescribed burning is prohibited in areas with AQI values exceeding 100 but agricultural burning is still prohibited for the entire Basin. While this provision controls episodic emissions on days with the worst air quality, it does not produce emission reductions on an annual basis since burning activities are shifted to other days.

PM2.5 emission reductions from agricultural burning can be achieved through incentivizing the use of alternatives (e.g., chipping/grinding or composting), with priority for eliminating burn projects located near sensitive receptors. The alternatives will produce emissions directly (e.g., chipping and grinding) or indirectly (e.g., transport of material to composting facilities) although they are still anticipated to result in a net emission reduction.

Potential Emission Reduction

The 2030 baseline emission inventory is 0.27 tpd of PM2.5 for prescribed and training burns.

The 2030 baseline emission inventory is 0.0086 tpd of PM2.5 for agricultural burning.

Technological Feasibility

Burning alternatives such as chipping/grinding or composting are widely available for agricultural applications.

The Menu of Control Measures developed by the U.S. EPA also recommends the inclusion of a provision to require higher fuel moistures during prescribed burns. For forestry burning, this is intended to decrease emissions by decreasing the amount of fuel burned and can be accomplished by either removing lighter and drier fuels or burning in early spring when moisture levels are naturally higher. There are renewed efforts to drastically increase the number of acres treated by prescribed fire in order to reduce the air quality impacts of increasingly intense wildfires caused by years of drought due to climate change and past forest management practices that have allowed the accumulation of the understory in forests throughout the west. Forest management, whether through chipping and grinding or prescribed fire, reduces overall emissions by reducing the intensity and available fuel of wildfires occurring on recently treated lands.

The distinct wet and dry seasons in the South Coast Air Basin along with poor summertime air quality that may restrict prescribed fire for nearly half of a year in some locations make finding suitable conditions for prescribed fire extremely challenging for fire agencies. Further restricting the number of days available for prescribed fire by setting fuel moisture requirements is inconsistent with the goal of increasing the number of acres treated by prescribed fire and may result in higher intensity wildfires, increased threats to life and property, and increased emissions that occur from fires that burn on untreated lands. Similarly, restricting training burns runs counter to the goal of wildfire containment as experienced firefighting crews need to rapidly mobilize in the event of wildfires. Further restricting their ability to train will hamper those efforts. Therefore, this provision in the Menu of Control Measures is not technologically feasible for prescribed and training burns.

Economic Feasibility

The cost-effectiveness of this measure as it applies to agriculture has not been estimated. However, costs to implement burning alternatives would be expected to be higher due to equipment and labor costs. Agricultural burning is much more prevalent in the SJVAPCD (36 percent of statewide emissions compared to <1 percent in the South Coast Air Basin).⁵⁵ The extent of burning is reported to CARB on an annual basis based on the acreage of crops cleared to produce a burn pile. In 2022, there were only 10.1 acres cleared for agricultural burning in the Basin.⁵⁶ By comparison, there were 33,451 acres cleared in 2022 for agricultural burning in the SJVAPCD.⁵⁷ Due to the high incremental cost associated with chipping and grinding, SJVAPCD provides incentives ranging from \$300/acre to \$1,300/acre depending on the crop and whether soil incorporation is included.⁵⁸ The extremely limited extent of agricultural burning combined with the high cost of alternatives suggest that this measure is economically infeasible and has no practical air quality benefit. Nevertheless, South Coast AQMD commits to perform outreach to the entities that perform agricultural burns to raise awareness of alternatives such as chipping and grinding.

⁵⁵ https://ww2.arb.ca.gov/sites/default/files/2021-02/Staff_Recommendations_SJV_Ag_Burn.pdf

⁵⁶ South Coast AQMD Open Burn Program Log Book

⁵⁷ Email from Leland Villalvazo, SJVAPCD, September 11, 2023

⁵⁸ https://www.valleyair.org/Board_meetings/GB/agenda_minutes/Agenda/2021/August/final/10.pdf

Summary Table

Type of Analysis	Emission Reduction	Technological Feasibility	Economic Feasibility	Feasible Measure
BACM/BACT	TBD	No	No	No
Additional feasible measure		No	No	No
MSM		No	No	No

Control measure BCM-17 involves a wildfire prevention program that seeks to incentivize hand-thinning, mechanical thinning, and chipping and grinding to mitigate excess fuels in urban-wild-interface areas of the San Bernardino National Forest. The scope of the measure is limited to a pilot project to further assess the effectiveness of incentive programs.

Potential Control Measure 6 - Further Emission Reductions from Commercial Cooking - Charbroilers

Target Pollutant

PM_{2.5}

Synopsis

Rule 1138 regulates VOC and PM emissions from restaurant operations by requiring the installation of flameless catalytic oxidizers, or equivalent control devices, to chain-driven charbroilers. The Rule covers chain-driven charbroilers cooking 875 pounds of meat or more per week, applicable mostly to large restaurant chains. Although under-fired charbroilers are another source of emissions from restaurant operations, no cost-effective control technology was identified for this type of equipment at the time of rule adoption. In the decade following adoption of Rule 1138, staff reported to the Governing Board regarding under-fired charbroiler control technology assessments, but amending the rule was determined to be infeasible. In 2008, staff reinitiated rule development for charbroilers and held a series of working group meetings and a public workshop. Rule amendment was again concluded to be infeasible due to the lack of affordable control technologies.

Staff has conducted an analysis of the state of PM control technology as well as potentially more stringent requirements in some of the other air districts. SJVAPCD Rule 4692 reduces PM emissions by requiring catalytic oxidizers for chain-driven charbroilers cooking 400 pounds of meat or more per week. This threshold is more stringent than that in Rule 1138 which applies to chain-driven charbroilers cooking 875 pounds of meat or more per week. Staff commits to evaluate the feasibility of lowering the applicability threshold for chain-driven charbroilers in Rule 1138.

Finally, SJVAPCD amended Rule 4692 to require registration and reporting for under-fired charbroilers. SJVAPCD Rule 4692 requires a one-time report for all commercial under-fired charbroilers submitted. Information required include typical details (name, location of establishment), number and size of cooking surface of all underfired charbroilers, type of fuel, type and pounds of meat cooked on a weekly basis, operating hours of cooking operation, flow rate (in cubic feet per minute, or CFM) of hood or exhaust system, manufacturer, and model of any installed pollution control devices (particulates, kitchen smoke, and/or odors). See below for the information that must be provided:⁵⁹

- Name and location of the commercial cooking operation;
- Number and size, in cooking surface square feet, of all underfired charbroilers at the commercial cooking operation;
- Type of fuel used to heat the underfired charbroiler(s);
- Type and quantity, in pounds, of meat cooked on the underfired charbroiler(s) on a weekly basis for the previous 12-month period;
- Daily operating hours of the commercial cooking operation;
- Flowrate (cubic feet per minute) of hood or exhaust system(s) serving each underfired charbroiler; and
- The manufacturer and model of any installed pollution control devices designed for the reduction of particulates, kitchen smoke and/or odor.

South Coast AQMD Rule 222 also requires that all charbroilers in the South Coast jurisdiction be registered and provide sufficient data as determined by South Coast AQMD to determine compliance. Registrations must be renewed annually and refiled if there is a change of ownership/name/location.

Staff does not interpret registration and reporting requirements as an applicable MSM. This is because these requirements are purely administrative and do not achieve emission reductions. Nevertheless, staff commits to consider a registration program to improve the accuracy of the emissions inventory for charbroilers.

Potential Emission Reduction

The 2030 baseline inventory is 9.13 tpd of PM2.5 for this source category.

Potential emission reductions for lowering the rule applicability threshold for chain-driven charbroilers cannot be determined due to a lack of updated data with meat cooked throughput.

Technological Feasibility

It is technologically feasible to lower the rule applicability threshold for chain-driven charbroilers.

⁵⁹ SJVAPCD Rule 4692 Commercial Charbroiling (Adopted March 21, 2002; Amended September 17, 2009; Amended June 21, 2018)

Economic Feasibility

While the number of chain-driven charbroilers that would be affected by lowering the threshold is unknown, SJVAPCD Rule 4692 already enforces the lower threshold so it is reasonable to conclude that this control measure is economically feasible.

Summary Table

Type of Analysis	Emission Reduction	Technological Feasibility	Economic Feasibility	Feasible Measure
BACM/BACT	TBD	No	No	No
Additional feasible measure		No	No	No
MSM		Yes	Yes	Yes

This PCM has been incorporated into the control strategy as BCM-12. As the Basin was reclassified to “serious” nonattainment effective December 2020, the deadline for implementation of BACM is December 2024. During that time, South Coast AQMD has developed multiple SIP revisions, including this PM2.5 Plan. Considering South Coast AQMD’s robust, legally mandated public process and noticing requirements, rulemaking for this measure cannot be feasibly completed by December 2024, nor can it be completed by 2025, the statutory “serious” area attainment year. In addition, the time for affected restaurants to install and operate catalytic oxidizers must be considered. It is unreasonable to expect that this measure could be adopted and implemented within the time constraints for BACM and additional feasible measures. However, considering the 5-year extension of the attainment year pursuant to CAA section 188(e), this measure can be feasibly implemented in whole or in part by 2030. Considering South Coast AQMD’s extensive and thorough rulemaking public process, BCM-12 cannot be feasibly implemented within 4 years of reclassification, nor can it be implemented by 2025, the statutory “serious” area attainment year. However, considering the 5 year extension of the attainment year pursuant to CAA section 188(e), BCM-12 can be feasibly implemented in whole or in part by 2030.

Potential Control Measure 7 - Further Emission Reductions from Paved Road Dust

Target Pollutant

PM2.5

Synopsis

This measure would seek further PM2.5 emission reductions from fugitive dust sources, primarily paved roads. While fugitive dust emissions from agriculture and construction are primarily in the coarse size fraction (PM10-2.5), entrained paved road dust is a major direct PM2.5 source due to the large number of roadways and high traffic volumes in the region. South Coast AQMD Rule 1186 - PM10 Emissions from

Paved and Unpaved Roads, and Livestock Operations establishes requirements to prevent material from being deposited on roadways and requires local jurisdictions to procure certified street sweeping equipment.⁶⁰

Most cities in the Basin have routine street sweeping frequencies of once or twice per week due to stormwater regulations. Specifically, existing National Pollution Discharge Elimination System (NPDES) permits required under the Clean Water Act currently specify street sweeping frequencies as part of a comprehensive program to reduce debris from entering storm drains.⁶¹ Thus, regulations are currently in place to require street sweeping at specified frequencies with South Coast AQMD-certified equipment. Accordingly, the BACM analysis included in the 2016 AQMP concluded the South Coast AQMD's existing rules and regulations are equivalent to, or more stringent than other districts' rules and regulations and met the BACM requirements. The 2016 AQMP did, however, include Control Measure BCM-03 (Further Emission Reductions from Paved Road Dust Sources) that proposed a review of current South Coast AQMD Rule requirements to determine if additional emission reductions could be achieved. Therefore, this PM2.5 Plan includes control measure BCM-14 that proposes an additional evaluation of paved road dust emissions.

Potential controls may include establishing increased sweeping frequencies for freeways and highways, establishing new test protocols to measure both PM2.5 and PM10 road dust emissions from sweepers, and requiring use of the most efficient sweepers with the lowest dust entrainment rates.

Potential Emission Reduction

The 2030 baseline inventory is 9.11 tpd of PM2.5 for this source category.
Potential emission reduction from this control measure is TBD.

Technological Feasibility

Studies that examine the effect of street sweeping on PM levels are scarce. A recent study in Chiayi City, Taiwan concluded that street sweeping combined with street washing is effective at reducing ultrafine particle concentrations.⁶² Another study conducted in Krakow, Poland found that street sweeping followed by intensive washing reduced road dust PM2.5 by 20-33 percent.⁶³ However, due to the tendency for the South Coast Air Basin to experience extreme drought, street washing is infeasible. Additionally, NPDES regulations prohibit street washing. Thus, these studies are not applicable to our region. The only studies identified as potentially applicable to our region found that closed system

⁶⁰ <http://www.aqmd.gov/docs/default-source/rule-book/support-documents/rule-1186/certified-street-sweepers-equipment-list.pdf?sfvrsn=2>

⁶¹ City of Fullerton, 2015. Contact with Ty Richter, Street Supervisor, City of Fullerton, September 2015.

⁶² Do the Street Sweeping and Washing Work for Reducing the Near-ground Levels of Fine Particulate Matter and Related Pollutants? <https://doi.org/10.4209/aagr.220338>

⁶³ Impact of Street Sweeping and Washing on the PM10 and PM2.5 Concentrations in Cracow (Poland) <https://ros.edu.pl/index.php?view=article&id=740:043-ros-v21-r2019&catid=51&lang=pl>

regenerative air sweepers are more efficient and less polluting compared to vacuum and mechanical brush sweepers.^{64,65}

Mandating increased street sweeping frequencies has unknown impacts on PM_{2.5} levels. Therefore, a pilot project along with a comprehensive atmospheric measurement campaign would be needed to assess the effectiveness of street sweeping frequency and technology as a method to reduce ambient PM_{2.5}. New test protocols that evaluate the PM_{2.5} performance of sweepers, such as those in Toronto and Europe,^{66,67} may be needed as well.

Economic Feasibility

Street sweeping costs vary greatly based on the number of miles and frequencies and whether the work is conducted with in-house or contracted resources. A survey of several large cities conducted in 2018 determined that the median annual cost of street sweeping was \$52.31 per curb mile.⁶⁸ The cost of mandating increased street sweeping frequencies can be substantial considering that the City of Los Angeles alone has over 230,000 curb miles to maintain. A pilot project would provide further insight into the cost-effectiveness of this measure.

Summary Table

Type of Analysis	Emission Reduction	Technological Feasibility	Economic Feasibility	Feasible Measure
BACM/BACT	TBD	No	No	No
Additional feasible measure		No	No	No
MSM		Yes	No	No

Other Considerations

South Coast AQMD has determined that further evaluation is required prior to fully implementing this control measure. Control measure BCM-14 proposes a pilot project to assess the effectiveness of increased street sweeping using regenerative air sweepers.

⁶⁴ <https://www.tymco.com/wp-content/themes/va/pdf/Cleanroads-APWAReporter-092007.pdf>

⁶⁵ ECORP Consulting, Inc. Strategic Street Sweeping Study prepared for Coachella Valley Association of Governments. November 2022.

⁶⁶ https://www.toronto.ca/wp-content/uploads/2018/02/94cd-CRCA_PM-Efficiency-Protocol-May2016.pdf

⁶⁷ <https://www.eu-nited.net/eunited+aisbl/municipal-equipment/sweepers-/index.html>

⁶⁸ https://sfbos.org/sites/default/files/BLA_Report_Street_Cleaning_Cost_Survey_062518.pdf

Potential Control Measure 8 - Further Emission Reductions from Wood-Burning Fireplaces and Wood Stoves

Target Pollutant

PM2.5

Synopsis

Rule 445 currently implements robust controls designed to reduce PM2.5 emissions from wood-burning devices. During wood-burning season, PM2.5 mandatory burning curtailment (No-Burn days) may be declared by the Executive Officer based on PM2.5 air quality forecast. However, there is an exemption for low-income households defined as “any household that receives financial assistance through reduced electric or gas bills from an electric or natural gas utility based on household income levels.” There are two financial assistance programs in California: Family Electric Rate Assistance (FERA) and California Alternate Rates for Energy (CARE). Staff estimated that 15-20 percent of single-family households qualify for CARE over an inland range covering Los Angeles and Orange Counties.⁶⁹ This is potentially a lower bound estimate of the households qualifying for the low-income exemption in Rule 445 since the qualified income thresholds are slightly higher for FERA than CARE. In addition, this PCM evaluates the feasibility of the proposed curtailment threshold of 25 µg/m3.

Potential Emission Reduction

The 2030 baseline inventory is 4.82 tpd of PM2.5 for all wood-burning devices.

~~Potential emission reductions have not been estimated.~~

Technological Feasibility

It is technologically feasible to lower the curtailment threshold and remove the low-income exemption for households with an alternative source of heat.

Economic Feasibility

Removing the low-income exemption from the mandatory curtailment would result in indeterminate cost increases to the impacted community. However, this control measure does not propose to modify existing curtailment exemptions provided to sole source of heat households or those not serviced by natural gas.

⁶⁹ Net Emissions Analysis Tool (NEAT) documentation. <http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/neat-main>

~~This potential control measure would~~ Removal of the low-income exemption and the lower curtailment threshold would not affect economic feasibility since season woods cost higher than natural gas in The Basin and majority of wood burning are ~~effectively only apply to~~ ambiance burning in low income households. Therefore, it is economically feasible.

Summary Table

Type of Analysis	Emission Reduction	Technological Feasibility	Economic Feasibility	Feasible Measure
BACM/BACT	0.33 tpd PM2.5TBD	No	No	No
Additional feasible measure		No	No	No
MSM		Feasible Yes	Feasible Yes	Yes

This PCM has been incorporated into the control strategy as BCM-18. As the Basin was reclassified to “serious” nonattainment effective December 2020, the deadline for implementation of BACM is December 2024. During that time, South Coast AQMD has developed multiple SIP revisions, including this PM2.5 Plan. Considering South Coast AQMD’s robust, legally mandated public process and noticing requirements, rulemaking for this measure cannot be feasibly completed by December 2024, nor can it be completed by 2025, the statutory “serious” area attainment year. In addition, the “serious” area plan submitted to the U.S. EPA in 2017 demonstrated Rule 445 satisfying BACM requirements at the time of the submittal. Due to unforeseen circumstances, the plan was withdrawn effective in June 2023 and a new BACM demonstration in conjunction with a new attainment strategy was developed. Given the short timeline from the new BACM demonstration to the statutory BACM implementation timeline, December 2024, it is not feasible to implement this measure as BACM. However, considering the 5 year extension of the attainment year pursuant to CAA section 188(e), this measure can be feasibly implemented in whole or in part by 2030. Considering South Coast AQMD’s extensive and thorough rulemaking public process, this measure cannot be feasibly implemented within 4 years of reclassification, nor can it be implemented by 2025, the statutory “serious” area attainment year. However, considering the 5-year extension of the attainment year pursuant to CAA section 188(e), this measure can be feasibly implemented by 2030.

Potential Control Measure 9 - Emission Reductions from Organic Waste Composting

Target Pollutant

NH3

Synopsis

This proposed control measure would seek emission reductions of NH3 from composting of organic waste (i.e., greenwaste, foodwaste, and agricultural waste streams). Control approaches include pollution

prevention technology, anaerobic digestion in lieu of composting, and restrictions for direct application of uncomposted, chipped or ground greenwaste (e.g., compostable mulch) to public lands.

California has passed legislation to divert organic waste from landfills including AB 1826 (Mandatory Commercial Organics Recycling; Chesbro, Chapter 727, Statutes of 2014) and SB 1383 (Short-Lived Climate Pollutants; Lara, Chapter 395, Statutes of 2016). SB 1383 sets statewide targets to reduce disposal of organic waste in landfills by 75 percent from 2014 levels and to save at least 20 percent of currently disposed surplus food for consumption by 2025.⁷⁰ SB 1383 organic waste mandates are implemented by local jurisdictions with oversight from California's Department of Resources Recycling and Recovery (CalRecycle). CalRecycle conducted a formal rulemaking process through collaboration with other stakeholders that resulted in regulations for organic waste management programs. Organic waste includes a broad range of waste categories such as food, green material, landscape and pruning waste, organic textiles and carpets, lumber, wood, paper products, printing and writing paper, manure, biosolids, digestate, and sludges that will be diverted from landfills and taken to the appropriate organic waste recovery facilities. Local jurisdictions must have their organic waste management programs in effect by January 1, 2022 and are required to take enforcement against noncompliance starting January 1, 2024.⁷¹

According to Table 2-3 of CalRecycle's Final Environmental Impact Report, 46 new or expanded compost facilities and 24 new or expanded anaerobic digester facilities would be required in the South Coast Air Basin by 2030 to process the diverted waste.⁷² While overall Short-Lived Climate Pollutant emissions are expected to decline, emissions from processing of organic waste via composting and anaerobic digestion are expected to grow. Organic waste may contain pathogen infections and is known to increase NH₃ emissions, if not composted properly. Therefore, this control measure proposes minimum composting standards to eliminate pathogens and minimize NH₃ emissions. It also seeks to evaluate emerging technologies to further control emissions from organic waste.

Potential Emission Reduction

The 2030 baseline inventory is 0.67 tpd of NH₃ for this source category. Emission reductions were not estimated.

Technological Feasibility

Pollution Prevention Technology

Rule 1133.3 requires 80 percent control of VOC and NH₃ emissions for a greenwaste composting pile containing greater than 10 percent foodwaste. Emerging pollution prevention technologies are able to process these waste materials without the microbial decomposition of organic materials, concurrently

⁷⁰ <https://calrecycle.ca.gov/organics/slcp/>

⁷¹ An Overview of SB 1383's Organic Waste Reduction Requirements.
<https://www2.calrecycle.ca.gov/Docs/Web/115800>

⁷² CalRecycle Final Environmental Impact Report. <https://www2.calrecycle.ca.gov/Docs/Web/119973>

killing pathogens and thereby minimizing VOC and NH₃ generation from the process. As an example, ~~ReGreen~~ Regreen International Solutions Technology, Inc. (ReGreenRegreen) systems can handle and process organic material and municipal solid waste into a stable byproduct such as animal feed, soil amendments/fertilizers, or clean-burning energy pellets. ~~Another example is Waste Management (WM's) proprietary Centralized Organic Recycling equipment (CORG) process that recycles commercial and institutional pre- and post-consumer food waste into an Engineered BioSlurry (EBS) that is added to wastewater treatment plant anaerobic digesters to increase the production of biogas.~~

Anaerobic Digestion

Anaerobic digestion is a process through which bacteria digest organic matter such as animal manure, wastewater biosolids (e.g., municipal sewage sludge), and food waste in the absence of oxygen. Anaerobic digestion for biogas takes place in a sealed vessel called a reactor, which is designed and constructed in various shapes and sizes specific to the site and feedstock conditions. These reactors contain complex microbial communities that digest the waste and produce resultant biogas and other useful coproducts (i.e., solid and liquid portions of the digestate). There are two types of anaerobic digester (AD) systems. Dry AD has a higher content of total solids greater than 15 percent and is best if feedstock is rich in green waste (up to 50 percent green waste). Wet AD has a lower content of total solids less than 15 percent and is best if the feedstock has no green waste. Dry AD generally requires larger and adjacent composting area, providing lower biogas yield and producing more solid digestate than in the wet AD system. Co-digestion is a wet AD system in which multiple organic materials can be combined digested in one digester. Co-digested materials include manure, food waste (pre- and post-consumer), crop residues, and fats, oils and greases (FOG) from restaurant grease traps, and many other sources. Co-digestion can increase biogas production from low-yielding or difficult-to-digest organic waste. There is one co-digestion facility operating in Los Angeles County that receives food waste and sewage sludge to produce biogas for Compressed Natural Gas (CNG) transportation fuel and electricity.⁷³ This co-digestion facility uses Waste Management (WM's) proprietary Centralized Organic Recycling equipment (CORG) process that recycles commercial and institutional pre- and post-consumer food waste into an Engineered BioSlurry (EBS) that is added to wastewater treatment plant ADs to increase the production of biogas. There are also four standalone anaerobic digestion facilities operating in the South Coast AQMD jurisdiction, which accept and process food waste and other organic wastes.⁷⁴

Composting of Chipped Green Waste Used for Land Application

Shredded curbside and non-curbside green waste, if not composted properly, may increase NH₃ and VOC emissions or pathogen infections when used as ground cover. Emissions can be reduced by having those materials go through the active phase of composting for at least 15 days. Approximately 85 percent of NH₃ emissions occur during the first 15 days of the 22-day active phase composting period required by

⁷³ <https://www.lacsd.org/services/solid-waste-programs/food-waste-recycling>

⁷⁴ <https://www2.calrecycle.ca.gov/Docs/Web/115971>. Updated March 2023

Rule 1133.3.^{75,76} In addition, California Code of Regulations, Title 14, Section 17868.3 requires a pathogen reduction period of 15 days for a windrow composting process. Therefore, NH₃ emissions can be reduced from shredded green material applied to public lands (e.g., for erosion control) by imposing restrictions such that chipped and ground greenwaste undergoes a minimum of 15 days of active phase composting before land application. Staff previously estimated NH₃ emissions from curbside greenwaste composting feedstock piles at 0.017 lbs/wet ton-day. However, emissions from a layer of land-applied shredded greenwaste materials have not been investigated and thus warrant further research. Emission reductions are estimated to be 0.08 tpd (see BCM-10 for details).

Economic Feasibility

Only the “Composting of Chipped Greenwaste Used for Land Application” ~~The portion of this potential control measure seeking reductions of uncomposted chipped and ground greenwaste~~ is considered economically feasible and has an estimated cost-effectiveness of \$91,200 per ton of NH₃ reduced (in 2022 dollars; refer to BCM-10 in Appendix IV-A). For the other portions of this potential control measure, “Pollution Prevention Technology” and “Anaerobic Digestion,” there is a lack of sufficient data on capital costs and emission controls to determine cost-effectiveness. Thus, staff estimated cost-effectiveness based upon available cost data and conservative assumptions as follows.

Pollution Prevention Technology

Estimated equipment costs for pollution prevention technology (e.g., ~~ReGreen~~ Regreen Technology) are expected to range between \$300,000 and \$400,000 for a unit that supports up to 0.5 tons/hour of feed. For full scale applications, a 5 tons/hour unit costs up to \$3.6 million (for capital costs only; operational costs are not included). Sufficient data is not available on how much emission reductions can be achieved from such a pollution prevention technology. Assuming a 5 tons/hour unit operates for 8 hours a day and 250 workdays a year, this unit can process 10,000 tons of mulch per year for a unit cost of \$360 per ton of mulch processed. Assuming this technology can entirely replace the composting operation and achieve NH₃ emission reductions at a rate of 80 percent control efficiency from the full phases of composting, the emission reductions would be 0.54 tons and cost-effectiveness is would be \$1.9 million per ton of NH₃ reduced (in 2022 dollars). The high capital cost is an impediment for widespread adoption and therefore the portion of this potential control measure related to pollution prevention technology is economically infeasible.

Anaerobic Digestion

As described in the previous section, there are anaerobic digestion plants operating in the Basin. However, sufficient data is not available on the costs and how much emission reductions can be achieved from such an anaerobic digestion or co-digestion. The cost of building a biogas facility can vary widely depending on

⁷⁵ Card, T.R. and C.E. Schmidt, 2006. Air emissions source test: Jepson Prairie Organics Compost Facility, Vacaville, CA. Report to NorCal Waste Systems, Inc.

⁷⁶ Card, T.R. and C.E. Schmidt, 2009. Northern Recycling Zamora Compost Facility Air Emissions Source Test. Report to Yolo Solano AQMD

a number of factors, including the size of the facility, the type of feedstock used, and the location of the facility to list a few, and is in general estimated to be \$400 (a simple farm installation) to \$1,500 (a municipal unit with waste sorting and biogas purification systems) per wet ton of material processed (capital costs only; operational costs are not included).⁷⁷ Greenwaste is typically not considered suitable for co-digestion because it is difficult to digest and yields low production of biogas. However, for the sake of this cost-effectiveness analysis, it was assumed very conservatively that chipped and ground mulch is a sole feedstock to co-digestion that achieves 80 percent of NH₃ emission control efficiency from anaerobic digestion that replaces the full phases of composting. The averaged control cost per ton of mulch processed is \$950 (as an average of the above cost range). This is about 2.6 times higher than the per ton cost (\$360) of a pollution prevention technology and the cost-effectiveness is \$5.0 million per ton of NH₃ reduced (in 2022 dollars). The high cost-effectiveness is an impediment for widespread adoption of this technology and therefore the anaerobic digestion portion of this potential control measure is economically infeasible.

Summary Table

Type of Analysis	Emission Reduction	Technological Feasibility	Economic Feasibility	Feasible Measure
BACM/BACT	0.08 tpd NH ₃ TPD	No	No	No
Additional feasible measure		No	No	No
MSM		Yes/Feasible	Yes/Feasible	Yes - partial

The “Composting of Chipped Greenwaste Used for Land Application” portion of this potential control measure that is considered MSM has been incorporated into control measure BCM-10. As the Basin was reclassified to “serious” nonattainment effective December 2020, the deadline for implementation of BACM is December 2024. During that time, South Coast AQMD has developed multiple SIP revisions, including this PM_{2.5} Plan. Considering South Coast AQMD’s robust, legally mandated public process and noticing requirements, rulemaking for this measure cannot be feasibly completed by December 2024, nor can it be completed by 2025, the statutory “serious” area attainment year. In addition, the time for composting facilities to expand their capacity to accommodate increased amounts of greenwaste must be considered. It is unreasonable to expect that this measure could be adopted and implemented within the time constraints for BACM and additional feasible measures. However, considering the 5-year extension of the attainment year pursuant to CAA section 188(e), this measure can be feasibly implemented in whole or in part by 2030. Considering South Coast AQMD’s extensive and thorough rulemaking public process, BCM-10 cannot be feasibly implemented within 4 years of reclassification by December 31, 2024, the deadline for implementation of BACM, nor can it be implemented by 2025, the statutory “serious” attainment year. However, considering the 5 year extension of the attainment year pursuant to CAA section 188(e), BCM-10 can be feasibly implemented in whole or in part by 2030.

⁷⁷ <https://www.biogasworld.com/news/reduce-the-costs-of-biogas-plant/>

Potential Control Measure 10 - Emission Reduction of PM from Asphalt Manufacturing

Target Pollutant

PM_{2.5}

Synopsis

This measure is derived from the 2012 version of U.S. EPA's Menu of Control Measures.⁷⁸ It estimates a control efficiency of 99 percent in an asphalt manufacturing facility equipped with a fabric filter, or baghouse placed in parallel inside of an enclosure. Rule 1157 - PM₁₀ Emission Reductions from Aggregate and Related Operations targets all aggregate and related operations, but does not require enclosure for all transfer points and activities. However, Rule 1155 regulates all baghouses (including those at asphalt manufacturing facilities), except for those with a filter area less than 100 ft² and requires no visible emissions at any time except for start-up and shutdown.

Potential Emission Reduction

The 2030 baseline inventory is ~~0-180.008~~ tpd of PM_{2.5} for this source category. Emission reductions have not been estimated at the transfer points and will need to be evaluated further.

Technological Feasibility

Enclosures and baghouses are generally technologically feasible. The standard (0.01 gr/dscf) for baghouses in asphalt manufacturing facilities was set forth in Rule 1155 and was fully implemented in 2013. Materials collected in a permitted PM control device must be discharged for disposal or brought back to the process through a controlled material transfer system to prevent fugitive emissions during material transfer. Such methods include, but are not limited to, shrouding or use of dust suppressant to stabilize the material. The purpose of this requirement is to control discharge of baghouse dust and prevent unwanted fugitive emissions during material transfer. Since most baghouse dusts are brought back to the process, a controlled material transfer system will help prevent fugitive emissions during material transfer.

⁷⁸ <https://www3.epa.gov/ttn/naaqs/pdfs/MenuOfControlMeasures.pdf>

Economic Feasibility

Asphalt manufacturing in the South Coast AQMD is currently regulated under Rule 1157 and Rule 1155, which require the use of filters. Baghouses are not considered economically feasible at the transfer points and activities not covered by Rule 1157 and Rule 1155. The potential emission reductions at the transfer points need to be further evaluated in order to estimate the economic feasibility or cost-effectiveness, as no data has been collected to understand the emissions at these points. However, given the emissions subject to this source category is very small, the emission reduction potential is anticipated to be de minimis, which will likely put cost effectiveness values to be very high and make this measure economically infeasible. based on the low emission inventory and the relative costs for replacement at \$27,000 per bag every three to five years.

Summary Table

Type of Analysis	Emission Reduction	Technological Feasibility	Economic Feasibility	Feasible Measure
BACM/BACT	<u>< 0.008 tpd PM_{2.5}</u>	<u>Yes</u> Feasible	Not Feasible <u>To Be Determined</u>	No
Additional feasible measure		<u>Yes</u> Feasible	Not Feasible <u>To Be Determined</u>	No
MSM		<u>Yes</u> Feasible	<u>To Be Determined</u> Not Feasible	No

Potential Control Measure 11 - Emission Reduction of PM from Wood Pulp and Paper

Target Pollutant

PM_{2.5}

Synopsis

This measure is derived from the 2012 version of U.S. EPA's Menu of Control Measures,⁷⁹ which estimated a control efficiency of 95 percent in wood pulp and paper facilities equipped with dry/wet electrostatic precipitators (ESP). Currently, there are five permitted paper and paperboard manufacturing facilities in

⁷⁹ <https://www3.epa.gov/ttn/naaqs/pdfs/MenuOfControlMeasures.pdf>

South Coast AQMD, although all rely on recycled materials. There is no source-specific control measure targeting this source category.

Potential Emission Reduction

The 2030 baseline inventory is 0.039 tpd of PM_{2.5} for this source category.

Potential emission reduction is not determined. Emission reduction techniques would need to be considered on a site-specific basis.

Technological Feasibility

An ESP is predominantly used to control PM emissions from kraft recovery furnaces used at paper manufacturing facilities that process virgin raw materials. However, manufacturing facilities in South Coast AQMD only process recycled paper and paperboard. For the recycled manufacturing facilities, very little PM is emitted from the pulp dryer, and control techniques for the paper machine vents are considered impractical because of the high moisture content, high volume of the vent exhaust gases, and the minimal pollutant concentrations.⁸⁰ As such, ESP control on PM is not technologically feasible for the recycled paper and paperboard manufacturing facilities located within South Coast AQMD.

Economic Feasibility

The control equipment for PM emissions is not expected to be cost-effective for recycled paper and paperboard manufacturing because of very high air flow from the exhaust vents on the roof top of a building where paper machine is situated, and low emission reduction potential.

Summary Table

Type of Analysis	Emission Reduction	Technological Feasibility	Economic Feasibility	Feasible Measure
BACM/BACT	N/A	No	No	No
Additional feasible measure		No	No	No
MSM		No	No	No

Staff is not aware of this control measure having been implemented in another nonattainment area or having been achieved in practice in another state for recycled paper manufacturing facilities. This PCM therefore does not meet U.S. EPA's definition of MSM.

⁸⁰ A&WMA, 2000. Air Pollution Engineering Manual, Second Edition, Air & Waste Management Association, page 804

Potential Control Measure 12 - Emission Reduction of NO_x through Reformulation and Process Modification for Cutback Asphalt

Target Pollutant

NO_x

Synopsis

This measure is derived from the 2012 version of U.S. EPA's Menu of Control Measures,⁸¹ which estimated a control efficiency of 100 percent based on the use of reformulated products and the modification of processes associated with cutback asphalt manufacturing to reduce fugitive VOC emissions. In addition, the proposed process would reduce natural gas use by an estimated 20 to 25 percent from reduced processing and transportation temperatures. The reduction in natural gas use results in NO_x emission reductions. Cutback asphalt is regulated under Rule 1108 which requires that cutback asphalt contains ≤ 0.5 percent by volume organic compounds at 260°C or lower.

Potential Emission Reduction

Emissions and emission reductions are TBD.

Technological Feasibility

Recent studies on warm-mix asphalt (WMA) have shown reductions in smoke and odors, lower emissions, improved workability, better working conditions and better performance.⁸² The study findings recommend that use of WMA be encouraged and that water-based WMA technologies should be closely monitored in mix-design and quality control/quality assurance testing to avoid moisture related issues. While WMA use may result in little or no reductions in VOC emissions, the reduced temperatures associated with WMA (approximately 20 percent lower than traditional hot-mix asphalt (HMA)) has been shown to result in a 20 to 25 percent reduction in energy usage.⁸³ WMA use is increasing throughout California, the U.S., and Europe. A survey by the National Asphalt Pavement Association found that nearly

⁸¹ <https://www3.epa.gov/ttn/naaqs/pdfs/MenuOfControlMeasures.pdf>

⁸² D. Jones, F. Farshidi, J. Harvey; Warm-Mix Asphalt Study: Summary Report on Rubberized Warm-Mix Asphalt Research (Summary Report UCPRC-SR02013-03), March 2014

⁸³ South Coast AQMD, Technology Assessment – Rule 1108 Cutback Asphalt, June 2008

one third of all asphalt pavement mix production in the U.S. is WMA, an increase of 577 percent since 2009.⁸⁴

Economic Feasibility

The cost of plant modifications to produce WMA range from \$30,000 to \$50,000. Additionally, the chemistry used to bind the aggregate is approximately \$3 to \$5 per ton more expensive than HMA. However, many facilities realize a cost savings from the process because of reduced fuel and labor costs. The WMA makes compaction easier, and the lower temperatures result in reduced transportation costs. Additionally, facilities realize a cost savings from higher reclaimed asphalt pavement content. Overall, there is no expected cost increase.

Summary Table

Type of Analysis	Emission Reduction	Technological Feasibility	Economic Feasibility	Feasible Measure*
BACM/BACT	TBD	<u>Yes</u> Feasible	<u>Yes</u> Feasible	No
Additional feasible measure		<u>Yes</u> Feasible	<u>Yes</u> Feasible	No
MSM		<u>Yes</u> Feasible	<u>Yes</u> Feasible	No

* While this measure is technologically and economically feasible in practice it is currently infeasible due to other considerations.

Other Considerations

In a white paper developed by the South Coast AQMD in 2008, staff concluded that lower-energy warm mix asphalt technologies were promising in reducing energy use and reducing NOx and VOC emissions. Nonetheless, the impact of mix and structural design, material processing requirements, construction procedures, and quality control specifications were not yet fully evaluated. In the last few years, WMA has been increasingly popular in the United States. Caltrans promotes the use of WMA because of its many improvements over HMA. In its April 2013 publication, Caltrans reported a 30 percent potential fuel savings and an 18 percent reduction in the overall GHG emissions associated with WMA.⁸⁵ The University of California Pavement Research Center (UCPRC) investigated the performance of rubberized WMA and found that in a controlled environment, rubberized WMA have better workability, and could result in potential energy savings and safer working conditions compared to HMA.⁸⁶ WMA suppliers reported 19–50 percent VOCs reduction and 60–70 percent NOx reduction in plant emissions in Europe, although

⁸⁴ National Asphalt Pavement Association, Steady Increase in Sustainability of Asphalt Pavements, http://www.asphaltpavement.org/index.php?option=com_content&view=article&id=1077:steady-increase-in-sustainability-of-asphalt-pavements&catid=24:napa-news4&Itemid=767, accessed January 19, 2016.

⁸⁵ California Department of Transportation. Caltrans Activities to Address Climate Change: Reducing Greenhouse Gas Emissions and Adapting to Impacts. April 2013. Retrieved from: http://www.dot.ca.gov/hq/tpp/offices/orip/climate_change/documents/Caltrans_ClimateChangeRprrt-Final_April_2013.pdf

⁸⁶ Jones, D., Wu, R., Barros, C. and Peterson, J. Research Findings on the Use of Warm-Mix. February 213. http://rafoundation.org/wp-content/uploads/2013/02/040-PAP_060.pdf

increased emissions of VOCs and CO were observed in the United States.⁸⁷ Although the overall performance of WMA seemed promising, mixed results were revealed on the potential emission reductions in a field test. UCPRC measured VOCs and semi-volatile organic compounds (SVOCs) emissions from WMA and HMA at the pavement surface during construction. Results showed that depending on the mix type and the temperature inside the chamber, total reactive organic gases (ROG) emission flux of WMA could be higher or lower than HMA.¹¹ Based on current information, the emission reduction of WMA technology is still uncertain and the potential increase in VOC emissions needs to be further investigated. Although VOCs are not a significant PM_{2.5} precursor in the South Coast Air Basin, the Basin is in “extreme” nonattainment of multiple ozone NAAQS and potential increases in VOC emissions must be carefully evaluated. Therefore, staff suggests further evaluation of the emission reduction and cost-effectiveness for WMA technology prior to being considered as BACM/MSM.

Potential Control Measure 13 - Paving Unpaved Lots, Roads, and Shoulders

Target Pollutant

PM_{2.5}

Synopsis

This measure will examine the feasibility of reducing PM_{2.5} emissions from well-traveled or highly used unpaved lots, roads, and other surfaces by applying paving materials. Although the South Coast Air Basin is a highly urbanized environment, there are areas with unpaved surfaces that are used by vehicles, equipment and/or other activities that generate airborne particulate matter emissions, including PM_{2.5}. In total, there are approximately 1,900 miles of unpaved roads in the Basin. However, not all of these roads are well-traveled or highly used. The focus of this measure would be to reduce dust and PM_{2.5} emissions from unpaved surfaces located in high traffic areas that are produced by moderate to high vehicle and/or machinery activity. This includes, but is not limited to, unpaved parking lots near warehouses as well as unpaved areas used by mobile homes or other vehicles/equipment on a frequent basis. This measure does not include paving in natural or protected lands. The following sites with unpaved surfaces may be considered: roads, traffic areas, parking lots, staging or assembly areas, mobile home parks, equipment storage lots, runways, loading and unloading areas, and/or roads and other areas on agricultural lands. The following activities are not considered by this proposed control measure: routine maintenance and rehabilitation projects, and/or paving activities that are part of new development projects.

⁸⁷ U.S. Department of Transportation, Washington, DC, USA. Warm-Mix Asphalt: European Practice; International Technology Scanning Program, FHWA-PL-08-007. February 2008

Unlike SJVAPCD Rule 8061, South Coast AQMD's rules do not currently prohibit the construction of new unpaved roads in urban areas. Therefore, this measure will also examine the feasibility incorporating this prohibition into South Coast AQMD rule requirements.

Potential Emission Reduction

The 2030 baseline inventory is 1.67 tpd of PM_{2.5} for this source category.

Estimated emission reductions are TBD.

Technological Feasibility

Roadway paving is a common activity and occurs regularly throughout the Basin in construction projects and other community improvement initiatives. Other air districts have implemented unpaved road dust control measures that include paving as one method of controlling particulate matter emissions. Some have established traffic thresholds that would trigger the paving requirements set therein, and methodologies for PM emissions quantification.^{88,89} The South Coast AQMD has recently developed a Paving Project Plan for the Eastern Coachella Valley as part of the AB 617 Community Air Protection Program (CAPP), which has been approved by CARB. This plan was developed in response to community concerns related to particulate matter emissions from unpaved surfaces in the community of Eastern Coachella Valley. This paving plan includes an emissions reduction quantification methodology based on Vehicle Miles Traveled (VMT).⁹⁰ The quantification methodology has been approved by CARB and can be applied to this PCM for paving of unpaved surfaces in the Basin.

This PCM focuses on unpaved surfaces that are adjacent to high-traffic areas or highly used by vehicles and equipment causing the production of airborne particulate matter emissions, including PM_{2.5}. An additional quantification methodology may be necessary to estimate the emissions reduced by paving surfaces based on square footage or similar measure within unpaved lots that are not open to through traffic, such as warehousing operations. The amount and locations of unpaved surfaces that would benefit from this PCM are currently unknown, however South Coast AQMD is aware of several locations that could benefit from this PCM based on high truck traffic areas, goods movement corridors, warehouse locations, as well as through concerns raised by the AB 617 communities and information provided by various other sources. For example, the AB 617 community of San Bernardino/Muscoy has identified unpaved areas associated with trucking and warehousing adjacent to Route 66/Cajon Blvd. as a high traffic

⁸⁸ San Joaquin Valley Air Pollution Control District Rules 8061— Paved and Unpaved Roads, August 2004 and 8071 – Unpaved Vehicle and Equipment Traffic Areas, September 2004

<https://www.valleyair.org/rules/currnrules/r8061.pdf>; <https://www.valleyair.org/rules/currnrules/r8071.pdf>

⁸⁹ Imperial County Air Pollution Control District Rule 214.2 – Paving Unpaved Roads Emission Reduction Credits, April 2017 <https://apcd.imperialcounty.org/wp-content/uploads/2020/01/1RULE214-2.pdf>

⁹⁰ South Coast AQMD Final Paving Project Plan ECV, September 2022 <http://www.aqmd.gov/docs/default-source/ab-617-ab-134/steering-committees/eastern-coachella-valley/final-ecv-paving-project-plan.pdf?sfvrsn=8>

unpaved area that may benefit from paving. An example of an unpaved surface in the Basin that is currently being used by trucks for parking is provided in Figure III-3.



**FIGURE III-3
UNPAVED TRUCK LOT IN TORRANCE, CA**

The method of implementation of this measure may include regulatory or incentive-based approaches. The Road Paving Plan for the ECV may offer a blueprint for funding paving opportunities in 617 communities within the Basin through incentives, but regulatory requirements may be necessary in non-617 areas or where incentive funding is otherwise unavailable.

Economic Feasibility

The cost projections of paving unpaved areas vary due to materials used for paving, be it asphalt, concrete, or some combination, and the need for striping, curbing, and other improvements. The Fugitive Dust Handbook published by the Western Regional Air Partnership estimates the costs of paving one mile of unpaved road at \$44,100/mile-year with an estimated useful life of 25 years; a similar cost estimate for paving unpaved lots \$0.23/square foot-year for a useful life of 25 years, though these costs have likely increased since publication.⁹¹ CARB's Unpaved Road Dust, Non-Farm Roads Methodology estimated the total unpaved city and county road miles for the Basin at 167.3 miles, though 'high-traffic' and adjacency to AB 617 communities were not limiting factors in these estimates.⁹² Using these figures, a high cost

⁹¹Western Regional Air Partnership Fugitive Dust Handbook, 2006
https://www.wrapair.org/forums/deif/fdh/content/FDHandbook_Rev_06.pdf

⁹² California Air Resources Board Miscellaneous Process Methodology 7.10, Unpaved Road Dust, Non-Farm Roads, 2012 https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-10_2012.pdf

estimate for paving the total unpaved city and county land in the Basin would be approximately \$184 million, though again these are total miles not ‘high-traffic’ miles, so the total unpaved lot area that would be considered by this PCM would be significantly smaller. This methodology estimates that the tons of PM/year reductions of paving the total road miles at 553.3 tons/year, or 1.52 tpd for an estimated cost effectiveness figure of \$13,334/ton. If only 10 percent of the road miles is paved this could result in a reduction of 55 tons/year of PM. While most unpaved roads are in public jurisdictions, many unpaved lots are private land and this distinction will be key to implementation of this PCM, as well defining high-traffic and distance to affected populations or AB 617 adjacency.

As the surface area of private unpaved high-traffic lots in the Basin is unknown, any incentive funding or cost-effectiveness estimates for the total unpaved area that this PCM may address is not known, and this uncertainty presents a barrier to feasibility. In addition, this PCM must be considered in the context of climate-related drought conditions and heatwaves frequently experienced in the Basin. Paving surfaces that would otherwise allow for underground aquifers to replenish during rainstorms must be acknowledged as a potential cost when assigning cost-effectiveness or designating areas for applicability to this PCM. Paving unpaved surfaces, especially in urban areas, also creates heat island effects resulting in higher temperatures than outlying areas. In densely urbanized areas, paved roads absorb and re-emit the sun’s heat more than natural landscapes becoming “islands” of higher temperatures relative to outlying areas. The costs of less permeable areas for surface drainage and heat island effects are unknown at this time. Therefore, South Coast AQMD has determined that this PCM requires further evaluation before committing to an adoption schedule and emission reductions.

Summary Table

Type of Analysis	Emission Reduction	Technological Feasibility	Economic Feasibility	Feasible Measure
BACM/BACT	TBD	<u>Yes</u> Feasible	No	No
Additional feasible measure		<u>Yes</u> Feasible	No	No
MSM		<u>Yes</u> Feasible	No	No

Other Considerations

South Coast AQMD has determined that further evaluation is required prior to implementing this control measure. Control measure BCM-19 proposes to develop an inventory of unpaved roads and parking lots within urban areas in the Basin and assess the suitability for paving. The proximity to AB 617 communities will be considered.

Potential Control Measure 14 - PM Controls for Industrial and Commercial Combustion Processes

Target Pollutant

PM_{2.5}

Synopsis

This measure is based on U.S. EPA's Menu of Control Measures, which lists various control technologies (e.g., electrostatic precipitators, Venturi scrubbers, and fabric filters) for large heaters, boilers, and generic industrial combustion processes. Due to the South Coast Air Basin's "extreme" nonattainment status for all ozone standards, South Coast AQMD is required to implement clean fuels for boilers pursuant to CAA Section 182(e)(3). U.S. EPA most recently approved the clean fuels for boilers compliance demonstration as meeting applicable requirements for the 2015 ozone standard.⁹³ As implemented by Rules 1146, 2002, 2004, and 1303, the use of solid fuels, residual oil, and diesel for boilers is effectively prohibited. As a result, industrial and commercial combustion processes in the South Coast Air Basin typically burn natural gas or process gas, which is estimated to reduce over 90 percent of PM_{2.5} emissions compared to residual oil.⁹⁴

Staff identified only one commercial application of stationary source diesel combustion in the Basin, which are engines that supply emergency backup power. All such engines > 50 horsepower are regulated by Rule 1470. Furthermore, new or modified units with ≥ 1,000 horsepower compression ignition engines are required to meet updated Lowest Achievable Emissions Rate (LAER) and BACT guidelines which require that the units achieve U.S. EPA's Tier 4 Final emission standards.⁹⁵ Existing Tier 2 units can achieve Tier 4 Final emission limits through the use of Diesel Particle Filters (DPF) and SCR.

This measure seeks to examine the feasibility of requiring further PM_{2.5} exhaust controls for natural gas and diesel fueled stationary source combustion processes.

Potential Emission Reduction

The 2030 baseline inventory is 5.20 tpd of PM_{2.5} for this source category.

Emission reductions cannot be estimated since emission reductions are already achieved in practice via implementing LAER and BACT requirements and existing rules.

Technological Feasibility

Natural gas is one of the cleanest burning of the commonly used fossil fuels (such as coal and oil) or biomass (such as wood and straw). PM emissions are negligible with natural gas fired boilers and heaters because of the low sulfur (less than 0.1 percent sulfur) and low ash content. PM emissions from natural gas combustion include both "filterable" and "condensable" portions of PM. Filterable PM is the portion of total PM that exists in the stack in either the solid or liquid state and can be captured by conventional PM control device such as filters, cyclones, ESPs or scrubbers. Condensable PM is the portion of the total PM that exists in vapor phase at stack conditions but condenses into PM in the cooler ambient air.

⁹³ 88 FR 29539

⁹⁴ <https://pm25.harcresearch.org/assets/FinalReport.pdf>

⁹⁵ <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2022/2022-sept2-030.pdf?sfvrsn=6You>

Condensable PM is composed of organic and inorganic compounds and of submicron size. For industrial and commercial boilers, condensable PM has the same order of magnitude emission rates as filterable PM.⁹⁶

There are limitations that make it technologically infeasible to install a PM control device for industrial and commercial natural gas combustion processes. First, filterable PM emissions from natural gas combustion are typically low to negligible because of the low sulfur and ash content and thus, installing a control equipment would not result in a significant reduction in PM_{2.5} emissions. Second, condensable PM exists as a gas in the stack and would not be effectively captured by bag filters or ESPs. Staff is not aware of PM_{2.5} controls being required or achieved in practice elsewhere in the United States for natural gas fired heaters and boilers.

Stationary emergency diesel combustion engines are used only for emergency purposes, such as backup power generation. Stationary emergency diesel engines are required to be certified to meet Tier 3 and Tier 4 emission limits based on the engine size, model year, and application pursuant to the U.S. EPA's National Emission Standards for Hazardous Air Pollutants (NESHAP) for stationary reciprocating internal combustion engines.⁹⁷ Stationary emergency diesel combustion engines with $\geq 1,000$ horsepower are already subject to meeting updated LAER through BACT as required by Regulation XIII – New Source Review. Since these stationary emergency combustion engines are already required to meet the LAER Tier 4 Final emissions standards and are addressed by BACT, there is no further potential for reductions and therefore, further PM exhaust control is technologically infeasible.

Economic Feasibility

Due to low to negligible emission reduction potential with a PM control device for natural gas fired boilers and heaters, installing a PM control device may not be cost-effective. Due to little to no potential for further PM reductions from stationary emergency diesel engines, PM control for these operations is not cost-effective.

Summary Table

Type of Analysis	Emission Reduction	Technological Feasibility	Economic Feasibility	Feasible Measure
BACM/BACT	N/A	No	No	No
Additional feasible measure		No	No	No
MSM		No	No	No

Staff is not aware of this control measure having been implemented in another nonattainment area or having been achieved in practice in another state for natural gas fueled boilers and heaters. This PCM therefore does not meet U.S. EPA's definition of MSM. Staff also reviewed U.S. EPA's Technical Support

⁹⁶ https://www3.epa.gov/ttn/chief/old/ap42/ch01/s04/final/c01s04_oct1996.pdf

⁹⁷ <https://www.epa.gov/stationary-engines/fact-sheet-final-amendments-emission-standards>

Document (TSD) for the San Joaquin Valley contingency measures Federal Implementation Plan (FIP).⁹⁸ In the infeasibility justification TSD, U.S. EPA notes that “there are no known add-on particulate matter control devices in use” for natural gas fired boilers, steam generators, and process heaters and that New Source Performance Standards (NSPS) typically do not set particulate matter limits for natural gas-fired units. U.S. EPA did not consider this to be a potential control measure in the FIP.

Potential Control Measure 15 - Lowering NOx Emission Limits for Boilers, Steam Generators, and Process Heaters

Target Pollutant

NOx

Synopsis

South Coast AQMD Rule 1146 (Emissions of Oxides of Nitrogen from Industrial, Institutional and Commercial Boilers, Steam Generators, and Process Heaters; Amended December 4, 2020) establishes NOx emission limits for boilers, steam generators, and process heaters equal to or greater than 5 million British thermal units per hour (MMBtu/hr) rated heat input capacity. San Joaquin Valley APCD Rule 4320 (Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr; Amended December 17, 2020) has more stringent NOx emission limits than South Coast AQMD Rule 1146 for boilers, steam generators, and process heaters greater than or equal to 5 MMBtu/hr. For natural gas-fired boilers between 5 and 20 MMBtu/hr, the NOx limit is 5 ppm in Rule 4320, while the corresponding NOx limits are 7 to 9 ppm via ultra-low NOx burner (ULNB) in Rule 1146. In addition, for natural gas-fired units that are greater than 20 MMBtu/hr, the NOx limit is 2.5 ppm in Rule 4320. This limit is lower than the one for South Coast, which is a NOx limit of 5 ppm via selective catalyst reduction (SCR) for natural gas burning Group I units (greater than or equal to 75 MMBtu/hr) and Group II units (greater than or equal to 20 and less than 75 MMBtu/hr). Rule 4320 has an option for facilities to pay an annual emission mitigation fee in lieu of meeting the NOx limits specified in the rule, until the NOx limits can be met. While Rule 4320 provides the flexibility to comply through mitigation fees, Rule 1146 includes mandatory emission limits.

Potential Emission Reduction

Estimated emission reductions are TBD.

⁹⁸ <https://www.regulations.gov/document/EPA-R09-OAR-2023-0352-0034>

Technological Feasibility

NO_x emissions from boilers, steam generators, and process heaters can be controlled with combustion modifications such as ULNB system or with post-combustion controls such as SCR. SCR is used to control NO_x emissions from combustion sources such as boilers and process heaters. ~~SCR~~ uses a precious metal catalyst that selectively reduces NO_x in the presence of ammonia. However, incomplete reactions of NO_x and ammonia result in emissions of unreacted ammonia (also known as ammonia slip). Depending on the type of combustion equipment utilizing SCR technology, the amount of ammonia slip can vary between less than 5 ppm when the catalyst is fresh and 20 ppm at the end of the catalyst life. SCR technology is considered to be ~~a Best Available Retrofit Control Technology (BARCT)~~, if cost-effective, for controlling NO_x emissions from existing combustion sources such as boilers and process heaters. SCR technology is scalable and generally utilized for units greater than or equal to 1020 MMBtu/hr due to capital and operating costs associated. Based on the information obtained through vendor discussions, achieving 5 ppm NO_x limit with an ULNB without a SCR is feasible only for certain applications such as Group III units and for new installations, and an SCR system would be needed to achieve a NO_x limit below 5 ppm. Staff met with ClearSign™, a manufacturer of next generation ULNB technology as a potential option for achieving below a 5 ppm NO_x level with ULNB only. The vendor stated that a 2.5 ppm NO_x level can potentially be achieved in smaller units less than 20 MMBtu/hr that do not have varying fuel composition such as a firetube boiler using natural gas – these small boilers typically operate around 300 °F. It may not be feasible for units that operate at higher temperatures to perform lower than 5 ppm. Based on information provided and equipment surveyed, 7 to 9 ppm is a feasible NO_x target with ULNB technology for Group I and II units. Other factors such as whether the unit is natural draft, force draft, fuel composition, operating temperature, and the number of burners will impact the NO_x levels that can be feasibly achieved. There is currently no existing ULNB technology available that can solely achieve a 2.5 ppm NO_x limit for Group I and II units. A combination of SCR and ULNB are the only technologies that can potentially achieve a 2.5 ppm NO_x level consistently. In order for Group I and II to achieve a sub 5 ppm NO_x level, the units will need to be evaluated for ULNB and SCR. Units in the size range typically have more than one burner and will have a higher cost than Group III units. The higher cost of NO_x control will impact the overall cost-effectiveness.

The NO_x emission limit specified in Rule 1146 for natural gas-fired Group I units (i.e., units greater than or equal to 75 MMBtu/hr) is 5 ppm, which is met with the use of SCR. In addition, existing permitted, natural gas-fired Group II units (i.e., units between 20 and 75 MMBtu/hr) in South Coast AQMD are equipped with SCR. Based on the information obtained through vendor discussions, it is potentially feasible for some retrofit units to meet a NO_x limit of 4 ppm or less through SCR control. However, there are several technical limitations for SCR retrofits to meet 4 ppm or less, such as the age, flow, and size of the catalyst bed of the existing SCR system. Another technical limitation is a potentially higher ammonia slip may occur to achieve a lower NO_x limit. The typical ammonia slip permit limit on the existing SCR system is at 5 ppm. The existing catalyst bed might not be large enough to comply with both the lower NO_x limit and the 5 ppm ammonia slip permit limit. For example, NO_x emissions of 2.5 ppm could be potentially feasible for some units, but the level of ammonia slip might also be higher (i.e., 10 ppm). The most significant constraint is the inadequate safety margin between the permitted limit and the actual emissions to account for fluctuations in external factors, such as ambient temperature or fuel heat input (i.e., gas Btu).

For natural gas-fired Group III units between 5 and 20 MMBtu/hr, the NOx emission limits specified in South Coast AQMD Rule 1146 are 7 to 9 ppm, which are primarily achieved through the use of ultra-low NOx burners. Based on the information obtained through vendor discussion, ULNB replacements on existing units could potentially meet 7 ppm or less and achieving the 5 ppm NOx limit without SCR is only feasible for certain applications and for new installations. Therefore, achieving a NOx limit of 5 ppm as specified in San Joaquin's rule would not be feasible and/or cost-effective for burner retrofits of all existing units.

San Joaquin Valley APCD Rule 4320's Tier 2 NOx limits require units between 5 and 20 MMBtu/hr input rating to meet 5 ppm and units with greater than a 20 MMBtu/hr input rating to meet 2.5 ppm by December 21, 2023, with an option to comply with a mitigation fee. In San Joaquin Valley, a very small subset of the universe between 5 and 20 MMBtu/hr is currently permitted with a NOx emission limit of 5 ppm. In addition, only one unit is currently permitted with a NOx emission limit of 2.5 ppm, which is equipped with low NOx burners and an SCR system. According to San Joaquin Valley APCD's final draft staff report,⁹⁹ the 5 ppm and 2.5 ppm NOx limits in Rule 4320 may be not achievable for all units due to space limitations and economic considerations. Most affected units have typically had several layers of controls and can only reach these new limits with post-combustion controls including SCR. Therefore, both 5 ppm and 2.5 ppm NOx emission limits are rather considered technology-forcing limits and in lieu of meeting these technology-forcing limits, facility operators can pay an annual emission mitigation fee until their units become ready to comply with the limits.

Based on the staff's analysis as well as the information from San Joaquin Valley's staff report, staff concluded that achieving the emission limits of 5 ppm or lower (e.g., 2.5 ppm) is not available for all applicable units in this source category in South Coast AQMD and thus, is not a technologically feasible measure. However, burner manufacturers such as ClearSign™ are currently in development of next generation ULNB replacements for Group I and Group II units that can potentially achieve sub 5 ppm NOx levels at a much lower cost. The next generation ULNB technology is not commercially available for Group I and Group II units at the moment. Proposed Control Measure L-CMB-02 addresses emissions from boilers subject to Rule 1146 as part of the 2022 AQMP. Staff will continue to monitor and assess feasibility of obtaining a lower NOx limit for boilers which is to be addressed as part of L-CMB-02.

Economic Feasibility

Based on vendor feedback and estimates, the most-cost-effective options to meet a NOx level below 5 ppm without ammonia is next generation ULNB technology; this technology is currently not commercially available for Group I and Group II units. The current technology to achieve a NOx level below 5 ppm will require a combination of ULNB and SCR technologies or replacement with a brand-new unit which may not be feasible or cost-effective for all applications. To be determined once the lower emission limits become technologically feasible to be implemented for this source category.

⁹⁹ https://www.valleyair.org/Board_meetings/GB/agenda_minutes/Agenda/2020/December/final/13.pdf

Summary Table

Type of Analysis	Emission Reduction	Technological Feasibility	Economic Feasibility	Feasible Measure
BACM/BACT	TBD	Not Feasible	To Be Determined	No
Additional feasible measure		Not Feasible	To Be Determined	No
MSM		Not Feasible	To Be Determined	No

**South Coast Air Basin Attainment Plan for the 2012
Annual PM_{2.5} Standard**

Appendix III

**ATTACHMENT A: EVALUATION OF SOUTH COAST AQMD
RULES**

ATTACHMENT A-1

EVALUATION OF SOUTH COAST AQMD RULES AND REGULATIONS – PM RULES

Rule No.	Rule Title	Current Rule Requirements	Other Agencies' Rules and Federal Guidance ^a That Are More Stringent	BACM Evaluation
404	Particulate Matter - Concentration (Amended 2/7/86)	Atmospheric discharge from any source is required to meet the PM limits varying from 0.01 gr/dscf to 0.19 gr/dscf depending on exhaust flow rates.	Bay Area, Regulation 6, Rule 1 (Adopted 8/1/18) contains a maximum PM limit of 0.15 gr/dscf. There are differences in the applicability of this rule compared to Rule 404.	South Coast AQMD Rule 404 varies in stringency when compared to other Districts' requirements. Overall, Rule 404, when considered with Rule 405, meets BACT.
405	Solid Particulate Matter – Weight (Amended 2/7/86)	Atmospheric discharge from any source is required to meet the PM limits varying from 0.45 kg/hr to 13.6 kg/hr depending on process weight.	n/a ^b	Meets BACT.
444	Open Burning (Amended 7/12/13)	Contains requirements and prohibitions for open burning to minimize emissions and smoke impacts to the public; allows open burning on permissive burn days, provided a permit and burn authorization is obtained; establishes burn plan requirements for prescribed burns; sets daily maximum burn acreage for agricultural and prescribed burning.	San Joaquin Valley Rule 4103 (Amended 4/15/10) contains additional best management practices compared to Rule 444 such as best management practices to control open burning of weeds. Bay Area, Reg 5, sets requirements for open burning, and forbids recreational burning during curtailment periods.	In its TSD for the approval of Rule 444 into the California SIP published in 2013, EPA determined that with the exception of provisions about banning the burning of specific crops, Rule 444 is generally as stringent as or more stringent than analogous rules in other California Districts. Controls that address agricultural burning emissions are considered in the Control Measure Assessment section. Overall, Rule 444 provides BACT level of control for this source category.
445	Wood-Burning Devices (Amended 10/27/20)	No wood-burning device is allowed in any new development, unless it is a U.S. EPA certified wood-burning heater, a pellet-fueled wood-burning heater, a masonry heater, or a dedicated gaseous-fueled fireplace. PM2.5 mandatory burning curtailment (no-burn day) is declared in area < 3,000 ft above mean seal level and Basin-wide if daily PM2.5 is forecast to exceed 30 µg/m ³ or an applicable concentration as set forth in PM2.5 Contingency Measures during wood-burning season from November to February. If the Basin fails to meet RFP requirement, meet any quantitative milestone, submit a quantitative milestone report, or attain the applicable PM2.5 standard by attainment date, seasonal wood-burning curtailment threshold could go down as low as 26 µg/m ³ . Rule does not apply to: residential/commercial properties where a wood-burning device is the sole source of heat; a low income household; residential/commercial properties with no existing natural gas service within 150 ft of the property line; residential/commercial properties located ≥ 3,000 ft AMSL; or ceremonial fires exempted under Rule 444.	San Joaquin Valley Rule 4901 (amended 6/20/19) effective 1/1/20, prohibits sale or transfer of a real property that has a wood-burning heater unless it is either EPA Phase II certified, is a pellet-fueled wood-burning heater exempt from EPA certification, or is rendered permanently inoperable and removed from the property. Effective 1/1/20, remodel of wood-burning fireplace or chimney where total cost exceeds \$15,000 and local building permit is required, shall install only a gas-fueled, electric, exempt, or EPA certified wood burning heater at the time of installation.	Rule 445 does not contain resale and remodel provisions as does SJVAPCD Rule 4901. Staff thoroughly evaluates these and other provisions in Appendix III.

Appendix III: Attachment A – Evaluation of South Coast AQMD Rules

Rule No.	Rule Title	Current Rule Requirements	Other Agencies' Rules and Federal Guidance ^a That Are More Stringent	BACM Evaluation
1117	Emissions from Container Glass Melting and Sodium Silicate Furnaces (Amended 6/5/20)	There are no PM10 emission limits in Rule 1117.	San Joaquin Valley Rule 4353 contains a PM10 emission limit of 0.20 lbs per ton glass produced for container glass and flat glass.	Staff considered introducing PM10 emission limits in Rule 1117 and the assessment can be found in the Control Measure Assessment section.
1133, 1133.1	Rule 1133 - Composting and Related Operations – General Administrative Requirements (Adopted 1/10/03) Rule 1133.1 – Chipping and Grinding Activities (Amended 7/8/11)	Rule 1133 is an administrative rule that requires composting, chipping, and/or grinding facilities to register with the District. These facilities provide information such as types and amounts of feedstocks produced, and a description of the processes used at the facility. This information is updated annually. Rule 1133.1 establishes holding or processing time requirements for green waste and food waste chipping and grinding activities. The rule's objective is to prevent inadvertent decomposition occurring during chipping and grinding activities.	n/a ^b	Rule 1133.1 was amended in 2011 to better manage stockpile operations associated with chipping and grinding activities, which is to be consistent with current greenwaste material processing requirements established in Title 14 of the California Code of Regulations. Rule 1133.1 meets BACT.
1137	PM10 Reduction From Woodworking Operations (Adopted 2/1/02)	Require that woodworking operations send sawdust emissions either directly to a baghouse filter, or to a pneumatic conveyance device that leads to a baghouse filter.	n/a ^b	Meets BACT.
1138	Control Of Emissions From Restaurant Operations (Adopted 11/14/97)	Control Of Emissions From Restaurant Operations (Adopted 11/14/97)	Ventura Rule 74.25 (Adopted 10/12/04) has equivalent requirements as in Rule 1138. Bay Area Rule 2 of Regulation 6 (12/5/07) has emission standards of 0.74 lbs PM10 and 0.32 lbs VOC per thousand pounds of meat cooked for all chain-driven charbroilers; 1.0 lbs PM10 per thousand pounds of meat cooked for all under-fired charbroilers with combined total grill surface area of at least 10 square feet. San Joaquin Rule 4692 requires catalytic oxidizers for chain-driven charbroilers cooking 400 pounds of meat or more per week. This threshold is more stringent than Rule 1138 which applies to chain-driven charbroilers cooking 875 pounds of meat or more per week. Rule 4692 also requires that catalytic oxidizers achieve an 86% VOC and 83% PM reduction. Finally, Rule 4692 requires registration and reporting requirements for under-fire d charbroilers.	Most BAAQMD under-fired charbroiler facilities are too small to trigger the under-fired charbroiler requirements. The lower applicability threshold in SJVAPCD Rule 4692 is evaluated in the Control Measure Assessment section.
1140	Abrasive Blasting (Amended 8/2/85)	Set standards for the abrasives and require a visible emission evaluation to determine the impact of abrasive blasting operations on visibility.	n/a ^b	Rule 1140 is substantively similar to the California Code of Regulations, Title 17, Subchapter 6 — Abrasive Blasting provisions, which have been adopted by most California Air Districts. State law prohibits more stringent requirements. As such, Rule 1140 meets BACT.
1155	Particulate Matter Control Devices (Amended 5/2/14)	PM standards for PM control devices at 0.01 gr/dcsf for existing large baghouses >7500 square feet and best operational practices to reduce PM emissions.	n/a ^b	Meets BACT.

Appendix III: Attachment A – Evaluation of South Coast AQMD Rules

Rule No.	Rule Title	Current Rule Requirements	Other Agencies' Rules and Federal Guidance ^a That Are More Stringent	BACM Evaluation
1156	PM10 Emission Reductions from Cement Manufacturing Facilities (Amended 3/6/09)	PM standards for PM control devices (0.01 gr/dcsf for existing and 0.005 gr/dcsf for new devices) and best operational practices to reduce PM emissions from aggregate and related operations	n/a ^b	Meets BACT.
1157	PM10 Emissions Reductions from Aggregate and Related Operations (Amended 9/8/06)	Good operational practices to reduce PM emissions from aggregate and related operations. Establish source specific performance standards (no dust emissions exceeding 20 percent opacity, or no dust emissions exceeding 50 percent opacity, or no dust plume beyond 100 feet from any emission source, etc.) and specifying operational PM10 controls for various types of equipment, processes, storage piles, internal roadways at aggregate and related operations, and track-out of materials onto paved public roads	EPA promulgated standards for new hot mix asphalt facilities in Title 40, Chapter I, Part 60, Subpart I of the Code of Federal Regulations (40 CFR Part 60, Subpart I). Subpart I assigns a 20 percent opacity limit and a 90 mg/dscm (micrograms/dry standard cubic meter) PM content for fugitive emissions.	In its TSD for the approval of Rule 1157 into the California SIP published in 2011, EPA determined that Rule 1157 generally had the most stringent requirements and concluded that Rule 1157 fulfills BACM. Overall, Rule 1157 is as stringent as or more stringent than the other Districts' rules and meets the BACT requirements for this source category.
1186	PM10 Emissions from Paved and Unpaved Roads, and Livestock Operations (Adopted 7/11/08)	Requires good management practice such as clean-up of spills on public roadways, post-event street cleaning, routine sweeping using certified street sweeping equipment, new or widened roads to have improved road shoulders and treatment of livestock feed access lanes and cessation of hay grinding activities during high winds, etc.; Establish unpaved road treatment schedule for local jurisdictions in the Basin.	SJVAPCD Rule 8061 requires municipalities to sweep paved roads at least once per month with PM10 efficient units. For unpaved roads, on any unpaved road segment with 26 or more AADT, the owner/operator shall limit visible dust emission to 20% opacity and comply with the requirements of a stabilized unpaved road, or shall implement an APCO-approved Fugitive PM10 Management Plan; Within an urban area, requires all new roads to be paved.	In its TSD for the approval of Rule 1186 into the California SIP published in 2011, EPA determined that the requirements to ensure continued compliance added in the 2008 amendment further strengthens the SIP-approved version of this rule, which was determined to meet the BACM provisions. For the majority of the categories, Rule 1186 is as stringent as or more stringent than the other Districts' rules and provides BACT level of control. Potential measures to further reduce paved road dust emissions are considered in the Control Measure Assessment section.

^a Other agencies' rules and regulations amended/adopted before March 2023 are included in this updated BACM evaluation.

^b There are no analogous requirements in other air agencies that are more stringent than the South Coast AQMD rule being evaluated.

ATTACHMENT A-2

EVALUATION OF SOUTH COAST AQMD RULES AND REGULATIONS – NO_x RULES

Rule No	Rule Title	Current Rule Requirements	Other Agencies' Rules and Federal Guidance ^a That Are More Stringent	BACM Evaluation
476	Steam Generating Equipment (Amended 10/8/76)	For equipment with maximum heat input rate > 50 MMBTU/hr, NO _x emission limits are 125 ppm at 3% O ₂ on gas-fired equipment and 225 ppm at 3% O ₂ on liquid or solid-fired equipment, averaged over 15 minutes. In South Coast AQMD, one facility (Long Beach City SERFF) has 3 combustors subject to NO _x limit of 150 ppm (24-hr average) per 40 CFR Part 60 Subpart Ea and Eb.	Maryland (Section 26.11.08 Control of Incinerators) NO _x emission limits for two applicable facilities are 140 and 150 ppm respectively at 24-hr average, and 105 and 145 ppm respectively at 30-day average.	Steam generating equipment in South Coast AQMD is subject to requirements similar to those in Maryland on a 24-hr average basis (140 to 150 ppm in Maryland vs. 150 ppm in South Coast). The 2022 AQMP includes control measure L-CMB-09 which will further reduce NO _x emissions at the Long Beach City SERFF with implementation scheduled by 2030. This measure is included in the PM _{2.5} Plan as BCM-07.
1110.2	Emissions from Gaseous- and Liquid-Fueled Engines (Amended 11/1/19)	The following NO _x limits apply to all stationary and portable engines over 50 bhp. Stationary, non-emergency engines and biogas (landfill and digester gas) engines: • 11 ppm NO _x New non-emergency engines with electrical generators: • 0.07 lbs NO _x /MW-hr (or 2.5 ppm NO _x) General low-usage engines: • 36 ppm NO _x , engines ≥500 hbp • 45 ppm NO _x , engines <500 hbp Low-usage biogas engines: • 36 x ECF ppm NO _x , engines ≥500 hbp • 45 x ECF ppm NO _x , engines <500 hbp	n/a ^b	Meets BACT.
1111	Reduction of NO _x Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces (Amended 10/1/21)	The maximum NO _x limit from fan-type central furnaces is 40 ng/J. On or after 10/1/12, NO _x limit is 14 ng/J for residential and commercial fan-type central furnaces. Mobile home furnaces NO _x limit is lowered to 14 ng/J by 10/1/18. Alternate compliance plan with mitigation fees with varying compliance dates.	BAAQMD Regulation 9, Rule 4 establishes a zero NO _x emission limit for new natural gas-fired space heaters with a capacity < 175,000 Btu/hr beginning in 2029.	BAAQMD's zero emission limits are further evaluated in Appendix III.
1117	Emissions from Container Glass Melting and Sodium Silicate Furnaces (Amended 6/5/21)	The following emission limits apply. • 0.75 lbs NO _x /ton of glass pulled averaged over 30 days • 0.50 lbs NO _x /ton of product pulled averaged over 30 days for sodium silicate furnaces • 30 ppmv NO _x at 3% O ₂ or 0.036 lb/MMBTU of heat for auxiliary combustion equipment	n/a ^b	Meets BACT/BACM.
1118	Control of Emissions from Refinery Flares	• Operators must operate all flares in a manner that minimizes flaring	n/a ^b	Meets BACT/BACM.

Appendix III: Attachment A – Evaluation of South Coast AQMD Rules

Rule No	Rule Title	Current Rule Requirements	Other Agencies' Rules and Federal Guidance ^a That Are More Stringent	BACM Evaluation
	<u>(Amended April 5, 2024)</u>	<ul style="list-style-type: none"> • For hydrogen clean service flares, establishes a NOx performance target 0.3 lbs. per million standard cubic feet of hydrogen production capacity • LPG flares are required to comply with a throughput threshold of 15,000 MMBtu/year • Requires payment of mitigation fees and submission of a Flare Minimization Plan is performance targets are exceeded 		
1118.1	Control of Emissions from Non-Refinery Flares (Adopted 1/4/19)	Flare gas NOx emission limits range from 0.018 lbs/MMBtu for produced gas to 0.025 lbs/MMBtu for major digester gas and landfill gas. All other flare gas including minor digester gas is required NOx emission limits at 0.06 lbs/MMBtu. Organic liquid storage has NOx emission limit at 0.25 lbs/MMBtu and organic liquid loading has NOx limit at 0.034 lbs/1,000 gallons loaded.	n/a ^b	Meets BACT/BACM.
1121	Control of Nitrogen Oxides from Residential Type, Natural Gas-Fired Water Heaters (Amended 9/3/04)	<p>For natural gas-fired water heaters rated <75,000 Btu/hr, NOx emission limits:</p> <ul style="list-style-type: none"> • 55 ppm for mobile home • 30 ppm for residential home • 15 ppm for water heaters ≤50 gallons 	BAAQMD Regulation 9, Rule 6 establishes zero NOx emission limits.	BAAQMD's zero emission limits are further evaluated in Appendix III.
1134	Emissions of Oxides of Nitrogen from Stationary Gas Turbines (Amended 2/4/22)	<p>Requirements that will remain in effect until 2024:</p> <p>Standard = Reference Limit x (Unit Efficiency/25%), where reference limit depends on size of units, varying from 9 ppm to 25 ppm.</p> <p>New emission limits become effective 1/1/24:</p> <ul style="list-style-type: none"> • Liquid fuel turbines located on Outer Continental Shelf (OCS): 30 ppm NOx / 5 ppm NH3 • Natural gas, combined cycle turbine: 2 ppm NOx / 5 ppm NH3 • Natural gas, simple cycle turbine: 2.5 ppm NOx / 5 ppm NH3 • Produced gas: 9 ppm NOx / 5 ppm NH3 • Produced gas turbine located on OCS: 15 ppm NOx / 5 ppm NH3 <p>Other: 12.5 ppm NOx / 5 ppm NH3.</p>	San Joaquin Rule 4703 (Amended 9/20/07) has standards from 5–50 ppm depending on size of units. Combined cycle units > 10 MW has limit of 3 ppm.	<p>NOx emissions range has a lower limit in San Joaquin Rule 4703 (5 ppm) than South Coast Rule 1134 (9 ppm), while the upper limit is lower in South Coast Rule 1134 (25 ppm) than San Joaquin Rule 4703 (50 ppm). Therefore, for the majority of the categories, Rule 1134 is as stringent as the other District's rules.</p> <p>In early 2019, South Coast AQMD staff performed a BARCT analysis based on technological and economic feasibility, and established BARCT emission limits for equipment subject to Rule 1134. As such, Rule 1134 reflects up to date BARCT requirements, which is equivalent to BACT.</p>
1135	Emissions of Oxides of Nitrogen from Electricity Generating Facilities (Amended 1/7/22)	Electricity generating facilities (EGF) have NOx emission limits at 5 ppm for boilers (at 3% O2), 2 ppm for combined cycle gas turbines, and 2.5 ppm for simple cycle gas turbines (at 15% O2) that are fired on natural gas. Internal combustion engines firing diesel limit NOx emissions at 45 ppm (at 15% O2). All NOx limits are 60 minute averages.	n/a ^b	Meets BACT.
1146, 1146.1	Rule 1146 - Emissions of Oxides of Nitrogen from Industrial, Institutional, and	Rule 1146 NOx emission limits for industrial/commercial boilers, steam generators, and process heaters ≥ 5 MMBtu/hr:	San Joaquin Valley Rules 4306 and 4320 (Amended 12/17/20) require NOx limits for boilers, steam	Rules 1146/1146.1 currently limit NOx emissions from thermal fluid heaters to 12 ppm, while the Rule 4306 Tier 2 NOx limit is 9 ppm. Based on the Rules 1146/1146.1 staff

Appendix III: Attachment A – Evaluation of South Coast AQMD Rules

Rule No	Rule Title	Current Rule Requirements	Other Agencies' Rules and Federal Guidance ^a That Are More Stringent	BACM Evaluation
	<p>Commercial Boilers, Steam Generators, and Process Heaters (Amended 12/4/20)</p> <p>Rule 1146.1 - Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters (Amended 12/7/18)</p>	<ul style="list-style-type: none"> • Gaseous fuel: 30 ppm • Non-gaseous fuel: 40 ppm • Landfill gas: 25 ppm • Digester gas: 15 ppm • Atmospheric units (5–10 MMBtu/hr): 12 ppm • Group I (≥75 MMBtu/hr burning natural gas): 5 ppm • Group II (≥20 & <75 MMBtu/hr with gaseous fuels) <ul style="list-style-type: none"> ▪ Fire-tube boilers with previous limits 5–9 ppm: 7 ppm ▪ All other units (with previous limits 5–12 ppm): 9 ppm ▪ All others: 5 ppm • Group III (≥5 & <20 MMBtu/hr with gaseous fuels) <ul style="list-style-type: none"> ▪ Fire-tube boilers with previous limits 9–12 ppm: 7 ppm ▪ All others: 9 ppm • Thermal fluid heaters: 12 ppm. <p>Rule 1146.1 NOx emission limits for industrial/commercial boilers, steam generators, and process heaters between 2-5 MMBtu/hr:</p> <ul style="list-style-type: none"> • Landfill gas: 25 ppm • Digester gas: 15 ppm • Atmospheric units (5–10 MMBtu/hr): 12 ppm • Fire-tube boilers: 7 ppm • Natural gas units: 9 ppm • Thermal fluid heaters: 12 ppm • All other units: 30 ppm <p>Rules 1146/1146.1's compliance dates:</p> <ul style="list-style-type: none"> • Non-RECLAIM facilities <ul style="list-style-type: none"> • 12/7/18 • 12/7/33 with a permit limit ≤ 20 ppm • 1/1/22 with a permit limit > 20 ppm • RECLAIM facilities <ul style="list-style-type: none"> ▪ 12/7/33 with a permit limit ≤ 20 ppm <p>1/1/22 with a permit limit > 20 ppm</p>	<p>generators, and process heaters ≥ 5 MMBtu/hr. Rule 4306 Tier 2 NOx limits by 2023–2029:</p> <ul style="list-style-type: none"> • Category A (>5–20 MMBtu/hr): <ul style="list-style-type: none"> ▪ Thermal fluid heaters: 9 ppm <p>San Joaquin Valley Rule 4320 (Amended 12/17/20) provides advanced emission reduction options: (1) meet the specific NOx emission limits, (2) pay an annual emissions fee, or (3) comply with low-use provision. Rule 4320 Tier 2 NOx limits are technology-forcing limits with compliance deadline by 2023:</p> <ul style="list-style-type: none"> • Category A (>5–20 MMBtu/hr): <ul style="list-style-type: none"> ▪ Fire-tube boilers: 5 ppm ▪ Thermal fluid heaters: 9 ppm ▪ All others: 5 ppm • Category B (>20 MMBtu/hr): <ul style="list-style-type: none"> ▪ Fire-tube boilers >20–75 MMBtu/hr: 2.5 ppm ▪ All others >20–75 MMBtu/hr: 2.5 ppm ▪ All others >75 MMBtu/hr: 2.5 ppm 	<p>report, an emission limit of 12 ppm was feasible for retrofits at the time of rule development, but an emission limit of 9 ppm is feasible for new burners upon replacement. For lowering the emission limit from 12 ppm to 9 ppm, the cost-effectiveness ranges from \$58,000 to \$523,000 per ton of NOx reduced based on the assumption of 10–90% operating capacity of the thermal fluid heaters at different heat capacity sizes. Therefore, due to high cost-effectiveness of a 9 ppm emission limit, the 12 ppm NOx emission limit in Rule 1146 series is considered the BARCT level of control for the thermal fluid heaters.</p> <p>In general, the emission limits in San Joaquin Valley Rule 4320 are more stringent than those in Rule 1146 for boilers >5 MMBtu/hr. The NOx limits in Rule 4320 are technology-forcing limits with an option to comply by paying an annual emission fee in lieu of meeting the limits. Because Rule 4320 provides the flexibility to comply through mitigation fees, it is not evaluated against Rule 1146, which includes mandatory emission limits. A more extensive analysis to evaluate the feasibility of these emission limits is presented in the Control Measure Assessment section.</p>
1146.2	Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters (Amended 12/7/18)	<p>Applicable to natural gas-fired water heaters, boilers, and process heaters with heat rating ≤2 MMBTU/hr. As of January 1, 2010, any Type II unit between 400,000 Btu/hr and 2 MMBtu/hr is required to meet a 20 ppm NOx limit, and as of January 1, 2012, any Type I unit (except pool heaters) ≤400,000 Btu/hr is required to meet 20 ppm NOx limit. Effective January 1, 2000, new Type I units including pool heaters are required to meet the 55 ppm NOx limit, and new Type II units are required 30 ppm NOx limit.</p>	n/a ^b	Meets BACM.

Appendix III: Attachment A – Evaluation of South Coast AQMD Rules

Rule No	Rule Title	Current Rule Requirements	Other Agencies' Rules and Federal Guidance ^a That Are More Stringent	BACM Evaluation
1147	NOx Reductions from Miscellaneous Sources (Amended 5/6/22)	<p>Multiple NOx emission limits for gas and liquid fuel fired units. For unit heat rating $\geq 325,000$ Btu/hr:</p> <ul style="list-style-type: none"> Gaseous fuel-fired equipment, including burnoff furnaces and incinerators with or without integrated afterburners, have 20-60 ppm NOx emission limits depending on application, process temperature, and implementation timeframes. Micro-turbines must achieve 9 ppmv NOx. Asphalt manufacturing must achieve 40 ppmv NOx. <p>Liquid fuel fired units are set at 40 ppm at process temperatures below 1,200 degrees Fahrenheit and 60 ppm above 1,200 degrees Fahrenheit.</p>	n/a ^b	Meets BACT.
1153.1	Rule 1153.1 - Emissions of Oxides of Nitrogen from Commercial Food Ovens (Amended 8/4/23)	Commercial in-use food ovens set Phase I NOx limits at 30 ppm, except for tortilla ovens with IR burners the NOx limit is 15 ppm. Phase II zero emission limits for certain equipment types.	n/a ^b	Meets BACT.
1179.1	Emission Reductions from Combustion Equipment at Publicly Owned Treatment Works Facilities (Adopted 10/2/20)	<p>Rule 1179.1 NOx emission limits for digester gas units at publicly owned treatment works facilities:</p> <p>1) Digester gas or dual fuel boilers/process heaters</p> <ul style="list-style-type: none"> 90% digester gas >2 MMBtu/hr: 15 ppm 100% natural gas >2 MMBtu/hr: 9 ppm 100% natural gas ≤ 2 MMBtu/hr: 30 ppm <p>2) Turbines</p> <ul style="list-style-type: none"> 60% digester gas ≥ 0.3 MW: 18.8 ppm 100% natural gas, simple cycle ≥ 0.3 MW: 2.5 ppm 100% natural gas, combined cycle ≥ 0.3 MW: 2 ppm Digester gas/dual fuel/natural gas <0.3 MW: 9 ppm <p>3) Digester gas and dual fuel engines</p> <ul style="list-style-type: none"> Engines >50 hp: 11 ppm 	San Joaquin Valley Rules 4306 and 4320 (Amended 12/17/20) require NOx limits for boilers fired on digester gas $>5-20$ MMBtu/hr to be at 9 ppm.	For boilers fired on digester gas, the NOx limit in Rule 1179.1 (15 ppm) is not as stringent as the limit in San Joaquin Valley Rules 4306/4320 (9 ppm). 2022 AQMP control measure L-CMB-08 seeks to lower the NOx limit to 9 ppm by requiring ultra-low NOx burners for digester gas fueled boilers. Staff analysis determined that L-CMB-08 cannot be feasibly implemented until after 2030.
2002	Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx) (Amended 10/5/18)	<p>Includes facility allocations for NOx for Regional Clean Air Incentives Market (RECLAIM) facilities. Each RECLAIM facility is required to have adequate RECLAIM trading credits (RTCs) to offset its quarterly and annual NOx emissions. Emission reduction target is set by decreasing level of allocations, and these RECLAIM allocations are established and updated based on Best Available Retrofit Control Technology (BARCT) emission limits.</p> <p>RECLAIM NOx emission limits for refinery boilers, heaters, and steam generators are:</p> <ul style="list-style-type: none"> <20 MMBtu/hr: 12 ppm 20–40 MMBtu/hr: 9 ppm >40 MMBtu/hr: 2 ppm 	<p>San Joaquin Valley Rule 4306 (Amended 12/17/20) requires Tier 2 NOx limits for refinery boilers, steam generators, and process heaters ≥ 5 MMBtu/hr as follows with compliance deadline by 2023:</p> <ul style="list-style-type: none"> ≤ 40 MMBtu/hr: <ul style="list-style-type: none"> Boilers: 30 ppm & 5 ppm upon replacement <p>San Joaquin Valley Rule 4320 (Amended 12/17/20) provides advanced emission reduction options, whereby either (1) meet the specific NOx emission limits, (2) pay an annual emissions fee, or (3) comply with low-use provision. Rule 4320 Tier 2 NOx limits for refinery units</p>	<p>Refinery boilers and heaters are currently regulated under RECLAIM (Regulation XX) in the South Coast AQMD. For the units ≤ 40 MMBtu/hr, NOx emission limits are at 9–12 ppm, while San Joaquin Valley Rule 4306 NOx limits are at 30 ppm and 5 ppm upon replacement at the end of the useful life of the equipment to increase the cost-effectiveness of the requirement. Therefore, the NOx limits in Rule 2002 are more stringent than in Rule 4306 for existing units. Because Rule 4320 has an option to comply through mitigation fees, it is not evaluated against Rule 2002.</p> <p>As the RECLAIM program transitions to the command-and-control regulatory structure, refinery boilers are required to meet NOx emission limits under Rule 1109.1 (Emissions of Oxides of Nitrogen from Petroleum Refineries and Related</p>

Appendix III: Attachment A – Evaluation of South Coast AQMD Rules

Rule No	Rule Title	Current Rule Requirements	Other Agencies' Rules and Federal Guidance ^a That Are More Stringent	BACM Evaluation
			<p>are technology-forcing limits with compliance deadline by 2023 as follows:</p> <ul style="list-style-type: none"> Boilers/process heaters >5–40 MMBtu/hr: 5 ppm 	<p>Operations), adopted 11/5/21. Rule 1109.1 requires boilers <40 MMBtu/hr to be 40 ppm on or before 7/1/22 and 5 ppm afterwards. These limits were determined from a comprehensive BARCT assessment that took both technological feasibility and cost-effectiveness into account. Lowering the NOx limit for refinery boilers to 30 ppm was not cost-effective. Refer to Rules 1146 and 1146.1 for the evaluation of non-refinery units. Overall, staff concludes that South Coast AQMD's RECLAIM NOx emission limits for refinery boilers and heaters are at least as stringent as San Joaquin Valley Rule 4306, and meet BACT.</p>

^a Other agencies' rules and regulations amended/adopted before March 2023 are included in this updated BACM evaluation.

^b There are no analogous requirements in other air agencies that are more stringent than the South Coast AQMD rule being evaluated.

ATTACHMENT A-3

EVALUATION OF SOUTH COAST AQMD RULES AND REGULATIONS – NH3 RULES

Rule No	Rule Title	Current Rule Requirements	Other Agencies' Rules and Federal Guidance ^a That Are More Stringent	BACM Evaluation
223	Emissions Reduction Permits From Large Confined Animal Facilities (Adopted 6/2/06)	Sets permit requirement for new and modified LCAF facilities. Specifies mitigation options by animal and facility type for: <ul style="list-style-type: none"> • Feed and silage handling, • Milk parlor operations, • Corrals and free stall barn operations, • Handling of manure and solids, • Handling of manure in liquid form • Land application of liquid or solid manure 	SJVAPCD Rule 4570 is more stringent regarding applicability than Rule 223 for milk cows, (1,000 milk cows in South Coast AQMD vs 500 milk cows in SJVAPCD), and for chickens and ducks (650,000 birds in South Coast AQMD vs. 400,000 birds in SJVAPCD). However, that is partly mitigated by South Coast AQMD Rule 1127 which has a much lower applicability thresholds of 50 or more cows, heifers and/or calves. Rule 223 also has a lower applicability for horse facilities (2,500 in South Coast AQMD vs. 3,000 in SJVAPCD). Rule 4570 sets comparable permit requirements and mitigation measures.	Staff evaluated the potential to achieve further NH3 emission reductions from livestock waste in the Control Measure Assessment section.
1127	Emission Reductions from Livestock Waste (Adopted 8/6/04)	Requires Good housekeeping practices for dairy farms with 50 or more cows, heifers and/or calves. Note: The South Coast AQMD adopted Rule 223 in June 2006 to reduce emissions for large confined animal facilities. Rule 223 includes series of best management practices that are more stringent than those required by Rule 1127.	Sacramento Rule 496 – Large Confined Animal Facilities (Adopted 8/24/06), has more stringent control and good management practices than South Coast Rule 1127 (e.g. venting to control system with at least 80% control efficiency). The more stringent requirements are targeted towards silage emissions, which is not applicable in South Coast for dry feed lot operations. SJVAPCD Rule 4565 and 4566 sets comparable permit requirements and mitigation measures. SJVAPCD 4570 has required best management practices for manure management and other areas to reduce VOC and ammonia emissions. Note that direct comparison with Rule 1127 is difficult due to the significant differences in source operations (dry feed lot in South Coast vs. flushing and lagoon operations in San Joaquin, the focus on corral waste control in South Coast AQMD vs. feed and silage and milk parlor in SJVAPCD, etc). In addition, SJV Rule 4570 applies to all types of confined animal facilities, while Rule 1127 applies only to dairies with a much lower applicability threshold.	Staff evaluated the potential to achieve further NH3 emission reductions from livestock waste in the Control Measure Assessment section.
1133.2, 1133.3	Emission Reductions from Co-Composting Operations (Adopted 1/10/03), Emission Reductions from Greenwaste Composting Operations (Adopted 7/8/11)	Various performance standards. Air pollution control must have 80% control efficiency or greater. Existing operations must reduce up to 70% baseline VOC and ammonia emissions. Baseline emission factors are 1.78 lbs VOC/ton throughput and 2.93 lbs NH3/ton throughput.	San Joaquin Rule 4565 – Biosolids, Animal Manure, and Poultry Litter Operations (Adopted 3/15/07) and Rule 4566 – Organic Material Composting Operations (Adopted 8/18/11) have various operational requirements for these operations as well as the operators who landfills, composts, or co-composts these materials. The applicability of Rules 4565/4566 is	South Coast AQMD Rule 1133.2 is more stringent than San Joaquin's Rule 4565 for larger co-composting facilities and less stringent for smaller co-composting facilities. While South Coast AQMD Rule 1133.2 requires either 70 or 80% overall emission reductions from all parts of composting process, San Joaquin's Rule 4565 requires add-on controls to apply only to the active composting phase. Rule 1133.2 also

Appendix III: Attachment A – Evaluation of South Coast AQMD Rules

Rule No	Rule Title	Current Rule Requirements	Other Agencies' Rules and Federal Guidance ^a That Are More Stringent	BACM Evaluation
		<p>Rule 1133.3 establishes operational best management practices (BMPs) for greenwaste composting operations. If the facility processes more than 5,000 tons per year of foodwaste, any active phase of composting containing more than 10% foodwaste, by weight, must use an emission control device with an overall control efficiency of at least 80% by weight of VOC.</p> <p>For operations less than 5000 tons/year, require the composting piles to be covered, watered, and turned, or operated with measures that reduce at least 40% VOC emission and 20% NH3 emissions.</p>	<p>broader than the applicability of Rule 1133.3. In addition, Rules 4565/4566 include additional mitigation measures to control VOC from composting active piles (e.g. maintain minimum oxygen concentration of 5%, moisture content of 40%-70%, carbon to nitrogen ratio of 20-1).</p>	<p>has more stringent requirements for in-vessel composting. San Joaquin's rule does not address chipping & grinding as does Rule 1133.1. Overall, Rules 1133.2 and 1133.3 are as stringent as or more stringent than other Districts' rules, and meet the BACT requirement for this source category.</p> <p>Staff evaluated the potential to achieve further NH3 emission reductions from composting in the Control Measure Assessment section.</p>

^a Other agencies' rules and regulations amended/adopted before March 2023 are included in this updated BACM evaluation.

**South Coast Air Basin Attainment Plan for the 2012
Annual PM2.5 Standard**

Appendix III

**ATTACHMENT III-B: MOST STRINGENT MEASURES
ANALYSIS OF CARB'S CONTROL PROGRAMS**

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Table of Contents

Executive Summary	1
Section I. Clean Air Act Requirements for Emission Control Measures	5
Section II. Process for Determining MSM.....	8
Section III. Step 1: Emissions of Direct PM _{2.5} and NO _x	18
Section IV. Steps 2 and 3: Identification and Evaluation of Control Measures	20
Section 209 Waiver and Authorization Authority.....	20
On-Road Light-Duty Vehicles	23
Step 2(a): California's Control Measures	23
Step 2(b): Other States' and Nonattainment Areas' Control Measures	34
Step 3(a): Evaluation of Stringency: Light-Duty Control Measures.....	44
Step 3(b): Evaluation of Feasibility: Light-Duty Control Measures.....	46
On-Road Medium- and Heavy-Duty Vehicles.....	48
Step 2(a): California's Heavy-Duty Control Measures	48
Step 2(b): Other States' and Nonattainment Areas' Control Measures	72
Step 3(a): Evaluation of Stringency: Heavy-Duty Control Measures	92
Step 3(b): Evaluation of Feasibility: Heavy-Duty Control Measures	98
Off-Road Sources.....	100
Step 2(a): California's Control Measures	100
Step 2(b): Other States' and Nonattainment Areas' Control Measures	127
Step 3(a): Evaluation of Stringency: Off-Road Control Measures.....	150
Step 3(b): Evaluation of Feasibility: Off-Road Control Measures.....	157
Commercial and Residential Building Appliances.....	158
Step 2(a): California's Control Measures.....	158
Step 2(b): Other States' and Nonattainment Areas' Control Measures	163
Step 3(a): Evaluation of Stringency: Building Appliances Control Measures	165
Step 3(b): Evaluation of Feasibility: Building Appliances Control Measures	168
Summary of Steps 2 and 3	169
Section V. Step 4: Adoption of Control Measures	171
Section VI. Conclusion: Findings of MSM Analysis	172

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Tables in the Document

Table 1: Stringency of Control Measures Required.....	6
Table 2: MSM Requirements.....	9
Table 3: Implementation and Timing Requirements for MSM	15
Table 4: Direct PM _{2.5} Emissions from Mobile Sources in the South Coast	18
Table 5: NO _x Emissions from Mobile Sources in the South Coast.....	18
Table 6: Ammonia Emissions from Mobile Sources in the South Coast.....	18
Table 7: Comparison of Stringency – Light-Duty Measures	34
Table 8: ACC Section 177 States.....	39
Table 9: Boutique Gasoline Fuel Programs in the U.S.	43
Table 10: Light-Duty Control Measures – Stringency and Timeline	45
Table 11: California and Federal Heavy-Duty Engine Emission Standards.....	51
Table 12: Useful Life Periods	56
Table 13: Warranty Periods.....	57
Table 14: Allowable Levels of Smoke Opacity	60
Table 15: ZEB Purchase Schedule	68
Table 16: Zero-Emission Airport Shuttle Regulation Requirements	69
Table 17: Comparison of Stringency – Heavy-Duty Measures.....	72
Table 18: Heavy-Duty Control Measures – Stringency and Timeline	93
Table 19: Phase-in of Off-Road Engine Standards	102
Table 20: Comparison of Stringency – Off-Road Measures	127
Table 21: Off-Road Control Measures – Stringency and Timeline	151
Table 22: Applicability and Limits for District Building Appliance Control Rules	159
Table 23: Comparison of Stringency – Building Appliances	163
Table 24: Building Appliances Control Measures – Stringency and Timeline.....	167

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Figures in the Document

Figure 1: Transition from Combustion 2

Figure 2: Process for Determining MSM 8

Figure 3: Light-Duty Control Measures..... 24

Figure 4: Heavy-Duty Control Measures 48

Figure 5: Off-Road Control Measures 101

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Executive Summary

The Clean Air Act (the Act) specifies required levels of emission controls in a State Implementation Plan (SIP), depending upon the severity of the air quality problem and amount of time in which a nonattainment area needs to meet the PM_{2.5} standard. The State has conducted this analysis for each State-regulated source category emitting direct PM_{2.5} and relevant precursors in the South Coast Air Basin (South Coast). The suite of control measures that is currently being implemented by California Air Resources Board (CARB or Board) — ~~both the current control program and new measures proposed for the South Coast~~ — satisfies the applicable Most Stringent Measures (MSM) control requirements for the 2024 12 µg/m³ annual PM_{2.5} Plan. This analysis finds that California's mobile source control program is the most stringent and far-reaching suite of mobile source control measures that is currently implemented in the nation meeting the required levels of emissions controls. Furthermore, California has committed to adopting numerous new measures for mobile sources as well as setting a zero-emission standard for residential and commercial space and water heaters, which go beyond MSM requirements and will, when it goes into effect, would be the most stringent of any state regulation of its kind for each applicable category in the U.S., and would exceed the stringency of federal requirements.

In conducting this analysis, CARB staff followed a four-step process of assessing California's control program. First, CARB staff identified mobile source and residential and commercial building appliance emissions as a significant contributor to ambient PM_{2.5} levels. Next, CARB staff identified potential control measures for each mobile source sector and the appliance sector, including an analysis of California's control program, other control measures in practice throughout the nation, control measures suggested by the public, and reconsideration of control measures that were previously considered to be infeasible (as applicable). Staff then assessed the stringency and feasibility of the potential control measures that were identified. And finally, while many of the measures identified in this analysis have already been adopted by CARB and submitted in the California SIP, additional control measures have been included in the 2022 State Strategy for the State Implementation Plan (2022 State SIP Strategy)¹ and will be commitments in the proposed South Coast SIP for the 2024 12 µg/m³ annual PM_{2.5} Plan. CARB's current control programs are already the most stringent in the country and thus meet MSM requirements; all 2022 State SIP Strategy measure commitments go beyond MSM requirements.

Given the severity of California's air quality challenges and the need for ongoing emission reductions, CARB has implemented the most comprehensive mobile source emissions control program in the nation. In aggregate, California's comprehensive suite of new vehicle and engine emission standards, in-use control measures, fuel specifications, and incentive programs for mobile sources represent the most stringent level of controls in the nation, and achieve the maximum feasible emission reductions

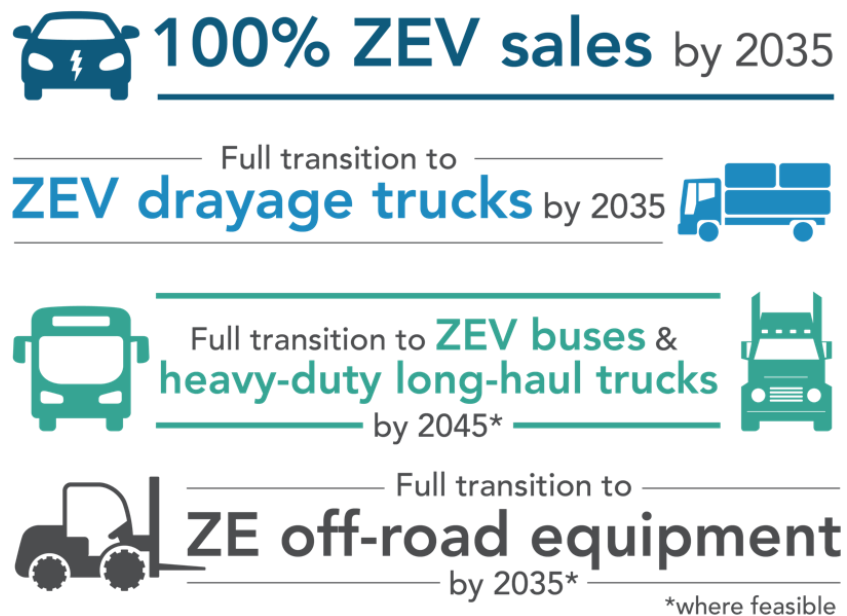
¹ 2022 State SIP Strategy <https://ww2.arb.ca.gov/resources/documents/2022-state-strategy-state-implementation-plan-2022-state-sip-strategy>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

for this category. CARB's comprehensive program relies on five fundamental approaches:

- Stringent emissions standards that minimize emissions from new vehicles and equipment;
- In-use programs that target the existing fleet and require the use of the cleanest vehicles and emissions control technologies;
- Cleaner fuels that minimize emissions during combustion;
- Incentive programs that remove older, dirtier vehicles and equipment and replace those vehicles with the cleanest technologies; and,
- Driving to zero-emissions for engines and powertrains where feasible, in accordance with the Governor's Executive Order N-79-20².

Figure 1: Transition from Combustion



This multi-faceted approach has spurred the development of increasingly cleaner technologies and fuels, and achieved significant emission reductions across all mobile source sectors that go far beyond national programs or programs in other states. These efforts extend back to the first mobile source regulations adopted in the 1960s, and predate the Act of 1970, which established the basic national framework for controlling air pollution. In recognition of the pioneering nature of CARB's efforts, the Act provides California unique authority to regulate mobile sources more stringently than the federal government by providing a waiver of preemption for its new vehicle emission standards

² California Executive Order N-79-20 <https://www.gov.ca.gov/wp-content/uploads/2020/09/9.23.20-EO-N-79-20-Climate.pdf>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

for on-road vehicles and engines under Section 209(b), and authorizations for new off-road emission standards under Section 209(e)(2). These waiver and authorization provisions preserve a pivotal role for California in the control of emissions from new motor vehicles and engines, recognizing that California serves as a laboratory for setting mobile source emission standards. Since then, CARB has consistently sought and obtained waivers and authorizations for its new motor vehicle and off-road regulations. CARB's history of progressively strengthening standards as technology advances, coupled with the waiver and authorization process requirements, ensures that California's regulations remain the most stringent in the nation.

In 1998, CARB identified diesel particulate matter as a toxic air contaminant. Since then, CARB adopted numerous regulations aimed at reducing exposure to diesel particulate matter while concurrently providing reductions in oxides of nitrogen (NO_x) from freight transport sources like heavy-duty diesel trucks, transportation sources like passenger cars and buses, and off-road sources like large construction equipment. Phased implementation of these regulations will continue to produce emission reduction benefits through 2030 and beyond, as the regulated fleets are retrofitted, and as older and dirtier portions of the fleets are replaced with newer and cleaner models at an accelerated pace.

Further, CARB and South Coast Air Quality Management District (South Coast AQMD) staff work closely on identifying and distributing incentive funds to accelerate cleanup of vehicles and engines. Key incentive programs include the Low Carbon Transportation, Air Quality Improvement Program, VW Mitigation Trust, Community Air Protection, Carl Moyer Program, Goods Movement Program, Clean Off-Road Equipment (CORE) and Funding Agricultural Replacement Measures for Emission Reductions (FARMER). These incentive-based programs work in tandem with regulations to accelerate deployment of cleaner technology.

California's programs are the most stringent in the nation for each category CARB regulates:

- California's control measures for the passenger vehicle fleet includes new vehicle emission standards, fuel specifications, and the most rigorous in-use inspection program for on-road light-and medium-duty vehicles in the country. The suite of on-road light-duty vehicle control measures included in the South Coast's plan is anticipated to achieve the maximum feasible emission reductions possible, and is comprised of the most stringent level of control measures for this category in the nation.
- California's heavy-duty on-road vehicle and engine control program is comprised of the most stringent emission standards for new engines in the nation (i.e., new vehicle tailpipe emission and evaporative emission standards; certification, testing, and verification requirements; warranty and useful life requirements, and OBD system requirements). Additionally, to reduce in-use emissions and accelerate fleet turnover to cleaner engines, California's in-use control measures include, in aggregate, the most stringent inspection and maintenance program, idling requirements, and legacy fleet requirements for on-road heavy-duty fleets

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

in the nation. Finally, California's clean diesel regulations provide the most stringent emission controls in the nation for conventional and renewable diesel fuels and diesel substitute fuels. The suite of on-road heavy-duty control measures that will be included in the South Coast's plan is anticipated to achieve the maximum feasible emission reductions possible, and is comprised of the most stringent level of control measures for this category in the nation.

- California's off-road engine and equipment control program includes the most stringent emission standards for new engines in the nation, comprehensive in-use fleet requirements to address emissions from the legacy fleets, and the cleanest off-road diesel fuel specifications in the nation. California's in-use control measures are national models for aggressive and successful efforts to reduce in-use emissions and accelerate fleet turnover to cleaner engines. In aggregate, the suite of off-road mobile source control measures that will be included in the South Coast's plan is anticipated to achieve the maximum feasible emission reductions possible, and is comprised of the most stringent level of control measures for this category in the nation.
- California's space and water heaters will include the most stringent emission standards of any state in the nation. For the first time, CARB will be setting an emission standard for space heaters and water heaters, to go into effect in 2030. CARB would adopt a statewide zero greenhouse gas (GHG) emission standard, which would have criteria pollutant co-benefits. Beginning in 2030, 100 percent of sales of new space heaters and water heaters would need to comply with the emission standard. Because no other state in the country has such a requirement, this emission standard would go beyond MSM requirements and would be the most stringent level of control measures for this category of any state in the nation.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Section I. Clean Air Act Requirements for Emission Control Measures

The particulate matter provisions in the Act establish a step-wise process for classifications and attainment dates:

- The first step is a Moderate area SIP, with an initial attainment date six years after the area is designated nonattainment;
- If attainment within six years is impracticable given the severity of the PM_{2.5} challenge in that area, then U.S. EPA re-classifies the area to Serious, and establishes requirements for a second SIP submittal that must show attainment within 10 years after the area was originally designated nonattainment.
- If the Serious area cannot show attainment within 10 years, the state can request an additional five-year extension if most stringent measures are in place and the State has met their obligations for the standard.

Likewise, the Act specifies a step-wise process for the required level of emission controls in a SIP, depending upon the severity of the air quality problem and amount of time a nonattainment area needs to meet the PM_{2.5} standard:

- For a Moderate nonattainment area, the required level of control is Reasonably Available Control Measures (RACM).³
- For a Serious PM_{2.5} nonattainment area, Best Available Control Measure (BACM) is the required level of control. U.S. EPA defines BACM to be the maximum degree of emission reductions achievable from a source or source category determined on a case-by-case basis considering energy, economic, and environmental impacts.⁴
- For a Serious PM_{2.5} nonattainment area for which air quality modeling demonstrates that the area cannot practicably attain by the end of the tenth calendar year (i.e. designated as “Serious with Extension”), MSM is the required level of control.⁵ U.S. EPA defines MSM as, “the maximum degree of emission reductions that has been required or achieved from a source or source category in any other attainment plans or in practice in any other states and that can feasibly be implemented in the area.”⁶ MSM is also inclusive of BACM requirements.
- For a Serious PM_{2.5} nonattainment area that has not attained by the applicable attainment date (i.e., designated as “Serious – 5% Plan”), the required level of control is also MSM.⁷

The South Coast is a Serious nonattainment area for its upcoming SIP for the 12 µg/m³ annual PM_{2.5} standard discussed in this plan and will include an extension beyond ten years.

³ RACM requirements are addressed in the Moderate SIP for the South Coast. For further information see <https://ww2.arb.ca.gov/our-work/programs/california-state-implementation-plans/nonattainment-area-plans/south-coast-air>

⁴ U.S. EPA 1994 Addendum to the General Preamble p. 42010

⁵ 40 CFR 51.1010(b)(2)(i)

⁶ See U.S. EPA “Fine Particulate Matter National Ambient Air Quality Standards: State Implementation Plan Requirements” pp. 326 July 2016 <https://www.epa.gov/sites/production/files/2016-07/documents/pm25-naaqs-implementation-final-preamble-rule-signature.pdf>

⁷ 40 CFR 51.1003(c)(2)(i)

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

REQUIRED STRINGENCY OF CONTROL MEASURES

Based on the South Coast's current classification for 12 µg/m³ annual PM_{2.5} standard, Table 1 describes the level of control measures required. The control measures for this plan must satisfy U.S. EPA's increasingly stringent Most Stringent Measures (MSM) requirements.

Table 1: Stringency of Control Measures Required⁸

Standard	Classification	Type of Plan	Control Measure Requirements
12 µg/m ³ Annual (2012 Standard)	Serious with Extension	Most Stringent Measures (MSM)	Most Stringent Measures "The state shall identify, adopt, and implement the most stringent control measures that... can be feasibly implemented in the area." 40 CFR 51.1010(b)

DEFINING MOST STRINGENT MEASURES

MSM is the level of stringency required for the 12 µg/m³ annual PM_{2.5} standard. The Act defines MSM as, "any permanent and enforceable control measure that achieves the most stringent emissions reductions in direct PM_{2.5} emissions and/or emissions of PM_{2.5} plan precursors from among those control measures which are either included in the SIP for any other National Ambient Air Quality Standard (NAAQS), or have been achieved in practice in any state, and that can feasibly be implemented in the relevant PM_{2.5} NAAQS nonattainment area."⁹

U.S. EPA guidance indicates that MSM is inclusive of the requirements and process for determining BACM.¹⁰ The Act defines BACM as, "any technologically and economically feasible control measure that can be implemented in whole or in part within four years after the date of reclassification of a Moderate PM_{2.5} nonattainment area to Serious and that generally can achieve greater permanent and enforceable emissions reductions in direct PM_{2.5} emissions and/or emissions of PM_{2.5} plan precursors from sources in the area than can be achieved through the implementation of RACM on the same source."¹¹ U.S. EPA has further clarified that BACM-level of controls are:¹²

- The maximum degree of emissions reductions achievable from a source or source category, which is determined on a case-by-case basis considering energy, economic and environmental impacts;
- More stringent than RACM, but less stringent than the lowest achievable emission rate (LAER), which doesn't take into consideration the cost effectiveness of implementing a particular control measure;

⁸ The proposed South Coast SIP has been developed to provide the necessary elements for the for the 12 µg/m³ Annual PM_{2.5} Standard, for which the South Coast is classified as nonattainment. This appendix has been developed to meet a subset of these requirements; namely the requirement that staff demonstrate that the control strategies for the South Coast's plan for the 12 µg/m³ Annual PM_{2.5} Standard satisfy U.S. EPA's requirements for Serious area attainment plan control strategy requirements, as set forth in § 51.1010, for the source categories of: mobile sources, and residential and commercial building appliances.

⁹ Code of Federal Regulations (CFR) Title 40 – Protection of Environment § 51.1000 – Definitions <https://www.gpo.gov/fdsys/pkg/CFR-2017-title40-vol2/xml/CFR-2017-title40-vol2-sec51-1000.xml>

¹⁰ U.S. EPA 2001 *Final TSD for Maricopa County PM10 Nonattainment Area*. Available at <https://www3.epa.gov/region9/air/phoenixpm/pdf/tsd0901.pdf>

¹¹ Code of Federal Regulations (CFR) Title 40 – Protection of Environment § 51.1000 – Definitions <https://www.gpo.gov/fdsys/pkg/CFR-2017-title40-vol2/xml/CFR-2017-title40-vol2-sec51-1000.xml>

¹² U.S. EPA 1994 "Addendum to the General Preamble" pp. 42009 -42013

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

- Additive to RACM, as BACM will generally consist of a more extensive implementation of RACM measures; and
- Inclusive of Best Available Control Technology (BACT).

U.S. EPA defines BACT similarly to BACM as an emission limitation based on the, “maximum degree of reduction of each pollutant emitted from or which results from any major emitting facility, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility through application of production processes and available methods, systems, and techniques.”¹³ BACT is also at least as stringent as new source performance standards (NSPS) and national emissions standards for hazardous air pollutants (NESHAPs)¹⁴

MSM is inclusive of the requirements for BACM, but with an additional step, comparing the potential MSMs identified against the measures already adopted in the area to determine if the existing measures are the most stringent.¹⁵ Furthermore, U.S. EPA guidance defined MSM as “the maximum degree of emission reduction that has been required or achieved from a source or source category in any other attainment plans or in practice in any other states and that can feasibly be implemented in the area seeking the extension, such as what LAER represents for new or modified sources under the New Source Review permit program.”¹⁶

¹³ 42 U.S. Code § 7479 – Definitions <https://www.gpo.gov/fdsys/pkg/USCODE-2011-title42/html/USCODE-2011-title42-chap85-subchapl-partC-subparti-sec7479.htm> See § 7479(3) BACT

¹⁴ U.S. EPA 1994 “Addendum to the General Preamble” pp. 42009 -42013

¹⁵ U.S. EPA 2001 *Final TSD for Maricopa County PM₁₀ Nonattainment Area*. Available at <https://www3.epa.gov/region9/air/phoenixpm/pdf/tsd0901.pdf>

¹⁶ U.S. EPA 1994. *Addendum to the General Preamble*, 59 FR 41998 page 42010

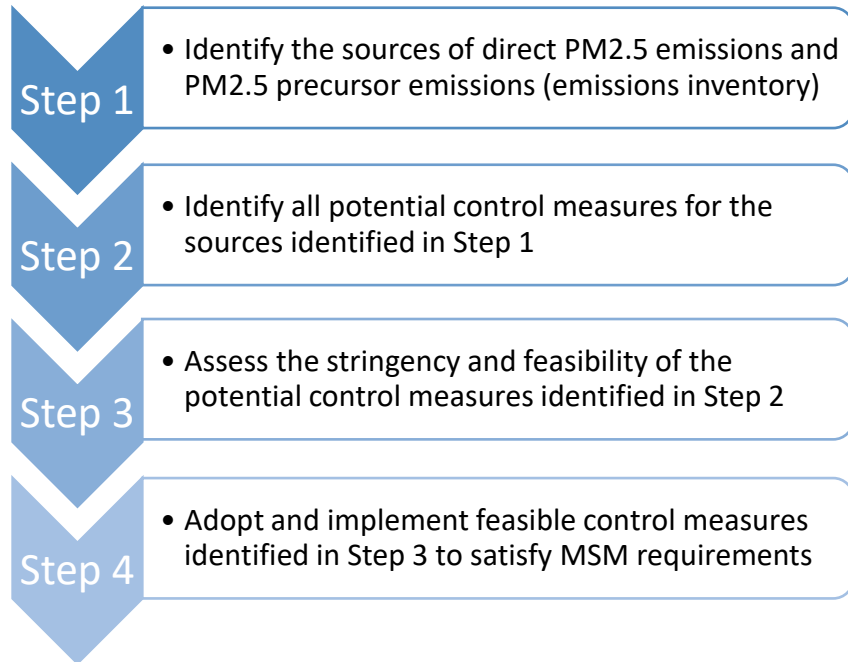
**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Section II. Process for Determining MSM

U.S. EPA prescribes a four-step process for the identification and determination of whether the control measures satisfy the Serious area attainment plan control strategy requirements.

The process for identifying MSM generally follow the same steps as the process for identifying BACM.¹⁷ This is because the Serious area attainment plan control strategy requirements described in § 51.1010 are additive as the plans become more stringent. That is to say, the MSM requirements are inclusive of the requirements for BACM, with additional requirements added to reflect the increased stringency in control levels that result from a bump-up in classification.¹⁸

Figure 2: Process for Determining MSM



This process starts with identifying the sources of PM_{2.5} emissions (both direct and precursor emissions); then expands the analysis in Step 2 to identify all potential control measures that would reduce emissions. Step 3 begins to narrow the scope of analysis by refining the list of all potential control measures to determine which of the control measures are sufficiently stringent to meet the applicable MSM requirements, and to identify which are technically and economically feasible. The final step to adopt any control measures identified through this process, if they are feasible to implement in the South Coast.

Table 2 delves more deeply into this process, showing each required element in the steps listed above for both of the applicable PM_{2.5} Standards.

¹⁷ In accordance with U.S. EPA's prescribed process described in the *TSD for the Maricopa County Serious Area PM₁₀ Plan – 24-Hour Standard* (U.S. EPA 2001), which states, "Given this similarity between the BACM requirement and the MSM requirement, we believe that determining MSM should follow a process similar to determining BACM, but with one additional step, to compare the potentially most stringent measure against the measures already adopted in the area to determine if the existing measures are most stringent." Document is available at: <https://www3.epa.gov/region9/air/phoenixpm/pdf/tsd0901.pdf>

¹⁸ § 51.1003(b)(2)(iii) requires that a submittal requesting a Serious area attainment date extension that is simultaneous with the Serious area attainment plan shall meet the most stringent measure (MSM) requirements set forth at § 51.1010(b), in addition to the BACM and BACT and additional feasible measure requirements set forth at § 51.1010(a)". For more details, see the Serious area attainment plan control strategy requirements identified in 40 CFR § 51.1010(a)(5), § 51.1010(b)(5), and § 51.1010(c)(5)

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Table 2: MSM Requirements

Standard	12 ug/m3 Annual PM2.5 Standard (2012)
Classification	Serious with Extension
Control Strategy	MSM
<u>Step 1:</u> Identify sources of direct PM _{2.5} and precursor emissions (emissions inventory)	Required “The state shall identify all sources of direct PM_{2.5} emissions and sources of emissions of PM_{2.5} precursors in the nonattainment area in accordance with the emissions inventory requirements...” § 51.1010(b)(1)
<u>Step 2:</u> Identify all potential control measures	Required “The State shall identify all potential control measures to reduce emissions from all sources of direct PM _{2.5} emissions and sources of emissions of PM _{2.5} plan precursors” § 51.1010(b)(2)
<u>Step 2(a):</u> Begin with the area’s current control measures	Recommended ¹⁹ “A state... should be able to start its process using the work already undertaken for the nonattainment area’s RACM and BACM demonstrations and to make updates to the list of potential control measures ”
<u>Step 2(b):</u> Survey other states and nonattainment areas for additional potential control measures	Required “The state shall identify the most stringent measures for reducing direct PM _{2.5} and PM _{2.5} plan precursors adopted into any SIP or used in practice to control emissions in any state ” § 51.1010(b)(2)(i)
<u>Step 2(c):</u> Reconsider and reassess any measures previously rejected	Required “The state shall reconsider and reassess any measures previously rejected by the state during the development of any previous Moderate area or Serious area attainment plan control strategy” § 51.1010(b)(2)(ii)
<u>Step 3:</u> Assess potential control measures’ stringency and feasibility	Required
<u>Step 3(a):</u> Evaluate stringency	Required MSM control levels required
<u>Step 3(b):</u> Assess technological and economic feasibility	Required “The state may make a demonstration that a measure identified... is not technologically or economically feasible to implement in whole or in part by 5 years after the applicable attainment date for the area , and may eliminate such whole or partial measure from further consideration” § 51.1010(b)(3) Assess the technological and economic feasibility of public measure suggestions submitted to CARB as potential control measures
<u>Step 4:</u> If found to be economically and technologically feasible, adopt control measures	Required “The state shall identify, adopt, and implement the most stringent control measures that are included in the attainment plan for any state or are achieved in practice in any state, and can be feasibly implemented in the area” § 51.1010(b)

¹⁹ See U.S. EPA “Fine Particulate Matter National Ambient Air Quality Standards: State Implementation Plan Requirements” July 2016
<https://www.epa.gov/sites/production/files/2016-07/documents/pm25-naaqs-implementation-final-preamble-rule-signature.pdf>

Step 1: Source Category Emissions of Direct PM_{2.5}, NO_x, and Ammonia

The first step required in the MSM evaluation process is to identify and quantify the sources of PM_{2.5}, including direct PM_{2.5} emissions and emissions of precursor pollutants.

Mobile sources, and the fossil fuels that power them, continue to contribute a majority of NO_x emissions, a significant precursor to the formation of particulate matter. On- and off-road heavy-duty mobile sources that burn diesel fuels, including trucks and off-road equipment, also directly emit PM_{2.5}, as do sources primarily regulated at the federal and/or international level, including locomotives, ocean-going vessels, and aircraft. In the South Coast, air quality measurements and modeling have shown that emissions from mobile sources – cars, trucks, and a myriad of off-road equipment – are a significant contributor to ambient PM_{2.5} levels. Overall, mobile sources contribute to approximately 81 percent of NO_x emissions, 17 percent of direct PM_{2.5} emissions, and 25 percent of ammonia emissions in the South Coast. In addition to directly emitted PM_{2.5}, South Coast AQMD modeling demonstrated that gaseous precursors such as NO_x and ammonia are the key precursors to atmospheric formation of PM_{2.5} in the South Coast, while VOC and SOX do not contribute significantly to ambient PM_{2.5} levels exceeding the NAAQS.

The formation of ammonia is a byproduct during the operation of a three-way catalyst (TWC). A TWC operates at near stoichiometric conditions, varying from slightly rich to slightly lean. Ammonia is generally formed during the slightly rich phase. Compressed Natural Gas (CNG) engines exhibit much higher ammonia than do gasoline engines. For diesel engines, ammonia emissions are inherently low as they do not use TWC technology. But newer engines employ Selective Catalytic Reduction (SCR). This technology uses ammonia for NO_x aftertreatment. Unreacted ammonia can be emitted as part of this process (ammonia slip). Estimates of ammonia in emissions inventory models are informed by in-use data collected from dynamometer tests or portable emissions measurement systems (PEMS). Current on-road assumptions are documented in Section 3.3 of the EMFAC2021 technical documentation.²⁰ CARB programs that drive mobile sources to zero-emission vehicles and engines, including regulations such as the Advanced Clean Cars, Advanced Clean Trucks, and the Advanced Clean Fleets Regulations, will provide ammonia emission reduction benefits.

Residential and commercial buildings in California are the source of about 66 tpd NO_x statewide due to natural gas combustion.²¹ Nearly 90 percent of building NO_x emissions are due to space and water heating, with the remaining 10 percent attributable to cooking, clothes drying, and other miscellaneous end uses. Space and water heating comprise nearly 90 percent of all building-related natural gas demand. Buildings also contribute to approximately 25 percent of California's GHG emissions when accounting for fossil fuels consumed onsite and through electricity demand as well as refrigerants

²⁰ https://ww2.arb.ca.gov/sites/default/files/2021-08/emfac2021_technical_documentation_april2021.pdf

²¹ CARB's Criteria Emission Inventory CEPAM: 2019 Version - Standard Emission Tool

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

used in air conditioning systems and refrigerators. The fuels we use and burn in buildings, primarily natural gas, for space and water heating contribute significantly to building-related criteria pollutant and GHG emissions, and provide an opportunity for substantial emissions reductions where zero-emission technology is available.

Steps 2 and 3: Identification and Evaluation of Potential MSM Control Measures

The second and third steps required in the MSM evaluation process have been grouped together in this chapter so that the control measures for each sector can be more cohesively identified and evaluated.

STEP 2: IDENTIFICATION OF POTENTIAL MSM CONTROL MEASURES

Step 2 calls for the identification of all possible control measures for each of the sources of PM_{2.5} and NO_x identified in Step 1.²² To satisfy the Act's MSM requirements, this is a three-part process.

Step 2(a): California's Control Measures

The identification of all potential control measures begins with an analysis of California's control program. Due in part to the severity of its air quality needs, and in part to unique authority provided under the Act, California's mobile source controls go far beyond other states' and even national programs, and thus provides an excellent starting place in identifying a comprehensive range of mobile source control measures, as required by the Act. This approach also aligns with U.S. EPA guidance, which suggests starting the identification process with any controls previously identified in prior Moderate or Serious SIPs for the nonattainment area.²³

Step 2(b): Other States' and Nonattainment Areas' Control Measures

The second component required to identify all potential MSM control measures is the identification of any additional control measures used in other states or nonattainment areas, and an assessment of their stringency relative to the control measures in the proposed South Coast SIP.^{24, 25} The purpose is to identify whether there are additional potential MSM control measures used to control mobile emissions of direct PM_{2.5} and/or NO_x in other states or nonattainment areas that are more stringent than the measures included in the proposed South Coast SIP. If this assessment finds that there are more stringent measures in use elsewhere – and if they are found to be sufficiently stringent and technically and economically feasible to implement in the South Coast (see Step 3) – the Act requires that any such measures are adopted and implemented

²² In a departure from previous SIP guidance, EPA guidance indicates that there are no *de minimis* source categories for this plan. Thus, emissions of direct PM_{2.5} and PM_{2.5} precursors (i.e. NO_x) from all mobile source categories must be controlled in the South Coast, and meet the applicable MSM requirements. See U.S. EPA April 2016 "SIP Requirements Rule" 81 FR 58010 <https://www.gpo.gov/fdsys/pkg/FR-2016-08-24/pdf/2016-18768.pdf>

²³ U.S. EPA "Fine Particulate Matter National Ambient Air Quality Standards: State Implementation Plan Requirements" July 2016

²⁴ § 51.1010(a)(2)(i), § 51.1010(b)(2)(i), and § 51.1010(c)(2)(i)

²⁵ U.S. EPA "Fine Particulate Matter National Ambient Air Quality Standards: State Implementation Plan Requirements" July 2016

CARB Control Program MSM Analysis for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan

in the South Coast's plan (see Step 4), in order to meet the requirements that the area, "attain the standard as expeditiously as practicable."²⁶

Identification

U.S. EPA guidance provides recommendations for possible resources to assist in the search for other control measures used in other states or nonattainment areas, including:²⁷

- Other states' control programs (including those measures identified in U.S. EPA's list of national, state and/or local air quality agencies' control measures);²⁸
- U.S. EPA's "Menu of Control Measures" for PM_{2.5}; ²⁹ and
- U.S. EPA's mobile-specific control measures for PM_{2.5}.³⁰

Beyond these suggested resources, CARB staff has also taken additional steps to identify any additional control measures currently in use in jurisdictions outside of California. This process included inquiries to U.S. EPA staff in Region 9, as well as inquiries to CARB technical staff that are engaged in developing control strategies across a wide range of sources throughout the agency, including passenger vehicles, heavy-duty trucks and buses, off-road equipment, and fuels. Furthermore, CARB staff has performed internet searches of other jurisdictions' control measures to ensure that our research process for this appendix identifies any control programs that have been more recently developed and which therefore may not otherwise be reflected in the abovementioned resources specified by U.S. EPA.

Assessment

In order to identify the most stringent suite of control measures currently, "adopted into any SIP or used in practice to control emissions in any state,"³¹ CARB staff has identified in the tables included in Section IV Step 2(b) the most stringent suite of control measures in the nation, for each source category. Staff has assessed the relative stringency of measures based on the efficiency of a given measure or control technology to reduce the level of emissions from that source category – for example, by comparing the technical capacity for a given control measure to reduce in-use emissions from the on-road heavy-truck fleet, relative to other potential control measures that target the same emission source(s) for reductions. This assessment demonstrates that, for each source category, the suite of control measures included in

²⁶ § 51.1010(b)(4) and § 51.1004(a)(3)

²⁷ U.S. EPA April 2016 "SIP Requirements Rule" 81 FR 58010 <https://www.gpo.gov/fdsys/pkg/FR-2016-08-24/pdf/2016-18768.pdf>

²⁸ U.S. EPA <https://www.epa.gov/pm-pollution/epa-summaries-and-reports-several-state-and-local-pm-control-measures>. Accessed April 24, 2018

²⁹ U.S. EPA 2016 "Menu of Control Options" Accessed April 2018 at <https://www.epa.gov/air-quality-implementation-plans/menu-control-measures-naags-implementation>

³⁰ U.S. EPA <https://www.epa.gov/advance/control-measures-programs-pm>. Accessed April 24, 2018

³¹ Per MSM requirements in 40 CFR § 51.1010(b)(2)(i) and § 51.1010(c)(2)(i), which call for the identification of the most stringent suite of control measures in any state or nonattainment area.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

the proposed South Coast SIP are, in aggregate, the most stringent that are in use in any state or adopted into any SIP and in many cases go beyond MSM requirements.

Step 2(c) Reconsideration and reassessment of any control measures previously rejected as infeasible

The final component required to identify all potential MSM control measures is to reconsider and reassess any control measures proposed in prior Moderate or Serious SIPs for the South Coast that were previously rejected as infeasible.³²

CARB staff reviewed all previous South Coast PM_{2.5} SIPs³³ and found that we did not identify any mobile source control measures as infeasible in previous Moderate or Serious attainment plan control strategies for the South Coast.

During the public process for the 2022 State SIP Strategy, community-based organizations and members of the public suggested additional control measures that CARB could develop. Some of the public member suggestions have been integrated into measures committed to in the 2022 State SIP Strategy, while CARB staff is exploring the feasibility of a few remaining suggestions. The public measure suggestions, and any applicable resultant measures within the 2022 State SIP Strategy, are discussed below, and discussed in more detail in Section IV, Step 3(b): Evaluation of Feasibility, for each relevant source category.

Light-Duty Public Measure Suggestions:

- **Enhanced Transportation Choices**
CARB staff is continuing to explore this suggested measure and how it can meet the Act requirements for SIP measure approvability.
- **Enhanced Bureau of Automotive Repair Consumer Assistance Program**
CARB staff is continuing to explore this suggested measure and how it can meet the Act requirements for SIP measure approvability.
- **Light-Duty Vehicle Fleet Regulation**
CARB staff is continuing to explore this suggested measure. CARB staff anticipate that the recently adopted Advanced Clean Cars II regulation, along with existing CARB regulations and current State incentive programs, achieve a significant amount of the benefits that this suggested measure would accomplish.

Medium- and Heavy-Duty Public Measure Suggestions:

- **On-Road Heavy-Duty Vehicle Useful Life Regulation**
CARB staff has developed the Zero-Emission Trucks measure in response to receiving this public measure suggestion.

³² Identification of any control measures that were previously rejected as infeasible in prior Moderate or Serious SIPs for the area is a requirement for MSM, not BACM. See 40 CFR § 51.1010(b)(2)(ii) and § 51.1010(c)(2)(ii)

³³ See CARB's list of South Coast Air Quality Management Plans at: <https://ww2.arb.ca.gov/our-work/programs/california-state-implementation-plans/nonattainment-area-plans/south-coast-air>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

- **Additional Incentive Programs: Zero-Emission Trucks**
CARB staff has developed the Zero-Emission Trucks measure in response to receiving this public measure suggestion.

Facility-Based Public Measure Suggestion:

- **Indirect Source Rule**
CARB staff has been investigating the feasibility and potential benefits of this suggested measure, and is continuing to explore this suggested measure and how it can meet the Act requirements for SIP measure approvability. Nonetheless, CARB staff have included an Indirect Source Rule as one potential element of the Zero-Emission Trucks measure.

Commercial and Residential Building Appliances Public Measure Suggestion:

- **Additional Building Emission Standards**
CARB staff has developed the Zero Emission Standard for Space and Water Heaters measure in response to receiving this public measure suggestion.

Other Public Measure Suggestions:

In addition to the above-described public measure suggestions for source categories included in this analysis, CARB also received additional public measure suggestions for categories that are not included in the scope of this analysis. This includes public measure suggestions for stationary sources (the BACT/BARCT Determination public measure suggestion) and for pesticides (the Pesticide Regulation public measure suggestion). The Pesticide Regulation public measure was developed into a measure for the 2022 State SIP Strategy, but which is not described in this analysis because ROG emissions are not a significant precursor emission to PM formation in the South Coast.

STEP 3: EVALUATION OF STRINGENCY AND FEASIBILITY

While the focus of Step 2 is on expanding the scope of analysis to ensure that all possible control measures are identified and incorporated into a list of potential MSM control measures, Step 3 focuses on narrowing that list to identify and discard from further consideration any measures that do not satisfy the applicable requirements for stringency and feasibility. Step 3 therefore calls for an evaluation of each of the potential MSM control measures identified in Step 2, in order to evaluate first whether they satisfy the required level of stringency of each control measure; and secondly, whether they are technically and economically feasible to implement in the South Coast.

Step 3(a): Evaluating Stringency

For a potential control measure to meet the definition of MSM, CARB staff must demonstrate that the measure satisfies stringency requirements in terms of both:

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

- (i) the efficiency of a given measure or control technology to reduce the level of emissions from a specific mobile source, relative to emission controls in place in other states and nonattainment areas; and
- (ii) the timing of when each control measure will begin to be implemented, relative to each plan's timing milestones and deadlines.

The Act defines feasibility in terms of both technological and economic feasibility. For the purposes of this analysis of control measures, the Act defines technological feasibility as, “factors including but not limited to a source's processes and operating procedures, raw materials, physical plant layout, and potential environmental impacts such as increased water pollution, waste disposal, and energy requirements.”³⁴

Economic feasibility considerations include capital costs, operating and maintenance costs, and cost effectiveness of the measure.³⁵ Much of the assessment required to evaluate the efficiency of the level of control provided by a given control measure or technology is included in Step 2(b), wherein CARB staff analyzes the control measures in the South Coast's plan relative to those in other states and nonattainment areas.

The assessment of stringency also includes elements of timing, particularly regarding when a control measure will be implemented. U.S. EPA states that MSM should be implemented, “as expeditiously as practicable”.³⁶ U.S. EPA also clarified the requirement for the analyses of the potential control measures, stating that the analysis should include a determination of the earliest date by which a control measure or technology can be implemented in whole or in part.³⁷ For the PM_{2.5} standard discussed in this plan, Table 3 summarizes the required levels of control measures, and the required timeframe for implementation in order to meet the definition of MSM.

Table 3: Implementation and Timing Requirements for MSM

Standard	12 ug/m3 Annual PM2.5 Standard (2012)
Classification Status	Serious with Extension
Type of Plan Required	MSM
Control Measure Requirements	MSM
Definition of MSM (regarding timing)	<u>MSM</u> : implemented in whole or in part by 5 years after the applicable attainment date for the area ³⁸
Attainment deadline	2030
Timeframe for Implementation	MSM if implemented ≤ 2035

Comparing the Stringency of the South Coast's Plan to the Current Control Program

The final step called for in U.S. EPA's process to demonstrate that the suite of control measures included in the proposed 2024 12 µg/m³ annual PM_{2.5} Plan satisfy the stringency definition for MSM is to compare the measures included in the South Coast's plan against the measures already adopted in the proposed South Coast SIP to

³⁴ 40 CFR § 51.1010(a)(3)(i)

³⁵ 40 CFR § 51.1010(a)(3)(ii)

³⁶ U.S. EPA, 2001 *Final TSD for Maricopa County PM₁₀ Nonattainment Area* (page 31). Available at <https://www3.epa.gov/region9/air/phoenixpm/pdf/tsd0901.pdf>

³⁷ 87 FR 60494

³⁸ 40 CFR § 51.1010(b)(3)

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

determine if the existing control measures alone are more stringent.³⁹ CARB staff has compared the current control program to the control measures included in the South Coast's Plan, and has found that:

- The suite of control measures in the South Coast's proposed 2024 12 µg/m³ annual PM_{2.5} Plan include all of the potential MSM measures identified through the processes described above, including measures in the current control program, and new measure commitments that go beyond MSM requirements.
- The suite of control measures in the South Coast's plan is more stringent than the existing control program alone because the plan encompasses both the existing suite of control programs and the new measures committed to in the 2016 and 2022 State SIP Strategies that have yet to be adopted. The new measures exceed the stringency of the current control program for control requirements applying to all mobile source categories, including the passenger vehicle fleet, the on-road heavy-duty fleet, and off-road equipment and engines, as well as residential and commercial building appliances source categories.

Step 3(b): Determination of Technical and Economic Feasibility

The second half of the required process for evaluating the potential MSM measures is an assessment of their economic and technical feasibility. As part of this process, the Act directs that the state may eliminate any control measures identified in Step 2 from further consideration if it is demonstrated to be technologically or economically infeasible to implement in the South Coast within the specified timeframes.

Per U.S. EPA's guidance and precedence, this requirement is not required to be applied unless a potential MSM control measure is rejected from inclusion in the SIP on the grounds of feasibility.⁴⁰ Nonetheless, CARB staff has conducted an initial assessment of technical feasibility for many of the mobile source control measures in the 2016 State SIP Strategy, and the 2022 State SIP Strategy, as well as through the technology assessments that CARB staff has conducted in collaboration with the South Coast AQMD. These Technology Assessments identified the current technological potential for more stringent emission control measures for on- and off-road heavy-duty applications, together with the fuels necessary to power them, along with ongoing review of advanced vehicle technologies for the light-duty sector.⁴¹

Additionally, an economic impact analysis was conducted for the newly proposed measures that were committed to in the 2022 State SIP Strategy.⁴² Furthermore, all control measures that are regulatory in nature must also undergo a rule-specific, rigorous public review process when proposed by staff and/or approved by the Board, as specified by the Administrative Procedures Act (APA). These requirements include

³⁹ U.S. EPA's 2001 *Final TSD for Maricopa County PM₁₀ Nonattainment Area* see page 32. Available at <https://www3.epa.gov/region9/air/phoenixpm/pdf/tsd0901.pdf>

⁴⁰ See page 400 of U.S. EPA's 2001 *Technical Support Documentation for Maricopa County PM₁₀ Nonattainment Area* <https://www3.epa.gov/region9/air/phoenixpm/pdf/tsd30102.pdf> where EPA staff explain that they are applying to Maricopa County's SIP the decision from a Phoenix Serious SIP not to apply this requirement if no potential control measures are rejected.

⁴¹ Technology and Fuel Assessments <http://www.arb.ca.gov/msprog/tech/tech.htm>

⁴² CARB 2022 "2022 State SIP Strategy Appendix A: Economic Analysis" <https://www2.arb.ca.gov/resources/documents/2022-state-strategy-state-implementation-plan-2022-state-sip-strategy>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

an Initial Statement of Reasons (ISOR) prepared for each proposed CARB regulation, an Environmental Analysis to satisfy California Environmental Quality Act (CEQA) requirements, and an Economic Analysis, including a Standardized Regulatory Impact Assessment (SRIA) for any proposed regulation has an economic impact exceeding \$50 million.

While these processes occur beyond the requirements addressed in this plan, these requirements ensure there will be further opportunity for public and stakeholder input, as well as ongoing technology review and a more refined assessment of costs and environmental impacts as the measures move through CARB's public process for development into proposed regulations.

Step 4: Adopt and Implement Feasible Control Measures

The final step required by this step-wise process is to adopt and implement the feasible control measures identified in Step 3, in order to satisfy MSM requirements. Board adoption of the proposed South Coast SIP for the 12 µg/m³ annual PM_{2.5} standard – including the control measures described in the 2022 State SIP Strategy – will satisfy the requirements of Step 4.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Section III. Step 1: Emissions of Direct PM_{2.5}, NO_x, and Ammonia

Table 4 shows the mobile source emissions of direct PM_{2.5}, and Tables 5 and 6 show the mobile source emissions of NO_x, and ammonia, the key precursors to secondary formation of PM_{2.5} in the South Coast.⁴³

Table 4: Direct PM_{2.5} Emissions (tpd) from Mobile Sources in the South Coast

	2018	2030
On-Road Light-Duty Vehicles	2.4	2.1
On-Road Heavy-Duty Vehicles	3.2	1.6
Off-Road Federal and International Sources	1.7	1.8
Aircraft	0.7	0.7
Railroad	0.3	0.4
Ocean-Going Vessels	0.6	0.7
Off-Road Equipment	3.6	2.0
Total Direct PM_{2.5} from Mobile Sources	10.8	7.4

**Numbers may not add up due to rounding.*

Table 5: NO_x Emissions (tpd) from Mobile Sources in the South Coast

	2018	2030
On-Road Light-Duty Vehicles	56.5	19.7
On-Road Heavy-Duty Vehicles	129.8	30.4
Off-Road Federal and International Sources	64.4	74.7
Aircraft	17.1	24.5
Railroad	15.1	17.7
Ocean-Going Vessels	32.2	32.6
Off-Road Equipment	72.6	37.9
Total NO_x from Mobile Sources	323.3	162.6

**Numbers may not add up due to rounding.*

Table 6: Ammonia Emissions (tpd) from Mobile Sources in the South Coast

	2018	2030
On-Road Light-Duty Vehicles	2.4	12.3
On-Road Heavy-Duty Vehicles	3.2	8.8
Off-Road Federal and International Sources	1.7	0.0
Aircraft	0.7	0.0
Railroad	0.3	0.0
Ocean-Going Vessels	0.6	0.0
Off-Road Equipment	3.6	0.1
Total Ammonia from Mobile Sources	10.8	21.3

**Numbers may not add up due to rounding.*

⁴³ Data from SCAQMD, 2023. CEPAM version 101B

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

It is important to note that these tables reflect only a subset of the total emissions in the South Coast, and do not reflect emissions from stationary and areawide sources.

Many residential appliances, such as water heaters and furnaces, use natural gas or liquefied petroleum gas (fossil fuel) as a fuel source. These appliances have the potential to emit NO_x during combustion. While emissions from buildings represent a small component of total PM_{2.5} and precursor emissions, water and space heaters comprise a large portion of total building-related emissions.

Section IV. Steps 2 and 3: Identification and Evaluation of Potential Control Measures

The second and third steps required in the MSM evaluation process – the identification of potential MSM control measures, and the evaluation of their stringency and feasibility – have been grouped together so that CARB staff can more cohesively identify and analyze control measures for each sector. The sectors analyzed include mobile sources (which are further broken down into sub-categories of passenger vehicles, on-road heavy-duty trucks and buses, and off-road mobile sources), and residential and commercial building appliances.

SECTION 209 WAIVER AND AUTHORIZATION AUTHORITY

Before delving into the sector-specific analysis, however, it is important to discuss the unique position California holds within the Act. In recognition of California's early efforts and extent of air quality challenges, the State has unique authority to regulate emissions from some mobile source categories more stringently than the federal government under the Act's §209(b) waiver provision and §209(b) authorization provision. This waiver provision also allows California to seek a waiver from U.S. EPA to enact more stringent emission standards for passenger vehicles and heavy-duty trucks. While U.S. EPA has primary authority for interstate trucks, aircraft, ships, locomotives, and some farm and construction equipment, the authorization provision allows California to seek authorization from U.S. EPA to enact more stringent emission standards for certain off-road vehicles and engines.

Due to California's unique waiver and authorization authority under the Act, no other state or nonattainment area has the authority to promulgate mobile source emission standards at levels that are more stringent than the federal standards. Other states can elect to match either the federal standards or the more stringent California standards. As such, no state or nonattainment area has a more stringent suite of mobile source emission control programs than California, implying a de-facto level of control at the level of MSM for CARB's current programs.

Over nearly five decades, CARB has consistently sought waivers and authorizations for its new motor vehicle regulations and has received waivers and authorizations for over 100 regulations. The most recent California standards and regulations that have received waivers and authorizations are:

- [The Advanced Clean Cars \(ACC\) Regulations](#) for light-duty vehicles (including the Zero-Emission Vehicle (ZEV) and the Low-Emission Vehicle III (LEV III) Regulations);
- [On-Board Diagnostics II Requirements](#);
- [The Advanced Clean Trucks Regulation](#);
- [The Zero-Emission Airport Shuttle Bus Regulation](#);
- [The Zero-Emission Power Train Certification](#);
- [Heavy-Duty On-Board Diagnostics \(HD OBD\)](#);
- [The Heavy-Duty Vehicle and Engine Regulation](#);

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

- [Heavy-Duty Vehicle and Engine Emission Warranty and Maintenance Provisions](#);
- [Heavy-Duty Truck Idling Requirements](#);
- [The Heavy-Duty Tractor-Trailer Greenhouse Gas \(GHG\) Standards](#);
- [The In-Use Off-Road Diesel Fleets Regulation](#);
- [The Non-Road Compression Ignition \(CI\) Regulation](#);
- [The Large Spark Ignition \(LSI\) Engine and Fleets Regulation](#);
- [The Portable Diesel Equipment Air Toxics Control Measure \(ATCM\)](#);
- [The Portable Equipment Registration Program \(PERP\)](#);
- [The Small Off-Road Equipment \(SORE\) Regulation](#);
- [The Commercial Harbor Craft \(CHC\) Regulation](#);
- [The Transport Refrigeration Unit \(TRU\) ATCM](#);
- [The Off-Highway Recreational Vehicles Regulation](#);
- [The Mobile Cargo Handling Equipment \(CHE\) Regulation](#); and
- [The Spark Ignition Marine Engine and Boat Regulation](#).

Further, CARB has recently submitted waiver and authorization requests for:

- The Heavy-Duty Omnibus Regulation;
- The Small-Off Road Engine Standard (2021 Amendments);
- The Commercial Harbor Craft (CHC) Regulation (2022 Amendments); and
- The Transport Refrigeration Unit (TRU) Regulation Phase I (2022 Amendments).

CARB's history of progressively strengthening standards as technology advances, coupled with the waiver and authorization process requirements, ensures that California's regulations remain the most stringent in the nation, and that necessary emission reductions from the mobile sector continue. This provision preserves a critical role for California in the control of emissions from new motor vehicles, recognizing that California plays an important leadership role and serves as a "laboratory" state for more stringent motor vehicle emission standards. For example, CARB's LEV I and LEV II, and the ZEV Programs have resulted in the production and sales of over 1.5 million of ZEVs in California since first adopted them in 1990.

Additionally, CARB's 2022 State SIP Strategy⁴⁴ has developed and evaluated potential strategies for mobile source categories under CARB's regulatory authority that will contribute to expeditious attainment of the standards. This effort builds on the measures and commitments already made in CARB's multi-pollutant planning effort that have identified the pathways forward to achieve the State's many air quality, climate, and community risk reduction goals: the 2016 State SIP Strategy, and the 2020 Mobile Source Strategy.

With the 2022 State SIP Strategy, CARB explored and proposed an unprecedented variety of new measures to reduce emissions from the sources under our authority using all mechanisms available. The measures included in the 2022 State SIP Strategy encompass actions to establish requirements for cleaner technologies (both zero-emissions and near zero-emissions), deploy these technologies into the fleet, and

⁴⁴ CARB 2022 State Strategy for the State Implementation Plan (2022 State SIP Strategy) <https://ww2.arb.ca.gov/resources/documents/2022-state-strategy-state-implementation-plan-2022-state-sip-strategy>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

to accelerate the deployment of cleaner technologies through incentives. As such, the measures included in the 2022 State SIP Strategy have been identified to push beyond the stringency of controls required in the current control program, and have been developed to achieve thus go beyond MSM requirements. ~~definition of emission controls that achieve, “the maximum degree of emission reduction... that can be feasibly implemented in the area.”⁴⁵~~

The California regulations that comprise this rigorous suite of control measures are described in more detail in the following sections.

⁴⁵ U.S. EPA definition of MSM from the 2001 *Final TSD for Maricopa County PM₁₀ Nonattainment Area* (page 31). Available at <https://www3.epa.gov/region9/air/phoenixpm/pdf/tsd0901.pdf>

On-Road Light-Duty Vehicles

On-road light-duty vehicles, often referred to as passenger vehicles, include motorcycles, passenger cars, and light to mid-sized trucks and SUVs. The vast majority of these vehicles currently have gasoline powered internal combustion engines, however this sector is projected to increasingly rely on electric drive vehicles of varying types (e.g. battery electric, plug-in hybrid, or fuel cell electric vehicles).

STEP 2(A): CALIFORNIA'S LIGHT-DUTY CONTROL MEASURES

Since setting the nation's first motor vehicle exhaust emission standards in 1966 that led to the first pollution controls, California has dramatically tightened emission standards for light-duty vehicles. Through CARB regulations, today's new cars pollute 99 percent less than their predecessors did in 1975. In 1970, CARB required auto manufacturers to meet the first standards to control NO_x emissions along with hydrocarbon emissions, which together form smog. The simultaneous control of emissions from motor vehicles and fuels led to the use of cleaner-burning reformulated gasoline (RFG) that has removed the emissions equivalent of 3.5 million vehicles from California's roads.

Light- and medium-duty vehicles are currently regulated under California's ACC program, which includes the LEV III and ZEV programs. The ACC program combines the control of smog, soot-causing pollutants, and greenhouse gas emissions into a single coordinated package of requirements for model years 2015 through 2025. Since CARB first adopted it in 1990, the Low Emission Vehicle Program (LEV and LEV II) and Zero-Emission Vehicle (ZEV) Program have resulted in the production and sales of over 1.5 million (ZEVs) in California. Advanced Clean Cars 2 (ACC2), a measure from the 2016 State SIP Strategy, is a significant effort critical to meeting air quality standards that was adopted in August 2022. ACC2 has the goal of cutting emissions from new combustion vehicles while taking all new vehicle sales to 100 percent zero-emission no later than 2035.

For passenger vehicles, the 2022 State SIP Strategy includes actions to increase the penetration of ZEVs by targeting ride-hailing services offered by transportation network companies through the Clean Miles Standard regulation in order to reduce GHG and criteria pollutant emissions, and promote electrification of the fleet. For motorcycles, the 2022 State SIP Strategy proposes more stringent exhaust and evaporative emissions standards along with zero-emissions sales thresholds. The primary goal of the On-Road Motorcycle New Emissions Standard measure is to reduce emissions from new, on-road motorcycles by adopting more stringent exhaust and evaporative emissions standards along with zero-emissions sales thresholds.

CARB is also active in implementing in-use programs for owners of older dirtier vehicles to retire them early. The "car scrap" programs, like Clean Cars 4 All and Clean Vehicle Rebate Project provide monetary incentives to replace old vehicles with zero-emission vehicles. Other California programs and goals, such as the 2012 Governor's Executive Order to put 1.5 million zero-emission vehicles on the road by 2025 – which was

CARB Control Program MSM Analysis for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan

attained two years early in 2023 – have produced substantial and cost-effective emission reductions from the light-duty vehicle sector.⁴⁶

Taken together, California's emission standards, fuel specifications, and incentive programs for on-road light- and medium-duty vehicles represent all measures that are technologically and economically feasible within California. As a result of these efforts, light-duty vehicle emissions in the South Coast have been reduced significantly since 1990 and will continue to go down through 2030. From today, light-duty vehicle NO_x emissions are projected to decrease by nearly 65 percent by 2030.

Figure 3: Light-Duty Control Measures



NEW VEHICLE STANDARDS

Emission Standards and ZEV Requirements

California is the only state with the authority to adopt and enforce emission standards for new motor vehicle engines that differ from the federal emission standards, which enables CARB to develop more stringent motor vehicle control measures than other states. Adopted in 2012, the **ACC I** program is a suite of regulations that ensure emission reductions from the State's passenger vehicle fleet. In 2013, U.S. EPA issued a waiver for the ACC I Program.⁴⁷

CARB's ACC I program has in recent years been a major driver of turnover to and zero and near-zero emission vehicles in the light-duty sector, providing significant emission reduction benefits. ACC I brought together three major regulations that were previously separate, combining the control of criteria pollutants and greenhouse gas emissions into

⁴⁶ California Office of Governor, April 2023. "California Surpasses 1.5 Million ZEVs Goal Two Years Ahead of Schedule"

<https://www.gov.ca.gov/2023/04/21/california-surpasses-1-5-million-zevs-goal-two-years-ahead-of-schedule/>

⁴⁷ U.S. EPA 2013 "California State Motor Vehicle Pollution Control Standards; Advanced Clean Car Program; Final Notice of Decision" Federal Register January 9, 2013 Volume 78, Number 6 pp. 2211 – 2145. <https://www.gpo.gov/fdsys/pkg/FR-2013-01-09/pdf/2013-00181.pdf>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

a single coordinated set of requirements for light-duty vehicles of model years 2015 through 2025.

- Two of these regulations, the **LEV III GHG** and **LEV III Criteria Emission** rules, are fleet average performance standards for new vehicles that provide for continued annual emission reductions as the stringency increases through 2025. When fully phased-in, these requirements will achieve near-zero emission levels from new light-duty vehicles. These programs apply to the entire light-duty fleet by setting an average emissions requirement across all new vehicles that creates inherent market flexibility for compliance.
- The third regulation, the **ZEV Regulation**, focuses on advanced technology development and fleet penetration of ZEVs (i.e. battery electric vehicles and hydrogen fuel cell vehicles), and plug-in hybrid electric vehicles (PHEVs) in order to enable manufacturers to successfully meet 2018 and subsequent model year requirements. The ZEV regulation ensures that advanced electric drive technology is commercialized and brought to production scale for cost reductions by 2025, in order to ensure that these low-emission technology vehicles transition from demonstration phase to full commercialization in a reasonable timeframe to meet long-term emission reductions goals. The ZEV amendments for 2018 and subsequent model years in the ACC program are intended to achieve commercialization through simplifying the regulation and pushing technology to higher volume production in order to achieve cost reductions.

The ACC I program has ushered in a new zero emission passenger transportation system. The success of this program is evident: California is the world's largest market for Zero Emission Vehicles (ZEVs), with 119 passenger vehicle models available today, including battery-electric, plug-in hybrid electric, and fuel cell electric vehicles.⁴⁸ A wide variety are now available at lower price points, attracting new consumers. In April 2023, the Governor's 2012 target of 1.5 million ZEVs on the road by 2025 was attained two years early, facilitated in part by \$2 billion in ZEV incentive funding and rebates that have been distributed to Californians through programs like the Clean Vehicle Rebate Project and Clean Cars 4 All.⁴⁹ Approximately 21 percent of all new cars sold in California in 2023 have been ZEVs. Californians, who drive only 10 percent of the nation's cars, account for over 40 percent of all zero-emission car sales in the country. The U.S. makes up about half of the world market. This movement towards commercialization of advanced clean cars has occurred due to CARB's ZEV requirements, part of ACC, which affects passenger cars and light-duty trucks.

In support of California's transition to zero-emission vehicles, in 2020, Governor Newsom signed Executive Order N 79 20,⁵⁰ which established a goal that 100 percent of California sales of new passenger cars and trucks be zero-emission by 2035. With this order and many other recent actions, Governor Newsom has recognized that air pollution remains a challenge for California that requires bold action. Zero-emission

⁴⁸ VELOZ, February 2023 "Electric Vehicle Market Report, Q4 2022" <https://www.veloz.org/ev-market-report/>

⁴⁹ California Office of Governor, April 2023. "California Surpasses 1.5 Million ZEVs Goal Two Years Ahead of Schedule" <https://www.gov.ca.gov/2023/04/21/california-surpasses-1-5-million-zevs-goal-two-years-ahead-of-schedule/>

⁵⁰ Executive Order N-79-20 <https://www.gov.ca.gov/wp-content/uploads/2020/09/9.23.20-EO-N-79-20-Climate.pdf>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

vehicle commercialization in the light-duty sector is well underway. Longer-range battery electric vehicles are coming to market that are cost-competitive with gasoline fueled vehicles and hydrogen fuel cell vehicles are now also seeing significant sales. Autonomous and connected vehicle technologies are being installed on an increasing number of new car models. A growing network of retail hydrogen stations is now available, along with a rapidly growing battery charger network.

Advanced Clean Cars II (ACC II), a measure in the 2016 State SIP Strategy that was adopted by the CARB Board in August 2022, imposes the next level of low-emission and zero-emission vehicle standards for model years 2026-2035 that contribute to meeting federal ambient air quality ozone standards and California's carbon neutrality targets. The ACC II regulations will rapidly scale down emissions of light-duty passenger cars, pickup trucks and SUVs starting with the 2026 model year through 2035. The ACC II regulation also takes the State's already growing zero-emission vehicle market and robust motor vehicle emission control rules and augments them to meet more aggressive tailpipe emissions standards and ramp up to 100 percent zero-emission vehicles by 2035 for all new passenger cars, trucks and SUVs sold in California. ACC II is two-pronged: it will drive the sales of zero emission vehicles (ZEV) and the cleanest-possible plug-in hybrid-electric vehicles (PHEV) to 100-percent in California by the 2035 model year through its **Zero Emission Vehicle (ZEV) Regulation**, while also reducing smog- and PM-forming emissions from new Internal Combustion Engine Vehicles (ICEVs) through the **Low Emission Vehicle (LEV) IV Regulation**.

The LEV IV regulation will further increase the stringency of CARB's criteria pollutant emission standards for light- and medium-duty vehicles for MY 2026 – 2035. LEV IV consists of multiple components:

- Prevents potential emission backsliding of ICEVs that is otherwise possible under the existing regulations by applying the exhaust and evaporative emission fleet average standards exclusively to combustion engines. Although the NMOG+NO_x fleet average for light-duty vehicles remains at 30 mg/mi for MY 2026-2035, the medium-duty vehicle fleet average declines from 178 mg/mi to 150 mg/mi for Class 2b and from 247 mg/mi to 175 mg/mi for Class 3. Additionally, LEV IV eliminates the composite standard option for SFTP emissions to ensure maximum emissions control on all test cycles.
- For light-duty vehicles, lowers the maximum NMOG+NO_x exhaust emission rate from 160 mg/mi in MY 2025 to 70 mg/mi in MY 2029; the US06 PM emission rate from 6 mg/mi to 3 mg/mi; and evaporative running loss emission rates from 0.05 g/mi to 0.01 g/mi. For medium-duty vehicles, lowers the maximum NMOG+NO_x exhaust emission rate from 250 mg/mi in MY 2025 to 170 mg/mi in MY 2028 for Class 2b and from 400 mg/mi to 230 mg/mi for Class 3.
- Reduces cold start emissions by applying the emission standards to a broader range of in-use driving conditions. (Starts after the vehicle engine has been shut-off for more than 12 hours are considered cold starts.)
- Medium-duty vehicles with gross combined weight rating above 14,000 lbs. would also be subject to in-use test standards to capture emissions while towing.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

CARB will further increase the stringency of sales requirements for ZEVs and PHEVs through the ACC II program's ZEV regulation, which will require manufacturers to deliver for sale increasing percentages of ZEVs and PHEVs as a portion of their overall product deliveries between model years 2026 and 2034 and reach 100-percent ZEVs in 2035 (and after). ACC II also includes innovative charging and ZEV assurance measures, which include ZEV warranty and durability requirements, serviceability, and battery labeling requirements.

Break and Tire Wear

Vehicles emit inhalable particles from two major sources: the exhaust system, which has been extensively characterized and regulated; and non-exhaust sources including brake wear, tire and road wear, clutch wear and road dust resuspension. The non-exhaust sources have not been regulated because they are difficult to measure and control. However, with increasingly stringent standards for exhaust emissions, the non-exhaust fraction has become increasingly important. Model predictions suggest that traffic-related emissions of both PM_{2.5} and PM₁₀ will eventually be dominated by non-exhaust sources.

Additionally, there is concern that exposure to these particles may increase in California because proposed regional land use and transportation plans may lead to denser cities and a higher proximity of people to major roadways. Under the ACC program, the regenerative braking of ZEVs and PHEV results in lower PM emissions from brake wear and thus provides non-exhaust PM_{2.5} emission benefits. As increasing numbers of ZEVs enter the fleet, which are characterized by regenerative braking and lower rolling resistance tires, these technologies offer opportunities to reduce PM_{2.5} emissions from the passenger vehicle fleet.

Clean Miles Standard

The **Clean Miles Standard (CMS)** regulation, which was adopted by CARB in 2021 and will be implemented by the California Public Utilities Commission (CPUC), is a regulation to reduce GHG emissions from ride-hailing services offered by transportation network companies (TNCs), on a per-passenger mile basis, and promote electrification of the fleet by setting an electric vehicle mile target. TNCs provide on-demand rides through a technology-based platform that connects passengers with drivers using personal or rented vehicles.

The CMS includes two annual targets – an eVMT target as well as a GHG target in the metric of g CO₂/PMT. The eVMT target would require TNCs to achieve 90 percent eVMT by 2030. The GHG target would require TNCs to achieve 0 g CO₂/PMT by 2030 through electrification as well as other strategies, including increasing shared rides on their platform, improving operational efficiency (route planning and reduced mileage without passengers), and obtaining optional GHG credits. Optional GHG credits may be requested by the TNCs and approved by the CPUC for ride-hailing trips that are connected to mass transit through a verified booking process, and for investing in bicycle and sidewalk infrastructure projects that support active transportation.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

On-Board Diagnostic (OBD) Systems

OBD systems serve an important role in helping to ensure that engines and vehicles maintain low emissions throughout their full life. OBD systems are designed to identify when a vehicle's emission control systems or other emission-related computer-controlled components are malfunctioning, causing emissions to be elevated above the vehicle manufacturer's specifications. Many states currently use the OBD system as the basis for passing and failing vehicles in their inspection and maintenance programs, as is exemplified by California's Smog Check Program. For light-duty vehicles, all 2000 and newer MY vehicles are inspected by accessing the OBD system to verify that no emission-related faults are present.

California's first ***On Board Diagnostics Regulation (OBD I)*** required manufacturers to monitor some of the emission control components for passenger vehicles, light- and medium- duty vehicles, starting with the 1988 model year. In 1989, CARB adopted ***OBD II***, which required 1996 and subsequent model year passenger cars, light-duty trucks, and medium-duty vehicles and engines to be equipped with second-generation OBD systems, which standardized the system and addressed the shortcomings of the OBD I requirements (OBD I requirements monitored only a few of the emission-related components on a vehicle). U.S. EPA granted CARB a waiver of preemption for the OBD II regulation in 2016.⁵¹

The Board has modified the OBD II regulation in regular updates since initial adoption to address manufacturers' implementation concerns and, where needed, to strengthen specific monitoring requirements. Most recently, the Board amended the regulation in 2021 to require manufacturers to implement Unified Diagnostic Services (UDS) for OBD communications, which will provide more information related to emissions-related malfunctions that are detected by OBD systems, improve the usefulness of the generic scan tool to repair vehicles, and provide needed information on in-use monitoring performance. UDS implementation would be required for all 2027 and subsequent model year light- and medium-duty vehicles and engines, as well as some heavy-duty vehicles and engines.

Emissions Standards for Motorcycles

While representing a relatively small fraction of the emissions coming from the passenger vehicle fleet, CARB has also taken a comprehensive control approach for emissions from motorcycles. For the most part, motorcycles are on-road two-wheeled, self-powered vehicles with engine displacements of 50 cubic centimeters (cc) or greater. First adopted in 1975, ***California's On-Road Motorcycle Regulation*** obtained its first waiver of preemption from U.S. EPA in 1976. The 1975 regulation set emission standards for all motorcycles with engine displacements of at least 50 cc. The ***1998 Amendments to the California Motorcycle Regulation*** affected only Class 3 motorcycles (280 cc or greater) and set a Tier I and Tier II standard for 2004 and 2008

⁵¹ U.S. EPA 2016 "California State Motor Vehicle Pollution Control Standards; Malfunction and Diagnostic System Requirements for 2004 and Subsequent Model Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and Engines; Final Notice of Decision" <https://www.gpo.gov/fdsys/pkg/FR-2016-11-07/pdf/2016-26861.pdf> November 7, 2016 Federal Register Volume 81, Number 215 pp. 78143-78149

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

model years, respectively. While CARB has the same emission standard as the federal standard, the California standard applies to engines starting in 2008 rather than 2010 under the federal requirement. The California Motorcycle Regulation controls both exhaust emission standards and test procedures for on-road motorcycles and motorcycle engines. U.S. EPA granted CARB a waiver of preemption for the 1998 amendments in August 2006.⁵² California's motorcycle exhaust emission test procedures are adopted from U.S. EPA's exhaust test procedures (CFR title 40, part 86, subparts E and F).

Since the 1990s, more stringent exhaust emissions standards have been developed by other jurisdictions outside of the United States around the world, most notably the European Union's EU5 standard which became effective in 2020. These stringent exhaust standards have prompted the development of cleaner motorcycles than what are currently required in California, or anywhere in the nation. Thus, the 2022 State SIP Strategy includes the ***On-Road Motorcycle New Emission Standard*** measure, CARB's latest commitment to reduce emissions from motorcycles. While CARB's existing motorcycle evaporative standards are on par with most other jurisdictions around the world, additional evaporative reductions are technically feasible and other vehicle categories regulated by CARB have adopted much lower evaporative emissions standards. For example, CARB's Off Highway Recreational Vehicle (OHRV) category, which includes vehicles closely related to motorcycles such as off-highway motorcycles, requires lower evaporative emissions limits with more robust test methods. Since 2017, CARB has been working closely with many other jurisdictions in the spirit of trying to achieve harmonization where possible on lower and more robust motorcycle emissions standards. Specifically, CARB has worked closely with U.S. EPA, Environment Climate Change Canada, the European Union, and the United Nations. California also currently has no inspection and maintenance program for motorcycles. CARB has determined that tampering with emissions controls is a significant problem for this category.

The On-Road Motorcycle New Emissions Standard is anticipated to reduce emissions from new, on-road motorcycles (motorcycles) by adopting more stringent exhaust and evaporative emissions standards along with zero-emissions sales thresholds. The exhaust standards would be more stringent than current U.S. EPA standards and largely harmonized with European Union 5 (EU 5) standards. The evaporative standards would be more stringent than current U.S. EPA and EU 5 standards. This measure will also require an increase in new Zero-Emissions Motorcycle (ZEM) sales, starting at 10 percent in 2028 and progressing to 50 percent in 2035. CARB staff is in the process of developing new exhaust emissions standards for hydrocarbons (HC), NO_x, CO and nonmethane HC (NMHC) that achieve a large degree of harmonization with more aggressive current European motorcycle emissions standards. CARB would also develop new evaporative emissions standards that largely harmonize with more aggressive current CARB OHRV emissions standards.

⁵² <https://www.epa.gov/state-and-local-transportation/vehicle-emissions-california-waivers-and-authorizations> See Code of Federal Regulations Volume 71, Number 149 pp. 44027-44029

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

REDUCING IN-USE EMISSIONS

Inspection and Maintenance (I/M) Program

Although new vehicles sold in California are the cleanest in the world, the millions of passenger vehicles on California roads, and the increasing miles they travel each day make them our single greatest source of NO_x emissions. While the new vehicles in California may start out with very low emissions, improper maintenance or faulty components can cause vehicle emission levels to sharply increase. Studies estimate that approximately 50 percent of the total emissions from late-model vehicles are excess emissions, meaning that they are the result of emission-related malfunctions.

California's **Smog Check Program** works to ensure that the vehicles remain as clean as possible over their entire life. The Bureau of Automotive Repair (BAR) is the State agency charged with administration and implementation of the Smog Check Program. The Smog Check Program is designed to reduce air pollution from California registered vehicles by requiring periodic inspections for emission-control system problems, and by requiring repairs for any problems found. In 1998, the Enhanced Smog Check program began in which Smog Check stations relied on the BAR-97 Emissions Inspection System (EIS) to test tailpipe emissions with either a Two-Speed Idle (TSI) or Acceleration Simulation Mode (ASM) test depending on where the vehicle was registered. For instance, vehicles registered in urbanized areas received an ASM test, while vehicles in rural areas received a TSI test.

In 2009, the following requirements were added in to improve and enhance the Smog Check Program, making it more inclusive of motor vehicles and effective on smog reductions:

- Low pressure evaporative test;
- More stringent pass/fail cutpoints;
- Visible smoke test; and
- Inspection of light- and medium-duty diesel vehicles.

The next major change in the Smog Check Program was due to AB 2289, adopted in October 2010, a new law restructuring California's Smog Check Program, streamlining and strengthening inspections, increasing penalties for misconduct, and reducing costs to motorists. This new law, supported by CARB and BAR, promised faster and less expensive Smog Check inspections by taking advantage of the second generation of OBD software installed on all vehicles. The new law also directs vehicles without this equipment to high-performing stations, helping to ensure that these cars comply with current emission standards. This program will reduce consumer costs by having stations take advantage of diagnostic software that monitors pollution-reduction components and tailpipe emissions. Beginning mid-2013, testing of passenger vehicles using OBD was required on all vehicles model years 2000 or newer.

In the South Coast, Smog Check requirements are consistent with the most stringent of any other I/M program in the nation. Biennial, change of ownership, and initial

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

registration Smog Check inspections ensure that the in-use passenger vehicle fleet continues to operate as cleanly as possible. Additionally, a portion of vehicles must receive their biennial Smog Check inspections at STAR certified test only or test/repair stations that are required to meet high inspection-based standards.

Based on recent CARB analysis in support of the Smog Check Performance Standard Modeling and Program Certification for the 70 Parts Per Billion 8-hour Ozone Standard (CARB Board meeting, March 23, 2023), the Smog Check Program meets the federal I/M requirements for all applicable nonattainment areas classified as Moderate or above, including the South Coast, San Joaquin Valley, Coachella Valley, Western Mojave Desert, San Diego County, Sacramento Metro, Eastern Kern, and Ventura County nonattainment areas, and the 75 parts per billion 8-hour ozone standard for the San Diego County and Eastern Kern nonattainment areas.

CARB staff's discovery of Volkswagen's (VW's) use of illegal defeat devices—software designed to cheat on emissions tests—in certain 2009 to 2016 model year diesel cars that were sold in California illustrates the success and stringency of California's program to control emissions from the in-use passenger vehicle fleet, and to identify excess in-use emissions. Due to the discovery of VW's emissions cheating scandal and subsequent actions to remediate the environmental damages caused by these vehicles' excess emissions, the VW Environmental Mitigation Trust provides about \$423 million for California to fund projects that accelerate the turnover of mobile sources to cleaner, lower-emitting vehicles and engines.

REDUCING VEHICLE MILES TRAVELLED (VMT)

In addition to the potential measures described above to control emissions from on-road mobile sources, reducing vehicle miles traveled (VMT) is also necessary to directly and immediately reduce mobile source NO_x and ROG emissions. CARB works cooperatively with other State agencies, and the local air districts, metropolitan planning organizations (MPOs), and other local entities to implement the Sustainable Communities and Climate Protection Program and related efforts. This involves developing, adopting, and implementing Sustainable Communities Strategies (SCS), which include VMT reduction targets as required under Senate Bill 375. That said, reducing VMT is difficult; many factors influence an individual's travel choices, and these choices interact with one another in a complex manner that is not always well understood. In the 2020 Mobile Source Strategy, CARB identified several strategies that could be undertaken to assist in achieving additional reductions and support implementation of regional SCSs. Building on the strategies identified in the 2020 MSS, in the 2022 State SIP Strategy, CARB committed to the ***Enhanced Regional Emission Analysis in SIPs*** measure, which will reduce VMT from on-road mobile sources through a Transportation Control Measure (TCM), a strategy to reduce emissions or concentration of air pollutants by reducing the number of vehicle trips or VMT or improving traffic flow. This measure was originally proposed as a public measure suggestion, based on the input from community-based organizations and members of

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

the public. During the development of the 2022 State SIP Strategy, CARB staff developed this public measure suggestion into a SIP measure commitment.

CARB is considering the following measures to further reduce ROG and NO_x emissions from on-road motor vehicles by reducing VMT:

- **Change MVEB Development Process:**
CARB would evaluate the existing MVEB development process, including tools and the latest planning assumptions used in the analysis. Based on the review, CARB could modify the framework for developing MVEBs when considering how to address gaps in emissions reductions needed to demonstrate attainment of different NAAQS. This framework could explore additional emissions reductions from the on-road sector to attain the 70 ppb 8-hour ozone standard and progress towards State air quality goals. This framework would need to ensure that the MVEB is consistent with other applicable requirements such as emission inventory, reasonable further progress, control measures, and attainment demonstration.
- **RACM Analysis:**
CARB would compile a comprehensive list of TCMs implemented or considered by federal, state, regional, and local agencies. This list would provide more choices and new measures subject to RACM analysis for potential inclusion as an enforceable measure in the SIP. This effort may also evaluate the emission reduction potential, feasibility, and cost-effectiveness of each TCM on the list. In addition, CARB could consider providing a quantification methodology to improve and standardize the RACM analysis as part of SIPs across air districts. In pursuing this measure, CARB would work in a collaborative effort with U.S. EPA, California MPOs, and air districts to develop the guidance and implement each potential TCM identified through the RACM.
- **Update Guidance for CMAQ and Motor Vehicle Fees:**
CARB would update the methodology and guidelines for estimating the cost-effectiveness of some of the most widely implemented transportation-related air quality projects using CMAQ and motor vehicle fees. Further, these guidelines would establish methods to quantify emission benefits and cost-effectiveness of new available transportation options and technologies. This update may also include critical inputs associated with emissions estimation to streamline the quantification of cost-effectiveness of various transportation projects. This action will accelerate the penetration of new strategies and maximize the emissions reductions from the transportation sector in the near-term. CARB would work with FHWA, the California Department of Transportation, MPOs, and air districts in pursuing this measure.

FUELS

Cleaner fuel has an immediate impact in reducing emissions from the mobile source, and thus represent an important component in reducing NO_x and ROG emissions from

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

the passenger vehicle fleet. California's stringent air quality programs treat motor vehicles and their fuels holistically (as a system, rather than as separate components). As a result, CARB's fuels programs achieve significant reductions in criteria emissions from gasoline-fueled vehicles used in California.

California's Reformulated Gasoline program (CaRFG) sets stringent standards for California gasoline that produced cost-effective emission reductions from gasoline-powered vehicles resulting in California gasoline being the cleanest in the world. California's cleaner-burning gasoline regulation is one of the cornerstones of the State's efforts to reduce air pollution and cancer risk. Reformulated gasoline is fuel that meets specifications and requirements established by CARB. The results from cleaning up fuel can have an immediate impact as soon as it is sold in the State. Vehicle manufacturers design low-emission vehicles to take full advantage of cleaner-burning gasoline properties.

The CaRFG program has been implemented in three phases:

- Phase 1, which was implemented in 1991, eliminated lead from gasoline and set regulations for deposit control additives and Reid vapor pressure (RVP).
- Phase 2 CaRFG (CaRFG2 in 1994) set specifications for sulfur, aromatics, oxygen, benzene, T50, T90, Olefins, and RVP and established a Predictive Model.
- The final and current phase, Phase 3 CaRFG, eliminated, in 1996, the use of methyl-tertiary-butyl-ether in California gasoline.

The use of cleaner-burning gasoline in the South Coast has been required since March 1996. **Phase 3 CaRFG** also revised specifications for Phase 3 gasoline that reduces ozone precursor emissions (including aromatic hydrocarbons and olefins) by ~15 percent and toxic air contaminant emissions by about 40 percent, compared with CaRFG2. The regulation strengthened specification requirements for cleaner-burning gasoline, including:

- Reduced sulfur content. Sulfur inhibits the effectiveness of catalytic converters. Cleaner-burning gasoline enables catalytic converters to work more effectively and further reduce tailpipe emissions.
- Reduced benzene content. Benzene is known to cause cancer in humans. Cleaner-burning gasoline has about one-half the benzene of earlier gasoline, thus reducing cancer risks.
- Reduced levels of aromatic hydrocarbons (ozone precursor).
- Reduced levels of olefins (ozone precursor).
- Reduced Reid vapor pressure, which ensures that gasoline evaporates less readily.
- Two specifications for reduced distillation temperatures, which ensure the gasoline burns more completely, and
- Use of an oxygen-containing additive, such as ethanol, which also helps the gasoline burn more cleanly.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

STEP 2(B): OTHER STATES' AND NONATTAINMENT AREAS' LIGHT-DUTY CONTROL MEASURES

Table 7 summarizes the most stringent control measures currently in use in any state or nonattainment that have been identified and discussed for on-road light-duty vehicles. Each of the measures identified in this table are discussed in more detail in this section, below.

Table 7: Comparison of Stringency – Light-Duty Measures

CARB Control Programs Compared to Federal Standards and Control Programs in Other States and Nonattainment Areas

Type of Control Measure	Most Stringent Control Program Identified	Summary of Findings from Analysis	Other Jurisdiction(s) Analyzed
On-Road Light-Duty Vehicles			
New Vehicle Standards			
New Vehicle Standards: Emissions standards (passenger cars)	<p>LEV III program (CARB) MY 2015 - 2025 (part of Advanced Clean Cars I program)</p> <p>LEV IV program (CARB) MY 2026 - 2035 (part of Advanced Clean Cars II program)</p>	<p>17 states have adopted California's Low Emission Vehicle III (LEV III) program, which set fleet average criteria pollutant performance standards for new light- and medium-duty vehicles for MY 2015 - 2025</p> <p>CARB will further increase the stringency of CARB's criteria pollutant emission standards with LEV IV program, a part of ACC II, for MY 2026 – 2035. LEV IV consists of these components:</p> <ul style="list-style-type: none"> Prevents potential emission backsliding of ICEVs that is otherwise possible under the existing regulations by applying the exhaust and evaporative emission fleet average standards exclusively to combustion engines. Although the NMOG+NOx fleet average for light-duty vehicles remains at 30 mg/mi for MY 2026-2035, the medium-duty vehicle fleet average declines from 178 mg/mi to 150 mg/mi for Class 2b and from 247 mg/mi to 175 mg/mi for Class 3. Additionally, LEV IV eliminates the composite standard option for SFTP emissions to ensure maximum emissions control on all test cycles. For light-duty vehicles, lowers the maximum NMOG+NOx exhaust emission rate from 160 mg/mi in MY 2025 to 70 mg/mi in MY 2029; the US06 PM emission rate from 6 mg/mi to 3 mg/mi; and evaporative running loss emission rates from 0.05 g/mi to 0.01 g/mi. For medium-duty vehicles, lower the maximum NMOG+NOx exhaust emission rate from 250 mg/mi in MY 2025 to 170 mg/mi in MY 2028 for Class 2b and from 400 mg/mi to 230 mg/mi for Class 3. Reduces cold start emissions by applying the emission standards to a broader range of in-use driving conditions. (Starts after the vehicle engine has been shut-off for more than 12 hours are considered cold starts.) Medium-duty vehicles with gross combined weight rating above 14,000 lbs. would also be subject to in-use test standards to capture emissions while towing. 	<p>17 States have adopted the LEV III requirements of ACC I under the provisions of Section 177:</p> <ul style="list-style-type: none"> NY, MA, VT, ME, PA, CT, RI, WA, OR, NJ, MD, DE, CO, MN, NV, VA, and NM <p>LEV IV regulations will control emissions of criteria pollutants from the exhaust and fuel systems of conventional motor vehicles. They would apply to vehicles produced and delivered for sale in California beginning with the 2026 model year. They are more stringent than the existing federal Tier 3 standards for the same pollutants from motor vehicles for the 2025 and subsequent model years that were set by the U.S. EPA.</p> <p>Five other states have adopted the new LEV IV from ACC2 under Section 177: MA, OR, WA, VT, and NY</p>
New Vehicle Standards:	ZEV program (CARB) MY 2015 - 2025 (part of Advanced Clean Cars I program)	15 states have matched California's current ZEV Regulation for battery electric vehicles (BEVs), hydrogen fuel cell vehicles (FCEVs), and plug-in hybrid electric vehicles (PHEVs).	15 states have adopted the ZEV requirements of ACC I under the provisions of Section 177:

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Type of Control Measure	Most Stringent Control Program Identified	Summary of Findings from Analysis	Other Jurisdiction(s) Analyzed
On-Road Light-Duty Vehicles			
Zero-emission Requirements (passenger cars)	ACC II's ZEV Program (CARB) MY 2026 – 2035 (part of Advanced Clean Cars II program)	CARB will further increase the stringency of sales requirements for ZEVs and PHEVs through the ACC II program's ZEV regulation, which will require manufacturers to deliver for sale increasing percentages of ZEVs and PHEVs as a portion of their overall product deliveries between model years 2026 and 2034 and reach 100-percent ZEVs in 2035 (and after). ACC II also includes innovative charging and ZEV assurance measures, which include ZEV warranty and durability requirements, serviceability, and battery labeling requirements	<ul style="list-style-type: none"> NY, MA, VT, ME, CT, RI, WA, OR, NJ, MD, CO, MN, NV, VA, and NM <p>Five other states have adopted the new ZEV standards from ACC2 under Section 177: MA, OR, WA, VT, and NY</p> <p>There are no comparable federal standards for sales of zero-emission vehicles.</p>
New Vehicle Standards: On-Board Diagnostic (OBD) systems requirements	California OBD II Requirements (CARB)	CARB's On-Board Diagnostic II (OBD II) Systems Requirements exceed Federal requirements in stringency. OBD II ensures that the in-use fleet continues to operate as cleanly as possible.	In practice, virtually all vehicles sold in the U.S. are designed and certified to meet California's OBD II requirements, regardless of where in the U.S. they are sold.
New Vehicle Standards: Emissions standards (Motorcycles)	California's On-Road Motorcycle Regulation (CARB) Future Measure: <i>On-Road Motorcycle New Emissions Standards (CARB)</i>	<p>CARB's emission standards and in-use testing for on-road motorcycles (California's On-Road Motorcycle Regulation) set a Tier I and Tier II standard for 2004 and 2008 model years, respectively, for Class 3 motorcycles (280 cc or greater). California's evaporative emission limits for motorcycles exceed the stringency of any other in the nation, while exhaust emission a limits and test procedures are consistent with U.S. EPA's.</p> <p>The 2022 State SIP Strategy committed to the On-Road Motorcycle New Emission Standard, which will further reduce emissions from new-on-road motorcycles through the adoption of more stringent exhaust and evaporative emissions standards along with zero-emissions sales thresholds. The exhaust standards would be more stringent than current U.S. EPA standards and largely harmonized with European Union 5 (EU 5) standards. The evaporative standards would be more stringent than current U.S. EPA and EU 5 standards. This measure will also require an increase in new Zero-Emissions Motorcycle (ZEM) sales, starting at 10 percent in 2028 and progressing to 50 percent in 2035.</p> <p><i>(Note: CARB has committed to pursue the On-Road Motorcycle New Emissions Standard measure, but this measure has yet to be proposed to the Board for approval/adoption)</i></p>	California is the only state with emission control requirements for on-road motorcycles that exceed the stringency of U.S. EPA requirements.
In-Use Emission Controls			
In-Use Emission Controls: Inspection and maintenance program (I/M program)	Smog Check Program (CARB and administered by the California Department of Consumer Affairs' Bureau of Automotive Repair)	The Inspection / Maintenance (I/M) Program testing and in-use emission controls in the South Coast are consistent with the most stringent of any other I/M program in the nation. Biennial, change of ownership, and initial registration Smog Check inspections ensure that the in-use passenger vehicle fleet continues to operate as cleanly as possible. Additionally, a portion of vehicles must receive their biennial Smog Check inspections at STAR certified test only or test/repair stations that are required to meet high inspection-based standards.	32 states and areas have an I/M program in at least a portion of their state or area (AZ, CO, CA, CT, DE, GA, ID, IL, IN, LA, ME, MD, MA, MO, NV, NH, NJ, NM, NC, NY, OH, OR, PA, RI, UT, TN, TX, VA, VT, WA, WI, and DC).

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Type of Control Measure	Most Stringent Control Program Identified	Summary of Findings from Analysis	Other Jurisdiction(s) Analyzed
On-Road Light-Duty Vehicles			
		Based on recent CARB analysis in support of the Smog Check Performance Standard Modeling and Program Certification for the 70 Parts Per Billion 8-hour Ozone Standard (CARB Board meeting, March 23, 2023), the Smog Check Program meets the federal I/M requirements for all applicable nonattainment areas classified as moderate or above, including the South Coast Air Basin, San Joaquin Valley, Coachella Valley, Western Mojave Desert, San Diego County, Sacramento Metro, Eastern Kern, and Ventura County nonattainment areas, and the 75 parts per billion 8-hour ozone standard for the San Diego County and Eastern Kern nonattainment areas.	
In-Use Emission Controls: Fleet Rules	Clean Miles Standard (CARB)	<p>The Clean Miles Standard (CMS) regulation, which was adopted by CARB in 2021, is to reduce GHG emissions from ride-hailing services offered by transportation network companies (TNCs), on a per-passenger mile basis, and promote electrification of the fleet by setting an electric vehicle mile target. TNCs provide on-demand rides through a technology-based platform that connects passengers with drivers using personal or rented vehicles.</p> <p>The CMS includes two annual targets – an eVMT target as well as a GHG target in the metric of g CO₂/PMT. The eVMT target would require TNCs to achieve 90 percent eVMT by 2030. The GHG target would require TNCs to achieve 0 g CO₂/PMT by 2030 through electrification as well as other strategies, including increasing shared rides on their platform, improving operational efficiency (route planning and reduced mileage without passengers), and obtaining optional GHG credits. Optional GHG credits may be requested by the TNCs and approved by the CPUC for ride-hailing trips that are connected to mass transit through a verified booking process, and for investing in bicycle and sidewalk infrastructure projects that support active transportation.</p>	CARB staff is unaware of any other state or jurisdiction with VMT reduction programs via Transportation Network Companies (TNCs).
In-Use Emission Controls: Transportation Control Measure (TCM) Reducing Vehicle Miles Travelled (VMT)	Future Measure: <i>Enhanced Regional Emission Analysis in SIPs</i> (CARB)	<p>CARB is considering the following measures to further reduce ROG and NO_x emissions from on-road motor vehicles by reducing VMT:</p> <ul style="list-style-type: none"> Change MVEB Development Process: CARB would evaluate the existing MVEB development process, including tools and the latest planning assumptions used in the analysis. Based on the review, CARB could modify the framework for developing MVEBs when considering how to address gaps in emissions reductions needed to demonstrate attainment of different NAAQS. RACM Analysis: CARB would compile a comprehensive list of TCMs implemented or considered by federal, state, regional, and local agencies to provide more choices and new measures for potential inclusion as an enforceable measure in the SIP. This effort may also evaluate the emission reduction potential, feasibility, and cost-effectiveness of each TCM on the list, and/or provide a quantification methodology to improve and standardize the RACM analysis as part of SIPs across air districts. Update Guidance for CMAQ and Motor Vehicle Fees: CARB would update the methodology and guidelines for estimating the cost-effectiveness of some of the most widely implemented transportation-related air quality projects using CMAQ and motor vehicle fees. Further, these guidelines would establish methods to quantify 	CARB staff is unaware of any other state or jurisdiction that is reducing VMT through similar programs.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Type of Control Measure	Most Stringent Control Program Identified	Summary of Findings from Analysis	Other Jurisdiction(s) Analyzed
On-Road Light-Duty Vehicles			
		<p>emission benefits and cost-effectiveness of new available transportation options and technologies. This update may also include critical inputs associated with emissions estimation to streamline the quantification of cost-effectiveness of various transportation projects.</p> <p><i>(Note: CARB has committed to pursue the Enhanced Regional Emission Analysis in SIPs measure, but this measure has yet to finalized)</i></p>	
Fuel Controls			
Gasoline Standards	CaRFG Phase 3 (CARB)	The CaRFG Phase III program requires that California gasoline is the lowest-emitting and cleanest-burning in the nation. It includes more stringent requirements for emission controls than the applicable federal standard (U.S. EPA's RFG Phase II). Relative to federal gasoline, CARB's reformulated gasoline program reduces NOx emissions by 15 percent and TACs by 50 percent.	<p>U.S. EPA RFG Phase II is currently required in nonattainment areas in 17 states and the District of Columbia (including the South Coast)</p> <ul style="list-style-type: none"> • Areas of CA, CT, DE, the District of Columbia, IL, IN, MD, NJ, NY, PA, TX, VA, WI <p>Other "opt in" areas for Federal RFG Phase II</p> <ul style="list-style-type: none"> • Entire states: CT and DE • Portions of states: IL, KT, MD, ME, MA, MS, NH, NJ, NY, RI, TX, VA

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

NEW VEHICLE STANDARDS

Emission standards and ZEV Regulation

CARB's new vehicle standards for on-road light-duty vehicles are consistent with the most stringent of any other area in the nation. Due to constraints in the Act, California is the only state that can set new vehicle standards (including control measures such as emission standards, ZEV sales mandates, warranty provisions, and on-board diagnostic (OBD) requirements) that are more stringent than U.S. EPA's national standards. Other states can adopt California programs for which U.S. EPA has provided California with waivers.⁵³ These states are also known as the "Section 177 States" in reference to this provision of the Act. The ability to set more stringent controls than U.S. EPA, however is unique to California, and thus ensures that the California current control measures for new vehicle and engine standards are at least equal in stringency to the most stringent controls in the nation.

As a result of CARB's efforts, and as provided for in the Act, other states have now adopted elements of CARB's ACC I program, including seventeen states that have adopted the equivalent of CARB's LEV III program, and fifteen states that have adopted the equivalent of CARB's ZEV program, as listed below in Table 8.

⁵³ The Clean Air Act allows other states to adopt California's on- and off-road vehicle or engine emission standards under section 209 of the Clean Air Act. Section 209 requires, among other things, that such standards be identical to the California standards for which a waiver or authorization has been granted. States are not required to seek U.S. EPA approval to adopt standards identical to the California standards that have received a waiver or authorization.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Table 8: ACC I Section 177 States: LD Emission Standards and ZEV Regulation

Section 177 States	2012 ZEV (MY 2015 – 2025)	2012 LEVIII (MY 2015 – 2025)
Colorado	X	X
Connecticut	X	X
Delaware		X
Maine	X	X
Maryland	X	X
Massachusetts	X	X
Minnesota	X	X
Nevada	X	X
New Jersey	X	X
New Mexico	X	X
New York	X	X
Oregon	X	X
Pennsylvania		X
Rhode Island	X	X
Washington	X	X
Vermont	X	X

Additionally, five other states have adopted the requirements of ACC II, including the LEV IV and ZEV requirements: Massachusetts, Oregon, Washington, Vermont, and New York.

On-Board Diagnostics (OBD) Requirements

California's OBD requirements for on-road light-duty vehicles are consistent with the most stringent of any other area in the nation. CARB's OBD II program requires that all 1996 and newer model year gasoline and alternate fuel passenger cars and trucks are required to be equipped from the factory with an OBD II system. All 1997 and newer model year diesel fueled passenger cars and trucks are required to meet the OBD II requirements.

U.S. EPA also requires all 1996 and newer model year passenger cars and trucks sold in any state to meet the U.S. EPA OBD requirements.⁵⁴ While U.S. EPA's OBD requirements differ slightly from California's OBD II requirements, virtually all vehicles sold in the U.S. are designed and certified to meet the more stringent California's OBD II requirements, regardless of where in the U.S. they are sold.⁵⁵ U.S. EPA issued a waiver for California's OBD II program in November 2016, indicating that the California OBD II system requirements are at least as protective of public health as U.S. EPA's OBD requirements.⁵⁶

⁵⁴ CARB 2015 "On-Board Diagnostic II (OBD II) Systems - Fact Sheet / FAQs" <https://www.arb.ca.gov/msprog/obdprog/obdfaq.htm>

⁵⁵ CARB 2009 https://www.arb.ca.gov/msprog/smogcheck/march09/transitioning_to_obd_only_im.pdf

⁵⁶ U.S. EPA 2016 "California State Motor Vehicle Pollution Control Standards; Malfunction and Diagnostic System Requirements and Enforcement for 2004 and Subsequent Model Year Passenger Cars, Light Duty Trucks, and Medium Duty Vehicles and Engines; Notice of Decision" <https://www.gpo.gov/fdsys/pkg/FR-2016-11-07/pdf/2016-26861.pdf> Federal Register Vol. 81, No. 215 pp. 78143

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Motorcycle emission standards and in-use emissions testing

CARB's emission standards and in-use testing for on-road motorcycles exceeds the stringency of any other in the nation. CARB's emission standards and in-use testing for on-road motorcycles (California's On-Road Motorcycle Regulation) set a Tier I and Tier II standard for 2004 and 2008 model years, respectively, for Class 3 motorcycles (280 cc or greater). California's evaporative emission limits for motorcycles exceed the stringency of any other in the nation, while exhaust emission a limits and test procedures are consistent with U.S. EPA's.

The 2022 State SIP Strategy committed to the On-Road Motorcycle New Emission Standard measure, which will further reduce emissions from new-on-road motorcycles through the adoption of more stringent exhaust and evaporative emissions standards along with zero-emissions sales thresholds. The exhaust standards would be more stringent than current U.S. EPA standards and largely harmonized with the EU 5 standards. The evaporative standards would be more stringent than current U.S. EPA and EU 5 standards. This measure will also require an increase in new Zero-Emissions Motorcycle sales, starting at 10 percent in 2028 and progressing to 50 percent in 2035.

California is the only state with emission control requirements for on-road motorcycles that exceed the stringency of U.S. EPA requirements.

REDUCING IN-USE EMISSIONS

The I/M Program testing and in-use emission controls in the South Coast are consistent with the most stringent of any other I/M program in the nation. California's Smog Check Program is designed to reduce air pollution from California-registered passenger vehicles by requiring periodic inspections for emission control system problems, and by requiring repairs for any problems found. In California, technicians are required to perform an OBD II check (visual and functional) during the Smog Check inspection. On board, self-diagnostic equipment monitors a passenger vehicle's control components to ensure they are functioning correctly. Specifically, the technician visually checks to make sure the warning light is functional, and then the Smog Check test equipment communicates with the on-board computer for fault information. If a fault is currently causing the light to be on, the malfunctioning component must be repaired in order to pass the inspection.

- **Stringency and Frequency of I/M Program**

The I/M Program testing and in-use emission controls in the South Coast are consistent with the most stringent of any other I/M program in the nation. Biennial, change of ownership, and initial registration Smog Check inspections ensure that the in-use passenger vehicle fleet continues to operate as cleanly as possible. This is as frequent as Smog Check requirements as any other part of California and is consistent with the most stringent of any other area in the nation, and is the same frequency as the other Extreme nonattainment area for ozone in the country, the San Joaquin Valley and the Coachella Valley. Additionally, a portion of vehicles must receive their biennial Smog Check inspections at STAR certified test only or test/repair stations that are required to

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

meet high inspection-based standards.

Thirty-two other states and local areas have an I/M program in at least a portion of their state that is also consistent with the federal I/M program.

- Effectiveness of Inspection and Testing Methodology

Nearly every state besides California that has an I/M program currently relies exclusively on vehicle OBD II system inspections as the basis for its emission inspections of 1996 and newer vehicles.⁵⁷ Only California and Colorado still use tailpipe testing: Colorado relies on tailpipe testing exclusively; California's Smog Check Program currently includes two overlapping inspection procedures. Under California's Smog Check program, each 1996 and newer model year vehicle is subjected to a tailpipe emission test, and also to an inspection of its OBD II system, which independently monitors the performance of the vehicle's emission control systems and related components during everyday driving.

U.S. EPA acknowledges the viability of OBD II inspections by providing full emission credits to state I/M programs that are based on OBD II only inspections. While U.S. EPA and CARB have generally found that OBD II systems are more effective in detecting emission-related malfunctions on in-use vehicles compared to existing tailpipe testing procedures, the Smog Check Program utilizes both approaches – erring on the side of increased stringency – to ensure each vehicle passes both tests.⁵⁸

Furthermore, to ensure that California's Smog Check Program remains as effective as possible, CARB has committed in the 2016 State SIP Strategy to work with BAR staff to perform a joint agency, comprehensive evaluation of California's in use performance focused inspection procedures and, if necessary, make improvements to increase the Smog Check Program's effectiveness. CARB will conduct a study to further evaluate California's in-use performance inspection procedures through analysis of the Smog Check database and vehicle sampling obtained through BAR's Random Roadside Inspection Program. This will, as necessary: inform improvements in inspection test procedures; address program fraud; improve the effectiveness and durability of emission related repair work; and improve the regulations governing the design of in-use performance systems on motor vehicles.

FUELS

U.S. EPA administers federal RFG regulations requiring that gasoline sold in various areas of the country with poor air quality meet standards for federal reformulated gasoline. Most gasoline sold in California is subject to the federal RFG standards as well as having to meet the CaRFG standards. All diesel fuel sold in California is subject to both California and federal standards. These standards work complementarily.

⁵⁷ CARB 2009 https://www.arb.ca.gov/msprog/smogcheck/march09/transitioning_to_obd_only_im.pdf

⁵⁸ California's Smog Check data indicates that vehicles are more than twice as likely to fail an OBD II-based inspection than the required tailpipe emissions test. CARB 2009 https://www.arb.ca.gov/msprog/smogcheck/march09/transitioning_to_obd_only_im.pdf

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Since 1995, U.S. EPA has required federal RFG to be used in the worst-polluted areas in the nation – including the South Coast and other California nonattainment areas (Federal RFG Phase I 1995 requirements). Effective in 2000, U.S. EPA increased the stringency of the federal RFG requirements under the RFG II program. In 2014, U.S. EPA adopted its most recent amendments, Tier 3 Fuel standards, which require lower sulfur content in gasoline to a maximum of 10 ppm beginning in 2017 on an annual average basis, and lower Reid Vapor Pressure to zero, reducing fuel vapor emissions to near zero levels. The program also reduces PM emissions by approximately 70 percent, and NO_x and VOCs emissions by approximately 80 percent, relative to the former federal Phase II levels (which were set in 1995). Sulfur content in gasoline is reduced from 30 parts per million (ppm) to 10 ppm on average.

In aggregate, the Tier 3 RFG requirements bring federal gasoline fuel controls in line with those already in place in California. However, CARB's gasoline specifications under the CaRFG requirements are still more stringent than the federal program. CARB significantly controls NO_x emissions under requirements in CaRFG Phase 3 that are not mirrored by comparably stringent controls on NO_x emissions under the federal RFG Phase 3 requirements. Relative to federal gasoline, CARB's reformulated gasoline program reduces NO_x emissions by 15 percent and TACs by 50 percent. Additionally, CARB requires sulfur contents to be capped at 10 ppm, rather than an annual average of 10 ppm as required federally.

Beyond the Federal requirements described above, the Act also allows states to adopt unique fuel programs to meet local air quality needs, which are referred to as Boutique Fuel Programs. Most of these programs set lower gasoline volatility requirements than the federal standards, and most are effective for only part of the year. As of January 19, 2017, U.S. EPA provided a snapshot of these programs that had been approved in SIPs,⁵⁹ which are listed below in Table 9 below. Table 9 also compares the stringency of the boutique fuel requirements in these areas to CARB's CaRFG Phase 3. This comparison shows that the CaRFG Phase 3 program requires that California gasoline is the lowest-emitting and cleanest-burning in the nation.

⁵⁹ U.S. EPA, 2017 https://19january2017snapshot.epa.gov/gasoline-standards/state-fuels_.html

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Table 9: Boutique Gasoline Fuel Programs in the U.S.

Type of Fuel Control	State	Comparison to CaRFG Phase 3
Reid Vapor Pressure (RVP) of 7.8 psi	PA and IN (year-round) TX (May 1 – Oct 1)	CaRFG Phase III sets flat limits of RVP of 7.0 psi (oxygenated fuels) and 6.9 psi (non-oxygenated fuels)
RVP of 7.0 psi	KS, MI, MO, TX	CaRFG Phase III sets flat limits of RVP of 7.0 psi (oxygenated fuels) and 6.9 psi (non-oxygenated fuels)
Cleaner Burning Gasoline (Summer)	AZ	As of 2005, AZ requires CARB's CaRFG Phase III in certain areas
Cleaner Burning Gasoline (non-Summer)	AZ	As of 2005, AZ requires CARB's CaRFG Phase III in certain areas
Winter Gasoline (aromatics & sulfur)	NV	In 1999, Clark County (Las Vegas) adopted California sulfur and aromatics limits

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

STEP 3(A): EVALUATION OF STRINGENCY: LIGHT-DUTY CONTROL MEASURES

Step 3(a) calls for an evaluation of each of the potential control measures identified in Step 2, in order to evaluate their stringency and determine whether they meet all applicable requirements to satisfy the definitions of MSM as discussed in Section 1 and Section 2.

As shown in Table 7 in Step 2(b), CARB's light-duty control measures are the most stringent in the nation. This comparison between CARB's control measures and the measures currently in place at the federal level and/or within other states and jurisdictions illustrates the stringency of the current CARB on-road light-duty vehicle control program, which meets the stringency requirements of MSM.

Furthermore, CARB staff have conducted an analysis of the timing of the mobile source control measures committed to in the 2022 State SIP Strategy, which go beyond the stringency of the current control program as it is now being implemented and thus beyond MSM. Many of these measures are still in their development phases and are not yet being implemented; the development timeline, however, is critical to allowing industry and technological advancements to progress sufficiently such that the newly emerging technologies called for in these regulatory actions (most of which are technology-inducing regulations) have sufficient time to attain market readiness. Table 10, below, discusses the timeframe considerations for each of the applicable light-duty control measures, and indicates why a more expedited timeframe is neither technologically nor economically feasible. For these reasons, the measures meet the MSM requirement of being phased in as "expeditiously as practicable" and go beyond MSM requirements in terms of stringency.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Table 10: Light-Duty Control Measures Stringency and Timeline for Implementation

Measures	Implementation Begins	12 ug/m3 Annual PM _{2.5} Standard (2012)
New Passenger Vehicle Standards		
Advanced Clean Cars (ACC) (Includes both LEV III and ZEV Program)	ongoing	MSM
Advanced Clean Cars 2 (ACC 2) (Includes both LEV IV and Amendments to the ZEV Program)	2026	MSM
Recently amended in 2022 to require that new vehicle sales are 100% ZEV by 2035, the ACC program requires increasingly stringent standards for gasoline cars and passenger trucks. The currently adopted standards and requirements, including the zero-emission requirements of ACC 1 and ACC 2, are technology-forcing and are the most stringent in the nation; further stringency would not be feasible. An accelerated timeline would also not be feasible as new car standards need years of lead time to be developed, certified, manufactured, and implemented.		
In-Use Emission Control Measures		
On-Board Diagnostics II (OBD II)	ongoing	MSM
Recently amended in 2021 to require program updates that address cold start emissions and diesel PM monitoring, many of the regulatory changes to OBD II are phased-in through 2027 to allow sufficient lead time for the necessary technological development, manufacturing, testing, certification, and implementation for the requisite hardware and software changes; accelerated timelines would not be feasible. OBD II requirements are the most stringent in the nation; further stringency would not be feasible.		
Smog Check	ongoing	MSM
Amended in 2010 to enhance program efficacy with new technologies and test methods. California Smog Check requirements are the most stringent passenger vehicle inspection and maintenance in the nation; further stringency would not be feasible.		
Control Measures to Reduce Vehicle Miles Traveled (VMT)		
Clean Miles Standard (2022 State SIP Strategy measure, adopted in 2021)	2023	MSM
Recently adopted in 2021 to set eVMT and GHG requirements for transportation network companies (TNCs). The Clean Miles Standard's zero-emissions technology requirements are the most stringent standard in the nation; further stringency would not be feasible. An accelerated timeline would also not be feasible as standards and fleet requirements need lead time to be implemented.		
Motorcycle Control Measures		
California On-Road Motorcycle Regulation	ongoing	MSM
On-Road Motorcycle New Emission Standards (2022 State SIP Strategy measure with commitment)	2025	<u>Beyond MSM</u>
Proposed amendments to California's on-road motorcycle program would require more stringent exhaust emissions standards that would harmonize with European standards, with a Board hearing date anticipated in 2023. Amendments may also include evaporative emissions standards and ZEM sales thresholds. With these amendments, the stringency of CARB's motorcycle program will exceed the stringency of any other U.S. jurisdiction, and will rely on recent developments in emission control technologies; further stringency would not be feasible. Accelerated timelines would also not be feasible as new standards need years of lead time for staff to evaluate feasibility, and for compliant motorcycle technologies to be developed, certified, and implemented.		
Fuels Control Measures		
California's Reformulated Gasoline (CaRFG) Phase III	ongoing	MSM
Amended in 2003 to require the removal of MTBE, and to included refinery limits and cap limits. CARB's gasoline standards and requirements are the most stringent in the world; it is not feasible to require further stringency of fuel specifications.		

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

STEP 3(B): EVALUATION OF FEASIBILITY: LIGHT-DUTY CONTROL MEASURES

Step 3(b) calls for an assessment of the feasibility of implementing any measure that is not included in the proposed South Coast SIP, but which is identified as a potential MSM control measure in Step 2. During the public process for the 2022 State SIP Strategy, CARB staff received public measure suggestions for additional potential light-duty measures, as described below:

- **Light-Duty Vehicle Fleet Regulation**
This measure would involve CARB developing a regulation to implement fleet requirements for public and rental passenger vehicle fleets. This could take the form similar to the recently adopted Clean Miles Standard, which requires an increasing number of electric miles service for ride hailing platforms, or it could take the form of a more traditional fleet rule that mandates the purchase of ZEVs. CARB has a suite of regulations in place to control emissions from light-duty vehicles, and continues to pursue new regulatory actions, in addition to incentives and other complementary programs that can help to accelerate emissions reductions. One such action is the recently adopted Advanced Clean Cars II program, which sets manufacturer sales requirements and continues to drive introduction of ZEVs into the light-duty fleet. Even so, additional fleet average requirements could potentially support a faster rate of transition to zero-emissions, especially in public and private passenger vehicle fleets, which are particularly suited for electrification.

CARB staff is continuing to explore this suggested measure. CARB staff anticipate that the recently adopted **Advanced Clean Cars II regulation**, along with existing CARB regulations and current State incentive programs, achieve a significant amount of the benefits that this suggested measure would accomplish. For this reason, it was not included as a measure in the 2022 State SIP Strategy.

- **Enhanced Bureau of Automotive Repair Consumer Assistance Program**
This measure would involve CARB working with BAR to enhance the Consumer Assistance Program by expanding the eligibility threshold and/or amounts of funding offered for consumers towards repair assistance and vehicle replacement options. BAR has in place a Consumer Assistance Program⁶⁰ to offer eligible low-income consumers repair assistance and vehicle retirement options to help reduce emissions and improve air quality. The repair assistance program currently offers up to \$1,200 for emissions-related repairs which correct problems contributing to a vehicle's failure to pass a Smog Check inspection. The vehicle retirement option currently offers income-eligible consumers \$1,500 to retire their vehicle.

CARB staff is continuing to explore this suggested measure and how it can meet the Act requirements for SIP measure approvability. For this reason, it is not included as a measure in the 2022 State SIP Strategy. Nonetheless, the recently

⁶⁰ Bureau of Automotive Repair (BAR) Consumer Assistance Program <https://www.bar.ca.gov/consumer/consumer-assistance-program>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

adopted ***Advanced Clean Cars II regulation***, along with existing CARB regulations and current State incentive programs such as the ***Clean Cars 4 All Program***, achieve a significant amount of the benefits that this suggested measure would accomplish. Furthermore, the Clean Cars 4 All Program is under development for statewide expansion and will continue to focus on supporting the lowest income and disadvantaged communities.

- **Enhanced Transportation Choices**
This suggested measure or measures would have CARB work with State and local transportation planning organizations, local governments, and communities to advance VMT reductions via enhanced choice. As the bulk of mobile source emissions come from existing vehicles, measures that provide Californians with additional choices as alternatives to using their personal vehicles, e.g. walking, biking, taking public transit, and/or adopting other transportation modes, at least some of the time, can significantly reduce emissions.

Control measures for consideration could include, but are not limited to, travel demand management programs, incentive programs that fund enhanced transportation planning, or zoning changes that encourage dense, walkable, infill development. CARB staff is continuing to explore this suggested measure and how it can meet the Clean Air Act requirements for SIP measure approvability. For this reason, a SIP measure incorporating this suggestion was not integrated into the 2022 State SIP Strategy. Nonetheless, CARB is pursuing VMT reductions via other approaches, including through the ***Enhanced Regional Emission Analysis in State Implementation Plans measure***, which was committed to in the 2022 State SIP Strategy.

CARB staff continue to investigate the feasibility and potential emission reductions of these public measure suggestions, as well as whether they would meet the U.S. EPA's approvability criteria for SIP measures. Due to feasibility and approvability issues, these suggestions have not yet been formally developed into SIP control measures.

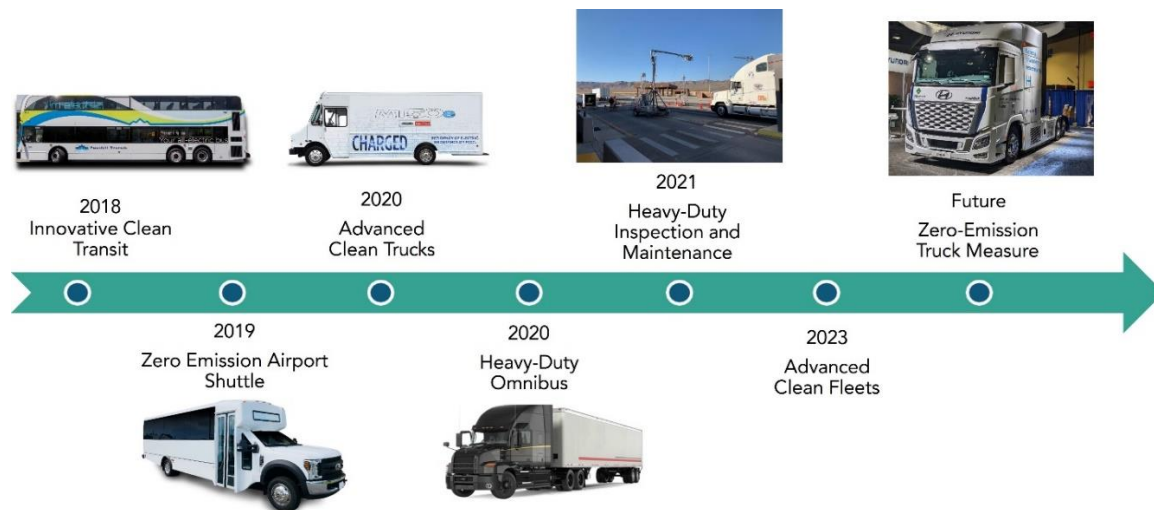
On-Road Medium- and Heavy-Duty Vehicles

On-road heavy-duty vehicles include buses and trucks over 8,500 pounds gross vehicle weight rate (GVWR), and include heavier pick-up trucks and walk-in vans, as well as a wide range of vocational and drayage trucks (big-rig trucks) and buses. These vehicles are one of the fastest growing transportation sectors in the United States, responsible for about 32 percent of total statewide NO_x emissions, and are a significant source of statewide diesel PM and GHG emissions. The majority of these vehicles operate on diesel-cycle engines, especially in the higher weight classes. Gasoline and natural gas Otto-cycle spark-ignited engines are also used in heavy-duty trucks, to a lesser extent, and primarily in the lower weight classifications.

STEP 2(A): CALIFORNIA'S MEDIUM- AND HEAVY-DUTY CONTROL MEASURES

Through ongoing efforts, CARB has developed the most stringent and successful heavy-duty vehicle emission control program in the world. CARB has numerous programs currently in place to control emissions from medium- and heavy-duty vehicles including the Truck and Bus Regulation, Heavy-Duty Omnibus, Advanced Clean Trucks, as well as incentive programs such as the widely successful Carl Moyer Program. In addition, CARB recently adopted the Heavy-Duty Inspection and Maintenance regulation, a 2016 State SIP Strategy measure. Regulatory programs include requirements for increasingly tighter new engine standards, address vehicle idling, certification procedures, on-board diagnostics, emission control device verification, and requires accelerated turnover of the in-use fleet to cleaner, lower-emitting emission control and engine technologies. Due to the benefits of CARB's longstanding heavy-duty mobile source program, emissions in the South Coast from this source category have been reduced significantly since 1990, and will continue to decrease through 2030. From today, medium- and heavy-duty NO_x emissions are projected to decrease by over 76 percent in 2030, emissions of direct PM are projected to decrease by approximately 28 percent in the same timeframe.

Figure 4: Heavy-Duty Control Measures



**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

The major regulatory and programmatic control measures that provide emission reductions in the on-road heavy-duty mobile source category are described below.

NEW VEHICLE AND ENGINE STANDARDS

[Heavy-duty engine emission standards \(mandatory standards\)](#)

California is the only state with the authority to adopt and enforce emission standards for new motor vehicle engines that differ from the federal emission standards. A central element of CARB's heavy-duty diesel vehicle program is requiring that new trucks, buses and on-road diesel engines meet increasingly stringent engine emission standards. CARB has phased-in implementation of these increasingly stringent **new heavy-duty vehicle and engine emission standards** since the mid 1980's, resulting in significant emission reductions.

As shown in

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Table 11, California PM and NO_x engine emission standards have historically been more stringent than applicable federal standards on several occasions, as indicated in the darker shaded portions of the table. In these instances, California has, functioning as a ‘laboratory’ state, paved the way for later federal increases in the stringency of PM and NO_x emission standards. These standards reflect the increased efficiency in control technologies over time, as innovations in vehicles, engines, and emission-capturing technology progress. Since 1990, heavy-duty engine NO_x emission standards have become dramatically more stringent, dropping from 6 grams per brake horsepower-hour (g/bhp-hr) in 1990 down to a 0.2 g/bhp-hr NO_x standard, which took effect in 2010. Due to these requirements, new heavy-duty trucks sold since 2010 emit 98 percent less NO_x and PM_{2.5} than new trucks sold in 1986.

On August 26, 2005, CARB obtained a waiver from the federal preemption for the Engine Standards for 2007 and Subsequent Model Year Heavy-Duty Diesel Engines/Vehicles regulation, which generally aligned California’s mandatory heavy-duty emission exhaust standards with the federal standards for 2007 and subsequent model year vehicles and engines. Subsequent mandatory exhaust emission standards for heavy-duty engines that CARB has developed and adopted have aligned with federal standards until the 2021 ***Heavy-Duty Omnibus Regulation***, a measure in the 2016 State SIP Strategy, which further reduced California’s NO_x and PM limits for MY 2024 and subsequent years. When fully implemented in 2027, the Omnibus regulation will set NO_x emission limits at 0.020 (miles ≤ 435,000), and 0.035 (435,000 - 600,000 miles), and PM emission limits at 0.005 g/bhp-hr.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Table 11: Adopted California and Federal Heavy-Duty Engine Emission Standards
(for compression-ignition engines, shown in g/bhp-hr)

Model Year	California NOx		Federal NOx	California PM		Federal PM	
	General	Urban Buses		General	Urban Buses	General	Urban Buses
1985 - 86		10.7	10.7		n/a		n/a
1987		6.0	10.7		0.60		n/a
1988 - 89		6.0	10.7		0.60		0.60
1990		6.0	6.0		0.60		0.60
1991 - 92		5.0	5.0	0.25	0.10		0.25
1993		5.0	5.0	0.25	0.10	0.25	0.10
		5.0					
1994 - 95	5.0	3.50 - 0.50 Optional (1995+)	5.0	0.10	0.07	0.10	0.07
		4.0					
1996 - 97	5.0	2.50 - 0.50 Optional	5.0	0.10	0.05* (*0.07 in-use)	0.10	0.05* (*0.07 in-use)
		4.0					
1998 - 03		2.50 - 0.50 Optional	4.0	0.10	0.05* (*0.07 in-use)	0.10	0.05* (*0.07 in-use)
				0.03 – 0.01 Optional (2002+)			
2004 - 06	2.0	0.50 - 0.01	2.0	0.10	0.01	0.10	0.05* (*0.07 in-use)
				0.03 – 0.01 Optional			
2007 - 09	0.20* phased-in (*fleet avg ~1.2)	0.20	0.20* phased-in (*fleet avg ~1.2)	0.01		0.01	
2010 - 14	0.20		0.20	0.01		0.01	
2015 - 23	0.20		0.20	0.01		0.01	
		0.10 – 0.02 Optional					
2024 - 26		0.050 (0.020 Optional)	0.20	0.005		0.01	
2027 - 30		0.020 (miles ≤ 435,000), and 0.035 (435,000 - 600,000 miles) (0.010 Optional)	0.035	0.005		0.005	
2031+		0.020 (miles ≤ 435,000), and 0.040 (435,000 - 800,000 miles) (0.010 Optional)	0.035	0.005		0.005	

The Omnibus Regulation implemented two key measures in the 2016 State SIP Strategy: the Low-NOx Engine Standard, and the Lower In-Use Emission Performance Level measures. The Omnibus Regulation established stringent NOx and PM engine emission standards that, when fully implemented, will be 90 percent below current levels on existing certification cycles, and lower NOx standards on new certification cycles to control emissions over a broader range of vehicle operation, including idling, low load, and highway operation. In addition, the Omnibus Regulation revised the

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

heavy-duty in-use testing program to make it more effective in ensuring compliance with the in-use emission standards over a broader range of vehicle operation and lengthened the useful life and emissions warranty period requirements to reflect the longevity of heavy-duty vehicles.

To support the Omnibus rulemaking, CARB, in partnership with federal and local air agencies and the heavy-duty engine industry, have funded over \$5 million worth of research contracts with South Research Institute (SwRI) to evaluate various engine and emission control strategies to reduce NO_x emissions from heavy-duty engines by 90 percent without or with minimal GHG impacts. The results from these contracts referred to as the Stage 1,⁶¹ Stage 2,⁶² and Stage 3⁶³ Heavy-Duty Low NO_x Programs formed the bases for supporting the Omnibus Regulation. In addition, CARB had also contracted with the National Renewable Energy Laboratory to conduct a cost analysis for compliance with CARB's proposed lower NO_x exhaust emission standards on current certification test cycles and a new low-load certification test cycle, as well as cost associated with increasing the useful life and emission warranty period requirements.⁶⁴

Optional heavy-duty engine emission standards

In addition to mandatory NO_x standards, CARB has also adopted several generations of **optional lower NO_x standards** over the past 15 years. The optional standards allow local air districts and CARB to preferentially provide incentive funding to buyers of cleaner trucks, which encourages the development of cleaner engines, which in turn paves the way for future lower-NO_x emission standards.

- From 1998 to 2003, optional NO_x standards ranged from 0.5 g/bhp-hr to 2.5 g/bhp-hr, at 0.5 g/bhp-hr increments, which was much lower than the mandatory 4 g/bhp-hr limit.
- Starting in 2004, engine manufacturers could choose to certify to optional NO_x + non-methane hydrocarbon (NMHC) standards ranging from 0.3 g/bhp-hr to 1.8 g/bhp-hr, at 0.3 g/bhp-hr increments, which was significantly below the mandatory 2.4 g/bhp-hr NO_x+NMHC standard.
- In ongoing efforts to go beyond federal standards and achieve further reductions, CARB adopted in 2013 the **Optional Reduced Emissions Standards for Heavy-Duty Engines** regulation, which established the new generation of optional NO_x emission standards for heavy-duty engines, and a certification pathway for a new generation of requirements for heavy-duty engines. Starting in 2015, engine manufacturers could certify to three optional NO_x emission standards of 0.1 g/bhp-hr, 0.05 g/bhp-hr, and 0.02 g/bhp-hr (i.e., 50 percent,

⁶¹ SwRI, 2017. "Evaluating Technologies and Methods to Lower NO_x Emissions from Heavy-Duty Vehicles, Final Report"

<https://ww2.arb.ca.gov/sites/default/files/classic/research/apr/past/13-312.pdf>

⁶² SwRI, 2020. "Heavy-Duty Engine Low-Load Emission Control Calibration, Low-Load Test Cycle Development, and Evaluation of Engine Broadcast Torque, and Fueling Accuracy During Low-Load Operations, Final Report" <https://www.arb.ca.gov/lists/com-attach/1-hdomnibus2020-VDdXMFihU2IAWQlw.pdf>

⁶³ SwRI, 2021. "Further development and Validation of Technologies to Lower NO_x Emissions from Heavy-Duty Vehicles, Final Report" <https://www.arb.ca.gov/lists/com-attach/79-hdomnibus2020-Uj4AaQB2Aj8FbAhw.pdf>

⁶⁴ NREL, 2020. "On-Road Heavy-Duty Low-NO_x Technology Cost Study" <https://www.nrel.gov/docs/fy20osti/76571.pdf>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

75 percent, and 90 percent lower than then-current mandatory standard of 0.2 g/bhp-hr). This optional standard has resulted in substantial investments in California's heavy-duty fleets over the past decade in order to adopt modern, lower-emitting vehicles and equipment.

- Most recently, in **2021, the Heavy-Duty Omnibus Regulation** lowered CARB's optional NOx emission standards to 0.020 g/bhp-hr for MY 2024-26 and to 0.010 g/bhp-hr for MY 2027+.

Zero-Emission Truck Standards

Although ZEV technologies are not as mature for heavy-duty trucks as they are in the passenger vehicle sector, Class 3 - 7 delivery trucks and urban buses provide opportunities for the deployment of zero-emission technologies in targeted applications, due to their duty cycle, are well-suited to the initial introduction of heavy-duty zero-emission engines. Transit buses, last mile delivery vehicles, and airport shuttle buses are typically operated on short-distance fixed routes and are centrally housed and may be captive to a District – characteristics that make these applications ideally suited to deploying zero-emission vehicles in targeted heavier applications, preceding broader penetration in the heavy-duty engine market. These initial deployments provide a foundation for subsequent migration of zero-emission technology to other heavier platforms, in order to continue to expand heavy-duty ZEV requirements in the long term, especially in certain vocational classes and fleets that are under California regulatory authority.

In June 2020, CARB adopted the **Advanced Clean Trucks Regulation (ACT)**, a measure in the 2016 State SIP Strategy, which is a first of its kind regulation requiring medium- and heavy-duty manufacturers to produce ZEVs as an increasing portion of their sales beginning in 2024. This regulation is expected to result in roughly 100,000 ZEVs by 2030, and nearly 300,000 ZEVs by 2035. The Advanced Clean Trucks Regulation is part of a holistic approach to accelerate a large-scale transition of zero-emission medium-and heavy-duty vehicles from Class 2b to Class 8. The regulation has a manufacturer sales requirement that requires manufacturers who certify Class 2b-8 chassis or complete vehicles with combustion engines to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. By 2035, zero-emission truck/chassis sales would need to be 55 percent of Class 2b – 3 truck sales, 75 percent of Class 4 – 8 straight truck sales, and 40 percent of truck tractor sales. U.S. EPA recently issued a waiver of preemption for the Advanced Clean Trucks Regulation in March 2023.

In analyzing the feasibility of this regulation, CARB staff analyzed what types of trucks are currently suitable for electrification, the amount and variety of commercially available zero-emission trucks, as well as the cost of charging and ownership of battery electric trucks. Currently, medium- and heavy-duty electric drivetrains are well suited to operating in congested urban areas for stop-and-go driving where conventional engines are least efficient. Battery-electric and fuel-cell electric trucks, buses, and vans already are being used by fleets that operate locally and have predictable daily use where the trucks return to base to be charged or fueled. There are more than 70 different models

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

of zero-emission vans, trucks and buses that already are commercially available from several manufacturers. Most trucks and vans operate less than 100 miles per day and several zero-emission configurations are available to serve that need. As technology advances, zero-emission trucks will become suitable for more applications. Most major truck manufacturers have announced plans to introduce market ready zero-emission trucks in the near future. The electricity cost to charge battery electric trucks varies based on how fast you charge, the utility rate, and the time of day. In many cases, a fleet owner who also owns charging stations and charges trucks overnight can have little to no net electricity costs after the Low Carbon Fuel Standard (LCFS) credits in California are included. Zero-emission trucks have higher upfront costs but have lower operating costs than conventional trucks. Currently, the total cost of ownership in California can be comparable to conventional trucks for certain duty cycles without grants or rebates. As battery prices fall and technology continues to improve, the total cost of ownership is expected to become more favorable. Incentives are currently available to offset some or all of the higher vehicle capital costs and some of the early infrastructure costs to help fleets begin transitioning to zero-emission vehicles now.

To date, six other states have adopted the California requirements of the Advanced Clean Trucks regulation under the provisions of Section 177 of the Act: Massachusetts, Vermont, New York, New Jersey, Washington, and Oregon. 17 states, the District of Columbia, and the Province of Quebec, Canada, also have medium- and heavy-duty ZEV commitments.

Warranty Requirements and Useful Life

In 1978, CARB adopted **Emission Warranty Regulations** to clarify the rights and responsibilities of individual motor vehicle and engine owners, motor vehicle and engine manufacturers, and the service industry. The emission warranty is used to cover any repairs needed to correct defects in materials or workmanship which would cause an engine or vehicle not to meet its applicable emission standards. In 1982, CARB adopted regulations that established California's first in-use recall program. These regulations were intended to reduce vehicular emissions by ensuring that noncompliant vehicles are identified, recalled, and repaired to comply with the applicable emission standards and regulations during customer use, and to encourage manufacturers to improve the design and durability of emission control components to avoid the expense of a recall. Throughout the 1980's CARB adopted several regulations, such as the Emission Warranty Information Reporting program, which work in conjunction with the warranty regulations to identify malfunctioning emission control components and encourage repair. In 1982 and 1984, U.S. EPA promulgated heavy-duty vehicle useful life and warranty requirements identical to those adopted in California. Both U.S. EPA and CARB require that heavy-duty vehicles meet emission standards throughout their useful life periods. The current heavy-duty vehicle emission warranty period is 100,000 miles for all categories of heavy-duty vehicles with GVWR greater than 14,000 lbs.

Since the 2007 model year, all on-road heavy-duty diesel vehicles and heavy-duty diesel engines have been subject to stringent PM and NO_x emission standards. Manufacturers have met these standards by equipping new heavy-duty diesel engines

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

with diesel particulate filters (DPF) for control of PM, and beginning with the 2010 model year have also included systems for controlling NO_x using exhaust gas recirculation (EGR) and selective catalytic reduction systems. These emission control systems can reduce NO_x emissions by more than 95 percent and PM emissions by more than 99 percent. Therefore, if these components fail, an individual engine's and vehicle's emissions can dramatically increase. It is therefore crucial that these emission control systems continue to function as designed throughout a vehicle's life to ensure emissions remain low.

To update the on-road heavy-duty diesel vehicles warranty period, which had not changed substantially in California for almost 40 years (trucks were required to be covered by only a 5 year, 100,000 mile, or 3,000 hour emissions warranty period, whichever first occurred), CARB amended the warranty regulation for on-road heavy-duty vehicles with GVWR greater than 14,000 pounds in 2018 with the ***Amendments to California Emission Control System Warranty Regulations and Maintenance Provisions Regulation***. For model year 2022 and later engines, these amendments lengthened existing warranty periods and maintenance provisions to better reflect the longevity and usage of modern vehicles, and to help ensure adequate durability and proper maintenance of the engine and emission controls. For MY 2022 - 2026, the useful life requirements for are the same for CARB and federal regulations. U.S. EPA warranty provisions cover 100,000 miles, or 5 years / 3,000 hours, for Class 4 – 8 trucks; California's more stringent warranty provisions cover:

- Class 8: 350,000 miles, or 5 years
- Class 6 – 7: 150,000 miles, or 5 years
- Class 4 – 5: 110,000 miles, or 5 years

The amendments also updated the minimum maintenance intervals so that vehicle owners do not inadvertently negate the proposed lengthened warranty periods, and explicitly link the heavy-duty On-Board Diagnostic (HD OBD) system to the definition of warranted parts, to help take full advantage of all of the tools available for ensuring the control of in-use emissions and to be consistent with the long-established link existing for light- and medium-duty vehicles.

Emissions warranties are intended to provide a level of assurance to the vehicle owner that the engine and its associated emission control systems are unlikely to experience defects in materials and workmanship that could result in the engine not performing as required. If such defects do occur during the warranty period, the manufacturer is liable for fixing them. Lengthened warranty periods may also reduce incidences of tampering and mal-maintenance. For example, there would be little incentive for a vehicle owner to tamper with the vehicle's emission control system, such as by coring out a DPF or bypassing a catalyst, when the manufacturer is obligated to pay for any defect-related repairs. Furthermore, vehicle owners would also have more of an incentive to timely perform scheduled maintenance so as not to void their lengthened warranty. Additionally, lengthened warranty periods are needed to protect heavy-duty vehicle owners from potentially high repair costs under the requirements of CARB's recent amendments to the Periodic Smoke Inspection Program (PSIP) and Heavy-Duty

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Vehicle Inspection Program (HDVIP), which include much stricter opacity limits intended to spur more vehicle owners to make timely engine repairs and replace DPFs.

CARB analyses of feasibility found evidence supporting the need for longer minimum warranties within manufacturers' warranty claim data for heavy-duty vehicles, as well as from recent CARB testing of in-use heavy-duty vehicles. Specifically, CARB's test programs had identified numerous heavy-duty vehicles with mileages within their applicable regulatory useful life periods, but beyond their warranty period, that had NOx emission levels significantly above their applicable certification standards.

In 2020, the ***Heavy-Duty Omnibus Regulation*** further amended the warranty and useful life provisions for heavy-duty engines. To help ensure emission controls are well-maintained and repaired when needed, and to help ensure more durable emission control systems, the Omnibus Regulation extends the criteria pollutant emissions warranty and useful life period requirements for heavy-duty vehicles and engines, as shown in Table 12: **Useful Life Periods** and Table 13: **Warranty Periods**. The revisions would be phased-in beginning with the 2027 model year engines with the final phase-in occurring in 2031.

Table 12: Useful Life Periods

Model Year	Useful Life (miles)			
	Class 4 – 5 Diesel	Class 6 – 7 Diesel	Class 8 Diesel	Heavy-Duty Otto
Current – 2026	110,000 miles 10 years	185,000 miles 10 years	435,000 miles 10 years 22,000 hours	110,000 miles 10 years
2027–2030	190,000 miles 12 years	270,000 miles 11 years	600,000 miles 11 years 30,000 hours	155,000 miles 12 years
2031 and subsequent model years	270,000 miles 15 years	350,000 miles 12 years	800,000 miles 12 years 40,000 hours	200,000 miles 15 years

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Table 13: Warranty Periods

Model Year	Warranty (miles)			
	Class 4 – 5 Diesel	Class 6 – 7 Diesel	Class 8 Diesel	Heavy-Duty Otto
Current – 2026	110,000 miles 5 years	150,000 miles 5 years	350,000 miles 5 years	50,000 miles 5 years
2027–2030	150,000 miles 7 years / 7,000 hours	220,000 miles 7 years / 11,000 hours	450,000 miles 7 years 22,000 hours	110,000 miles 7 years / 6,000 hours
2031 and subsequent model years	210,000 miles 10 years / 10,000 hours	280,000 miles 10 years / 14,000 hours	600,000 miles 10 years 30,000 hours	160,000 miles 10 years / 8,000 hours

OBD Requirements

In addition to new vehicle emission standards for the heavy-duty fleet, CARB’s suite of control measures also includes actions to ensure that the in-use fleet continues to operate as cleanly as possible through requiring that new vehicles come equipped with in-use inspections and on-board self-diagnostic equipment. OBD systems are designed to identify when a vehicle’s emission control systems or other emission-related computer-controlled components are malfunctioning, causing emissions to be elevated above the vehicle manufacturer’s specifications.

The first generation of OBD systems (referred to as OBD I) applied to medium-duty vehicles. OBD I was implemented by CARB in 1988 and required monitoring of only a few of the emission-related components on the vehicle. In 1989, CARB adopted regulations requiring a second generation of OBD systems (OBD II) that standardized the system and addressed the shortcomings of the OBD I requirements and required that all 1996 and newer medium-duty vehicles and engines to be equipped with OBD II systems.

In 2004, CARB adopted the first regulation requiring OBD systems on heavy-duty vehicles, known as the Engine Manufacturer Diagnostic (EMD) regulation. The EMD Regulation required manufacturers of heavy-duty engines and vehicles to implement diagnostic systems on all 2007 and subsequent MY on-road heavy-duty engines. The EMD Regulations were much less comprehensive than the OBD II regulations and were intended for heavy-duty manufacturers to achieve a minimum level of diagnostic capability. In 2005, CARB adopted **Heavy-Duty Specific OBD Requirements (HD OBD)**, which applied to 2010 and subsequent model year heavy-duty engines and vehicles (i.e., vehicles with a gross vehicle weight rating greater than 14,000 pounds). This regulation required by 2013 that all heavy-duty engines offered for sale in California come equipped with OBD systems. U.S. EPA issued a waiver of preemption for the California 2010 Model Year Heavy-Duty Vehicle and Engine On-Board

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Diagnostic Standards in 2008, and has also issued two subsequent waivers for amendments CARB has made to the heavy-duty OBD requirements in later years to increase the stringency of these requirements.⁶⁵

The emission “thresholds” for faults that must be detected by OBD systems are typically either a multiple of the exhaust emission standard (e.g., 2.0 times the applicable standard), or an additive value above the standards (e.g., 0.2 g/bhp-hr above the applicable standards). For the most important emission control systems such as the PM filter and SCR system, the OBD regulation specifies malfunction criteria and emission thresholds for detecting a malfunction and illuminating the MIL based on emission increases (defined by additive and multiplicative factors) relative to the emission standard. For example, on 2016 and subsequent MY diesel engines, the OBD system must be designed to detect an SCR catalyst malfunction when the catalyst has deteriorated to the point that the engine's emissions are exceeding the NO_x standard by more than 0.2 g/bhp-hr (e.g., cause NO_x emissions to exceed 0.4 g/bhp-hr if the exhaust emission standard is 0.20 g/bhp-hr).

Under ***the Heavy-Duty Omnibus Regulation***, NO_x emission standards will, upon full implementation with MY 2027 and later years, be reduced to a tenth of the current 0.20 g/bhp-hr standard, and PM standards to one half of today's standard. Because the OBD emission thresholds are often defined as an additive or multiplicative function of the standard, without amendments to the OBD threshold requirements, the OBD thresholds would similarly be reduced along with the proposed standards (e.g., the NO_x threshold would become 2.0 times the new lower emission standard). While detection of faults at these proportionally lower levels will likely be required in the future as it will be necessary to ensure the maximum benefits of the proposed standards are maintained in-use, the engine manufacturers have expressed concern about not knowing with certainty what impact the lower standards will have on their OBD monitoring capability. As such, the engine manufacturers have requested interim relief until they have more certainty on what emission thresholds are achievable. To address engine manufacturers' concerns regarding not knowing with certainty at what emission levels their OBD systems will be able to detect faults, CARB staff is amending both the HD OBD Regulation and the OBD II Regulation (for engines used in medium-duty vehicles) with the Omnibus Regulation, which will provide an interim level of relief for manufacturers by maintaining OBD thresholds for NO_x and PM effectively at the same levels as required for today's standards. With this relief, engine manufacturers can first focus on the necessary emission control solutions to meet the current standards before turning to improvements that may be necessary to ensure robust detection of faults at the lower emission levels. Omnibus also requires updates to address cold start emissions and diesel PM monitoring.

REDUCING IN-USE EMISSIONS

While increasingly stringent standards for new vehicles and engines collectively ensure that new vehicles are as clean as possible, older, higher-emitting heavy-duty vehicles

⁶⁵ U.S. EPA 2012 “California State Motor Vehicle Pollution Control Standards; Amendments to the California Heavy-Duty Engine On-Board Diagnostic Regulation; Waiver of Preemption; Final Notice of Decision” Federal Register Volume 77, Number 237 pp. 73459-73461
<https://www.gpo.gov/fdsys/pkg/FR-2012-12-10/pdf/2012-29792.pdf>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

with long useful lifecycles can remain on the road for many years. To address this legacy fleet, CARB has adopted heavy-duty vehicle in-use control measures to significantly reduce PM_{2.5} and NO_x emissions from existing diesel vehicles operating in California. These measures fall within three categories: measures that utilize inspections and maintenance programs in order to improve in-use emission performance levels; truck idling requirements; and fleet turnover rules.

Inspection and Maintenance (I/M) Program

CARB also adopted a suite of control measures to lower in-use emission performance levels to ensure that the heavy-duty vehicles in the in-use fleet continue to operate at their cleanest possible level.

Opacity Limits

The ***Heavy-Duty Vehicle Inspection Program (HDVIP)***, adopted into law in 1988, requires heavy-duty vehicles to be inspected for smoke opacity (i.e., excessive smoke), tampering, and engine certification label compliance. Any heavy-duty vehicle operating in California, including vehicles registered in other states and foreign countries, may be inspected. Inspections are performed by CARB inspection teams at border crossings, California Highway Patrol weigh stations, fleet facilities, and randomly selected roadside locations.

To ensure that in-use heavy-duty vehicles continue to operate at their cleanest possible level CARB's 2018 amendments to the ***Periodic Smoke Inspection Program (PSIP)*** and HDVIP programs lowered the opacity limits for on-road heavy-duty trucks beyond the existing opacity limits (40 and 55 percent), which were no longer adequate to identify and require repairs of vehicles operating with damaged PM emission control components – even vehicles with heavily damaged and malfunctioning emission control systems emit exhaust at opacity levels below those opacity limits. To tighten these standards, and further control emissions from the many HD vehicles operating in California emitting excess PM emissions, staff developed lower opacity limits which reflect the current emission control technology equipped on today's HD diesel vehicles.

The 2018 Amendments to the Periodic Smoke Inspection Program (PSIP) require all California-based fleets of two or more heavy-duty diesel vehicles over 6,000 pounds GVWR with engines over four years old are required to perform annual smoke opacity tests (1998 and newer diesel vehicles between 6,000–14,000 pounds GVWR subject to biennial smog check are not subject to PSIP). Allowable levels of Smoke Opacity are shown in Table 14 below.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Table 14: Allowable Levels of Smoke Opacity

Engines Equipped with a DPF	
5% Opacity Limit	
Pre-2007 Model Year (MY) Engines without a DPF	
1997– 2006 MY Engines	20% Opacity Limit
1991–1996 MY Engines	30% Opacity Limit
Pre-1991 MY Engines	40% Opacity Limit
Engines Equipped with a Level 2 Verified Diesel Emission Control Strategy (VDECS)	
20% Opacity Limit	
Two-Engine Cranes Driven by a non-DPF Off-Road Engine	
40% Opacity Limit	

The amendments also help to improve the identification and repair of malfunctioning PM emission control components on HD diesel vehicles in California. Lowering the opacity limits to the newer levels helps to ensure that the opacity limits are more representative of current PM emission control technology, and that vehicles operating with malfunctioning PM emission control components are more readily identified and repaired.

I/M Testing

All heavy-duty vehicles in California are subject to in-use inspections in order to control excessive smoke emissions and tampering. The ***Periodic Smoke Inspection Program (PSIP)***, adopted in 1990, requires heavy-duty vehicle fleet owners to conduct annual smoke opacity inspections of their vehicles, and have them repaired if excessive smoke emissions are observed. In addition, CARB has the authority to randomly audit these fleets, by reviewing the owners' maintenance and inspection records, and conducting opacity inspections on a representative sample of the vehicles. The current PSIP opacity limits are the same as for HDVIP (40 and 55 percent).

To ensure that in-use heavy-duty vehicles continue to operate at their cleanest possible level, the ***2020 Heavy-Duty Omnibus Regulation*** amended the Heavy-Duty In-Use Testing (HDIUT) Program by revising procedures to better represent heavy-duty vehicle operations in real world conditions, establishing clearer criteria for engine family pass/fail determination, and requiring OBD data during testing to verify the condition of the test vehicle and sensors. These amendments apply to 2024 and subsequent model year engines, and replace the current NTE-based methodology with a new three-bin moving average windows-based methodology. The three bins cover idle, low load, and medium to high load operation. Compliance would be determined by comparing the average NO_x emissions for each bin to the in-use threshold, defined as one and a half times the applicable standard for the model year.

The Omnibus Regulation also established a new standardized methodology for demonstrating durability. The standardized methodology increases the default break-in period from the current 125 hours to 300 hours for on-road heavy-duty diesel engines, and requires standardized certification cycles for engine and aftertreatment system

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

aging in order to validate component durability and determine exhaust emissions deterioration factors. It also requires additional engine aging (i.e., increased durability hours) compared to what existing certification requirements, allowing manufacturers to use accelerated aging cycles for a portion of the useful life demonstration for aftertreatment systems, provided that those manufacturers periodically submit in-use emissions data generated from their on-road heavy-duty diesel engines.

Additionally, heavy-duty vehicles registered in California are now required to demonstrate annual compliance with HD I/M program requirements in order to register with the Department of Motor Vehicles, under ***the Heavy-Duty Inspection and Maintenance Program (HD I/M)***. Senate Bill 210 (Leyva, Chapter 298, Statutes of 2019) directed CARB to develop and implement a comprehensive heavy-duty vehicle inspection and maintenance regulation requiring periodic vehicle emissions testing and reporting on nearly all heavy-duty vehicles operating in California. The Board approved the HD I/M regulation on December 9, 2021, with implementation to be phased in starting January 2023. Combining periodic vehicle testing with other emissions monitoring and expanded enforcement strategies, the HD I/M regulation ensures that vehicles' emissions control systems are properly functioning when traveling on California's roadways, and that polluting, poorly maintained heavy-duty vehicles operating in California are quickly identified and repaired. At full implementation, the HD I/M regulation will require heavy-duty vehicles to undergo periodic emissions testing to reduce PM and NOx emissions, and to protect communities most impacted by air pollution.

Beginning in January 2023, CARB is using roadside emissions monitoring devices (REMD) to screen for vehicles that may have high emissions. Vehicles flagged as potential high emitters may be required to undergo follow-up vehicle compliance testing to ensure they are operating with properly functioning emissions control systems. If a vehicle is identified as a potential high emitter through REMD, the owner will receive a Notice to Submit to Testing (NST) from CARB. Upon receipt, they will have 30 calendar days to submit to CARB a passing HD I/M compliance test performed by a HD I/M tester. The type of HD I/M compliance test a vehicle will undergo depends on whether it is equipped with OBD or not. OBD-equipped vehicles are required to undergo a scan of the engine's OBD data using a CARB-validated OBD test device. Diesel vehicles and diesel hybrids with 2013 and newer model year engines have OBD systems. For alternative fuel vehicles, 2018 and newer model year engines have OBD systems. Non-OBD vehicles, i.e., those that don't meet the engine model year requirements, are required to undergo a smoke opacity test and a visual inspection of the vehicle's emissions control equipment, referred to as the Vehicle Emissions Control Equipment Inspection. Vehicles that are currently subject to PSIP must still perform their annual compliance inspections.

Starting in mid-2023, vehicle owners will be required to create owner accounts in CARB's HD I/M database, verify the vehicles in their fleets, and pay the first annual compliance fee for each vehicle. Once enforcement begins, vehicle owners that don't comply with these requirements may be cited for non-compliance and/or have their DMV vehicle registrations blocked. Upon enforcement of the requirements to establish owner accounts with vehicle information as described above, freight contractors and

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

brokers must verify that heavy-duty vehicles they contract with for services are in compliance with the HD I/M regulation. This also includes public agencies that contract for heavy-duty truck services. Furthermore, seaport and railyard facilities must also verify compliance with the HD I/M regulation for vehicles that enter their facilities.

HD I/M periodic compliance testing for all vehicles that operate in California will start no earlier than January 1, 2024. Upon implementation of HD I/M periodic compliance testing, nearly all vehicles will be required to undergo twice per year testing with results submitted to CARB. On-road agricultural vehicles and California-registered motorhomes only will be required to undergo testing once per year. Three years after the start of HD I/M periodic compliance testing, OBD equipped vehicles will be required to undergo testing four times per year. On-road agricultural vehicles and California-registered motorhomes will remain on the once per year testing frequency, even if equipped with OBD.

Idling Requirements

To reduce idling emissions from new heavy-duty diesel vehicles and emissions from auxiliary power units used as alternatives to heavy-duty vehicle idling, the Airborne Toxic Control Measure (ATCM) to Limit Diesel-Fueled Commercial Motor Vehicle Idling (***Heavy-Duty Diesel Vehicle Idling Reduction Program***) requires, among other things, that drivers of diesel-fueled commercial motor vehicles with gross vehicle weight ratings greater than 10,000 pounds, including buses and sleeper berth equipped trucks, not idle the vehicle's primary diesel engine longer than five minutes at any location. First adopted in July 2004 and subsequently amended, the regulation consists of new engine and in-use truck requirements and emission performance requirements for technologies used as alternatives to idling the truck's main engine. Under the new engine requirements, 2008 and newer model year heavy-duty diesel engines need to be equipped with a non-programmable engine shutdown system that automatically shuts down the engine after five minutes of idling. In 2012, U.S. EPA issued a waiver of preemption for the most recent amendments made to the Idling Reduction Program in 2006, beginning in model year 2008.⁶⁶ The ***Heavy-Duty Omnibus Regulation*** reduces idling limits for heavy-duty diesel vehicles from 30 g/hr to 10 g/hr in MY 2024, and to 5 g/hr in MY 2027.

Fleet Rules

CARB's ***Cleaner In-Use Heavy-duty Truck Regulation (Truck and Bus Regulation)*** impacts approximately one million inter- and intra-state vehicles and requires privately and federally owned diesel fueled trucks and buses and privately and publicly owned school buses to fully upgrade to newer, cleaner engines by 2023. This regulation leverages the benefits provided by new truck emission standards by accelerating introduction of the cleanest trucks. The Truck and Bus Regulation was adopted in December 2008, and was amended in both December 2010 and December 2014. The regulation represents a multi-year effort to turn over the legacy fleet of engines and replace them with the cleanest technology available. While heavy-duty engine

⁶⁶ U.S. EPA 2012 "California State Motor Vehicle and Nonroad Engine Pollution Control Standards; Truck Idling Requirements; Final Notice of Decision" Federal Register Volume 77, Number 32, pp. 9239-9250 <http://www.gpo.gov/fdsys/pkg/FR-2012-02-16/pdf/2012-3690.pdf>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

technology has become significantly cleaner in the past few decades, the long useful lives of some heavy-duty engines means that older, higher-emitting trucks remain on the road for many years after newer generations of engine standards have gone into effect.

Starting in 2012, the Truck and Bus Regulation phased in requirements so that by 2014, nearly all vehicles operating in California will have PM emission controls, and by 2023 nearly all vehicles meet 2010 model year engine emissions levels. The regulation applies to nearly all diesel fueled trucks and buses with a GVWR greater than 14,000 pounds that are privately or federally owned, including on-road and off-road agricultural yard goats, cargo handling equipment, drayage trucks, solid waste collection vehicles, and school buses. Moreover, the regulation applies to any person, business, school district, or federal government agency that owns, operates, leases or rents affected vehicles. The regulation also establishes requirements for any in-State or out-of-State motor carrier, California-based broker, or any California resident who directs or dispatches vehicles subject to the regulation. Finally, California sellers of a vehicle subject to the regulation must disclose the regulation's potential applicability to buyers of the vehicles. In January 2017, U.S. EPA granted a waiver of preemption for the portions of the Truck and Bus Regulation for which a waiver was required.⁶⁷

To move beyond combustion engines toward electrification of the heavy-duty fleet, CARB recently approved the **Advanced Clean Fleets Regulation**, which will accelerate the market for zero-emission trucks, vans, and buses by requiring fleets that are well suited for electrification, to transition to ZEVs where feasible. With the adoption of the Advanced Clean Trucks Regulation, CARB Resolution 20-19 directed staff to return to the Board with a zero-emission fleet rule and sets the following targets for transitioning sectors to ZEVs:

- 100 percent zero-emission drayage, last mile delivery, and government fleets by 2035;
- 100 percent zero-emission refuse trucks and local buses by 2040;
- 100 percent zero-emission-capable vehicles in utility fleets by 2040; and
- 100 percent zero-emission everywhere else, where feasible, by 2045.

Achieving these and other milestones also contributes to meeting the goals in the Governor's Executive Order N-79-20. With the Advanced Clean Fleets Regulation, CARB anticipates developing a regulatory action that will accelerate ZEV adoption in the medium- and heavy-duty sectors by setting zero-emission requirements for fleets. The **Advanced Clean Fleets Regulation** accelerates ZEV adoption in the medium-to heavy-duty sectors and for light-duty package delivery trucks by setting zero-emission requirements for fleets. This regulation targets drayage trucks, public fleets, and other high priority fleets with 50 or more trucks or entities with trucks and \$50 million in annual revenues. This effort is part of a comprehensive strategy to achieve a ZEV truck and bus fleet by 2045 everywhere feasible, and significantly earlier for certain well-suited

⁶⁷ U.S. EPA 2017 "Final Notice of Decision - On-Highway Heavy-Duty Vehicle and Engine Regulations for 2007 and Subsequent Model Years" Accessed April 30, 2017 at <https://www.gpo.gov/fdsys/pkg/FR-2017-01-17/pdf/2017-00940.pdf> Federal Register / Vol. 82, No. 10 / Tuesday, January 17, 2017 pp. 4867

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

market segments such as last mile delivery, drayage, and government fleets. The regulation will phase in ZEV requirements for different fleets, including components as follows:

- Beginning January 1, 2024, all additions to High Priority fleets (fleets with 50 or more trucks or entities with trucks and \$50 million in annual revenues) and federal fleets must be ZEVs, and all combustion vehicles must be removed from the California fleet at the end of their useful life, or fleets may opt to phase-in ZEV requirement where a portion of the fleet must be zero-emission based on a pre-determined schedule.
- State and local government fleets including cities, counties, special districts, and other municipalities would be required to add only ZEVs to their fleets starting at 50 percent of new additions in 2024 and 100 percent starting in 2027 or fleets may opt to phase-in ZEV requirement where a portion of the fleet must be zero-emission based on a pre-determined schedule. Small public fleets or those that are based in designated low population counties would begin with 100 percent ZEV additions starting in 2027.
- Beginning January 1, 2024, any truck added to drayage service would need to be a ZEV. All drayage trucks entering seaports and intermodal railyards would be required to be zero-emission by 2035.
- 100 percent of medium- and heavy-duty vehicle sales in California would be zero-emissions starting in 2036.

Due to the recently-approved Advanced Clean Fleets Regulation and the Advanced Clean Truck Regulation, the number of medium- and heavy-duty ZEVs operating in California will be about 1.7 million by 2045.

In analyzing the feasibility of this regulation, CARB staff found that medium- and heavy-duty ZEVs that are commercially available today are already capable of meeting the daily needs of most local and regional trucking operations, and a variety of vocational uses. Fleet owners reported information about their vehicles and operations as part of the Large Entity Reporting program;⁶⁸ data collected in 2021 that shows that the vast majority of trucks drive 100 miles or fewer per day. Today's medium- and heavy-duty ZEVs have energy storage systems that can meet most of these daily operational requirements. As technology advances, zero-emission trucks will become suitable for more applications. Most major truck manufacturers have announced plans to introduce market ready zero-emission trucks in the near future.

Zero-emission truck availability (as of July 2022):

- 148 models in North America are available for order or pre-order. There are more than 70 different models of zero-emission vans, trucks and buses that already are commercially available from several manufacturers.
- 135 models are actively being produced and delivered to customers.

⁶⁸ Large Entity Reporting <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks/large-entity-reporting>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

- At least 35 manufacturers are producing vehicle Class 2b through 8 ZEVs.

Another measure committed to in the 2022 State SIP Strategy, the **Zero-Emission Trucks Measure**, is also being developed, designed to accelerate the number of zero-emissions trucks beyond existing measures (including the Advanced Clean Fleets Regulation and Advanced Clean Truck Regulation): the previously adopted Advanced Clean Truck Regulation will result in almost 420,000 ZE trucks on the road by 2037, and the more recently adopted Advanced Clean Fleets Regulation would increase the number of ZE trucks by another 220,000 to a total of 640,000. However, in 2037, even after the implementation of the Advanced Clean Truck and Advanced Clean Fleets Regulations, about 480,000 heavy-duty combustion powered trucks will still be on the road. In this modified approach, staff would seek to upgrade these remaining heavy-duty combustion trucks to new or used ZE trucks rather than to trucks with cleaner combustion engines. For this measure, staff would implement regulatory strategies to achieve the goal of transitioning the remainder of the heavy-duty combustion fleet to ZE trucks. This measure was originally proposed as a public measure suggestion based on the input from community-based organizations and members of the public during the development of the 2022 State SIP Strategy. CARB staff decided to develop this public measure suggestion into a SIP measure commitment, which will go beyond MSM requirements.

Drayage Trucks

Drayage trucks are subject to requirements under the **Truck and Bus Regulation**, which requires 2010 Model Year or newer engines to continue entering ports and rail yards starting on January 1, 2023.

Under the **Advanced Clean Fleets Regulation**, CARB is further strengthening emission controls for drayage fleets; all drayage trucks entering seaports and intermodal railyards would be required to be zero-emission by 2035. Advanced Clean Fleets Regulations controls drayage emissions through three main components:

- **Zero-emission drayage truck requirements**
Drayage trucks will be required to start transitioning to zero-emission technology beginning in 2024, with full implementation by 2035
- **Drayage Truck Registration Requirements**
All drayage trucks intending to begin or continue operations at a California seaport or intermodal railyard must be registered with CARB. Beginning in 2035, all trucks in the CARB Online System will be required to be zero-emission.
- **Removing Combustion-Powered Drayage Trucks from Service**
Non-zero-emission (legacy) drayage trucks with a 2010 or newer model year engine may register in the CARB Online System on or before January 1, 2024. Beginning in 2024, all legacy drayage trucks must visit a seaport or intermodal railyard at least once each year to remain in the CARB Online System. Legacy drayage trucks 12 years old must begin reporting their mileage annually in 2025 and, can remain in the system until they reach their minimum useful life (either

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

800,000 miles or the engine is older than 18 years, whichever comes first). Beginning in 2025, legacy drayage trucks will be removed from the CARB Online System if they did not meet the annual visit requirement, OR if they have exceeded their minimum useful life requirements.

Solid Waste Collection Vehicles

For Solid Waste Collection Vehicles (SWCVs) operating in the South Coast, the South Coast AQMD requires under South Coast AQMD Rule 1193 that governmental agencies with 15 or more refuse collection vehicles use alternative fuel heavy-duty vehicles or engines that use compressed or liquefied natural gas, liquefied petroleum gas, methanol, electricity, fuel cells, or other advanced technologies that do not rely on diesel fuel. This rule began implementation in 2010, with requirements that new vehicles added to SWCV fleets (including purchases or leases) are rule-compliant vehicles. In 2020, the rule required that all vehicles used for refuse services are alternative-fueled or pilot ignition vehicles.⁶⁹ This program complements the suite of CARB regulations governing SWCVs.

CARB's ***Solid Waste Collection Vehicle Regulations*** were adopted in 2003 to reduce toxic diesel particulate matter (diesel PM) from approximately 12,000 diesel-fueled commercial and residential solid waste collection vehicle (SWCV) and recycling collection vehicles operated in California. The rule applies to all SWCVs of 14,000 pounds or more that run on diesel fuel, have engines in model years (MY) from 1960 through 2006, and collect waste for a fee. Additionally, SWCVs are subject to requirements under the ***Truck and Bus Regulation***, which requires 2010 Model Year or newer engines as of January 1, 2023.

The ***Advanced Clean Fleets Regulation***, approved by the CARB Board in April 2023, will accelerate ZEV adoption among solid waste collection vehicles. This regulation targets all state and local government fleets, and high priority fleets with 50 or more trucks or entities with trucks and \$50 million in annual revenues. This effort is part of a comprehensive strategy to achieve a ZEV truck and bus fleet by 2045 everywhere feasible, and significantly earlier for certain well-suited market segments. The Advanced Clean Fleets Regulation would phase in ZEV requirements for different fleets, including State and local government fleets and those owned by or contracted with municipalities, including waste fleets. 100 percent of solid waste collection vehicle sales in California would be zero-emissions starting in 2036.

Public Agency and Utility Vehicles

California's ***Diesel Particulate Matter Control Measure for Municipality or Utility On-Road Heavy-Duty Diesel Fueled Vehicles (Public Agency and Utility Regulation)*** requires a municipality or utility that owns, leases or operates on-road diesel fueled vehicles with engine model year 1960 or newer and GVWR greater than 14,000 pounds to reduce PM_{2.5} emissions to 0.01 g/bhp-hr. This can be done by repowering, retrofitting, or retiring the vehicle. Implementation of the rule started in

⁶⁹ South Coast AQMD Rule Book, Rule 1193: Clean On-Road Residential and Commercial Refuse Collection Vehicles
<http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1193.pdf?sfvrsn=4>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

2007, with a compliance schedule based on the engine model year. Additionally, public agencies and utilities' fleets may be subject to requirements under the Truck and Bus Regulation.

The **Advanced Clean Fleets Regulation**, approved by the CARB Board in April 2023, will accelerate ZEV adoption among public fleets. This regulation targets public fleets with 50 or more trucks or entities with trucks and \$50 million in annual revenues. This effort is part of a comprehensive strategy to achieve a ZEV truck and bus fleet by 2045 everywhere feasible, and significantly earlier for certain well-suited market segments such as government fleets. The Advanced Clean Fleets Regulation will phase in ZEV requirements for different fleets, including requirements for State and local government fleets (including cities, counties, special districts, and other municipalities) to add only ZEVs to their fleets starting at 50 percent of new additions purchased in 2024 and 100 percent starting in 2027, or fleets may opt to phase-in ZEV requirement where a portion of the fleet must be zero-emission based on a pre-determined schedule. Small public fleets and those that are based in designated low population counties would begin with 100 percent ZEV additions starting in 2027.

Transit Agencies

Adopted in 2000, the **Fleet Rule for Transit Agencies (Transit Fleet Rule)** requires reductions in diesel PM and NO_x emissions from urban buses and transit fleet vehicles and required future zero-emission bus purchases. Urban bus fleets were required to select either the diesel path or the alternative-fuel path. Transit agencies on the diesel path needed to demonstrate zero-emission buses, and to meet the zero-emission bus purchase requirements sooner, while agencies on the alternative-fuel path had to ensure that 85 percent of urban bus purchases were alternative fueled without a demonstration requirement. The Transit Fleet Rule was amended in 2004, and again in 2006. The 2006 amendments temporarily postponed the zero-emission bus purchase requirement (until 2011 and 2012, depending on the compliance path) and expanded the initial demonstration with a subsequent advanced technology demonstration phase. In 2009, CARB staff provided a technology update to the Board on the commercial readiness of zero-emission buses, and received Board direction to research and develop commercial readiness metrics to be used as criteria to initiate the zero-emission bus purchase requirement, and to conduct a technology assessment on the readiness of zero-emission bus technologies. U.S. EPA granted CARB a waiver of preemption for the Fleet Rule for Transit Agencies in 2013.⁷⁰ Additionally, transit fleets are subject to requirements under the Truck and Bus regulation.

In 2018, CARB adopted the **Innovative Clean Transit (ICT) Regulation**, which requires all public transit agencies to gradually transition to a 100 percent zero-emission bus (ZEB) fleet. Beginning in 2029, 100 percent of new purchases by transit agencies must be ZEBs, with a goal for full transition by 2036. It applies to all transit agencies that own, operate, or lease buses with a gross vehicle weight rating (GVWR) greater than 14,000 lbs. It includes standard, articulated, over-the-road, double-decker, and cutaway

⁷⁰ U.S. EPA 2013, "California State Motor Vehicle Pollution Control Standards; Urban Buses; Request for Waiver of Preemption; Final Notice of Decision" Federal Register July 23, 2013 Volume 78, Number 141 pp. 44112-44117 <https://www.gpo.gov/fdsys/pkg/FR-2013-07-23/pdf/2013-17700.pdf>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

buses. Under the ICT Regulation, requirements differ for large and small transit agencies. A transit agency is considered large if it operates at least 100 buses in annual maximum service in an urbanized area with a population of at least 200,000. However, if an agency operates in either the South Coast Air Basins or the San Joaquin Valley with more than 65 buses in annual maximum service, it is also considered a large transit agency. The ICT Regulation includes the following elements:

- A ZEB Rollout Plan required from each transit agency, approved by its Board, to show how it is planning to achieve a full transition to zero-emission technologies by 2040. Large transit agencies have to submit their Rollout Plan by July 1, 2020, and small transit agencies by July 1, 2023;
- ZEB purchases with various exemptions and compliance options to provide safeguards and flexibility to transit agencies;
- Low NO_x engine purchases, unless the transit buses are dispatched from NO_x Exempt areas;
- Use of renewable diesel or renewable natural gas for large transit agencies; and
- Reporting and record keeping requirements.

As shown in Table 15, ZEB purchase requirements begin in 2023 for large transit agencies and 2026 for small transit agencies, based on a percentage of new bus purchases each year that must be zero-emission. The ZEB purchase requirements for articulated, over-the-road, double-decker, or cutaway buses do not start until 2026 or later. These bus types remain exempt from the ZEB purchase requirements until they pass the Altoona testing.

Table 15: ZEB Purchase Schedule
(ZEB Percentage of Total New Bus Purchases)

Year	Large Transit	Small Transit
2023	25%	-
2024	25%	-
2025	25%	-
2026	50%	25%
2027	50%	25%
2028	50%	25%
2029	100%	100%

Last Mile Delivery

California's emission controls for last mile delivery vehicles (Class 3-7 heavy-duty delivery trucks used to deliver freight from warehouses and distribution centers to the final point of sale or use) are the most stringent in the country. **Truck and Bus Regulation** requires MY 2010 or equivalent engines by 2023.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Further increases in the stringency of last mile delivery fleets are anticipated under the **Advanced Clean Fleets** Regulation. Approved by CARB in April 2023, the Advanced Clean Fleets Regulation will accelerate ZEV adoption in the medium- and heavy-duty sectors by setting zero-emission requirements for fleets. This regulation high priority fleets with 50 or more trucks or entities with trucks and \$50 million in annual revenues. This effort is part of a comprehensive strategy to achieve a ZEV truck and bus fleet by 2045 everywhere feasible, and significantly earlier for certain well-suited market segments. With this measure, staff anticipates bringing to the Board for consideration a regulation that would phase in ZEV requirements for different fleets, resulting in 100 percent of medium- and heavy-duty vehicle sales in California being zero-emissions starting in 2040.

Airport Shuttle Buses

The **Zero-Emission Airport Shuttle Bus** Regulation was adopted in 2019 and requires airport shuttle operators to transition to 100 percent zero-emission vehicle (ZEV) technologies. Airport shuttle operators must begin adding zero-emission shuttles to their fleets in 2027 and complete the transition to ZEVs by the end of 2035. The Regulation applies to airport shuttle operators who own, operate, or lease vehicles at any of the 13 California airports regulated under this rule (regulated airports), including Fresno Yosemite International Airport. Airport shuttle buses transport passengers between car parking lots, airport terminals, and airport car rental facilities. Airport shuttles that fall under the regulation include those with GVWR of 8,501 lbs or greater, which transport passengers to, from, or around a regulated airport, shuttles based or housed within 15 miles of a regulated airport that have round trip routes equal to or less than 30 miles, and shuttles with fixed destination routes that may include stops at locations such as rental car facilities, on-airport or off-airport parking, hotels, or other tourist destinations. (A fixed destination route is a predetermined route that transports passengers between the same locations, although the number of stops along the route may vary.)

Airport shuttle fleets must meet fleet ZEV requirements according to the compliance schedule in Table 16. After January 1, 2023, a fleet owner choosing to replace a ZEV in the existing fleet must replace it with another ZEV. Model year 2026 (and later) airport shuttles greater than 14,000 lbs (GVWR) must comply with the Zero-Emission Powertrain Certification Regulation. Reporting and record keeping requirements begin in 2022.

Table 16: Zero-Emission Airport Shuttle Regulation Requirements

Airport Shuttle Buses – Fleet ZEV Requirements	
Compliance Deadline	Percent of Fleet that Must be Zero-Emission
December 31, 2027	33%
December 31, 2031	66%
December 31, 2035	100%

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

School Buses

The ***Truck and Bus Regulation*** requires that all California school buses are equipped with diesel PM filters. Additionally, the ***School Bus Idling Airborne Toxic Control Measure*** (School Bus ATCM) limits bus and commercial motor vehicle idling near schools or at school bus destinations to only when necessary for safety or operational concerns. It has been in effect since July 16, 2003, and reduces emissions from more than 26,000 school buses that operate daily at or near schools. The program targets school buses, school pupil activity buses, youth buses, paratransit vehicles, transit buses, and heavy-duty commercial motor vehicles that operate at or near schools. In 2009, Senate Bill 124, Oropeza (SB 124) acknowledged and codified CARB's ATCM limiting school bus idling raising the minimum penalty for a violation of this rule from \$100 to \$300. The bill also clarifies local air district authority to enforce the State's school bus idling program. SB 124 became effective on January 1, 2010, and the existing regulation was revised to reflect this change.

While California's idling requirements for school buses are the most stringent in the nation, California does not currently have any proposed or current regulations that require electrification of the school bus fleet. New York State's enacted fiscal year 2022-2023 budget established a nation-leading commitment for all new school buses purchased to be zero emission by 2027 and all school buses in operation to be electric by 2035,⁷¹ a mandate that was first introduced in New York Governor Kathy Hochul's 2022 State of the State Address.⁷² Under the New York law, all school district purchases or leases of new vehicles for student transportation must be zero-emission by 2027. School districts can, upon request, be granted an extension for up to two years beyond the 2027 deadline, but all purchases and leases by school districts or transportation contractors will need to be electric by 2029. In 2035, when fully implemented, all school buses must be electric, including district-owned and leased vehicles.⁷³

FUELS

In addition to new engine and in-use standards, cleaner burning fuels represent an important component in reducing emissions from on-road heavy-duty diesel trucks and buses. Cleaner fuel has an immediate impact in reducing emissions from the mobile source, and thus represent an important component in reducing NO_x and diesel PM emissions from the on-road heavy-duty fleet. California's stringent air quality programs treat motor vehicles and their fuels holistically (as a system, rather than as separate components). As a result, CARB's fuels programs achieve significant reductions in criteria emissions from motor vehicles used in California.

[CARB Diesel Fuel Regulations](#)

The California diesel fuel program sets stringent standards for diesel fuel sold in California and ensures that in-use diesel engines continue to operate as cleanly as

⁷¹ New York Senate Bill S8006C <https://www.nysenate.gov/legislation/bills/2021/S8006>

⁷² 2022 New York State of the State Book <https://info.aee.net/hubfs/2022StateoftheStateBookNY.pdf>

⁷³ Rockefeller Institute of Government, November 2022 <https://rockinst.org/blog/meeting-new-yorks-electric-school-bus-mandate-takeaways-from-the-2022-school-finance-symposium/>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

possible. CARB's Diesel Fuel Regulations have, over time, phased in more stringent requirements for fuel mixture specifications for aromatic hydrocarbons and sulfur (a precursor to formation of secondary PM), and have established a lubricity standard which applies to fuels used in on- and off-road applications in California. "**CARB diesel**" **Specifications** adopted in 1988 limited the allowable sulfur content of diesel fuel to 500 parts per million by weight (ppmw), and the aromatic hydrocarbon content to 10 percent, and became effective in 1993.

In 2003, **CARB's Ultra Low Sulfur Diesel (ULSD) Regulation** increased the stringency of the sulfur content limits to 15 ppm, which harmonized with the 1993 U.S. EPA regulation that also limited sulfur in on-road diesel fuels to the same level. Both the California and federal ULSD regulations began implementation in 2006. CARB's ULSD Regulation had an immediate impact in reducing emissions from the in-use on-road heavy-duty fleet, while also enabling the use of advanced emissions control technologies, including the use of catalyzed diesel particulate filters, NOx after-treatment, and other advanced after-treatment based emission control technologies that higher sulfur levels would have inhibited the performance of (at the time of CARB's ULSD rulemaking, the average sulfur content of California diesel was approximately 140 ppmw).

Beyond the current fuels control program, CARB committed in the 2016 State SIP Strategy to develop a **Low Emission Diesel** Measure that will require diesel fuel providers to steadily decrease criteria pollutant emissions from their diesel products. The use of low-emission diesel in on-road vehicles and off-road equipment will reduce tailpipe NOx and PM emissions, in addition to other criteria pollutants. Some studies carried out to date on hydrotreated vegetable oil have reported NOx emission reductions of 6 percent to 25 percent and PM emission reductions of 28 percent to 46 percent, depending on the types of fuels, drive cycles tested, and diesel engines used. This standard is anticipated to both increase consumption of low-emission diesel fuels, and to reduce emissions from conventional fuels. This measure is anticipated to provide NOx benefits predominately from legacy (pre-2010) on-road heavy-duty vehicles, off-road engines, stationary engines, portable engines, marine vessels and locomotives, as well as NOx and diesel PM benefits in potentially all model year off-road engines, stationary engines, portable engines, marine vessels and locomotives. Interstate vehicles, even those registered out-of-State but operating on CARB diesel blended with low-emission diesel, are also anticipated to provide emission reduction benefits.

Controlling Criteria Emissions from Renewable Fuels

The **Low Carbon Fuel Standard (LCFS) and Alternative Diesel Fuel (ADF) Regulations**, as amended in 2014, work together to reduce the carbon intensity of the California fuel supply. The regulations also limit criteria emissions from alternative fuels and/or alternative fuel mix blends (a mix of fuels made from renewable feedstocks, which are then blended with conventional gasoline or diesel).

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

STEP 2(B): OTHER STATES' AND NONATTAINMENT AREAS' ON-ROAD MEDIUM- AND HEAVY-DUTY CONTROL MEASURES

Error! Not a valid bookmark self-reference. summarizes the most stringent control measures currently in use in any state or nonattainment that have been identified and discussed for on-road heavy-duty vehicles. Each of the measures identified in this table are discussed in more detail in this section, below.

Table 17: Comparison of Stringency – Heavy-Duty Measures

CARB Control Programs Compared to Federal Standards and Control Programs in Other States and Nonattainment Areas

Type of Control Measure	Most Stringent Control Program Identified	Summary of Findings from Analysis	Other Jurisdiction(s) Analyzed
On-Road Heavy-Duty Vehicles			
New Engine Standards			
New Vehicle and Engine Standards: Zero-Emission Requirements	Advanced Clean Trucks (CARB)	<p>The Advanced Clean Truck Regulation is part of a holistic approach to accelerate a large-scale transition of zero-emission medium- and heavy-duty vehicles from Class 2b to Class 8. The regulation has two components including a manufacturer sales requirement, and a reporting requirement:</p> <ul style="list-style-type: none"> Zero-emission truck sales: Manufacturers who certify Class 2b-8 chassis or complete vehicles with combustion engines would be required to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. By 2035, zero-emission truck/chassis sales would need to be 55% of Class 2b – 3 truck sales, 75% of Class 4 – 8 straight truck sales, and 40% of truck tractor sales. 	<p>CARB is leading the nation on the development and penetration of on-road heavy-duty ZEVs through the Advanced Clean Trucks Regulation</p> <p>Reg teams – what other States have adopted / are in the process of adopting the ACT regulation? MA, NJ, NY, OR, VT, & WA have adopted ... others? ME has begun rulemaking process, where do CO, CT, DC, HI, MD, NC, OR, PA, RI, VA, stand? The following states have adopted ACT: MA, NJ, NY, OR, VT, and WA. Some other states are considering adoption. NC has an executive order directing state officials to begin adopting the ACT rule.</p>
New Vehicle and Engine Standards: Heavy-duty internal combustion engine emission standards (mandatory standards)	<p>Mandatory Heavy-Duty vehicle and engine emission standards (CARB and U.S. EPA)</p> <p>Heavy-Duty Omnibus Regulation (CARB)</p>	<p>California's emissions standards for on-road heavy-duty vehicles are the most stringent in the nation. CARB's current emission standards for heavy-duty engines (NOx and PM) are set at the same level of stringency as Federal standards for MY 2010– 2023 engines.</p> <p>With the Heavy-Duty Omnibus regulation, CARB has further increased the stringency of controls for MY 2024 and subsequent engines by lowering California NOx and PM emission standards on existing regulatory cycles as well as a new NOx standard on a new low load certification cycle. The NOx standards would be cut to about 75 percent below current standards beginning in 2024 and 90 percent below current standards in 2027.</p> <p>The limits are for MY 2024 - 2026:</p> <ul style="list-style-type: none"> NOx: 0.050 g/bhp-hr 	<p>No other state has more stringent exhaust emission standards than California.</p> <p>Current CARB and U.S. EPA limit exhaust emissions to same levels (MY 2010 – 2023)</p> <ul style="list-style-type: none"> NOx: 0.20 g/bhp-hr PM: 0.01 g/bhp-hr <p>Five other States have also adopted the Omnibus regulation (MA, NY, OR, WA and VT).</p> <p>In MYs 2024-2026, California's standards will exceed the stringency of Federal standards, which are currently at 0.20 g/bhp-</p>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Type of Control Measure	Most Stringent Control Program Identified	Summary of Findings from Analysis	Other Jurisdiction(s) Analyzed				
On-Road Heavy-Duty Vehicles							
		<ul style="list-style-type: none">PM: 0.005 g/bhp-hr <p>For MY 2027-2030:</p> <ul style="list-style-type: none">NOx: 0.020 g/bhp-hr @ miles ≤ 435,000 0.035 g/bhp-hr @ 435,000 < miles ≤ 600,000PM: 0.005 g/bhp-hr <p>For 2031 and Subsequent MYs:</p> <ul style="list-style-type: none">NOx : 0.020 g/bhp-hr @ miles ≤ 435,000 0.040 g/bhp-hr @ 435,000 < miles ≤ 800,000PM: 0.005 /bhp-hr <p>In December 2022, U.S. EPA finalized new emissions standards for federally-certified vehicles beginning in 2027, though these are less stringent than those included in CARB’s Heavy-Duty Omnibus Regulation: For MY 2027 and later years, federal certification limits will be set to 0.035 g/hp-hr for NOx and 0.005 g/hp-hr for PM</p>	hr for NOx and 0.01 g/bhp-hr for PM, and will strengthen to 0.050 g/bhp-hr for NOx and 0.005 g/bhp-hr for PM.				
New Vehicle and Engine Standards: Optional heavy-duty internal combustion engine emission standards	Optional Heavy-Duty Low NOx Emission Standards (CARB) Omnibus Regulation (CARB)	<p>CARB’s optional standards accelerate the pace of innovation and development of cleaner engine technologies by certifying engines that go beyond the stringency of existing standards. Starting in 2015, engine manufacturers could choose to certify to three optional NOx emission standards of 0.1 g/bhp hr, 0.05 g/bhp-hr, and 0.02 g/bhp-hr (i.e., 50 percent, 75 percent, and 90 percent lower than the existing mandatory standard of 0.2 g/bhp-hr). Together with the mandatory standards that harmonize with federal emission requirements, this program makes California’s suite of HD engine emission controls the most stringent in the nation.</p> <p>The Heavy-Duty Omnibus Regulation will lower the optional Low-NOx Emission Standards to 0.020 g/bhp-hr for MY 2024-26 and to 0.010 g/bhp-hr for MY 2027 and later.</p>	California is the only state with optional exhaust emission standards for heavy-duty engines that exceed the stringency of U.S. EPA requirements.				
New Vehicle and Engine Standards: Warranty Requirements and Useful Life	California Emission Control System Warranty Regulations and Maintenance Provisions (CARB) Omnibus Regulation (CARB)	<p>For Model Years 2022 and later, U.S. EPA warranty provisions cover 100,000 miles, or 5 years / 3,000 hours, for Class 4 – 8 trucks; California’s more stringent warranty provisions cover:</p> <ul style="list-style-type: none">Class 8: 350,000 miles, or 5 yearsClass 6 – 7: 150,000 miles, or 5 yearsClass 4 – 5: 110,000 miles, or 5 years <p>CARB Useful Life:</p> <table><tr><th>Model Year</th><th>Useful Life (miles)</th></tr><tr><td></td><td></td></tr></table>	Model Year	Useful Life (miles)			<p>Currently, no other state has more stringent warranty requirements than California. California is the only state with the authority to initially adopt and enforce emission standards and test procedures for new motor vehicles and new motor vehicle engines that are more stringent than federal emission standards and test procedures.</p> <p>For MY 2022 – 2026, CARB’s warranty requirements are more stringent than Federal standards, and California’s useful life requirements align with federal requirements. Under the 2021 Omnibus Regulation, California warranty and useful life</p>
Model Year	Useful Life (miles)						

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Type of Control Measure	Most Stringent Control Program Identified	Summary of Findings from Analysis					Other Jurisdiction(s) Analyzed
On-Road Heavy-Duty Vehicles							
			Class 4 – 5 Diesel	Class 6 – 7 Diesel	Class 8 Diesel	Heavy-Duty Otto	requirements are at least as stringent as federal requirements for My 2027 – 2031+.
		Current – 2026	110,000 miles 10 years	185,000 miles 10 years	435,000 miles 10 years 22,000 hours	110,000 miles 10 years	
		2027–2030	190,000 miles 12 years	270,000 miles 11 years	600,000 miles 11 years 30,000 hours	155,000 miles 12 years	
		2031 and subsequent model years	270,000 miles 15 years	350,000 miles 12 years	800,000 miles 12 years 40,000 hours	200,000 miles 15 years	
		For older MY trucks and engines, both U.S. EPA and CARB require that heavy-duty vehicles meet emission standards throughout their useful life periods of 5 years / 100,000 miles (GVWR > 14,000 lbs.)					
New Vehicle and Engine Standards: OBD Requirements	Heavy-Duty OBD (CARB)	CARB and federal OBD regulations for heavy-duty vehicles generally align for MY2013 and newer engines, although CARB’s program has been amended to be more stringent than U.S. EPA’s for certain vehicle types. California OBD requirements are overall at least as stringent as applicable federal requirements. California OBD fault detection requirements are at least as stringent if not more stringent than U.S. EPA requirements. However in 2022, U.S. EPA updated their OBD requirements applicable to 2027 and subsequent model years to delete some California requirements and add some emission control system data parameters to be provided on demand and in the driver display.					No other state has more stringent OBD requirements than California

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM2.5 Plan**

Type of Control Measure	Most Stringent Control Program Identified	Summary of Findings from Analysis	Other Jurisdiction(s) Analyzed																				
On-Road Heavy-Duty Vehicles																							
In-Use Emission Controls																							
In-Use Emissions Controls: I/M program (opacity limits)	Periodic Smoke Inspection Program (PSIP) (CARB)	<p>California’s in-use emission controls including opacity limits are the most stringent in the nation. The 2018 Amendments to the Periodic Smoke Inspection Program (PSIP) require all California-based fleets of two or more heavy-duty diesel vehicles over 6,000 pounds GVWR with engines over four years old are required to perform annual smoke opacity tests (1998 and newer diesel vehicles between 6,000–14,000 pounds GVWR subject to biennial smog check are not subject to PSIP).</p> <p>Allowable levels of Smoke Opacity are shown below:</p> <table><tr><td colspan="2">Engines Equipped with a Diesel Particulate Filter (DPF)</td></tr><tr><td colspan="2">5% Opacity Limit</td></tr><tr><td colspan="2">Pre-2007 Model Year (MY) Engines without a DPF</td></tr><tr><td>1997– 2006 MY Engines</td><td>20% Opacity Limit</td></tr><tr><td>1991–1996 MY Engines</td><td>30% Opacity Limit</td></tr><tr><td>Pre-1991 MY Engines</td><td>40% Opacity Limit</td></tr><tr><td colspan="2">Engines Equipped with a Level 2 Verified Diesel Emission Control Strategy (VDECS)</td></tr><tr><td colspan="2">20% Opacity Limit</td></tr><tr><td colspan="2">Two-Engine Cranes Driven by a non-DPF Off-Road Engine</td></tr><tr><td colspan="2">40% Opacity Limit</td></tr></table>	Engines Equipped with a Diesel Particulate Filter (DPF)		5% Opacity Limit		Pre-2007 Model Year (MY) Engines without a DPF		1997– 2006 MY Engines	20% Opacity Limit	1991–1996 MY Engines	30% Opacity Limit	Pre-1991 MY Engines	40% Opacity Limit	Engines Equipped with a Level 2 Verified Diesel Emission Control Strategy (VDECS)		20% Opacity Limit		Two-Engine Cranes Driven by a non-DPF Off-Road Engine		40% Opacity Limit		New Jersey’s opacity limits range from 40% - 20%. California’s in-use emission controls, including opacity limits, are the most stringent in the nation.
Engines Equipped with a Diesel Particulate Filter (DPF)																							
5% Opacity Limit																							
Pre-2007 Model Year (MY) Engines without a DPF																							
1997– 2006 MY Engines	20% Opacity Limit																						
1991–1996 MY Engines	30% Opacity Limit																						
Pre-1991 MY Engines	40% Opacity Limit																						
Engines Equipped with a Level 2 Verified Diesel Emission Control Strategy (VDECS)																							
20% Opacity Limit																							
Two-Engine Cranes Driven by a non-DPF Off-Road Engine																							
40% Opacity Limit																							
In-Use Emissions Controls: I/M program (Testing)	<p>Heavy-Duty Vehicle Inspection Program (HDVIP) (CARB)</p> <p>Periodic Smoke Inspection Program (PSIP) (CARB)</p> <p>The Heavy-Duty Omnibus Regulation (CARB)</p> <p>The Heavy-Duty Inspection and Maintenance Program (HD I/M) (CARB)</p>	<p>California’s in-use testing program (including the HD I/M, HDVIP and PSIP regulations) is the most stringent in the nation, with further increases in stringency going into effect in 2024.</p> <p>The Heavy-Duty Omnibus Regulation revised the heavy-duty in-use testing program to make it more effective in ensuring compliance with the in-use emission standards over a broader range of vehicle operation, and to better represent heavy-duty vehicle operations in real world conditions. The Omnibus regulation established clearer criteria for engine family pass/fail determination, and requires on-board diagnostic (OBD) data during testing to verify the condition of the test vehicle and sensors. These amendments apply to 2024 and subsequent model year engines, and replace the current NTE-based methodology with a new three-bin moving average windows-based methodology.</p> <p>Under the Heavy-Duty Inspection and Maintenance Program (HD I/M), heavy-duty vehicles registered in California will also be required to demonstrate annual compliance with HD I/M program requirements in order to register with the Department of Motor Vehicles. Beginning in January 2023, CARB is using roadside emissions monitoring devices (REMD) to screen for vehicles that may have high emissions. Vehicles flagged as potential high emitters may be required to undergo follow-up vehicle compliance testing to ensure they are operating with properly</p>	Three other states also test OBD in heavy-duty vehicles (MA, NJ, and WI), but none aside from California are currently enforcing on OBD scans for vehicles >14,000 lb. GVWR. Additionally, they do not control emissions from out-of-state trucks, or include the potential use of telematics like CARB.																				

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM2.5 Plan**

Type of Control Measure	Most Stringent Control Program Identified	Summary of Findings from Analysis	Other Jurisdiction(s) Analyzed
On-Road Heavy-Duty Vehicles			
		functioning emissions control systems. Upon full implementation of HD I/M periodic compliance testing, nearly all vehicles will be required to undergo twice per year testing with results submitted to CARB. Three years after the start of HD I/M periodic compliance testing, on board diagnostics (OBD) equipped vehicles will be required to undergo testing four times per year. On-road agricultural vehicles and California-registered motorhomes only will be required to undergo testing once per year.	
In-Use Emissions Controls: Idling requirements	Heavy-Duty Diesel Vehicle Idling Reduction Program (CARB) Heavy-Duty Omnibus Regulation (CARB)	California's idling requirements and comprehensive program for on-road heavy-duty vehicles limits idling time to five minutes, and requires that MY 2008 and newer engines are equipped to automatically shut down after five minutes of idling. While other jurisdictions have adopted similar idling time limits requirements – some with more stringent time limits than CARB – none surpassed the stringency of California's program in effect, because emission performance requirements for idle reduction technologies are unique to California's program. The Heavy-Duty Omnibus Regulation reduces idling limits for heavy-duty diesel vehicles from 30g/hr to 10g/hr in MY 2024 – 2026 engines, and to 5 g/hr in MY 2027+ engines.	Areas with more stringent time limits: <ul style="list-style-type: none"> • 2 minute restrictions, no exemptions: Philadelphia, PA • 2 minute restrictions, some exemptions: Salt Lake City and Salt Lake County, UT • 3 minute restrictions, some exemptions: CT, DC, City of Ketchum (ID), New York City (NY), the Village of Larchmont (NY), the Village of Mamaroneck (NY), the County of Westchester (NY), Park City (UT), and the City of Birmingham (VT) Areas with less stringent time limits: <ul style="list-style-type: none"> • 3 minute restrictions, some exemptions: DE, Chicago (IL), NJ, Town of Mamaroneck (NY), and Rockland County (NY)
In-Use Emissions Controls: Fleet Rules	Truck and Bus Regulation (CARB) Advanced Clean Fleets Regulation (CARB) Future Measure: <i>Zero-Emission Trucks Measure</i> (CARB)	California's in-use emission controls for on-road heavy-duty vehicles are the most stringent in the nation. CARB's Truck and Bus regulation is the most comprehensive and stringent mandatory heavy-duty fleet turnover rule in the nation, affecting approximately one million inter- and intra-state on-road diesel vehicles. The regulation applies to nearly all privately or federally owned diesel-fueled trucks and buses > 14,000 lbs., GVWR, including on-road and off-road agricultural yard goats, cargo handling equipment, drayage trucks, solid waste collection vehicles, and school buses. Its phased-in requirements mandate diesel particulate filters in early years, eventually requiring vehicles to fully upgrade to newer, cleaner engines that meet MY 2010 engine equivalent emissions levels when fully implemented in 2023. Approved by CARB in April 2023, the Advanced Clean Fleets Regulation accelerates ZEV adoption in the medium-to heavy-duty sectors and for light-duty package delivery trucks by setting zero-emission requirements for fleets. This regulation targets drayage trucks, public fleets, and other high priority fleets with 50 or more trucks or entities with trucks and \$50 million in annual revenues. This effort is part of a comprehensive strategy to achieve a ZEV truck and bus fleet by 2045 everywhere feasible, and significantly earlier for certain well-suited market segments such as last mile delivery, drayage, and government fleets. The	No other state requires diesel particulate filters (DPF) and MY 2010 + equivalent engines as a mandatory fleet rule affecting nearly the entire on-road diesel fleet No other state has zero-emission requirements for heavy-duty vehicle fleets

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Type of Control Measure	Most Stringent Control Program Identified	Summary of Findings from Analysis	Other Jurisdiction(s) Analyzed
On-Road Heavy-Duty Vehicles			
		<p>regulation will phase in ZEV requirements for different fleets, including components as follows:</p> <ul style="list-style-type: none"> Beginning January 1, 2024, all additions to High Priority and Federal fleets must be ZEVs, and all combustion vehicles must be removed from the California fleet at the end of their useful life, or fleets may opt to phase-in ZEV requirement where a portion of the fleet must be zero-emission based on a pre-determined schedule. State and local government fleets including cities, counties, special districts, and other municipalities would be required to add only ZEVs to their fleets starting at 50 percent of new additions in 2024 and 100 percent starting in 2027 or fleets may opt to phase-in ZEV requirement where a portion of the fleet must be zero-emission based on a pre-determined schedule. Small public fleets or those that are based in designated low population counties would begin with 100 percent ZEV additions starting in 2027. Beginning January 1, 2024, any truck added to drayage service would need to be a ZEV. All drayage trucks entering seaports and intermodal railyards would be required to be zero-emission by 2035; and 100 percent of medium- and heavy-duty vehicle sales in California would be zero-emissions starting in 2036. <p>Under the recently-approved regulation and the ACT regulation, the number of medium- and heavy-duty ZEVs operating in California will be about 1.7 million by 2045.</p> <p>The future Zero-Emission Trucks measure would accelerate the number of zero-emissions (ZE) trucks beyond existing measures (including the Advanced Clean Fleets regulation). This measure is anticipated to be implemented through one of two potential options:</p> <ul style="list-style-type: none"> Option A would use market signal tools, if given authority to implement differentiated registration fees, restrictions or fees for heavy-duty combustion trucks entering low/zero-emission zones, and/or indirect source rules to establish ZE zones by 2035. Option B would likely be pursued if CARB is unable to implement the strategies and/or if new authorities outlined in Option A do not come to fruition. If so, CARB may need to implement an inflexible requirement for all fleets to phase-in ZEVs and to remove legacy trucks from service in California. <p><i>(Note: CARB has committed to pursue the Zero-Emission Trucks measure, but this measure has yet to be proposed to the Board for approval/adoption)</i></p>	

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Type of Control Measure	Most Stringent Control Program Identified	Summary of Findings from Analysis	Other Jurisdiction(s) Analyzed
On-Road Heavy-Duty Vehicles			
In-Use Emissions Controls: Fleet Rules (Drayage Trucks)	<p>Truck and Bus Regulation (CARB)</p> <p>Advanced Clean Fleets Regulation (CARB)</p>	<p>California's in-use emission controls for drayage trucks are the most stringent in the nation. The Truck and Bus Regulation requires 2010 Model Year or newer engines at ports and rail yards starting in 2023.</p> <p>Approved by CARB in April 2023, the Advanced Clean Fleets (ACF) Regulation, CARB is further strengthening emission controls for drayage fleets; all drayage trucks entering seaports and intermodal railyards would be required to be zero-emission by 2035; ACF controls drayage emissions through three main components:</p> <ul style="list-style-type: none"> Zero-emission drayage truck requirements Drayage trucks will be required to start transitioning to zero-emission technology beginning in 2024, with full implementation by 2035 Drayage Truck Registration Requirements All drayage trucks intending to begin or continue operations at a California seaport or intermodal railyard must be registered with CARB. Beginning in 2035, all trucks in the CARB Online System will be required to be zero-emission. Removing Combustion-Powered Drayage Trucks from Service Non-zero-emission (legacy) drayage trucks with a 2010 or newer model year engine may register in the CARB Online System on or before January 1, 2024,. Beginning in 2024, all legacy drayage trucks must visit a seaport or intermodal railyard at least once each year to remain in the CARB Online System. Legacy drayage trucks 12 years old must begin reporting their mileage annually in 2025 and, can remain in the system until they reach their minimum useful life (either 800,000 miles or the engine is older than 18 years, whichever comes first). Beginning in 2025, legacy drayage trucks will be removed from the CARB Online System if they did not meet the annual visit requirement, OR if they have exceeded their minimum useful life requirements. 	No other jurisdiction mandates more stringent fleet requirements for drayage trucks.
In-Use Emissions Controls: Fleet Rules (Solid Waste Collection Vehicles)	<p>Solid Waste Collection Vehicle Regulations (CARB)</p> <p>Truck and Bus Regulation (CARB)</p> <p>Advanced Clean Fleets Regulation (CARB)</p>	<p>California's in-use emissions controls for solid waste collection vehicles (SWCVs) are the most stringent in the nation. Compared to New York City's program, CARB's Solid Waste Collection Vehicles regulation limits PM emissions at approximately the same level of stringency. However, SWCV's with 2007-2009 engines were also subject to more stringent 2010 engine requirements under Truck and Bus, however, the overall level of emission controls are more stringent in California than any other jurisdiction.</p> <p>Approved by CARB in April 2023, the Advanced Clean Fleets Regulation accelerates ZEV adoption among solid waste collection vehicles. This regulation targets all state and local government fleets and high priority fleets with 50 or</p>	New York City (NY) requires that at least 90 percent of the ~8,300 qualifying privately and publicly-owned SWCVs meet the U.S. EPA's 2007 diesel standard for PM. Comparatively, CARB controls ~12,000 SWCVs (MYs 1960 through 2006) at approximately the same level of PM control for all trucks (i.e. equivalent to the 2007 MY standard of 0.01 g/bhp-hr).

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Type of Control Measure	Most Stringent Control Program Identified	Summary of Findings from Analysis	Other Jurisdiction(s) Analyzed
On-Road Heavy-Duty Vehicles			
		more trucks or entities with trucks and \$50 million in annual revenues. This effort is part of a comprehensive strategy to achieve a ZEV truck and bus fleet by 2045 everywhere feasible, and significantly earlier for certain well-suited market segments. The regulation will phase in ZEV requirements for different fleets, including State and local government fleets and those owned by or contracted with municipalities, including waste fleets. 100 percent of solid waste collection vehicle sales in California would be zero-emissions starting in 2036.	
In-Use Emissions Controls: Fleet Rules (Public fleets)	Public Agency and Utility Regulation (CARB) Truck and Bus Regulation (CARB) Advanced Clean Fleets Regulation (CARB)	California's in-use emissions controls for public fleets are the most stringent in the nation. CARB's Public Agency and Utility Regulation requires similar stringency in PM emissions limits as the Boston, MA program; because some utility fleets are also subject to more stringent requirements under Truck and Bus, the overall level of emission controls are more stringent in CA than any other jurisdiction. Approved by CARB in April 2023, the Advanced Clean Fleets Regulation accelerates ZEV adoption among public fleets. This regulation targets all public fleets in California. This effort is part of a comprehensive strategy to achieve a ZEV truck and bus fleet by 2045 everywhere feasible, and significantly earlier for certain well-suited market segments such as last mile delivery, drayage, and government fleets. The regulation will phase in ZEV requirements for different fleets. State and local government fleets – including cities, counties, special districts, and other municipalities – would be required to add only ZEVs to their fleets starting at 50 percent of new purchases in 2024 and 100 percent starting in 2027 or fleets may opt to phase-in ZEV requirement where a portion of the fleet must be zero-emission based on a pre-determined schedule. Small public fleets and those that are based in designated low population counties would begin with 100 percent ZEV additions starting in 2027.	The city of Boston (MA) requires by 2018 all pre-2007 diesel vehicles and equipment not previously retrofit to be controlled to achieve emission reductions of at least 85 percent (approximately equivalent to the 2007 PM standard of 0.01 g/bhp-hr). Comparatively, CARB limits are set equivalent to the 2007 MY standard of 0.01 g/bhp-hr for engine MY 1960 or newer, GVWR > 14,000 lbs.
In-Use Emissions Controls: Fleet Rules (Transit fleets)	Transit Fleet Rule (CARB) Innovative Clean Transit Regulation (CARB)	California's in-use emission controls for transit vehicles are the most stringent in the country. The Transit Fleet Rule requires emission reductions (PM and NOx) from urban buses and transit fleet vehicles, and required future zero-emission bus purchases. The Innovative Clean Transit (ICT) Regulation requires all public transit agencies to gradually transition to a 100 percent zero-emission bus (ZEB) fleet. Beginning in 2029, 100% of new purchases by transit agencies must be ZEBs, with a goal for full transition by 2036.	No other jurisdiction mandates more stringent fleet requirements for transit fleets.
In-Use Emissions Controls: Fleet Rules (Last mile delivery trucks)	Truck and Bus Regulation (CARB)	California's in-use emission controls for last mile delivery vehicles (Class 3-7 heavy-duty delivery trucks used to deliver freight from warehouses and distribution centers to the final point of sale or use) are the most stringent in the nation. Truck and Bus requires MY 2010 or equivalent engines for Class 4 – 8 engines by 2023.	No other jurisdiction mandates more stringent fleet requirements for last mile delivery trucks.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM2.5 Plan**

Type of Control Measure	Most Stringent Control Program Identified	Summary of Findings from Analysis	Other Jurisdiction(s) Analyzed
On-Road Heavy-Duty Vehicles			
	Advanced Clean Fleets Regulation (CARB)	Approved by CARB in April 2023, the Advanced Clean Fleets Regulation accelerates ZEV adoption in the medium- to heavy-duty sectors and for light-duty package delivery trucks by setting zero-emission requirements for high priority fleets with 50 or more trucks or entities with trucks and \$50 million in annual revenues. This effort is part of a comprehensive strategy to achieve a ZEV truck and bus fleet by 2045 everywhere feasible, and significantly earlier for certain well-suited market segments. The regulation will phase in ZEV requirements for different fleets, resulting in 100 percent of medium- and heavy-duty vehicle sales in California being zero-emissions starting in 2036.	
In-Use Emissions Controls: Fleet Rules (Airport shuttle buses)	Truck and Bus Regulation (CARB) Zero-Emission Airport Shuttle Bus Regulation (CARB)	California's in-use emission controls for airport shuttle buses (vehicles used to transport passengers between car parking lots, airport terminals, and airport car rental facilities) are the most stringent in the nation. The Truck and Bus Regulation requires MY 2010 or equivalent engines by 2023. The Zero-Emission Airport Shuttle Bus Regulation requires airport shuttle operators to transition to 100 percent zero-emission vehicle (ZEV) technologies. Airport shuttle operators must begin adding zero-emission shuttles to their fleets in 2027, and complete the transition to ZEVs by the end of 2035. The regulation applies to airport shuttle operators who own, operate, or lease vehicles at any of the 13 California airports regulated under this rule (regulated airports), including the Fresno Yosemite International Airport.	No other jurisdiction mandates more stringent fleet requirements for airport shuttle buses.
In-Use Emissions Controls: Fleet Rules (School Buses)	Truck and Bus Regulation (CARB) School Bus Idling Airborne Toxic Control Measure (CARB) Omnibus Regulation (CARB) School Bus Incentive Program (CARB)	California's in-use emission controls for school buses are among the most stringent in the nation. The Truck and Bus regulation requires that all school buses are equipped with PM filters. Since 2003, California has also limited bus and vehicle idling time near schools or at school bus destinations through the School Bus ATCM, reducing emissions from >26,000 school buses operating daily at or near schools. Under the Omnibus Regulation, idling limits for diesel heavy-duty vehicles will be reduced from 30 g/hr currently to 10 g/hr in MY 2024 and to 5 g/hr in MY 2027. CARB has also used incentive funds as a key component of the strategy to reduce emissions from the school bus fleet. Over the past two decades, CARB's School Bus Incentive Program has invested over \$1.2 billion to date to clean up old, higher-polluting school buses, which has supported about 1,800 zero emission school buses. Under this program, California leads the nation in deployment of zero emission school buses; by comparison, 888 zero emission school buses have been awarded, ordered, or deployed across the U.S. outside of California.	Colorado (CO) controls emissions from school buses through a School Bus Retrofit Program funded by DERA Grants from U.S. EPA. This voluntary program began in 2009, and controls PM emissions through retrofits. CARB staff is unaware of any other jurisdictions that mandate retrofits. New York State requires all new school buses purchased to be zero emission by 2027, and all school buses in operation to be electric by 2035.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Type of Control Measure	Most Stringent Control Program Identified	Summary of Findings from Analysis	Other Jurisdiction(s) Analyzed
On-Road Heavy-Duty Vehicles			
Fuels Programs			
Fuels Standards: Diesel Standards	<p>CARB Diesel Fuel Regulations and Ultra Low Sulfur Diesel (CARB)</p> <p>Future Measure: <i>Low Emission Diesel measure (CARB)</i></p>	<p>California's fuel standards for diesel are the most stringent in the nation. CARB Diesel Fuel Regulations include stringent requirements for fuel mixture specifications for aromatic hydrocarbons and sulfur, and have established a lubricity standard and applies to sales of fuel used in on-road vehicles and off-road vehicles and locomotives in California. CARB's ULSD program reduces NOx and PM emissions significantly relative to U.S. EPA requirements, providing approximately 7 percent more NOx reductions and 25 percent more dPM reductions than federal diesel.</p> <p>CARB is anticipated to further increase the stringency of controls on criteria pollutant emissions diesel products.</p> <p><i>(NOTE: CARB has committed to pursue the Low Emission Diesel measure, but it has not yet been proposed to the Board for approval/adoption.)</i></p>	<p>No state requires cleaner burning diesel than California. The California diesel fuel regulations exceed federal requirements in stringency.</p> <p>CARB staff are aware of only one other state, Texas, who has a boutique diesel fuel program that is approved into the SIP. An independent analysis of The Texas Low Emission Diesel program (TxLED) showed that the TxLED fuel emissions performance does not provide as significant of emission reduction benefits as the California specifications.</p>
Fuels Standards: Alternative Fuel Standards (Diesel substitutes)	<p>Low Carbon Fuel Standard (CARB)</p> <p>Alternative Diesel Fuel Regulation (CARB)</p>	<p>California's fuel standards for diesel substitutes are the most stringent in the nation. The Low Carbon Fuel Standard and Alternative Diesel Fuel regulations work together to reduce the carbon intensity of the California fuel supply while requiring limits on criteria emissions from alternative fuels and/or alternative fuel mix blends.</p>	<p>No other state has set as stringent of criteria emission requirements on alternative fuels and alternative fuel blends than California.</p> <p>For low carbon fuel/clean fuel programs:</p> <ul style="list-style-type: none"> • Oregon, and Washington have low carbon fuel standard programs, California participates in the Pacific Coast Collaborative with these states, and British Columbia. • Other states and countries that are considering a clean fuel regulation: NY, MI, MN, NM, VT, IL, MA.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

NEW HEAVY-DUTY VEHICLE AND ENGINE STANDARDS

Heavy-duty engine emission standards

CARB's truck engine standards for on-road heavy-duty engines are consistent with the most stringent of any other area in the nation. CARB's current heavy-duty engine emission standards (MY 2010 - 2023) set exhaust emission standards for PM_{2.5} at 0.01 g/bhp-hr and NO_x at 0.20 g/bhp-hr. This aligns with the applicable federal standards set by U.S. EPA, which are also set at the same levels of stringency.⁷⁴

With the adoption and implementation of the Heavy-Duty Omnibus Regulation, CARB will further increase the stringency of these requirements to reduce NO_x exhaust emissions standards to levels 90 percent lower than the current mandatory standard (for MY 2027 – 2030, mandatory emissions standards will be set to 0.020 g/bhp-hr at miles ≤ 435,000, and 0.035 g/bhp-hr at 435,000 - 600,000 miles). Massachusetts, New York, Oregon, Washington, and Vermont have also committed to adopt CARB's Omnibus Regulation. CARB's standards will exceed the stringency of Federal standards in MY 2024 – 2031.

In December 2022, U.S. EPA finalized new emissions standards for federally-certified vehicles beginning in 2027, though these are less stringent than those included in CARB's Heavy-Duty Omnibus Regulation: For MY 2027 and later years, federal certification limits will be set to 0.035 g/hp-hr for NO_x and 0.005 g/hp-hr for PM.

In December 2022, U.S. EPA finalized their regulation, "Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards", which sets stronger NO_x emission standards for MY 2027 and later heavy-duty vehicles and engines. For MY 2027 and later years, federal limits will be set to 0.05 g/bhp-hr for NO_x and 0.005 g/bhp-hr for PM. Like the California standards, the new federal standards will also require lower NO_x emissions over a much wider range of testing conditions both in the laboratory and when engines are operating on the road. Further, the regulation includes longer useful life periods, as well as significant increases in the emissions-related warranty periods.

As most Class 7 and 8 vehicles operating in California have been originally purchased outside of the State and are thus covered by U.S. EPA, rather than CARB standards, federal action is critical to achieving the needed emission reductions for the South Coast and other California nonattainment areas to meet U.S. EPA's air quality standards. However, U.S. EPA's recently finalized Clean Trucks Plan⁷⁵ is less stringent than the options previously suggested by U.S. EPA and CARB's Heavy-Duty Omnibus Regulation. Given the need for deep emissions reductions and the benefits of consistency in this area given the multiple jurisdictions in which trucks are purchased and used, CARB will advocate to align the federal CTP with CARB's Omnibus Regulations to the maximum degree possible.

⁷⁴ U.S. EPA 2016 "Heavy-Duty Highway Compression-Ignition Engines and Urban Buses: Exhaust Emission Standards" <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100O9ZZ.pdf> accessed May 1, 2018.

⁷⁵ U.S. EPA 2023 "Clean Trucks Plan" <https://www.epa.gov/regulations-emissions-vehicles-and-engines/clean-trucks-plan> accessed August 2, 2023.

CARB Control Program MSM Analysis for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan

U.S. EPA has also released two additional steps in their CTP, including a proposal for heavy-duty GHG standards for MY 2027 and later, under their “Phase 3” regulation, and multipollutant standards for light and medium-duty vehicles for MY 2027 and later.⁷⁶ U.S. EPA has issued final decisions in 2023 regarding several California waiver requests for California’s heavy-duty vehicle and engine emission standards, including the 2018 Heavy-Duty Warranty Amendments, the Advanced Clean Truck (ACT) Regulation, the Zero-Emission Airport Shuttle Bus Regulation, and the Zero-Emission Powertrain Certification Regulation.⁷⁷ U.S. EPA has also signaled that they intend to issue a final decision on the waiver request for the Heavy-Duty Omnibus Regulation this year.⁷⁸ CARB will continue to call on U.S. EPA to move expeditiously in developing these requirements in recognition of the critical public health benefits they will provide.

Optional engine emission standards

To achieve further reductions and incentivize ongoing development of increasingly more efficient engine technologies, CARB has also provided since 2015 certification to optional emission standards at levels 50 percent, 75 percent, and 90 percent cleaner than currently mandated emission standards. This allows CARB and local air districts to preferentially incentivize and fund the purchase of cleaner trucks and engines than would have otherwise met the mandatory standard. CARB staff is unaware of any other state with a similar control program. With the Omnibus Regulation, the optional emission standards lower further, from current levels of 0.10 – 0.02 g/bhp-hr (through MY 2024), to 0.010 g/bhp-hr for MY 2027+.

Zero-Emission Trucks

CARB’s Advanced Clean Truck Regulation has also been adopted by several states, including Massachusetts, New Jersey, New York, Oregon, Vermont, and Washington, while Maine has begun the rulemaking process to adopt.⁷⁹ Some other states are also considering adoption of the rule, while North Carolina has an executive order directing state officials to begin adopting the Advanced Clean Truck rule. Together with California, these states comprise approximately a quarter of the U.S. medium- and heavy-duty market. Additionally, sixteen states and the District of Columbia have signed a Memorandum of Understanding to spur the adoption of medium- and heavy-duty ZEVs.⁸⁰

Useful Life and Warranty Requirements

CARB’s useful life and warranty requirements for new on-road heavy-duty vehicles exceeds the stringency of any other in the nation for MY 2022 - 2026. Currently, no other state has more stringent warranty requirements than California. California is the

⁷⁶ U.S. EPA, 2023. “Proposed Rule: Greenhouse Gas Emissions Standards for Heavy-Duty Vehicles – Phase 3” <https://www.epa.gov/regulations-emissions-vehicles-and-engines/proposed-rule-greenhouse-gas-emissions-standards-heavy>

⁷⁷ U.S. EPA, 2023. “California Waiver Requests for Heavy-Duty Vehicle Emission Regulations” <https://www.epa.gov/regulations-emissions-vehicles-and-engines/california-waiver-requests-heavy-duty-vehicle-emission>

⁷⁸ U.S. EPA, 2022. “Heavy-Duty 2027 and Beyond: Clean Trucks Final Rulemaking” <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockkey=P101695R.pdf>

⁷⁹ ICCT 2021 <https://theicct.org/wp-content/uploads/2022/01/state-level-hdv-emissions-reg-FS-dec21.pdf>

⁸⁰ Multi-State Medium- and Heavy-Duty Zero Emission Vehicle Memorandum of Understanding, 2020 <https://ww2.arb.ca.gov/sites/default/files/2020-07/Multistate-Truck-ZEV-Governors-MOU-20200714.pdf> signatories include CA, CO, CT, DC, HI, ME, MD, MA, NJ, NY, NC, OR, PA, RI, VT, and WA. Virginia also signed in December 2021 <https://www.sierraclub.org/press-releases/2021/12/governor-northam-signs-virginia-multi-state-agreement-electrify-trucks-and>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

only state with the authority to initially adopt and enforce emission standards and test procedures for new motor vehicles and new motor vehicle engines that are more stringent than federal emission standards and test procedures. For MY 2022 – 2026, CARB's warranty requirements are more stringent than federal standards, and California's useful life requirements align with federal requirements. Under the Omnibus Regulation, California warranty and useful life requirements are at least as stringent as federal requirements for My 2027 – 2031 and later model years.

Lower In-Use Emission Performance Standards and Test Procedures

CARB's in-use emission performance standards and test procedures for new on-road heavy-duty engines and vehicles exceeds the stringency of any other state in the nation. California is the only state with emission performance standards and test procedures for new on-road heavy-duty engines and vehicles that exceed the stringency of U.S. EPA requirements.

OBD Requirements

CARB and federal OBD regulations for heavy-duty vehicles generally align for MY2013 and newer engines, although CARB's program has been amended to be more stringent than U.S. EPA's for certain vehicle types. California OBD requirements are overall at least as stringent as applicable federal requirements, and California OBD fault detection requirements are at least as stringent if not more stringent than U.S. EPA requirements. However, in 2022, U.S. EPA updated their OBD requirements applicable to 2027 and subsequent model years to delete some California requirements and add some emission control system data parameters to be provided on demand and in the driver display. No other state has more stringent OBD requirements than California.

IN-USE EMISSION CONTROLS FOR HEAVY-DUTY VEHICLES

In-Use Inspection Program

The Inspection / Maintenance (I/M) Program testing and in-use emission controls in the South Coast for on-road heavy-duty trucks and buses are consistent with the most stringent of any other I/M program in the nation.

Opacity Limits

New Jersey has opacity limits that range from 40 percent to 20 percent.⁸¹ Under the **2018 Amendments to the Periodic Smoke Inspection Program**, California opacity limits are the most stringent in the nation, ranging from 40 percent to 5 percent.

I/M Testing

CARB's HDVIP program requires heavy-duty trucks and buses to be inspected for excessive smoke and tampering, and engine certification label compliance, including all applicable OBD requirements. Any heavy-duty vehicle traveling in California, including vehicles registered in other states and foreign countries, may be tested. Tests are performed by CARB inspection teams at border crossings, weigh stations, fleet facilities, and randomly selected roadside locations. Owners of trucks and buses found in

⁸¹ For more information on the New Jersey Opacity Limits, please see http://www.nj.gov/dep/bmvim/bmvim_emisStds.htm

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

violation are subject to minimum penalties starting at \$300 per violation. The PSIP program requires that diesel and bus fleet owners conduct annual smoke opacity inspections of their vehicles and repair those with excessive smoke emissions to ensure compliance. CARB randomly audits fleets, maintenance and inspection records and tests a representative sample of vehicles. All vehicles that do not pass the test must be repaired and retested. A fleet owner that neglects to perform the annual smoke opacity inspection on applicable vehicles is subject to a penalty of \$500 per vehicle, per year.

Comparatively, three other states have efforts to include OBD testing on heavy-duty vehicles, which are summarized below:

- Massachusetts currently requires opacity testing for diesel engines over 14,000 lbs., GVWR, and OBD testing starting at 2007, with plans to develop a more stringent OBD testing program that will include OBD testing on vehicles 14,000 lbs., GVWR and above;
- New Jersey currently requires opacity testing for diesel engines over 18,000 lbs., GVWR, and has announced the award of a new program to include OBD testing on all diesels over 18,000 lbs., GVWR; and
- Wisconsin currently requires OBD testing for diesel engines up to 14,000 lbs., GVWR, which began in 2007. Wisconsin is considering an option to move toward testing OBD on 14,000 lbs., GVWR and above in the future.

While Massachusetts and New Jersey are developing similar I/M programs as California (all three states are collecting OBD test data for vehicles over 14,000 lbs., GVWR) no jurisdictions aside from California are currently enforcing on OBD scans for vehicles over 14,000 lb. GVWR. Furthermore, none include the potential use of telematics or are trying to also capture out-of-State trucks in the program as California's control program does. Thus, CARB's I/M testing controls program (including the HD I/M, HDVIP and PSIP regulations) are the most stringent in the nation, with further increases in stringency going into effect in 2024.

[Idling Requirements](#)

The idling requirements in the South Coast's plan are aligned with the most stringent in the nation. California has a 5-minute idling time restriction. In addition, it has emission performance requirements for alternative idle reduction technologies such as auxiliary power units (APU) and fuel-fired heaters. While other states have adopted similar HD idling requirements as California, none have surpassed the stringency of California requirements in effect, due to the unique exemptions provided California under the Act that enables CARB to set emissions performance requirements that exceed the stringency of those required by U.S. EPA. The following states, counties and cities have more stringent timing requirements for idling time restrictions. However, they do not set performance requirements for idle reduction technologies to reduce the intensity of emissions emitted over a given amount of time.

- The City of Philadelphia (PA) has the most stringent idling restriction of 2-minutes with no exemptions.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

- Salt Lake City and Salt Lake County in Utah have also idling restrictions of 2 minutes with some exemptions but still more stringent than California idling restrictions.
- Connecticut, the District of Columbia, City of Ketchum (Idaho), New York City (NY), the Village of Larchmont (NY), the Village of Mamaroneck (NY), the County of Westchester (NY), Park City (Utah), and the City of Birmingham (Vermont) have idling time restriction of 3 minutes with some exemptions.
- Delaware, Chicago (Illinois), New Jersey, Town of Mamaroneck (NY), and Rockland County (NY) also have 3-minute idling restrictions, but their exemptions make their rules less stringent than California idling rule.

Only California has emission performance requirements for idle reduction technologies. Therefore, even if another jurisdiction has an idle time restriction shorter than California's 5-minute idling restriction, for sleeper cabs that use APUs as an alternative technology, California's regulation is more stringent because of the differences in APU emissions. Thus, all other state, county, or city idling rules are less stringent than California's idling restriction.

Heavy-Duty Fleet Rules

California's fleet rules for heavy-duty trucks and buses are the most stringent of any in the nation. The Truck and Bus Regulation requires that by 2014, nearly all vehicles operating in California will have PM emission controls, and by 2023 nearly all vehicles will meet 2010 model year engine emissions levels. The Regulation applies to nearly all diesel fueled trucks and buses with a gross vehicle weight rating greater than 14,000 pounds that are privately or federally owned, including on-road and off-road agricultural yard goats, and privately and publicly owned school buses. Moreover, the Regulation applies to any person, business, school district, or federal government agency that owns, operates, leases or rents affected vehicles. No other state requires diesel particulate filters and MY 2010 + equivalent engines as a mandatory fleet rule affecting nearly the entire on-road diesel fleet.

Approved by CARB in April 2023, the Advanced Clean Fleets Regulation is a nation-leading zero-emission fleet requirement. The Advanced Clean Fleets Regulation accelerates ZEV adoption in the medium-to heavy-duty sectors and for light-duty package delivery trucks by setting zero-emission requirements for fleets. This Regulation targets drayage trucks, public fleets, and other high priority fleets with 50 or more trucks or entities with trucks and \$50 million in annual revenues. This effort is part of a comprehensive strategy to achieve a ZEV truck and bus fleet by 2045 everywhere feasible, and significantly earlier for certain well-suited market segments such as last mile delivery, drayage, and government fleets. No other state has zero-emission requirements for heavy-duty vehicle fleets.

Additionally, California has adopted and implemented fleet-specific rules that are consistent with the most stringent in the nation.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Drayage Trucks

California's in-use emissions controls for drayage trucks are the most stringent in the nation. The Truck and Bus Regulation requires 2010 Model Year or newer engines at ports and rail yards starting in 2023. Under the recently approved Advanced Clean Fleets Regulation, CARB is further strengthening emission controls for drayage fleets; all drayage trucks entering seaports and intermodal railyards would be required to be zero-emission by 2035. No other jurisdiction mandates more stringent fleet requirements for drayage trucks.

Solid Waste Collection Vehicles

California's in-use emissions controls for SWCVs are the most stringent in the nation. New York City (NY) is implementing a control measure that began in 2017 to modernize the city's fleet of diesel-powered solid waste vehicles of approximately 2,000 trucks used for picking up residential waste and recyclables with newer, less-polluting models. This program requires that at least 90 percent of the approximately 8,300 qualifying vehicles must meet the tougher emission control standards for diesel trucks that the U.S. EPA set in 2007.⁸² Comparatively, California's Solid Waste Collection Vehicle Regulation was adopted in 2003 to reduce toxic diesel PM from approximately 12,000 diesel fueled commercial and residential SWCV and recycling collection vehicles operated in California. The rule applies to all SWCVs of 14,000 pounds or more that run on diesel fuel, have engines in MYs from 1960 through 2006, and collect waste for a fee.

Compared to New York City's program, CARB's Solid Waste Collection Vehicles Regulation limits PM emissions at approximately the same level of stringency. However, SWCVs with 2007-2009 engines were also subject to more stringent 2010 engine requirements under Truck and Bus (which requires diesel particulate filters and MY 2010 + equivalent engines), meaning that the overall level of emission controls are more stringent in California than any other jurisdiction. Additionally, the Advanced Clean Fleets Regulation accelerates ZEV adoption among solid waste collection vehicles. The Regulation will phase in ZEV requirements for different fleets, including waste fleets. Starting in 2036, 100 percent of solid waste collection vehicle sales in California would be zero-emissions. No other state has zero-emission requirements for SWCVs.

Public Fleet Rules

California's in-use emissions controls for public fleets are the most stringent in the nation. The city of Boston (MA) requires that, all pre-2007 City-owned or operated vehicles to have equipment that reduces diesel emissions by at least 20 percent by the end of 2015, and that all pre-2007 diesel vehicles and equipment not previously retrofit would be required to have retrofits achieving at least 85-percent—or best available—pollution reductions by the end of 2018. Public fleets in California are subject to the Truck and Bus Regulation, which requires diesel particulate filters and MY 2010+ equivalent engines. California's statewide Public Agency and Utility Regulation requires any municipality or utility that owns, leases, or operates on-road diesel fueled vehicles with engine model year 1960 or newer and GVWR greater than 14,000 pounds to

⁸² <https://www.nytimes.com/2016/08/19/opinion/how-garbage-trucks-can-drive-a-green-future.html>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

reduce PM_{2.5} emissions to 0.01 g/bhp-hr. This can be done by repowering, retrofitting, or retiring the vehicle. Implementation of the rule started in 2007, with a compliance schedule based on the engine model year. Comparatively, CARB's Public Agency and Utility Regulation requires similar stringency in PM emissions limits as the Boston, MA program; because some utility fleets are also subject to more stringent requirements under the Truck and Bus Regulation, the overall level of emission controls are more stringent in California than any other jurisdiction.

Additionally, the Advanced Clean Fleets Regulation will phase in ZEV requirements for public fleets in California. State and local government fleets – including cities, counties, special districts, and other municipalities – would be required to add only ZEVs to their fleets starting at 50 percent of new purchases in 2024 and 100 percent starting in 2027, or fleets may opt to phase-in ZEV requirement where a portion of the fleet must be zero-emission based on a pre-determined schedule. Small public fleets and those that are based in designated low population counties would begin with 100 percent ZEV additions starting in 2027.

Transit Fleets

California's in-use emission controls for transit vehicles are the most stringent in the country. CARB's Transit Fleet Rule requires emission reductions (PM and NO_x) from urban buses and transit fleet vehicles and required future zero-emission bus purchases. Additionally, the Innovative Clean Transit Regulation requires all public transit agencies to gradually transition to a 100 percent ZEB fleet. Beginning in 2029, 100 percent of new purchases by transit agencies must be ZEBs, with a goal for full transition by 2036. No other jurisdiction mandates more stringent fleet requirements for transit fleets.

Last Mile Delivery Trucks

California's in-use emission controls for last mile delivery vehicles (Class 3-7 heavy-duty delivery trucks used to deliver freight from warehouses and distribution centers to the final point of sale or use) are the most stringent in the nation. Truck and Bus requires MY 2010 or equivalent engines by 2023. Additionally, the Advanced Clean Fleets Regulation accelerates ZEV adoption in the medium- to heavy-duty sectors and for light-duty package delivery trucks by setting zero-emission requirements for high priority fleets with 50 or more trucks or entities with trucks and \$50 million in annual revenues. The regulation will phase in ZEV requirements for different fleets, resulting in 100 percent of medium- and heavy-duty vehicle sales in California being zero-emissions starting in 2036. No other jurisdiction mandates more stringent fleet requirements for last mile delivery trucks.

Airport Shuttle Buses

California's emission controls for airport shuttle buses (vehicles used to transport passengers between car parking lots, airport terminals, and airport car rental facilities) are the most stringent in the nation. The Truck and Bus Regulation requires MY 2010 or equivalent engines by 2023. Additionally, the Zero-Emission Airport Shuttle Bus Regulation requires airport shuttle operators to transition to 100 percent ZEV technologies. Airport shuttle operators must begin adding zero-emission shuttles to their fleets in 2027, and complete the transition to ZEVs by the end of 2035. The Regulation applies to airport shuttle operators who own, operate, or lease vehicles at any of the 13

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

California airports regulated under this rule (regulated airports), including the Fresno Yosemite International Airport. No other jurisdiction mandates more stringent fleet requirements for airport shuttle buses.

School Buses

Colorado controls emissions from school buses through a School Bus Retrofit Program funded by DERA Grants from U.S. EPA. This program began in 2009, and reduces emissions of diesel exhaust by retrofitting school buses with proven emissions-reduction technologies, including diesel-oxidation catalysts, engine preheaters and closed-crankcase filtration systems. Comparatively, California's Truck and Bus regulation requires that all privately and publicly owned school buses are equipped with diesel PM filters. California also limits bus and vehicle idling time near schools or at school bus destinations through the School Bus ATCM. It has been in effect since 2003 and reduces emissions from more than 26,000 school buses that operate daily at or near schools. The School Bus ATCM targets school buses, school pupil activity buses, youth buses, paratransit vehicles, transit buses, and heavy-duty commercial motor vehicles that operate at or near schools.

Additionally, CARB's School Bus Incentive Program has invested over \$1.2 billion to date to clean up old, higher-polluting school buses. The California Legislature recently appropriated an additional \$1.8 billion for zero-emission school buses and associated charging infrastructure over the next five years. Over the last twenty years, the total \$1.2 billion statewide investment made, including \$255 million invested in school bus cleanup over the past year alone, has supported about 1,800 zero-emission school buses. More than 560 of those buses are already on California roadways, with 327 in the State's most pollution-burdened communities.⁸³

New York State's enacted fiscal year 2022-2023 budget established a requirement for all new school buses purchased to be zero emission by 2027.⁸⁴ Under the New York law, all school buses must be electric, including district-owned and leased vehicles upon full implementation in 2035.⁸⁵ New York is the only state the nation with an in zero-emission school bus requirements. California, however, leads the nation with its deployment of about 1,800 zero-emission school buses. By comparison, 888 zero-emission school buses have been awarded, ordered, or deployed across the U.S. outside of California, as of 2021.⁸⁶ While CARB incentive programs have turned over the most school buses to zero-emission engines of any state to date, California does not currently have any proposed or current regulations that require electrification of the school bus fleet.

CARB utilizes incentive programs rather than mandating turnover through regulatory actions due to the costs of zero-emission school buses, and particularly due to the impact those costs would have on public school districts. Public school districts often do not have the funding to replace their aging school bus fleet. Based on a comprehensive

⁸³ CARB, 2022 <https://ww2.arb.ca.gov/news/new-report-shows-how-california-leading-nation-cleaning-school-buses>

⁸⁴ New York Senate Bill S8006C <https://www.nysenate.gov/legislation/bills/2021/S8006>

⁸⁵ Rockefeller Institute of Government, November 2022 <https://rockinst.org/blog/meeting-new-yorks-electric-school-bus-mandate-takeaways-from-the-2022-school-finance-symposium/>

⁸⁶ CARB, 2022 <https://ww2.arb.ca.gov/news/new-report-shows-how-california-leading-nation-cleaning-school-buses>

CARB Control Program MSM Analysis for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan

assessment of funding for home-to-school transportation conducted by the Legislative Analyst's Office in 2014,⁸⁷ the primary responsibility for school transportation funding lies with public school districts through the State legislative process. Investing in California's school bus fleet is a collective effort amongst agencies on the local, state, and federal level. CARB and CEC have led the effort in dedicating funding and resources to turning over old, dirty school buses and investing in new technologies.⁸⁸ Together, CARB and CEC have made significant progress to make it easier for school districts to access zero-emission school bus and charging/fueling infrastructure incentives in a coordinated, streamlined manner. If CARB were to adopt a regulatory program that mandated zero-emission school buses, the ability to use incentive funds to help alleviate school districts of the burden of purchasing these new buses would be compromised, due to requirements in most of CARB's incentive funding programs that require that incentive dollars are spent on turning over vehicles and mobile equipment that exceed regulatory requirements.

FUELS

Diesel Fuel Regulations

U.S. EPA began regulating sulfur content in diesel in 1993. At that time, uncontrolled fuels (i.e. non-CARB diesel) contained approximately 5,000 parts per million (ppm) of sulfur. In 2006, U.S. EPA began to phase-in more stringent requirements under the federal Ultra-Low Sulfur Diesel (ULSD) regulations, which lowered the amount of sulfur in on-road diesel fuel to 15 ppm. The On-road (Highway) Diesel Fuel Standard was phased-in from 2006 to 2010, and since 2011 have required that all highway diesel fuel supplied to the market be ULSD, and that all highway diesel vehicles must use ULSD.

CARB's Ultra-Low Sulfur Diesel (ULSD) program limits sulfur content at the same levels as U.S. EPA's on-road ULSD program (i.e. at 15 ppm); however, due to other specifications that uniquely apply to CARB diesel, the California program reduces emissions significantly relative to federal diesel, providing about a 7 percent reduction in NO_x and 25 percent in diesel PM.⁸⁹ Furthermore, CARB is anticipated to further increase the stringency of controls on criteria pollutant emissions diesel products under **the Low Emission Diesel measure**. No other state or nonattainment area controls criteria emissions from renewable fuels more stringently than CARB.

Beyond the federal diesel requirements described above, the Act also allows states to adopt unique fuel programs to meet local air quality needs, which are referred to as Boutique Fuel Programs. As of January 19, 2017, U.S. EPA identified only one boutique fuel programs that had been approved in a SIP,⁹⁰ the Low Emission Diesel Program in Texas (TxLED). The fuel specifications for the TxLED are based on CARB diesel

⁸⁷ Legislative Analyst's Office, 2014. "Review of School Transportation in California" <https://lao.ca.gov/reports/2014/education/school-transportation/school-transportation-022514.pdf>

⁸⁸ CARB https://www2.arb.ca.gov/sites/default/files/2022-10/fy2022_23_funding_plan_appendix_e.pdf

⁸⁹ Beyond sulfur limits at 15 ppm, CARB's program also requires the aromatic hydrocarbon content of the diesel fuel sold in the state not to exceed 10 percent by volume. Alternative diesel fuel formulations can be used to demonstrate equivalent compliance without actually meeting the aromatic limit.

⁹⁰ U.S. EPA, 2017 https://19january2017snapshot.epa.gov/gasoline-standards/state-fuels_.html

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

requirements,⁹¹ and fuel formulations approved by CARB are also considered approved by the Texas Commission on Environmental Quality, and may be used to comply with the TxLED regulations.⁹² Additionally, independent analysis of TxLED, CARB ULSD and federal ULSD shows that the TxLED fuel emissions performance does not provide as significant of emission reduction benefits as the California specifications,⁹³ although U.S. EPA credited the TxLED program with providing approximately a 5 percent NO_x emission reduction benefit over federal ULSD fuels.⁹⁴ Furthermore, the stringency of Texas' testing requirements are based on the federal Complex Model, which is less stringent and nuanced than the California Predictive Model that is used to determine compliance with California fuel requirements.

Controlling Criteria Emissions from Renewable Fuels

The Low Carbon Fuel Standard (LCFS) and Alternative Diesel Fuel (ADF) regulations work together to limit criteria emissions from alternative fuels. Oregon and Washington State also have low carbon fuel standard programs modeled after the California regulation, California participates in the Pacific Coast Collaborative with these states, in addition to British Columbia. Seven other states are also considering a clean fuel regulation, including New York, Michigan, Minnesota, New Mexico, Vermont, Illinois, and Massachusetts.

While other states have adopted or are considering adopting similar programs to the California LCFS, no other state has set criteria emission requirements on alternative fuels. U.S. EPA's Renewable Fuel Standard (RFS II) does not specify criteria emission requirements for alternative fuels.

⁹¹ Texas Administrative Code Title 30 Part I Chapter 114 Subchapter H, Division 2 Rule §114.312

http://texreg.sos.state.tx.us/public/readtac%24ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=30&pt=1&ch=14&rl=312

⁹² Texas Commission on Environmental Quality <https://www.tceq.texas.gov/assets/public/implementation/air/sip/texled/List%20of%20TCEQ-Approved%20Alternative%20Diesel%20Formulations.pdf>

⁹³ American Transportation Research Institute (ATRI) 2008 "Energy and Other Fuel Property Changes with On-Road Ultra-Low Sulfur Diesel Fuel" <http://www.atri-online.org/research/results/environmentalfactors/2008ATRIDiesel.pdf>

⁹⁴ U.S. EPA 2001, "Approval and Promulgation of Air Quality State Implementation Plans (SIP); Texas: Low Emission Diesel Fuel" <https://www.federalregister.gov/documents/2001/11/14/01-27581/approval-and-promulgation-of-air-quality-state-implementation-plans-sip-texas-low-emission-diesel> Federal Register Vol. 66, No. 220 pages 57196-57219

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

**STEP 3(A): EVALUATION OF STRINGENCY: MEDIUM- AND HEAVY-DUTY
CONTROL MEASURES**

Step 3(a) calls for an evaluation of each of the potential control measures identified in Step 2, in order to evaluate their stringency and determine whether they meet all applicable requirements to satisfy the definitions of MSM as discussed in Section 1 and Section 2.

As shown in the Step 2(b): Other States' and Nonattainment Areas' on-road Medium- and Heavy-Duty Control Measures

Error! Not a valid bookmark self-reference. summarizes the most stringent control measures currently in use in any state or nonattainment that have been identified and discussed for on-road heavy-duty vehicles. Each of the measures identified in this table are discussed in more detail in this section, below.

Table 17 in Step 2(b), CARB's programs are the most stringent in the nation. This comparison between CARB's control measures and the measures currently in place at the federal level and/or within other states and jurisdictions illustrates the stringency of the current CARB on-road heavy-duty control program, which meets the stringency requirements of MSM.

Furthermore, CARB staff have conducted an analysis of the timing of the new measures included in the 2022 State SIP Strategy, which go beyond the stringency of the current control program as it is now being implemented and thus beyond MSM. Many of these measures are still in their development phases and are not yet being implemented; the development timeline, however, is critical to allowing industry and technological advancements to progress sufficiently such that the newly emerging technologies called for in these regulatory actions (most of which are technology-inducing regulations) have sufficient time to attain market readiness. Table 18, below, discusses the timeframe considerations for each of the applicable medium- and heavy-duty control measures, and indicates why a more expedited timeframe is neither technologically nor economically feasible. For these reasons, the measures meet the MSM requirement of being phased in as "expeditiously as practicable" and go beyond MSM requirements in terms of stringency.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Table 18: Medium- and Heavy-Duty Control Measures – Stringency and Timeline for Implementation

Measures	Implementation Begins	12 µg/m ³ Annual PM _{2.5} Standard (2012)
New Heavy-Duty Vehicle Standards		
Mandatory Emission Standards (Internal Combustion Engines)		
Heavy-Duty Emission Standards for New Vehicles and Engines (Mandatory)	ongoing	MSM
Heavy-Duty Omnibus Regulation (Mandatory Emission Standards)	2024	MSM
CARB's mandatory emission standards for heavy-duty vehicles and engines harmonize with federal standards for NOx and PM emission requirements through MY 2023. For MY 2024 and later, the Omnibus regulation established new low NOx and lower PM Standards that, when implemented, will be the lowest in the nation. Adopted in 2021, the omnibus regulation is a technology-forcing regulation; further stringency is infeasible. The Omnibus regulation also lengthened the useful life and emissions warranty provisions for heavy-duty diesel engines. Heavy-Duty emission standards for new vehicles and engines require years of lead time to be developed, certified, manufactured, and implemented; a more accelerated timeline is infeasible.		
Optional Emission Standards (Internal Combustion Engines)		
Optional Low-NOx Emission Standards for Heavy-Duty Engines	ongoing	MSM
Heavy-Duty Omnibus Regulation (Optional Emission Standards)	2024	MSM
CARB's optional Low-NOx emission standards are the most stringent in the nation, and are technology-forcing regulations that have driven the development and market readiness of the cleanest heavy-duty engines. The Omnibus regulation, when implemented, will further lower CARB's optional low-NOx emission standards to an even lower level; further increases in stringency are not feasible. Vehicle emission standards, including optional standards, are dependent on technological development, and require years of lead time to be developed, certified, manufactured, and implemented; a more accelerated timeline is infeasible.		
Zero-Emission Truck Standards – Sales and Manufacturer Requirements		
Advanced Clean Trucks	2024	MSM
Adopted in 2020, the Advanced Clean Trucks (ACT) regulation established manufacturer zero-emission truck sales requirements for Class 2b – Class 8 trucks beginning in 2024, as well as company and fleet reporting requirements. The ACT regulation has the most stringent zero-emission truck requirements in the nation. As a technology-forcing regulation, ACT will accelerate the development and deployment of Zero-Emission Heavy-Duty trucks and engines; further increases in stringency are not feasible. Manufacturer sales requirements need years of lead time to be implemented; it would be infeasible to implement on a more accelerated timeframe.		
Warranty, Useful Life, and On-Board Diagnostics (OBD) Requirements		
California Emission Control System Warranty and Maintenance Provisions	ongoing	MSM
Amendments to Useful Life & Warranty Provisions (as part of Omnibus)	2027	MSM
For MY 2022 - 2026 engines, California's Emission Control System Warranty and Maintenance Provisions are the most stringent in the nation. Adopted in 2021, the Omnibus Regulation further amended the warranty and useful life provisions for heavy-duty engines for MY 2027 and later years. To help ensure emission controls are well maintained and repaired when needed, and to help ensure more durable emission control systems, Omnibus extends the criteria pollutant emissions warranty and useful life period requirements for heavy-duty vehicles and engines. For MY 2027 – 2031 and later years, California warranty and useful life requirements are at least as stringent as the federal requirements. As technology-forcing regulations, California's warranty and maintenance provisions are the most stringent in the nation; further increases in stringency are not feasible. Likewise, an accelerated timeline is not feasible; the requisite technological innovations and developments needed to meet California's level of stringency require years of lead time for implementation, as manufacturers must have sufficient time to develop, test, certify, and manufacture these needed advanced technologies.		
Heavy-Duty On-Board Diagnostics (HD OBD) and OBD II	ongoing	MSM
Amendments to Useful Life & Warranty Provisions (as part of Omnibus)	2024	MSM
The Heavy-Duty OBD regulation required that all MY 2013 and later engines offered for sale in California come equipped with OBD systems. CARB and federal OBD regulations for heavy-duty vehicles generally align for MY2013 – current engines, although CARB's program has been amended to be more stringent than U.S. EPA's for certain vehicle types. With the 2021 adoption of the Omnibus regulation, California's threshold for OBD requirements will become more stringent, concurrent with the phase-in of more stringent emission requirements. Omnibus also requires		

CARB Control Program MSM Analysis for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan

Measures	Implementation Begins	12 µg/m ³ Annual PM _{2.5} Standard (2012)
updates to address cold start emissions and diesel PM monitoring. Many of the regulatory changes are phased-in, as full implementation is not anticipated to be technologically feasible until 2027. As the most stringent requirements in the nation, for these technology-forcing regulations, further increases in stringency are not feasible. Furthermore, because OBD requirements need significant lead time to be developed, adopted, and implemented, they require sufficient lead time for manufacturers to develop, test, and manufacture the needed hardware and/or software changes, and to verify via testing; an accelerated timeline for implementation is therefore not feasible.		
In-Use Emission Control Measures		
Inspection and Maintenance Provisions		
HD Diesel Vehicle Inspection Program (HDVIP)	ongoing	MSM
Periodic Smoke Inspection Program (PSIP)	ongoing	MSM
HD Inspection and Maintenance Program (HD I/M)	ongoing	MSM
Heavy-Duty In-Use Testing Program (HDIUT) (Part of Omnibus Regulation)	2024	MSM
<p>California's in-use testing program (including the HD I/M, HDVIP and PSIP regulations) is the most stringent in the nation, with further increases in stringency going into effect in 2024 (HDIUT).</p> <ul style="list-style-type: none"> Amended in 2018, HDVIP requires heavy duty vehicles to be inspected for smoke opacity, tampering, and engine certification label compliance. PSIP identifies malfunctioning PM emission control components and requires their repair. The 2018 amendments to HDVIP and PSIP lowered the smoke opacity limits and required engines over four years old to be inspected annually. Adopted in 2021, HD I/M is a comprehensive heavy-duty vehicle inspection and maintenance regulation requiring periodic vehicle emissions testing and reporting on nearly all heavy-duty vehicles operating in California. Combining periodic vehicle testing with other emissions monitoring and expanded enforcement strategies, the HD I/M regulation ensures that vehicles' emissions control systems are properly functioning when traveling on California's roadways, and that polluting, poorly maintained heavy-duty vehicles operating in California are quickly identified and repaired. As of 2023, CARB is using roadside emissions monitoring devices (REMD) to screen for vehicles that may have high emissions. To ensure that in-use heavy-duty vehicles continue to operate at their cleanest possible level, the 2020 Omnibus regulation amended the Heavy-Duty In-Use Testing (HDIUT) Program by revising procedures to better represent heavy-duty vehicle operations in real world conditions, establishing clearer criteria for engine family pass/fail determination, and requiring on-board diagnostic (OBD) data during testing to verify the condition of the test vehicle and sensors. <p>California's HD inspection and maintenance requirements are the most stringent in the nation; further increases in stringency are not feasible. Further increases in stringency under the Omnibus Regulation take effect next year and are phased-in in subsequent years to allow regulated parties and manufacturers sufficient lead time to comply with the regulation's stringency; a more accelerated timeline is infeasible.</p>		
Diesel Idling Requirements		
HD Idling Reduction Program	ongoing	MSM
Reduced Idling Limits (as part of Omnibus)	2024	MSM
School Bus Idling ATCM	ongoing	MSM
<p>The HD Idling Reduction Program requires that drivers of diesel-fueled commercial motor vehicles (GVWR < 10,000 lbs), including buses and sleeper berth equipped trucks, not idle the vehicle's primary diesel engine longer than five minutes at any location. The regulation also consists of new engine and in-use truck requirements and emission performance requirements for technologies used as alternatives to idling the truck's main engine. Under the new engine requirements, 2008 and newer model year heavy-duty diesel engines need to be equipped with a non-programmable engine shutdown system that automatically shuts down the engine after five minutes of idling. The Omnibus regulation further reduces diesel idling limits from 30 g/hr to 10 g/hr in MY 2024, and to 5 g/hr in MY 2027+ engines. In addition to the idling limits required under the HD Idling Reduction program and the Reduced Idling Limits as part of the Omnibus Regulation, the School Bus Idling Airborne Toxic Control Measure (School Bus ATCM) further limits bus and commercial motor vehicle idling near schools or at school bus destinations to only when necessary for safety or operational concerns. California's idling requirements are the most stringent in the nation; further increases in stringency are not feasible. Reduced idling limits from the Omnibus Regulation take effect next year (2024+) and are phased-in in subsequent years to allow regulated parties and manufacturers sufficient lead time to comply with the regulation's stringency; a more accelerated timeline is infeasible.</p>		
Fleet Rules - General		
Truck and Bus	ongoing	MSM

CARB Control Program MSM Analysis for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan

Measures	Implementation Begins	12 µg/m ³ Annual PM _{2.5} Standard (2012)
Advanced Clean Fleets (ACF) Regulation (2022 State SIP Strategy measure, adopted April 2023)	2024	MSM
Zero-Emission Trucks Measure (2022 State SIP Strategy measure with commitment)	2030	<u>Beyond</u> MSM
<p>California's heavy-duty fleet rules are the most stringent in the nation, and have continually relied on the newest developments in advanced clean technologies that are spurred by CARB's new engine and vehicle standards. For the timeline of analysis for this document, there have been / will be three generations of fleet rules, which transition California's heavy-duty fleet from low-emission internal combustion engines to increasingly stringent requirements for zero-emission technologies:</p> <ul style="list-style-type: none"> Adopted in 2010, the Truck and Bus regulation requires heavy-duty diesel vehicles that operate in California to reduce exhaust emissions. By 2023, nearly all trucks and buses will be required to have 2010 or newer model year engines to reduce PM and NOx. Building on the successful emission reductions from Truck and Bus, the Advanced Clean Fleets (ACF) regulation would transition CARB's fleet rules toward establishing zero-emission purchasing requirements for medium- and heavy-duty vehicle fleets (including state and local agencies, and drayage fleets, high priority, and federal fleets), beginning in 2024. ACF would also require 100% zero-emission new vehicle sales starting 2040. Under the recently-adopted ACF regulation, together with the ACT regulation, the number of medium- and heavy-duty ZEVs operating in California will be about 1.2 7 million by 2045. The future Zero-Emission Trucks Measure would build on the rollout of ZE trucks through the Advanced Clean Trucks and Advanced Clean Fleets regulations by going beyond ACF requirements and further increasing the number of ZEVs, with the goal of achieving a full ZEV fleet by 2045 everywhere feasible. It would seek to expand the ZEV market in a manner that is economically feasible for more than 100,000 fleets where some cannot afford to purchase new trucks and will not be able to operate without access to retail ZEV infrastructure, especially for long-haul and inter-state vehicles. <p>Fleet requirements need years of lead time to be implemented for reasons of technological and economic feasibility. As purchasing requirements and fleet turnover cannot happen immediately, it would be infeasible to accelerate the implementation schedule for new purchasing requirements. California's currently committed to heavy-duty fleet requirements are technology-forcing and are the most stringent in the nation, as they will eventually exclusively require zero-emission trucks and engines; further increases in stringency are not feasible.</p>		
Fleet Rules - Drayage Trucks		
Truck and Bus	ongoing	MSM
Advanced Clean Fleets (ACF) Regulation (2022 State SIP Strategy measure, adopted April 2023)	2024	MSM
<p>Drayage trucks are subject to requirements under the Truck and Bus Regulation, which requires MY 2010 or newer engines on drayage trucks entering ports and rail yards, beginning in on January 1, 2023. Under the Advanced Clean Fleets (ACF) Regulation, CARB will further strengthen emission controls for drayage fleets with zero-emission drayage truck requirements. Drayage trucks will be required to start transitioning to zero-emission technology beginning in 2024, with full implementation by 2035. Fleet requirements need years of lead time to be implemented for reasons of technological and economic feasibility. As purchasing requirements and fleet turnover cannot happen immediately, it would be infeasible to accelerate the implementation schedule for new purchasing requirements. California's fleet requirements for drayage trucks are technology-forcing and are the most stringent in the nation, as they will require zero-emission trucks and engines; further increases in stringency are not feasible.</p>		
Fleet Rules - Solid Waste Collection Vehicles (SWCVs)		
Solid Waste Collection Vehicle Regulation	ongoing	MSM
Truck and Bus	ongoing	MSM
Advanced Clean Fleets (ACF) Regulation (2022 State SIP Strategy measure, adopted April 2023)	2024	MSM
<p>Adopted in 2003, the Solid Waste Collection Vehicle Regulations reduce diesel PM from SWCVs by requiring engines equivalent to the 2007 MY standard of 0.01 g/bhp-hr. SWCVs are also subject to requirements under the Truck and Bus Regulation, which requires MY 2010 or newer engines as of January 1, 2023. The ACF regulation will accelerate ZEV adoption among SWCVs, with a goal of 100 percent ZE vehicle sales in California starting in 2036. Fleet requirements need years of lead time to be implemented for reasons of technological and economic feasibility. As purchasing requirements and fleet turnover cannot happen immediately, it would be infeasible to accelerate the implementation schedule for new purchasing requirements. California's fleet requirements for SWCVs are technology-forcing and are the most stringent in the nation, as they will require zero-emission trucks and engines; further increases in stringency are not feasible.</p>		

CARB Control Program MSM Analysis for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan

Measures	Implementation Begins	12 µg/m ³ Annual PM _{2.5} Standard (2012)
Fleet Rules - Public Agencies and Utilities		
Public Agency and Utility Regulation	ongoing	MSM
Truck and Bus	ongoing	MSM
Advanced Clean Fleets (ACF) Regulation (2022 State SIP Strategy measure, adopted April 2023)	2024	MSM
<p>The Public Agency and Utility Regulation requires PM emission limits comparable to the 2007 MY standard of 0.01 g/bhp-hr for engine MY 1960 or newer. Some public and utility fleets are also subject to requirements of Truck and Bus, and must have MY 2010 or newer engines as of January 1, 2023. The ADF regulation accelerates ZEV adoption among all state and local government and utility fleets, starting with a 50% purchase requirement in 2024, with increasingly stringent requirements phased-in over subsequent years. Fleet requirements need years of lead time to be implemented for reasons of technological and economic feasibility. As purchasing requirements and fleet turnover cannot happen immediately, it would be infeasible to accelerate the implementation schedule for new purchasing requirements. California's fleet requirements for public and utility fleets are technology-forcing and are the most stringent in the nation, as they will require zero-emission trucks and engines; further increases in stringency are not feasible.</p>		
Fleet Rules - Transit Agencies		
Fleet Rule for Transit Agencies	ongoing	MSM
Innovative Clean Transit	2023	MSM
<p>The Transit Fleet Rule requires PM and NO_x emission reductions from urban buses and transit fleet vehicles, and required future zero-emission bus purchases. Adopted in 2018, the Innovative Clean Transit (ICT) Regulation requires all public transit agencies to gradually transition to a 100 percent zero-emission bus (ZEB) fleet. Beginning in 2029, 100% of new purchases by transit agencies must be ZEBs, with a goal for full transition by 2040. Fleet requirements need years of lead time to be implemented for reasons of technological and economic feasibility. As purchasing requirements and fleet turnover cannot happen immediately, it would be infeasible to accelerate the implementation schedule for new purchasing requirements. California's fleet requirements for transit agencies are technology-forcing and are the most stringent in the nation, as they will require zero-emission trucks and engines; further increases in stringency are not feasible.</p>		
Fleet Rules - Airport Shuttle Buses		
Truck and Bus	ongoing	MSM
Zero-Emission Airport Shuttle Buses	2027	MSM
<p>The Truck and Bus Regulation requires airport shuttle buses to use MY 2010 or equivalent engines by 2023. The Zero-Emission Airport Shuttle Bus Regulation requires airport shuttle operators to transition to 100 percent zero-emission vehicle (ZEV) technologies. Airport shuttle operators must begin adding zero-emission shuttles to their fleets in 2027, and complete the transition to ZEVs by the end of 2035. Fleet requirements need years of lead time to be implemented for reasons of technological and economic feasibility. As purchasing requirements and fleet turnover cannot happen immediately, it would be infeasible to accelerate the implementation schedule for new purchasing requirements. California's fleet requirements for airport shuttle buses are technology-forcing and are the most stringent in the nation, as they will require zero-emission trucks and engines; further increases in stringency are not feasible.</p>		
School Buses – In-Use Control Programs		
Truck and Bus	ongoing	MSM
School Bus Idling ATCM	ongoing	MSM
Heavy-Duty Omnibus Regulation	2024	MSM
School Bus Incentive Program	ongoing	MSM
<p>The Truck and Bus regulation applies to school buses > 14,000 lbs., GVWR, and requires the use of diesel particulate filters. The School Bus Idling Airborne Toxic Control Measure (School Bus ATCM) further limits bus and commercial motor vehicle idling near schools or at school bus destinations to only when necessary for safety or operational concerns. Under the Omnibus Regulation, idling limits for diesel heavy-duty vehicles will be reduced from 30 g/hr currently to 10 g/hr in MY 2024 and to 5 g/hr in MY 2027. CARB also uses incentive funds as a key component of the strategy to reduce emissions from the school bus fleet. Over the past two decades, CARB's School Bus Incentive Program has invested over \$1.2 billion to date to clean up old, higher-polluting school buses, which has supported about 1,800 zero emission school buses. California's requirements for in-use control programs for school buses are among the most stringent in the nation; it would be infeasible to accelerate the implementation schedule, or require further increases in stringency.</p>		

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Measures	Implementation Begins	12 µg/m ³ Annual PM _{2.5} Standard (2012)
Fuels Control Measures		
Conventional Diesel Fuel Standards		
CARB Ultra Low Sulfur Diesel (ULSD)	ongoing	MSM
Low-Emission Diesel Requirement (2016 State SIP Strategy measure, not yet adopted)	TBD	<u>Beyond</u> MSM
<p>CARB's Ultra Low Sulfur Diesel (ULSD) regulation was last amended 2003 to establish more stringent standards for diesel fuel, lowering the sulfur limit to 15 ppmw. Relative to federal diesel requirements, CARB ULSD reduces NOx and PM emissions significantly. The Low Emission Diesel measure will require diesel fuel providers to steadily decrease criteria pollutant emissions from their fuels, which will reduce NOx and PM tailpipe emissions. CARB fuel regulations reduce emissions from even those vehicles registered out of state and therefore not subject to CARB's other mobile source control measures. CARB's diesel standards and requirements are the most stringent in the nation, and some of the most stringent in the world; it is not feasible to require further stringency of fuel specifications.</p>		
Alternative Fuel Standards		
Low Carbon Fuel Standard (LCFS)	ongoing	MSM
Alternative Diesel Fuel (ADF) Regulation	ongoing	MSM
<p>The LCFS and ADF regulations work together to reduce the carbon intensity of the California fuel supply. The regulations also limit criteria emissions from alternative fuels and/or alternative fuel mix blends. The regulations were amended in 2018 to extend the carbon intensity target of 20 percent to 2030. No other state or federal requirements have set as stringent of criteria emission requirements on alternative fuels and alternative fuel blends than California. The LCFS and ADF are technology-forcing regulations, and are the most stringent in the nation; further stringency would not be feasible. As it takes fuel producers years to develop, certify, and manufacture new alternative fuel types to meet the increasingly stringent requirements of the LCFS and ADF, an accelerated implementation timeframe would not be feasible.</p>		

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

**STEP 3(B): EVALUATION OF FEASIBILITY: MEDIUM- AND HEAVY-DUTY
CONTROL MEASURES**

Step 3(b) calls for an assessment of the feasibility of implementing any measure that is not included in the proposed South Coast SIP, but which is identified as a potential control measure in Step 2. During the public process for the 2022 State SIP Strategy, CARB staff received public measure suggestions for additional potential heavy-duty measures, as described below. Staff developed the Zero-Emission Trucks measure in response to these public measure suggestions.

- **On-Road Heavy-Duty Vehicle Useful Life Regulation**
This suggestion would involve CARB developing a regulation, potentially paired with new incentives or legislative measures, to require on-road heavy-duty vehicles that have reached the end of their useful life as defined in Senate Bill 1,⁹⁵ as the earlier of 800,000 vehicles miles traveled or 18 years from the engine model year to retire, replace, retrofit, or repower the on-road heavy-duty vehicle or engine, and upgrade to zero-emission trucks.

CARB staff has investigated the feasibility and potential benefits of this suggested measure and have included it as one potential option in the ***Zero-Emission Trucks measure*** in the 2022 State SIP Strategy.

- **Additional Incentive Programs: Zero-Emission Trucks**
Additional incentive programs are needed to send clear signals to the market and support new scrap and replace regulatory programs, specifically to help ensure that smaller trucking companies have more consistent access to zero-emission truck incentives. This measure would involve CARB working to develop incentive programs which should include consideration of policies other jurisdictions have employed such as supporting local zero-emission zones and/or differentiated registration fees so that dirtier trucks pay more and zero-emission trucks have a consistent source of incentive funding.

CARB staff has investigated the feasibility and potential benefits of this suggested measure, and have included it as one potential element of the ***Zero-Emission Trucks measure*** in the 2022 State SIP Strategy.

- **Indirect Source Rule**
This measure could involve CARB writing a Suggested Control Measure which acts as a model rule to assist the air districts in the rule development process. An indirect source can be any facility, building, structure, or installation, or combination thereof, which attracts or generates mobile source activity that results in emissions – these include warehouses, railyards, ports, airports, and mobile sources attracted to those warehouses, railyards, ports, and airports. Only a few air districts in California have indirect source rules to limit emissions of this nature on a facility basis.

⁹⁵ Beall, Chapter 5, Statutes of 2017 https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201720180SB1

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 $\mu\text{g}/\text{m}^3$ annual PM_{2.5} Plan**

CARB staff have investigated the feasibility and potential benefits of this suggested measure, and have included an Indirect Source Regulation as one potential element of the Zero-Emission Trucks measure in the 2022 State SIP Strategy. In addition, CARB staff will explore opportunities to expand existing State law to provide partnership opportunities for CARB and air districts to work together to develop, adopt, and implement indirect source rules.

CARB staff do not recommend eliminating any of the potential medium- and heavy-duty control measures identified on the basis of technical or economic infeasibility.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Off-Road Sources

Off-road mobile sources include a wide variety of engines ranging from locomotives, ships, and aircraft, to equipment used in the agricultural, construction, mining, and freight / goods movement industries. This category is composed of off-road compression ignition (diesel) engines and equipment, small spark ignition off-road engines and equipment less than 25 hp (including lawn and garden equipment, and small industrial equipment), off-road large spark ignition (gasoline and liquefied petroleum gas) engines and equipment 25 hp and greater (including industrial equipment, forklifts, and portable generators), airport ground support equipment, and cargo handling equipment used at railyards, warehouses, and the Ports of LA and Long Beach. Similar to the on-road sectors, California has a comprehensive program for reducing emissions from off-road equipment that goes well beyond current requirements in place elsewhere in the nation.

While emission standards for locomotives are set by U.S. EPA, CARB has accelerated reductions from these sources through efforts that have focused on cleaner fuel requirements, and increasing use of cleaner locomotives. CARB staff and the Class I railroads have also been implementing a memorandum of understanding to accelerate the introduction of cleaner locomotives since 2005. The recently adopted In-Use Locomotive Regulation accelerates the adoption of advanced, cleaner technologies for locomotive operations, including zero-emission technologies.

Similarly, emission standards for Ocean-Going Vessels (OGVs) are largely regulated on an international level by the International Maritime Organization (IMO), whose primary focus is reducing NO_x and GHG emissions from OGVs. IMO marine engine standards for OGVs regulate NO_x emissions only, with no PM standards in place. Increased emissions are occurring from all modes of OGV operations (in transit, maneuvering, anchoring, and at berth) because of increased import/export activity and seaport congestion (which may be associated with a variety of factors, including the global pandemic, increased purchasing by consumers, periodic labor disputes, tariff changes, etc.). The majority of emissions from OGVs occur while vessels are in transit and operating their large slow-speed marine engines, which are typically powered by heavy fuel oil (or “bunker fuel”).⁹⁶ CARB’s Vessel Clean Fuel Regulation requires OGVs to use 0.1 percent sulfur distillate grade fuels (marine diesel oil/marine gas oil) for all OGVs sailing within 10 nautical miles of the California coast to help reduce emissions from OGVs. CARB’s At Berth Regulation requires regulated vessels to connect to shore power or use an alternative emissions control technology to reduce emissions while docked at berth at regulated California seaports.

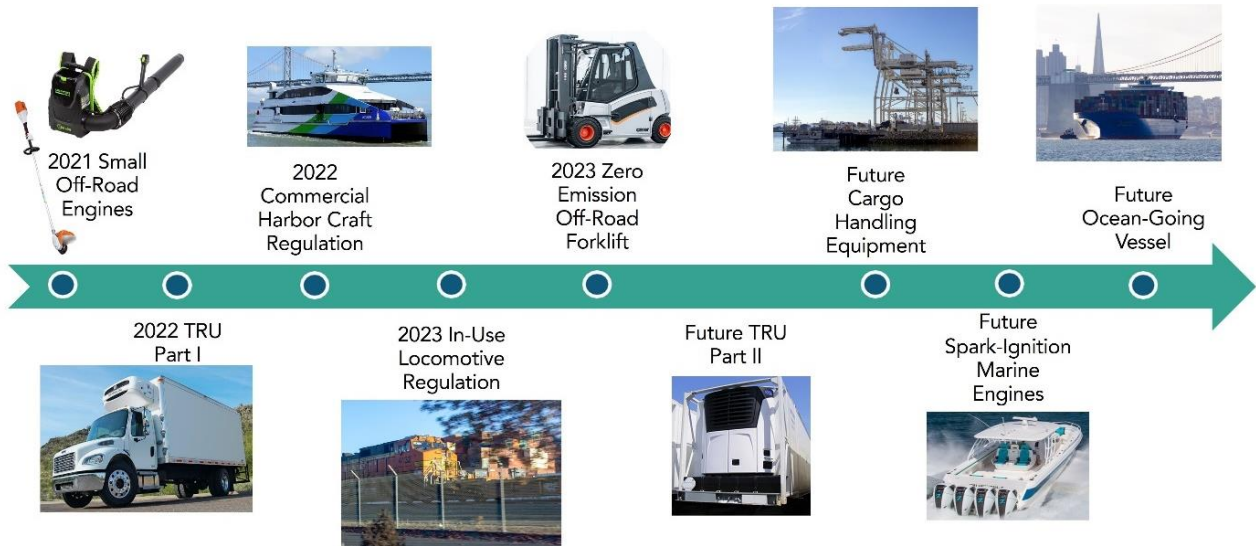
STEP 2(A): CALIFORNIA’S OFF-ROAD CONTROL MEASURES

Emission reductions from ongoing implementation of the current off-road control program are projected to reduce emissions of NO_x by over 47 percent between today and 2030, emissions of direct PM by over 44 percent between today and 2030, and emissions of ammonia by approximately 15 percent between today and 2030. Achieving reductions in the off-road sectors remains a greater challenge than in the on-road sector

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

due to the diverse nature of these sources, regulatory authority that rests outside of CARB in many cases, and the length of time sources remain in the fleet.

Figure 5: Off-Road Control Measures



The major regulatory and programmatic control measures that provide these emissions reductions are described below.

NEW VEHICLE, EQUIPMENT, AND ENGINE STANDARDS

Internal Combustion Off-Road Equipment (General)

To control emissions from off-road equipment, CARB adopted in 2004 a fourth tier of increasingly stringent PM and NO_x standards based on the use of advanced aftertreatment emission controls. U.S. EPA also adopted the Tier 4 standards in 2004. California's current standards are equal in stringency to current federal standards. These **"Tier 4" standards** apply to new off-road compression-ignition engines, and were phased-in across product lines from 2008 through 2015 and reduced exhaust emission levels by up to 95 percent compared to previous control strategies. New engine standard requirements vary according to the power rating of engines. **Error! Reference source not found.** shows the schedule for phasing in tiered requirements for new off-road engines with a power rating between 175 and 300 hp. Beginning in 2014, new Tier 4 construction equipment must emit about 96 percent less NO_x and PM than new Tier 1 equipment sold in the year 2000.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Table 19: Phase-in of Off-Road Engine Standards

Model year	Level of Control	Applicable Emission Standard for New Off-road Engines 175<hp<300 g/bhp-hr	
		NOx	PM
1996-2002	Tier 1	6.9	0.4
2003-2005	Tier 2	4.9*	0.15
2006-2010	Tier 3	3.0*	0.15
2011-2013	Tier 4 interim	1.5	0.015
2014+	Tier 4 final	0.3	0.015
Under development	Tier 5 Standards	TBD	TBD

*Reflects combined limit for non-methane hydrocarbons and NOx

Moving beyond the stringency of emission controls required in the current control program, in the 2022 State SIP Strategy, CARB committed to ***Tier 5 Off-Road New Compression-Ignition Engine Standards***, which would go beyond MSM and establish more stringent standards and test procedures for new, off-road compression-ignition (CI) engines to reduce NOx, PM, and carbon (CO₂) emissions (referred to as Tier 5) for all off-road engine power categories, including those that do not currently utilize exhaust aftertreatment such as diesel particulate filters (DPF) and selective catalytic reduction (SCR). CI engines are used in a wide range of off-road equipment including tractors, excavators, bulldozers, graders, and backhoes. As of model year 2020, more than half of all new off-road CI engine families continue to be certified to California's most stringent (Tier 4 final) emission standards without the need for DPFs. This means that most new off-road CI engines are not reducing toxic diesel PM to the greatest extent feasible using the best available technology. The proposed new Tier 5 standards and test procedures would be more stringent than required by current U.S. EPA and European Stage V nonroad regulations and would require the use of best available technologies for both PM and NOx. Lower NOx standards – up to 90 percent below the current Tier 4 final emission standard levels – coupled with lower PM standards, would force engine manufacturers to incorporate DPFs, which many currently do not have. DPFs would also ensure greater reductions in ultrafine PM, which may pose a health concern separate from PM emissions as a whole.

CARB has also engaged in a number of feasibility studies and technological demonstrations of the requisite technologies for this measure:

- CARB funded a research effort demonstrating the feasibility of advanced aftertreatment on 79 small off-road CI engines, which was completed by the Center for Environmental Research and Technology (CE-CERT) in 2019. Small off-road CI engines (less than 56-kilowatt [kW] or 75 hp) are not currently required to comply with advanced NOx aftertreatment-based standards, and a subset of these engines that are less than 19 kW (25 hp) are not required to comply with advanced PM aftertreatment--based standards. Small off-road CI engines account for between 20 to 40 percent of the off-road diesel PM and NOx emissions inventories in California.⁹⁶

⁹⁶ "Evaluation of the feasibility, cost-effectiveness, and necessity of equipping small off-road diesel engines with advanced PM and/or NOx aftertreatment" – CARB Contract No. 14-300, March 2019, <https://ww2.arb.ca.gov/sites/default/files/2020-10/14-300.pdf>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

- A recent research effort performed for CARB by CE-CERT concluded that current reporting and recordkeeping requirements are insufficient for determining the number of engines and equipment sold in California with less-stringent emission levels under both the federal Average, Banking, and Trading program and the federal Transition Program for Equipment Manufacturers.⁹⁷ Hence, it would be helpful to revise and improve the reporting and recordkeeping requirements.
- Recent CARB funded demonstrations of ultra-low NOx on-road engines conducted at the Southwest Research Institute (SWRI) show that much lower NOx standards are feasible for on-road engines. Because off-road diesel engines are similar in technology to on-road heavy-duty diesel engines, this work suggests that lower NOx standards are likely feasible for off-road engines as well. Additionally, CARB is currently funding an off-road demonstration project with SWRI to support determining the feasibility of more stringent off-road standards for NOx, PM, and CO₂.
- Recent CARB test data, consistent with test data presented by reputable diesel publications, indicate that up to 40 percent of a typical off-road CI engine's in-use operation occur at idle,⁹⁸ and that the frequency of in-use low-load- operation⁹⁹ is insufficient to keep exhaust emission aftertreatment temperature above 250 degrees Celsius, that enables efficient SCR operation to control NOx emissions. Establishing new idle emission reduction strategies and a low-load test cycle are also being investigated as part of this Tier 5 measure.

Under this measure, CARB would develop and propose standards and test procedures for new off-road CI engines including the following: aftertreatment-based PM standards for engines less than 19 kW (25 hp), aftertreatment-based NOx standards for engines greater than or equal to 19 kW (25 hp) and less than 56 kW (75 hp), and more stringent PM and NOx standards for engines greater than or equal to 56 kW (75 hp) and first time CO₂ tailpipe standards targeting a 5 to 8.6 percent reduction. Other possible elements include enhancing in-use compliance, proposing more representative useful life periods, idle requirements and developing a low load test cycle. It is expected that Tier 5 requirements would rely heavily on technologies manufacturers are developing to meet the recently approved low-NOx standards and enhanced in-use requirements for on-road- heavy-duty engines.

Zero-Emission Off-Road Equipment (General)

CARB anticipates increasing the stringency of Off-Road engine requirements through a rule requiring Zero-Emission manufacturer requirement. With the **Off-Road Zero-Emission Targeted Manufacturer Rule** measure, a commitment in the 2022 State SIP Strategy, CARB would accelerate the development and production of zero-emission off-road equipment and powertrains into more sectors (including wheel

⁹⁷ "Evaluation of the Impacts of Emissions Averaging and Flexibility Programs for all Tier 4 Final Off-road Diesel Engines," CARB Contract No. 14-301, February 2018, https://ww2.arb.ca.gov/sites/default/files/classic/research/apr/past/14-301.pdf?_ga=2.127732621.1682659074.1620315165-1165705998.1587147934

⁹⁸ <https://www.constructionequipment.com/home/blog/10727772/thinking-through-fuel-burn-rates>

⁹⁹ Measurement of PM and Gaseous Emissions from Cargo Handling Equipment (CHE) during Real-World Operation – David Quiros, 29th CRC Real World Emissions Workshop, March 2019

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

loaders, excavators, and bulldozers) as technology advancements occur due to existing CARB zero-emission regulations and regulations in the forklifts, cargo handling equipment, off-road fleets, and small off-road engines sectors. For this measure, CARB would propose to develop a regulatory measure that would require manufacturers of off-road equipment and/or engines to produce for sale zero-emission equipment and/or powertrains as a percentage of their annual statewide sales volume to ensure these globally emerging zero-emissions products and related innovations come to California.

REDUCING IN-USE EMISSIONS

Fleet Rules: Off-Road Equipment (General)

Large diesel off-road equipment typically remains in use for long periods of time. As with heavy-duty trucks, this long life means that newer, lower-emitting engines would be introduced into fleets relatively slowly. To address this, ***the Cleaner In-Use Off-Road Equipment Regulation (Off-Road Regulation)*** was adopted in 2007, and amended in 2009 and 2010. The regulation covers all self-propelled off-road diesel vehicles 25 horsepower or greater used in California and most two-engine vehicles (except on-road two-engine sweepers). The Off-Road Regulation requires off-road fleets to reduce their emission by retiring, replacing, or repowering older engines. This Regulation expanded the penetration of existing clean technology to ensure that the engines and vehicles used today are as clean as possible. U.S. EPA approved this regulation in 2013. The types of off-road equipment controlled by this regulation are used in construction, manufacturing, the rental industry, road maintenance, airport ground support, and landscaping. In December 2011, the Off-Road Regulation was modified to include on-road trucks with two diesel engines.

The Off-Road Regulation is an extensive program designed to accelerate the penetration of the cleanest equipment into California's fleets. This regulation significantly reduces emissions of diesel PM and NO_x from the over 150,000 in-use off-road diesel vehicles that operate in California by requiring their owners to modernize their fleets and install exhaust retrofits. The regulation requires that fleets meet an increasingly stringent set of fleet average targets, culminating in 2023 for large and medium fleets (large fleets represent about 54 percent of vehicle ownership) and in 2028 for small fleets. The most stringent fleet average target generally corresponds to roughly a 2012 model year, or a Tier 3 average standard. In 2015, the program reduced emissions from 10,447 vehicles used in 838 fleets by requiring owners to modernize their fleets by replacing older engines or vehicles with newer, cleaner models, retiring older vehicles or using them less often, or by applying retrofit exhaust controls. The Off-Road Regulation imposes idling limits on off-road diesel vehicles, requires a written idling policy, and requires a disclosure when selling vehicles. The Regulation also requires that all vehicles be reported to CARB and labeled, restricts the addition of older vehicles into fleets, and requires fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing verified exhaust retrofits. The requirements and compliance dates of the Off-Road Regulation vary by fleet size.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

With the **2022 Amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation**, CARB further reduced emissions from the in-use off-road diesel equipment sector by increasing the stringency of the regulation's requirements. These amendments create additional requirements to the currently regulated fleets by targeting the oldest and dirtiest equipment that is allowed to operate indefinitely under the current regulation's structure. The amendments will require fleets to phase-out use of the oldest and highest polluting off-road diesel vehicles in California and prohibit the addition of high-emitting vehicles to a fleet. The amendments phase-in starting in 2024 through the end of 2036, and include changes to enhance enforceability and encourage the adoption of zero-emission technologies. The In-Use Off Road Diesel Fleets Regulation also requires the use of R99 or R100 renewable diesel in off-road diesel vehicles starting in January 2024 for all fleets.

CARB anticipates further emission reductions from the off-road equipment fleets through the **Clean Off-Road Fleet Recognition Program measure**. This measure would create a non-monetary incentive to encourage off-road fleets to go above and beyond existing regulatory fleet rule compliance and adopt advanced technology equipment with a strong emphasis on zero-emission technology. This measure would provide a standardized methodology for contracting entities, policymakers, state and local government, and other interested parties to establish guidelines for contracting criteria or require participation in the program to achieve their individual policy goals. For this voluntary program, CARB would establish a framework that would encourage fleets to incorporate advanced technology and ZEVs into their fleets, prior to or above and beyond regulatory mandates. The program would provide standardized criteria or a rating system for fleet participation at various levels to reflect the penetration of advanced technology and ZEVs into a fleet. Levels could be scaled over time as zero-emission equipment becomes more readily available. CARB anticipates the next several years of technology advancements and demonstrations to drive the stringency of the rating system. Participation in the program would be voluntary for fleets; however, designed in a manner that provides them motivation to go beyond business as usual. The program would offer value for fleets to participate by providing them access to jobs/contracts, public awareness, and marketing opportunities.

Beyond the general fleet rules controlling emissions from off-road equipment, CARB has also developed and implemented control measures that target specific to categories of sources within the off-road sector, which are described below.

SOURCE-SPECIFIC RULES

Given the diversity of types of engines, vehicles, and equipment used in the off-road sector, CARB's control strategy includes multiple requirements that are specific to categories of sources within the off-road sector. This includes:

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

[Agricultural Equipment](#)

Emission Standards for Agricultural Equipment

In 2004, U.S. EPA and California adopted equivalent standards that require additional reductions from off-road engines, including engines used in mobile agricultural equipment. These **Tier 4 Engine Standards** continue to achieve substantial reductions in PM_{2.5} and NO_x as new farm equipment is introduced into the fleet.

In-Use Controls: Agricultural Equipment

New engines used in agricultural equipment, primarily tractors, must meet the same standards as other off-road engines ensuring that new equipment becomes progressively cleaner. Just as in other off-road applications, diesel agricultural equipment can remain in use for long periods of time. This long life means that equipment with new, lower emitting engines are introduced into the fleet at a relatively slower pace than what is needed to meet air quality standards. CARB's **Funding Agricultural Replacement Measures for Emission Reductions (FARMER) Program** provides funding through local air districts for agricultural harvesting equipment, heavy-duty trucks, agricultural pump engines, tractors, and other equipment used in agricultural operations. Local air districts receive funds based on a formula and award them to farmers and agricultural businesses for individual projects.

[Airport Ground Support Equipment \(GSE\)](#)

Emission Standards for Airport GSE

Engines used in newly manufactured GSE operating on gasoline, LPG, and CNG are required to meet California's new engine emission standards for LSI. The **LSI engine standard** for engines greater than 1.0 liter (typical for GSE) is 0.6 g/bhp-hr of hydrocarbons (HC) and NO_x. Engines meeting this standard are 70 percent cleaner than LSI engines produced as recent as 2009. Diesel engines in newly manufactured GSE must meet the Tier 4 emission standards applicable to off-road compression-ignition engines under the **In-Use Off Road Diesel-Fueled Fleets Regulation**. These standards vary by horsepower and are more than 90 percent cleaner than the emissions levels of engines produced twenty years ago.

CARB is also anticipated to further increase the stringency of emission controls with the Zero-Emission Airport Ground Support Equipment measure, which will act as a catalyst to further adoption of zero-emission equipment in the off-road sector, facilitate the transfer of technology to suitable heavier duty-cycle applications, and expand use of zero-emission infrastructure.

In-Use Controls: Airport GSE

In addition to adopting regulations limiting emissions from new engines used in GSE, California has adopted regulations to reduce emissions from existing, in-use GSE. In 2007, California adopted the **In-Use Off-Road Diesel-Fueled Fleets Regulation**, which requires fleets operating in-use diesel equipment to meet an annual fleet average emissions target that decreases over time. For example, for equipment over 175 and under 750 HP, the final 2023 NO_x fleet average target is 1.5 g/bhp hr, which is

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

equivalent to the interim Tier 4 NO_x standard for newly produced engines. Fleets that do not meet the required annual fleet average must meet the BACT requirements that require turnover, repower or retrofit of a specific percent of a fleet's total HP. These requirements are currently being phased in. Additionally, fleets operating LSI GSE must meet the ***In-Use LSI Engine Fleet Requirements***. Adopted in 2006, the LSI fleet rule requires GSE fleets to maintain an average emission level of no more than 2.5 g/bhp hr HC+NO_x, starting January 1, 2013. Non-mobile GSE such as portable air-start units, ground power units and air conditioners may be subject to the ***Portable Diesel-Engines Air Toxic Control Measure*** (ATCM). The ATCM reduces PM emissions by requiring engine replacement in a schedule based on a fleet's weighted PM emission average.

CARB is also anticipated to further increase the stringency of emission controls with the ***Zero-Emission Airport Ground Support Equipment measure***, a measure committed to in the 2016 State SIP Strategy, which will act as a catalyst to further adoption of zero-emission equipment in the off-road sector, facilitate the transfer of technology to suitable heavier duty-cycle applications, and expand use of zero-emission infrastructure.

[Cargo Handling Equipment \(CHE\)](#)

Emission Standards for Airport CHE

California's ***Cargo Handling Equipment Regulation*** set performance standards for engines in newly acquired, as well as in-use, mobile CHE at ports or intermodal rail yards in California. Mobile CHE is used to transfer goods or perform maintenance and repair activities and includes equipment such as yard trucks (hostlers), top handlers, side handlers, reach stackers, forklifts, rubber-tired gantry cranes, dozers, excavators, loaders, and railcar movers used in maintenance operations at ports and intermodal rail yards. CARB's CHE Regulation was originally adopted in 2005 to establish BACT requirements for new and in-use cargo handling equipment that operate at California's ports and intermodal rail yards, and was amended in 2011 to include opacity monitoring requirements. CARB obtained authorization for the 2005 version of the regulation in 2012. Under the CHE Regulation, all newly purchased yard truck and non-yard truck equipment brought onto a port or intermodal rail yard must have either a Tier 4 Final off-road engine or an on-road engine meeting the 2010 or newer on-road emission standards. CHE Regulations set performance standards for engines in newly acquired, as well as in-use, mobile CHE at ports or intermodal rail yards in California.

CARB staff anticipates increasing the stringency of emission standards for CHE beyond MSM with the ***Amendments to CHE Regulation***. In March 2018, CARB staff presented to the Board a plan to begin development of a regulation to transition CHE to zero-emission technologies, and to minimize emissions and community health impacts from cargo handling equipment. The CHE amendments would set in-use requirements for diesel cargo handling equipment at ports and rail yards, including but not limited to yard trucks (hostlers), rubber-tired gantry cranes, container handlers, and forklifts. The regulatory amendments would propose to start transitioning CHE to zero-emission with an implementation schedule for new equipment and facility infrastructure requirements,

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

with effective dates beginning in 2030~~26~~. Staff would assess the availability and performance of zero-emission technology as an alternative to all combustion-powered cargo equipment and evaluate additional solutions that may include efficiency improvements. Based on the current state of zero-emission CHE technological developments, the transition to zero-emission would most likely be achieved largely through the electrification of CHE. In this potential action, all mobile equipment at ports and rail yards, including but not limited to diesel, gasoline, natural gas, and propane-fueled equipment, would be subject to new requirements. Staff anticipates that all-yard trucks and forklifts would transition to be zero-emission by 2030~~earliest~~, followed by rubber-tired gantry cranes would be zero-emission by 2032, and 90 percent of other CHE will be zero-emission by 2036. These assumptions are supported by the fact that currently some electric rubber tire gantry cranes, electric forklifts, and electric yard tractors are already commercially available. Other technologies are in early production or demonstration phases. CARB staff would also consider opportunities to prioritize the earliest implementation in or adjacent to the communities most impacted by air pollution. Board consideration for adoption of these amendments is anticipated in 2024.

In-Use Controls: CHE

As described earlier, the ***Cargo Handling Equipment Regulation*** (adopted in 2005, amended in 2011) includes performance standards for in-use, mobile CHE at ports or intermodal rail yards in California. CARB's CHE Regulation was originally adopted in 2005 to establish BACT requirements for new and in-use cargo handling equipment that operate at California's ports and intermodal rail yards, and was amended in 2011 to include opacity monitoring requirements. CARB obtained authorization for the 2005 version of the regulation in 2012. Under the CHE Regulation, all legacy in-use non-yard truck engines that are still in service (Tier 0 – Tier 3) must have a Verified Diesel Emission Control Strategy (VDECS) installed.

CARB anticipates increasing the stringency of in-use requirements beyond MSM with the CHE measure committed to in the 2022 State SIP Strategy. CARB's proposed ***Amendments to the Cargo Handling Equipment Regulation*** would set in-use requirements for diesel cargo handling equipment at ports and rail yards, including but not limited to yard trucks (hostlers), rubber-tired gantry cranes, container handlers, and forklifts. Staff would assess the availability and performance of zero-emission technology as an alternative to all combustion-powered cargo equipment and evaluate additional solutions that may include efficiency improvements. The regulatory amendments would propose an implementation schedule for new equipment and facility infrastructure requirements, with effective dates beginning in 2030~~26~~.

[Commercial Harbor Craft \(CHC\)](#)

Emission Standards and in-use controls for CHC

The ***Commercial Harbor Craft Regulation*** reduces diesel PM and NO_x emissions from a number of types of CHC operating in California. CARB's 2008 and 2011 CHC

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Regulations required NO_x and diesel PM emission controls on crew and supply boats, ferries, excursion vessels, towboats, push boats, tug boats, barges, and dredges.

CARB adopted the ***Amended CHC Regulation in 2022***, establishing expanded and more stringent in-use requirements to cover more vessel categories, including all tank barges, pilot vessels, research vessels, workboats, commercial passenger fishing, and commercial fishing vessels. The amendments also mandate accelerated deployment of zero-emission and advanced technologies in vessel categories where technological feasibility has been demonstrated. Starting in 2023 and phasing in through 2031, most CHC (except for commercial fishing vessels and categories listed below) are required to meet the cleanest possible standard (Tier 3 or 4) and retrofit with DPF based on a compliance schedule. The current regulated CHC categories are ferries, excursion, crew and supply, tug/tow boats, barges, and dredges. The amendments impose in-use requirements on the rest of vessel categories except for commercial fishing vessels, including workboats, pilot vessels, commercial passenger fishing, and all barges over 400 feet in length or otherwise meeting the definition of an ocean-going vessel. The amendments also remove the current exemption for engines less than 50 horsepower. Starting in 2025, all new excursion vessels are required to be plug-in hybrid vessels that are capable of deriving 30 percent or more of combined propulsion and auxiliary power from a zero-emission tailpipe emission source. Starting in 2026, all new and in-use short run ferries are required to be zero-emission; and starting in 2030 and 2032, all commercial fishing vessels need to meet a Tier 2 standard at minimum. The 2022 Amendments to the Commercial Harbor Craft (CHC) Regulation also require the use of at least 99 percent Renewable Diesel (“R100” or “R99”). The use of renewable diesel in CHC will achieve additional emission reductions to the already reduced emissions from Tier 3 or Tier 4 engines plus diesel particulate filters (DPF). Renewable diesel has been required to be used by all CHC operating in the State as of January 1, 2023.

[Forklifts](#)

Emission Standards for Forklifts

Forklifts operate in many different industry sectors but are most prevalent in manufacturing and at locations such as warehouses, distribution centers, and ports. Diesel-fueled forklifts were first subject to engine standards and durability requirements in 1996. The most recent ***Tier 4 Final emission standards*** were phased in starting in 2013. Tier 4 emission standards are based on the use of advanced after-treatment technologies such as diesel particulate filters and selective catalytic reduction. Forklifts powered by LSI engines (gasoline and natural gas) have been subject to new engine standards that include both criteria pollutant and durability requirements since 2001, with the cleanest requirements phased-in starting in 2010.

CARB staff anticipates further increases to the stringency of emission controls with the ***Zero-Emission Off-Road Forklift Regulation Phase I measure***, a commitment from the 2016 State SIP Strategy, which would go beyond MSM and accelerate the deployment of zero-emission forklift technologies. The regulatory amendments would propose requirements that prohibit the new purchases of LSI forklifts, with an implementation schedule beginning in 2026. Forklifts are also subject to further controls

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

under the **Off-Road Zero-Emission Targeted Manufacturer Rule measure**, which CARB committed to in the 2022 State SIP Strategy. This measure would accelerate the deployment of zero-emission forklifts through a measure requiring manufacturers to produce zero-emission equipment and/or powertrains as a percentage of their sales volume.

In-Use Controls: Forklifts

Forklift fleets are subject to both the **LSI Fleet Regulation** (if powered by gasoline or propane), and the **Off-Road Diesel Fleet Regulation** (if powered by diesel) are required to retire, repower, or replace higher-emitting equipment in order to maintain fleet average standards. The **Off-Road Diesel Regulation** was adopted by the Board in 2007 with implementation beginning in 2010. It is applicable to all diesel-fueled, self-propelled off-road equipment with at least 25 HP. Forklifts are included in the fleet average along with other equipment. Additionally, the **LSI fleet Regulation** (which was originally adopted with requirements beginning in 2009) requires fleets with four or more LSI forklifts to meet fleet average emission standards. While the LSI fleet Regulation applies to forklifts, tow tractors, sweeper/scrubbers, and airport ground support equipment, it maintains a separate fleet average requirement specifically for forklifts.

With the recent adoption of the **2022 Amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation**, forklifts are also subject to begin transitioning to zero-emission technologies. Beginning in 2024, requirements begin to transition fleets from the oldest and highest-emitting off-road engines in operation in California by phasing out Tier 0 – Tier 2 equipment. Also beginning in 2024, the regulation includes requirements to restrict the addition of new vehicles and/or engines with Tier 3 and 4i engines, which is an expansion of the provisions of the current regulation, which restrict the vehicle-engine tiers that can be added to a fleet. The regulation also includes elements that require contracting entities to obtain and retain a fleet's valid Certificate of Reported Compliance prior to awarding a contract or hiring a fleet, mandate the use of R99 or R100 Renewable Diesel for all fleets, with some limited exceptions; provide voluntary compliance flexibility options for fleets that adopt zero-emission technology; and include additional requirements to increase enforceability, provide clarity, and provide additional flexibility for permanent low-use vehicles.

CARB is anticipated to further increase the stringency of in-use emission controls for forklifts beyond MSM with the **Zero-Emission Off-Road Forklift Regulation Phase I measure**, a measure committed to in the 2016 State SIP Strategy, which would be designed to accelerate the deployment of zero-emission forklift technologies. The regulatory amendments would propose requirements for fleets to retire existing LSI forklifts that are 13 years and older, and would propose an implementation schedule beginning in 2026. Under the **Amendments to the Cargo Handling Equipment Regulation measure**, which CARB committed to in the 2022 State SIP Strategy, forklifts operating at ports and intermodal rail yards would also be subject to begin transitioning to zero-emission technologies. Staff anticipates that all forklifts operating at ports and intermodal rail yards would be zero-emission by 2030 in the coming years, which is supported by the fact that currently some electric forklifts are already

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

commercially available, with other technologies are in early production or demonstration phases.

[Marine Engines](#)

Emission Standards for Marine Engines

U.S. EPA first promulgated exhaust emission standards to reduce emissions of HC and NO_x from new outboard and personal watercraft engines in 1996, which were to begin in 2006. In 1998, CARB adopted the **Exhaust Emission Regulations for Spark-Ignition Marine Engines**, which accelerated the federal standard's 2006 implementation date to 2001 in California, and also set more stringent California standards for outboard and personal watercraft engines that took effect in 2004 and 2008. In 2001, CARB amended the **Spark-Ignition (SI) Marine Regulations** to include HC+NO_x emission standards for new sterndrive and inboard marine engines. These standards adopted Tier I and **Tier II emission standards for inboard and stern-drive marine engines**. In 2007, U.S. EPA harmonized with CARB's accelerated implementation schedule and more stringent exhaust standards for outboard and personal watercraft engines, and also granted California authorization to enforce CARB's regulations for Outboard Engines and Personal Watercraft engines and Tier I of the California inboard and stern-drive marine engine emissions standards. In 2011, U.S. EPA granted California authorization to enforce CARB's Tier II exhaust emission standards for spark ignited inboard and stern-drive marine engines. The Tier II Emission Standards for Inboard and Stern-Drive Marine Engines (2001) controls emissions at the same level of stringency as national regulations. While CARB has the same exhaust emission standards as the federal standard, the California standard applies to engines sooner, starting in 2008 rather than 2010 under the federal requirement.

In February 2015, CARB Board approved more stringent **Evaporative Emission Control Standards** than those set forth by the U.S. EPA's 2008 rule for gasoline-fueled spark-ignition marine watercraft configured with engines greater than 30 kilowatts. The Evaporative Emission Control Standards (2015) exceeds the stringency of applicable national regulations set by U.S. EPA in 2008 for gasoline-fueled spark-ignition marine watercraft >30 kilowatts.

CARB anticipates proposing further increases in stringency for Spark-Ignition Marine Engine Standards. The **Spark-Ignition Marine Engine Standards measure** from the 2022 State SIP Strategy would go beyond MSM and reduce emissions from new spark-ignition (SI) marine engines by adopting more stringent exhaust standards for outboard and personal watercraft, which currently do not use catalyst control technologies. Staff estimates that stricter standards could reduce combined HC or ROG and NO_x emissions by approximately 70 percent below the current HC+NO_x standard (≈16.5 grams per kilowatt-hour (g/kW-hr)) for engines greater than or equal to 40 kilowatts (kW) in power, and by approximately 40 percent for engines less than 40 kW in power. CARB staff is also evaluating whether some outboard and personal watercraft vessels could be propelled by zero-emission technologies in certain applications. For example,

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

zero-emission powertrains have the potential to gradually replace most outboard engines less than 19 kW, as well as many new personal watercraft engines.

Off-Highway Recreational Vehicles (OHRV)

Emission Standards for OHRV

Off-road recreation vehicles, also known as off-highway recreational vehicles (OHRV), primarily include off-highway motorcycles, all-terrain vehicles (ATVs), and utility-terrain vehicles, off-road sport and utility vehicles, sand cars, and golf carts. In 1994, CARB adopted its first OHRV regulation, which established **exhaust emission standards for OHRVs**. At that time, there were no equivalent federal standards regulating exhaust emissions from the vehicles and engines covered by California's OHRV regulations (U.S. EPA first set exhaust emission limits for OHRVs in 2002). U.S. EPA granted authorization for CARB's 1994 OHRV regulations in 1996. CARB subsequently amended the regulations to increase the stringency of controls and expand the categories of OHRVs controlled under the program; first in 1999, subsequently in 2003, and again in 2006. All three OHRV Engine Emission Standard amendments were granted authorization concurrently by U.S. EPA in 2014.¹⁰⁰

The 2006 amendments to CARB's OHRV program also set **evaporative emission standards**, establishing a fuel tank permeation limit of 1.5 grams per square meter per day (g/m²/day) of total organic gas (TOG) for a 3-day diurnal period, and a fuel hose permeation limit of 15 g/m²/day. At the time, these limits were identical to the national limits set by U.S. EPA. In July 2013, CARB adopted more stringent evaporative emission control standards for OHRVs that established a new test procedure and reduced evaporative emission limits to 1.0 g/m²/day. Authorization was granted by U.S. EPA in 2017.¹⁰¹

In 2019 the Board approved more stringent exhaust regulations for OHRVs, which set more stringent exhaust emission control standards for ATVs, off-road sport vehicles, and off-road utility vehicles for MY 2022 – 2027, and more stringent evaporative regulations for OHRVs, which harmonize with U.S. EPA evaporative emissions standards for OHMC for MY 2020 – 2026. The 2019 Amendments also included provisions to accelerate the development of zero-emission OHRVs, and set more stringent California-specific emissions standards for all new OHRV beginning with MY 2027 for evaporative emission standards, and with MY 2028 for exhaust emission standards.

In-Use Controls: OHRV

In 1994, CARB set exhaust standards for all OHRV that were to go into effect starting in 1998. The exhaust standards were technology forcing, and additional time was needed for manufacturers to produce a full range of compliant vehicles. Dealers expressed

¹⁰⁰ U.S. EPA, 2014. "California State Nonroad Engine Pollution Control Standards; Off-Highway Recreational Vehicles and Engines; Notice of Decision" <https://www.gpo.gov/fdsys/pkg/FR-2014-02-04/pdf/2014-02297.pdf> Federal Register, Vol. 79, No. 23

¹⁰¹ U.S. EPA, 2017. "California State Nonroad Engine Pollution Control Standards; Evaporative Emission Standards and Test Procedures for Off-Highway Recreational Vehicles (OHRVs); Notice of Decision" <https://www.gpo.gov/fdsys/pkg/FR-2017-01-19/pdf/2017-01259.pdf> Federal Register, Vol. 82, No. 12

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

concern that certified models would not be available and that California OHRV dealerships would go out of business. In 1998, CARB met with affected stakeholders and developed a temporary compromise that allowed for the certification of vehicles that do not meet emissions standards. CARB adopted this compromise into regulation in 1999, which have become known as the **Red Sticker Program**. It allows for certification and sale of OHRV that have no emissions control systems.

In order to reduce excess emissions, the 1999 Amendments established a new compliance category beginning with the 2003 model year, and designates OHRVs as either “green sticker” or “red sticker”, depending on whether the engine meets or exceeds the applicable emission standard. Non-emission compliant OHRVs are identified with a red registration sticker issued from the Department of Motor Vehicles (DMV), while emission compliant OHRVs are identified with a green sticker. Red sticker OHRVs are subject to in-use restrictions that do not apply to green sticker OHRVs; namely, the red sticker limits operation at certain off-highway recreational vehicle parks located in ozone nonattainment areas during the summer months (i.e. peak ozone season).

The red sticker program was envisioned as a temporary measure to provide market stability while manufacturers developed a full range of OHRV that complied with California’s emissions standards. This temporary measure has now been in effect for more than twenty years, and the majority of off-highway motorcycles sold in California are red sticker vehicles with no emissions controls. The 2019 Amendments to the OHRV program instituted actions to begin sunsetting the Red Sticker Program, including:

- Ending red sticker certification of new OHRV with no emissions controls beginning in model year 2022;
- Establishing transitional standards from 2020 through 2026; and
- Lifting the seasonal riding restrictions on existing red sticker vehicles starting on January 1, 2025.

Currently, this program is being phased-out to allow for more stringent emission control measures. In the meantime, however, the red-sticker program continues to control emissions from the in-use OHRV fleet.

[Small Off-Road Equipment \(SORE\)](#)

Emission Standards for SORE

Small Off-Road Engines (SORE) are spark-ignited engines rated at or below 19 kilowatts. This category includes handheld and non-handheld lawn and garden and industrial equipment such as string trimmers, leaf blowers, walk-behind lawn mowers, generators, and lawn tractors. They are used in applications such as lawn and garden, industrial, construction and mining, logging, airport ground support, commercial utility, and farm equipment, golf carts, and specialty vehicles. Staff estimates that there are approximately 16.5 million pieces of SORE equipment in California, the majority of which are spark-ignition (SI) engines used in residential and commercial lawn and garden applications, together with other utility and small industrial applications.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

CARB first adopted **SORE Exhaust Emission Standards and Test Procedures** in 1990, with amendments in 1998 that increased the stringency and extended the types of engines and equipment applicable to the standard. In September 2003, CARB adopted more stringent exhaust emission standards, and set the first **Evaporative Emission Standards** for SORE. Prior to the adoption of these standards, evaporative emissions were uncontrolled. U.S. EPA granted full authorization for this suite of regulations in 2006, and these more stringent standards were phased-in for model years 2006 through 2013.¹⁰²

In 2010, CARB set **Standards for Zero-Emission SORE Equipment**.¹⁰³ In 2011, CARB again amended the regulation, modifying CARB's existing test procedures and aligned California procedures to be consistent with U.S. EPA's amendments to the federal certification and exhaust emission testing requirements (see Title 40 CFR Parts 1054 and 1065.11). The 2011 Amendments also set **Exhaust Emission Certification Test Fuel Amendments** for using ethanol blends of up to 10 percent (E10) in Off-Road SI SORE Engines, if it is certified by U.S. EPA. U.S. EPA approved the full suite of 2011 Amendments in 2015.¹⁰⁴ In 2016, CARB amended its **evaporative emission standards** for the entire category of SORE to increase stringency.¹⁰⁵

In 2021, CARB adopted amendments to the Small Off-Road Engine Regulations (**2021 Amendments to the SORE Regulation**). These amendments set SORE emission standards to zero in two phases:

- First, SORE emission standards are lowered to zero for model year (MY) 2024 and all subsequent model years by setting exhaust emission standards to zero (0.00 grams per kilowatt-hour or g·kWh⁻¹). Evaporative emission standards are also set to zero (0.00 grams per test or g-test-1). The evaporative emission standards include “hot soak” emissions (representing emissions that occur when placing a hot engine in storage after use on a hot summer day) to better evaluate emissions from real-world use of SORE equipment. These emission standards of zero apply for engines used in all equipment types produced for sale or lease for operation in California, except pressure washers with engine displacement greater than or equal to 225 cubic centimeters and generators. Generator emission standards are more stringent than the existing emission standards starting in MY 2024, but would not be zero; and
- The second phase would be implemented starting in MY 2028, when the phase-in for zero-emission pressure washers and generators would begin.

In analyzing the feasibility of this regulation, CARB staff found that zero-emission equipment (ZEE) are available for most small off-road equipment categories, including

¹⁰² U.S. EPA, 2006. “California State Non-road Engine and Vehicle Pollution Control Standards; Decision of the Administrator” <https://www.gpo.gov/fdsys/pkg/FR-2006-12-15/pdf/E6-21378.pdf> Federal Register / Vol. 71, No. 241

¹⁰³ CARB 2010. “Final Regulations Order” accessed June 2018

<https://www.arb.ca.gov/regact/2008/sore2008/soreresubfro.pdf? ga=2.218709145.1039751104.1528225837-29497060.1519676686>

¹⁰⁴ U.S. EPA 2015. “California State Non-road Engine Pollution Control Standards; Small Off-Road Engines Regulations; Notice of Decision

¹⁰⁵ CARB 2016. “Final Regulations Order” accessed June 2018

<https://www.arb.ca.gov/regact/2016/sore2016/finalreg.pdf? ga=2.102358145.1039751104.1528225837-29497060.1519676686>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

lawn and garden equipment and utility equipment, for both residential and professional use. The level of performance, number of brands, and number of equipment options have increased greatly and continue to do so today. At present, there are at least 35 brands of zero-emission lawn mowers available, with several brands directed at professional users. While adoption rates for ZEE among professional landscapers are lower than for residential users, there is substantial evidence that all new small off-road equipment can be zero-emission. Using ZEE is technologically feasible and can offer significant cost-savings to professional users. There are at least 12 brands of zero-emission lawn and garden equipment designed for professional users available for sale.

Transport Refrigeration Units (TRU)

Emission Standards for TRU

TRUs are refrigeration systems powered by an internal combustion engine (inside the unit housing), designed to control the environment of temperature sensitive products that are transported in refrigerated trucks, trailers, railcars, and shipping containers. TRUs operate in large numbers at distribution centers, food manufacturing facilities, packing houses, truck stops, and intermodal facilities, and are used to haul perishable products including food, beverages, pharmaceuticals, flowers, medical products, industrial chemicals, and explosives. TRUs may be capable of both cooling and heating. They deliver perishable goods to retail outlets, such as grocery stores, restaurants, cafeterias, convenience stores, etc. Although TRU engines are relatively small (ranging from 9 to 36 hp) significant numbers of these engines congregate at distribution centers, truck stops, and other facilities, exacerbating air quality challenges and resulting in potential for health risks to those that live and work nearby. The growth rate of TRUs is tied to population, since food is the main product type that is hauled.

In 2022, CARB adopted amendments to the ***Airborne Toxic Control Measure (ATCM) for In-Use Diesel-Fueled TRUs and TRU Generator Sets (TRU ATCM)***, which include requirements that MY 2023 and newer trailer TRU, DSC TRU, railcar TRU, and TRU generator set engines shall meet a PM emission standard of 0.02 grams per brake horsepower-hour or lower (aligns with the U.S. EPA Tier 4 final off-road PM emission standard for 25-50 horsepower engines).

In the 2022 State SIP Strategy, CARB committed to developing a subsequent ***Transport Refrigeration Unit Regulation Part 2*** measure, which would go beyond MSM and require zero-emission trailer TRUs, domestic shipping container TRUs, railcar TRUs, and TRU generator sets for future Board consideration. The new requirements would achieve additional emission and health risk reductions, increase the use of zero-emission technology in the off-road sector, and meet the directive of Governor Newsom's Executive Order N-79-20, which set a goal for 100 percent zero-emission off-road vehicles and equipment in the State by 2035 where feasible. For this measure, CARB would propose the Part 2 rulemaking to require trailer TRUs, domestic shipping container TRUs, railcar TRUs, and TRU generator sets to use zero-emission technology. CARB is currently assessing zero-emission technologies for trailer TRUs and the remaining TRU categories.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

In-Use Controls: TRU

CARB adopted the ***Airborne Toxic Control Measure (ATCM) for In-Use Diesel-Fueled TRUs and TRU Generator Sets (TRU ATCM)*** in 2004 (and amended it in 2010 and 2011) to reduce diesel PM emissions and resulting health risk from diesel-powered TRUs. The TRU regulations establish in-use performance standards for diesel-fueled TRUs and TRU generator sets which operate in California, and facilities where TRUs operate. The regulation is designed to reduce the diesel PM emissions from in-use TRU and TRU generator set engines that operate in California, using a phased-in implementation approach over about 12 years by requiring engines to meet in-use emission standards by the end of the seventh year after manufacture. Implementation of the TRU ATCM began in 2009, and applies to in-use diesel-fueled TRUs and TRU generator sets that operate in California, whether they are registered in or outside the State. U.S. EPA issued an authorization for the TRU regulation in 2009.¹⁰⁶ CARB subsequently amended the TRU ATCM in 2010 and again in 2011 to provide owners of TRU engines with certain flexibilities to facilitate compliance, clarify recordkeeping requirements, and establish requirements for businesses that arrange, hire, contract, or dispatch the transport of goods in TRU-equipped trucks, trailers, or containers. U.S. EPA authorized the 2010 Amendments in 2013 and the 2011 Amendments in 2017, respectively.^{107, 108}

On February 24, 2022, CARB adopted ***Amendments to the TRU ATCM (2022 Amendments)*** to achieve additional emission and health risk reductions from diesel-powered TRUs and increase the use of zero-emission (ZE) technology in the off-road sector. Key elements of the 2022 Amendments include:

- **Zero-emission truck TRU requirement** – Beginning December 31, 2023, TRU owners shall turnover at least 15 percent of their truck TRU fleet (defined as truck TRUs operating in California) to ZE technology each year (for seven years). All truck TRUs operating in California shall be ZE by December 31, 2029.
- **Applicable facility requirements** – Beginning December 31, 2023, owners of refrigerated warehouses or distribution centers with a building size of 20,000 square feet or greater, grocery stores with a building size of 15,000 square feet or greater, seaport facilities, and intermodal railyards (applicable facilities) shall register the facility with CARB, pay fees every three years, and report all TRUs that operate at their facility to CARB quarterly, or alternatively attest that only compliant TRUs operate at their facility.
- **Expanded TRU reporting** – Beginning December 31, 2023, TRU owners shall report all TRUs (including out-of-state based) that operate in California to CARB.

¹⁰⁶ U.S. EPA, 2009. "California State Nonroad Engine and Vehicle Pollution Control Standards; Authorization of Transport Refrigeration Unit Engine Standards; Notice of Decision" Federal Register Volume 74, Number 11, pp. 3030-3033

¹⁰⁷ U.S. EPA, 2013. "California State Nonroad Engine Pollution Control Standards; Within-the-Scope Determination for Amendments to California's "Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets and Facilities Where TRUs Operate"; Notice of Decision" <https://www.gpo.gov/fdsys/pkg/FR-2013-06-28/pdf/2013-15437.pdf> Federal Register Vol. 78, No. 125

¹⁰⁸ U.S. EPA, 2017. "California State Nonroad Engine Pollution Control Standards; In-Use Diesel-Fueled Transport Refrigeration Units (TRUs) and TRU Generator Sets and Facilities Where TRUs Operate; Notice of Decision" <https://www.gpo.gov/fdsys/pkg/FR-2017-01-19/pdf/2017-01225.pdf> Federal Register Vol. 82, No. 12

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

- **TRU operating fees and compliance labels** – Beginning December 31, 2023, TRU owners shall pay TRU operating fees and affix CARB compliance labels to their TRU every three years, for each TRU operated in California. Collected fees will be used to cover CARB’s reasonable costs associated with the certification, audit, and compliance of TRUs.
- **Zero-emission truck TRU assurances** – Manufacturers of zero-emission truck TRUs shall be required to provide a comprehensive warranty for zero-emission truck TRUs and have an authorized service-and-repair facility located in California to perform warranty repairs.

In the 2022 State SIP Strategy, CARB committed to developing a subsequent ***Transport Refrigeration Unit Regulation Part 2***, which would go beyond MSM and require zero-emission trailer TRUs, domestic shipping container TRUs, railcar TRUs, and TRU generator sets for future Board consideration. The new requirements would achieve additional emission and health risk reductions, increase the use of zero-emission technology in the off-road sector, and meet the directive of Governor Newsom’s Executive Order N-79-20, which set a goal for 100 percent zero-emission off-road vehicles and equipment in the State by 2035 where feasible. For this measure, CARB would propose the Part 2 rulemaking to require trailer TRUs, domestic shipping container TRUs, railcar TRUs, and TRU generator sets to use zero-emission technology. CARB is currently assessing zero-emission technologies for trailer TRUs and the remaining TRU categories.

PRIMARILY FEDERALLY AND INTERNATIONALLY REGULATED SOURCES

Locomotives

Emission Standards for Locomotives

Under the Act, U.S. EPA has the sole authority to establish emissions standards for new locomotives.¹⁰⁹ Locomotives are self-propelled vehicles used to push or pull trains, including both freight and passenger operations. Union Pacific Railroad (UP) and BNSF Railway (BNSF) are the two Class I, or major, freight railroads operating in California. There are also seven intrastate passenger commuter operators and up to 26 freight shortline railroads currently operating in California. UP and BNSF, however, generate the vast majority (90 percent) of locomotive emissions within the State, with most attributable to interstate line haul locomotives. UP and BNSF operate three major categories of freight locomotives, both nationally and in California. The first category is interstate line haul locomotives, which are primarily ~4,400 horsepower (HP). The second category is made up of medium-horsepower (MHP) locomotives, as defined by CARB as typically between 2,301 and 3,999 HP. MHP locomotives are typically older line haul locomotives that have been cascaded down from interstate service. And lastly, there are switch (yard) locomotives, specifically defined by U.S. EPA as between 1,006 and 2,300 HP. Locomotives operating at railyards and traveling throughout the nation are a significant source of emissions of diesel PM (which CARB has identified as a toxic air contaminant), NO_x, and GHGs. These emissions often occur in or near densely

¹⁰⁹ 42 United States Code (U.S.C.) §7547, (a)(5)

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

populated areas and neighborhoods, exposing residents to unhealthy levels of toxic diesel PM, plus regional ozone and secondary PM_{2.5}.

U.S. EPA has previously promulgated two sets of national locomotive emission regulations (1998 and 2008). In 1998, U.S. EPA approved national regulations that primarily emphasized NO_x reductions through Tier 0, 1, and 2 emission standards. Tier 2 NO_x emission standards reduced older uncontrolled locomotive NO_x emissions by up to 60 percent, from 13.2 to 5.5 g/bhp-hr.

In 2008, U.S. EPA approved a second set of national locomotive regulations. Older locomotives, upon remanufacture, are required to meet more stringent PM emission standards, which are about 50 percent cleaner than Tier 0-2 PM emission standards. U.S. EPA refers to the PM locomotive remanufacture emission standards as Tier 0+, Tier 1+, and Tier 2+. The new Tier 3 PM emission standard (0.1 g/bhp-hr), for model years 2012-2014, is the same as the Tier 2+ remanufacture PM emission standard. The 2008 regulations also included new **Tier 4 locomotive NO_x and PM emission standards** (2015 and later model years). U.S. EPA Tier 4 NO_x and PM emission standards further reduced emissions by approximately 90 percent from uncontrolled levels.

Beyond the currently adopted levels of controls, CARB staff petitioned U.S. EPA in 2017¹¹⁰ to promulgate by 2020 both Tier 5 national emission standards for newly manufactured locomotives, and more stringent national requirements for remanufactured locomotives, as committed to in the 2016 State SIP Strategy's **More Stringent National Locomotive Emission Standards** measure. This would reduce emissions of criteria and toxic pollutants, fuel consumption, and GHG emissions. CARB staff estimates that U.S. EPA could require manufacturers to implement the new locomotive emission regulations by as early as 2023 for remanufactures and 2025 for newly manufactured locomotives. As documented in the Final Technology Assessment for Freight Locomotives,¹¹¹ CARB staff believes the most technologically feasible advanced technology for near-term deployment is the installation of a compact aftertreatment system (e.g., combination of selective catalytic reduction (SCR) and diesel oxidation catalyst (DOC)) onto new and remanufactured diesel-electric freight interstate line haul locomotives. Newly manufactured locomotives can also be augmented with on-board batteries to provide an additional 10-25 percent reduction in diesel fuel consumption and GHG emissions to achieve the Tier 5 emission levels. On board batteries could also provide zero emission track mile capabilities in and around railyards to further reduce diesel PM and the associated health risks.

A new federal standard could also facilitate development and deployment of zero-emission track mile locomotives and zero-emission locomotives by building incentives for those technologies into the regulatory structure. The compact SCR and DOC aftertreatment system could also be retrofitted to existing Tier 4 locomotives to be able to achieve a Tier 4+ emissions standard, when Tier 4 locomotives are scheduled

¹¹⁰ <https://ww2.arb.ca.gov/resources/documents/us-epa-responds-carbs-petition-strengthen-locomotive-emission-standards>

¹¹¹ Final Technology Assessment for Freight Locomotives available at: <https://www.arb.ca.gov/msprog/tech/report.htm>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

for remanufacture (every 7 to 10 years). Based on the typical remanufacture schedule, all Tier 4 locomotives could potentially be retrofitted with aftertreatment between 2025 and 2037. Existing locomotives originally manufactured to meet Tier 2 or Tier 3 standards could also be upgraded with the same compact aftertreatment system upon remanufacture to achieve emissions equal to Tier 4 levels.

In-Use Controls: Locomotives

CARB has worked closely with the major railroads in California, together with other stakeholders, to develop innovative measures to reduce in-use emissions from locomotives, a major source of NO_x and PM emissions in the South Coast, but a source category over which CARB has limited regulatory authority.

While emission standards for locomotives are set by U.S. EPA, CARB has accelerated reductions from these sources through efforts that have focused on cleaner fuel requirements, and increasing use of cleaner locomotives. CARB staff and the Class I railroads have also been implementing through the **2005 Statewide Rail Yard Agreement for California Rail Yards**, a Memorandum of Understanding (MOU) to accelerate the introduction of cleaner locomotives since 2010.¹¹² This agreement obligated the railroads to increase the use of idle control devices, lowered locomotive idle times to 15 minutes, and opened a collaboration to produce Health Risk Assessments on 18 major railyards in the State, which was completed in 2015.

CARB will also increase the stringency of controls on locomotive operations with the recently adopted **In-Use Locomotive Regulation**, which the Board adopted in April 2023. This regulation will accelerate the adoption of advanced, cleaner technologies for locomotive operations, including zero-emission technologies, and includes:

- **Starting in 2024: Spending Account**
Locomotive operators will be required to fund their own trust account based on the emissions created by their locomotive operations in California. The dirtier the locomotive, the more funds must be set aside. Spending Account funds would be used in the following manner:
 - Until 2030: to purchase, lease, or rent Tier 4 or cleaner locomotives, or for the remanufacture or repower to Tier 4 or cleaner locomotive(s).
 - At any time: to purchase, lease, or rent ZE locomotive(s), ZE capable locomotive(s), ZE rail equipment, or to repower to ZE locomotive(s) or ZE capable locomotive(s).
 - At any time: for ZE infrastructure associated with ZE locomotive(s), ZE capable locomotive(s), ZE rail equipment.
 - At any time: to pilot or demonstrate ZE locomotives or ZE rail equipment technologies.

¹¹² CARB 2005 "ARB/Railroad Statewide Agreement: Particulate Emissions Reduction Program at California Rail Yards"
<https://ww2.arb.ca.gov/sites/default/files/2020-06/2005%20MOU%20Remediated%2003102020.pdf>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

- Starting in 2030: In-Use Operational Requirements
Only locomotives less than 23 years old will be able to be used in California. Switchers, industrial and passenger locomotives with original engine build dates of 2030 or newer would be required to operate in a ZE configuration in California. Freight line haul locomotives with original engine build dates of 2035 and newer will be required to operate in a ZE configuration in California.
- Starting in 2024: Idling Limit
All locomotives with automatic shutoff devices (AESS) will not be permitted to idle longer than 30 minutes, unless for an exempt reason. Exemptions closely align with those described by U.S. EPA, and would be granted for reasons like maintaining air brake pressure to perform maintenance.
- Starting in 2024: Registration and Reporting
Locomotives operating in the State will be required to register with CARB. Reporting includes and annual administrative payment. Locomotive activity, emission levels and idling data will be required to be reported annually.

Additionally, the **1998 Locomotive NO_x Fleet Average Emissions Agreement in the South Coast Air Basin (1998 MOU)**, signed by CARB, Union Pacific Railroad and BNSF Railway, accelerated the introduction of cleaner locomotives into the South Coast. Under the MOU, UP and BNSF agreed to operate locomotive fleets that meet an average Tier 2 NO_x emission standard, beginning in 2010 and running through 2030.

Local air districts may also pursue indirect source rules for freight facilities that could result in reductions from this category. CARB staff is considering an indirect source rule suggested control measure to assist air districts.

[Ocean-Going Vessels](#)

Ocean-going vessels (OGVs) are large commercial vessel designed to transport cargo or passengers between ports. Ocean-going vessels are generally greater than 400 feet, weigh more than 10,000 gross tons, and have per-cylinder engine displacement of greater than 30 liter/cylinder, and can be a U.S. or foreign owned vessel. Due to the international nature of shipping, most ocean-going vessels are owned by foreign companies, but are still subject to California ocean-going vessel regulations when within 24 nautical miles (nm) of the California coastline (Regulated California Waters or regulatory boundary or zone) or at-berth in California ports. The main categories of ocean-going vessels that operate in and visit California include: container, refrigerated cargo ("reefer"), cruise (or "passenger"), auto carrier, roll on-roll off ("ro-ro"), tanker, bulk, and general cargo vessels.

Emission Standards for Ocean-Going Vessels

OGVs and emissions standards are largely regulated on an international level by the International Maritime Organization (IMO), which specifies new engine NO_x standards and sets fuel sulfur limits; neither U.S. EPA nor CARB have the authority to set emission standards for OGVs.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

The IMO's primary focus is reducing NO_x and GHG emissions from OGVs. IMO marine engine standards for OGVs regulate NO_x emissions only, with no PM standards in place. Tier I and II engine standards exist for any vessel with a keel-laid date beginning on January 1, 2000, and January 1, 2011, respectively. Stricter Tier III IMO marine engines, which achieve a significant reduction in NO_x emissions (around an 80 percent reduction from Tier II) are currently required for any OGV with a keel-laid date of January 1, 2016, or later. However, due to the long lifespan of OGVs and the fact that OGVs with keel laid dates after January 1, 2016, are only required to have Tier III engines when sailing within Emission Control Areas (ECA), turnover to Tier III engines is slow and not expected for most vessel categories until 2030+. ¹¹³

In-Use Controls: Ocean-Going Vessels

While California does not have the authority to regulate emission standards for OGVs, California does have the authority to set in-use requirements for marine vessels, including foreign-flagged vessels, when they are in RCW and visit our ports, to the extent such regulation is not preempted by federal law.

In 2008, CARB adopted the ***Ocean-Going Vessel Fuel Regulation***, "Fuel Sulfur and Other Operational Requirements for Ocean-Going Vessels within California Waters and 24 Nautical Miles of the California Baseline," which is designed to reduce PM, NO_x, and sulfur oxide emissions from ocean-going vessels. The OGV Clean Fuel Regulation requires operators to use less polluting marine distillate fuels instead of heavy fuel oil in their diesel engines and auxiliary boilers while operating within Regulated California Waters. The fuel requirements require the use of either marine gas oil (MGO) or marine diesel oil (MDO) with a maximum sulfur limit of 1.5 percent, and the MDO has a maximum sulfur limit of 0.1 percent.

In 2007, CARB adopted the ***Ocean-Going Vessels At-Berth Regulation (At-Berth Regulation)***, with compliance deadlines that began in 2014. The At Berth Regulation reduces emissions from container ships, passenger ships, and refrigerated-cargo ships docked at six California ports: Los Angeles, Long Beach, Oakland, San Diego, San Francisco, and Hueneme. At berth, auxiliary engines are used by vessels to run power for lighting, ventilation, pumps, communication, heating, and other onboard equipment while a vessel is docked. The At-Berth Regulation requires that vessels turn off their auxiliary diesel engines and plug in to shore-based grid electrical power, or utilize alternative technologies to achieve comparable emission reductions. Under the 2007 regulation, compliance requirements for vessels include visit requirements and emission or power reduction requirements, both which were phased in over time. More specifically, the regulation set an 80 percent reduction requirement, meaning a fleet must reduce its auxiliary engine power by 80 percent from the fleet's baseline power generation during the vessel's stay on 80 percent of the fleet's annual vessel visits. Under the 2007 Regulation, container, reefer, and cruise vessel fleets that make 25 visits or more per calendar year to a regulated port, and cruise vessels that make 5 or

¹¹³ California Air Resources Board. Staff Report: Initial Statement of Reasons. October 15, 2019.
<https://ww2.arb.ca.gov/sites/default/files/classic/regact/2019/ogvatberth2019/isor.pdf>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

more visits per year to a regulated port, were subject to the requirements. Smaller vessel fleets (i.e., fleets that are comprised of container and reefer vessels that make fewer than 25 visits or cruise with fewer than 5 visits) and vessels that do not often frequent California ports were exempt from the 2007 Regulation.

CARB amended the At-Berth Regulation in 2020 to introduce emission control requirements to additional ports and terminals, including marine terminals that operate independently from a port or port authority, and to cover vessels exempted from the 2007 Regulation. This fulfilled a commitment in the 2016 State SIP Strategy to amend the 2007 At-Berth Regulation. The 2020 Amendments achieve additional emissions reductions of NO_x, diesel particulate matter, PM_{2.5}, ROG, and GHG emissions. Under the 2020 Amendments, the At-Berth Regulation was expanded to:

- require vessels to control at-berth emissions at additional ports and terminals;
- cover roll-on/roll-off and tankers;
- add compliance requirements for small fleets;
- Include previously exempted auxiliary engines that operate on liquefied natural gas (LNG) or other alternative fuels;
- Require tankers operating boiler steam powered pumps (for off-loading cargoes like crude oil) to control their boiler emissions;
- Require all regulated vessel visits to use a CARB approved emissions control strategy to reduce auxiliary engine emissions and boiler emissions on every visit to a regulated terminal; and
- Require all vessels visiting California, regardless of port and terminal applicability, to maintain opacity standards at berth and at anchor.

The 2020 Amendments also streamlined the regulatory structure while adding reporting and compliance requirements.

Reduced vessel speeds also provide emission reduction benefits, and programs are operated by local air districts along the California coast to incentivize lower speeds. CARB staff received comments during the public process for the 2022 State SIP Strategy about including a statewide vessel speed reduction program. In the 2022 State SIP Strategy, the CARB measure for ***'Future Measures for Ocean-Going Vessel Emission Reductions'*** considers options available under CARB authority to go beyond MSM and achieve further emissions reductions of NO_x, PM, and GHG emissions from OGVs through the use of operational changes and new technologies currently in development, including advances in exhaust capture and control, mobile shore power connections, cleaner fuels (such as LNG, hydrogen, methanol, ammonia, etc.), alternative power sources (including batteries and fuel cells), as well as potential vessel side technologies (such as water-in-fuel emulsion). In pursuing regulatory measures, CARB would work with U.S. EPA, California air districts, seaports, and industry stakeholders in a collaborative effort to determine which measure would provide the most effective emissions reductions, as well as CARB's ability to implement each potential measure. Advocacy at the federal and international levels are necessary to

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

achieve additional emissions reductions from OGVs given the international nature of sea trade. Incentives or regulatory measures may be pursued to achieve emissions reductions from using cleaner engines or cleaner fuels, reducing emissions while anchored within RCW, sailing at slower speeds while in RCW, and requiring bulk/general cargo vessels to reduce emissions at berth.

[Aircraft](#)

In-Use Controls: Aircraft

NO_x emissions from aircraft are projected to grow significantly. In California, aircraft are projected to make up 9.5 percent of mobile source NO_x emissions in 2035, increasing from 5.4 percent in 2020.¹¹⁴ According to CARB's emissions inventory, five different aircraft categories contribute significantly to NO_x emissions: civilian piston aircraft, agricultural crop-dusting aircraft, military jet aircraft, commercial jet aircraft, and civilian jet aircraft. Commercial jet aircraft contribute about 90 percent of NO_x emissions from all aircraft in California, whereas military jet aircraft and civilian jet aircraft each contribute about 4.5 percent of NO_x. Together, civilian piston aircraft and agricultural crop-dusting aircraft produce less than 1 percent of NO_x emissions.

The International Civil Aviation Organization (ICAO) is the United Nations body that sets and adopts civil aviation standards and practices for its 193 national government members. The Committee on Aviation Environmental Protection (CAEP) is a technical committee of ICAO. CAEP assists ICAO with formulating new policies and adopting new standards and recommended practices. The most recent standards adopted by ICAO are:¹¹⁵

- CAEP/8: latest NO_x standard adopted in 2011;
- CAEP/10: first CO₂ standard adopted in 2017; and
- CAEP/11: first non-volatile PM mass and number standard adopted in 2019.

U.S. EPA is required to set emission standards for any air pollutant emitted by aircraft that may reasonably be anticipated to endanger public health or welfare.¹¹⁶ U.S. EPA is not bound by ICAO standards and can adopt standards that are stricter than those set by ICAO. U.S. EPA has historically adopted ICAO standards and has most recently adopted a GHG emission standard and has proposed a PM emission standard for aircraft that are both equivalent to the ICAO standards.

The Federal Aviation Administration's (FAA) Continuous Low Energy, Emissions, and NOISE (CLEEN) Program is a cost-sharing program aimed at accelerating the development and commercialization of new certifiable aircraft technologies and sustainable aviation fuels. The program has been successful in developing technologies relating to composite airframe technologies, advanced wing technologies, advanced fan

¹¹⁴ CARB 2022 State SIP Strategy https://ww2.arb.ca.gov/sites/default/files/2022-08/2022_State_SIP_Strategy.pdf

¹¹⁵ Committee on Aviation Environmental Protection (CAEP) (icao.int) <https://www.icao.int/ENVIRONMENTAL-PROTECTION/Pages/CAEP.aspx>

¹¹⁶ Clean Air Act sec. 231, 42 U.S.C. § 7571.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

systems, and many other technologies.¹¹⁷ There are certified aircraft engines available that achieve NO_x emissions below the CAEP/8 standard and PM emissions below the latest CAEP/11 standard. Engine manufacturers are also currently developing engines that achieve significant reductions beyond the current standards. These new technology advances enable reductions in both NO_x and PM emissions and provide a pathway for achieving effective ways to reduce harmful emissions.

Included in the 2022 State SIP Strategy was the ***Future Measures for Aviation Emission Reductions***, which committed CARB to strongly advocating for stricter emission regulations from U.S. EPA, while also exploring other opportunities under State authority to set reporting and/or operational requirements that can contribute to emissions reductions from aircraft. The Future Measures for Aviation Emissions Reductions measure was committed to in the 2022 State SIP Strategy. It would go beyond MSM and reduce emissions from airport and aircraft related activities, including main aircraft engines, auxiliary power units (APU), and airport ground transportation. As a part of this measure, CARB would explore requiring all larger airports to perform a comprehensive and standardized emission inventory. An accurate emission inventory that reflects all on-ground and near-ground emissions would establish a baseline and enable verifiable and quantifiable future emissions reductions. CARB would continue to assess technology development for the aviation sector. The purpose is to help inform and support CARB planning, regulatory, and voluntary incentive efforts. Concurrently, CARB would support, track, and explore current, in-development, and future emission reduction technology advancements. CARB would further evaluate federal, State, and local authority in setting operational efficiency practices to achieve emissions reductions. Operational practices include landing, takeoff, taxi, and running the APU, and contribute to on-ground and near-ground emissions. CARB would similarly work with U.S. EPA, air districts, airports, and industry stakeholders in a collaborative effort to develop regulations, voluntary measures, and incentive programs.

FUELS

In addition to new engines and in-use standards, cleaner burning fuels represent an important component in reducing emissions from the off-road mobile fleet. Cleaner fuel has an immediate impact in reducing emissions from the mobile source, and thus represent an important component in reducing NO_x and PM emissions from off-road engines. California's stringent air quality programs treat mobile sources and their fuels holistically (as a system, rather than as separate components). As a result, CARB's fuels programs achieve significant reductions in criteria emissions from vehicles and mobile engines used in California.

CARB Diesel Fuel Regulations

The California diesel fuel program sets stringent standards for diesel fuel sold in California and produces cost-effective emission reductions from diesel-powered

¹¹⁷ FAA, CLEEN Phase I and II Projects, Feb. 27, 2020, available at https://www.faa.gov/about/office_org/headquarters_offices/apl/eee/technology_saf_operations/cleena

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

vehicles. More stringent fuel requirements further ensure that diesel engines are operating as cleanly as possible. **CARB Diesel Fuel Regulations** have, over time, phased in more stringent requirements for fuel mixture specifications for aromatic hydrocarbons and sulfur, and have established a lubricity standard. The program applies to sales of fuel used in on-road vehicles and off-road vehicles and locomotives in California. **“CARB diesel” Specifications** adopted in 1988 limited the allowable sulfur content of diesel fuel 500 parts per million by weight (ppmw), and the aromatic hydrocarbon content to 10 percent, and became effective in 1993.

U.S. EPA began regulating sulfur content in diesel in 1993. At that time, uncontrolled fuels (i.e. non-CARB diesel) contained approximately 5,000 parts per million (ppm) of sulfur. In 2006, U.S. EPA began to phase-in more stringent requirements under the federal Ultra-Low Sulfur Diesel (ULSD) regulations, which lowered the amount of sulfur in on-road diesel fuel to 15 ppm. U.S. EPA’s Nonroad Diesel Fuel Standards were phased in from 2007 to 2014, and require that all off-road engines, including those used in locomotives and off-road equipment, use ULSD fuel (with some exemptions for older locomotives and marine engines). The Nonroad Standards also require that diesel fuel sold into the market for off-road use must be ULSD. It is important to note that while U.S. EPA defines ULSD as ≤ 15 ppm for on-road applications, the definition of off-road ULSD is significantly less stringent, defined as ≤ 500 ppm standard.

In 2003, **CARB’s Ultra Low Sulfur Diesel (ULSD) Regulation** increased the stringency of the sulfur content limits in to 15 ppm, which began implementation in 2006. CARB’s ULSD Regulation had an immediate impact in reducing emissions from the in-use fleet, while also enabling the use of advanced emissions control technologies, including the use of catalyzed diesel particulate filters, NO_x after-treatment, and other advanced after-treatment based emission control technologies that higher sulfur levels would have inhibited the performance of (at the time of CARB’s ULSD rulemaking, the average sulfur content of California diesel was approximately 140 ppmw). The original applicability of the regulations was to vehicular diesel fuel; however, the applicability of the regulations has been extended by the adoption of ATCMs to non-vehicular diesel fuel, such as fuel for stationary engines, locomotives, and marine harbor craft.

Beyond the current fuels control program, CARB committed to develop a **Low Emission Diesel** Measure in the 2016 State SIP Strategy that will require diesel fuel providers to steadily decrease criteria pollutant emissions from their diesel products. The use of low-emission diesel in on-road vehicles and off-road equipment will reduce tailpipe NO_x and PM emissions, in addition to other criteria pollutants. Some studies carried out to date on hydrotreated vegetable oil have reported NO_x emission reductions of 6 percent to 25 percent and PM emission reductions of 28 percent to 46 percent, depending on the types of fuels, drive cycles tested, and diesel engines used. This standard is anticipated to both increase consumption of low-emission diesel fuels, and to reduce emissions from conventional fuels. This measure is anticipated to provide NO_x benefits predominately from legacy (pre-2010) on-road heavy-duty vehicles, off-road engines, stationary engines, portable engines, marine vessels and locomotives, as well as NO_x and diesel PM benefits in potentially all model year off-road

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

engines, stationary engines, portable engines, marine vessels and locomotives. Interstate vehicles, even those registered out-of-State but operating on CARB diesel blended with low-emission diesel, are also anticipated to provide emission reduction benefits.

Controlling Criteria Emissions from Renewable Fuels

The **Low Carbon Fuel Standard (LCFS) and Alternative Diesel Fuel (ADF) Regulations** work together to reduce the carbon intensity of the California fuel supply. The regulations also limit criteria emissions from alternative fuels and/or alternative fuel mix blends (a mix of fuels made from renewable feedstocks, which are then blended with conventional gasoline or diesel). The regulations were amended in 2018 to extend the carbon intensity target of 20 percent to 2030. Due to regulatory constraints, the LCFS and ADF do not apply to fossil jet fuel, aviation gasoline, fuels used in interstate locomotives, or fuels used for the propulsion of ocean-going vessels – regulatory control over these fuels lies at the national and international level.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

STEP 2(B): OTHER STATES' AND NONATTAINMENT AREAS' OFF-ROAD CONTROL MEASURES

Error! Reference source not found. summarizes the most stringent control measures currently in use in any state or nonattainment that have been identified and discussed for off-road equipment. Each of the measures identified in this table are discussed in more detail in this section, below.

Table 20: Comparison of Stringency – Off-Road Measures
CARB Control Programs Compared to Federal Standards and Control Programs in Other States and Nonattainment Areas

Type of Control Measure	Most Stringent Control Program Identified	Summary of Findings from Analysis	Other Jurisdiction(s) Analyzed
Off-Road Mobile Sources			
New Engine Standards			
New Engine Standards: Off-Road Diesel Engine Emission Standards (general)	Tier 4 Off-Road Engine Standards (CARB and U.S. EPA) Future Measure: <i>Tier 5 Off-Road Vehicles and Equipment measure (CARB)</i>	<p>California's emission standards for off-road diesel engines are consistent with those of U.S. EPA and the most stringent in the nation. CARB's current emission standards for new off-road engines with a power rating between 175 and 300 hp are set at the same level of stringency as federal standards, and requires Tier 4 emission standards (which use advanced after treatment technologies such as diesel particulate filters and selective catalytic reduction). This regulation is applicable to all diesel-fueled, self-propelled off-road equipment with at least 25 HP.</p> <p>With the Tier 5 Off-Road Vehicles and Equipment Measure, CARB has committed to develop and propose standards and test procedures for new off-road CI engines. More stringent PM and NOx standards for engines greater than or equal to 56 kW (75 hp), including the following:</p> <ul style="list-style-type: none"> • Aftertreatment-based PM standards for engines less than 19 kW (25 hp), • Aftertreatment-based NOx standards for engines greater than or equal to 19 kW (25 hp) and less than 56 kW (75 hp), and • First-time CO₂ tailpipe standards targeting a 5 to 8.6 percent reduction. • Other possible elements include enhancing in-use compliance, proposing more representative useful life periods, idle requirements and developing a low load test cycle. <p>It is expected that Tier 5 requirements would rely heavily on technologies manufacturers are developing to meet the recently approved low-NOx standards and enhanced in-use requirements for on-road heavy-duty engines.</p> <p><i>(Note: CARB has committed to pursue the Tier 5 Off-Road Vehicles and Equipment measure, but this measure has not yet been proposed to the Board for approval/adoption)</i></p>	<p>No other state has more stringent exhaust emission standards for off-road equipment than California.</p> <p>Currently CARB and U.S. EPA limit exhaust emissions to same "Tier 4" levels:</p> <ul style="list-style-type: none"> • NOx: 0.3 g/bhp-hr • PM: 0.015 g/bhp-hr
New Engine Standards: Off-Road Zero-Emission Engine Standards (general)	Future Measure: <i>Off-Road Zero-Emission Targeted Manufacturer Rule measure (CARB)</i>	The Off-Road Zero-Emission Targeted Manufacturer Rule would accelerate the development and production of zero-emission off-road equipment and powertrains into more sectors (including wheel loaders, excavators, and bulldozers) as technology advancements occur due to existing CARB zero-emission regulations and regulations in the forklifts, cargo handling equipment, off-road fleets, and small off-road engines sectors. For this measure, CARB would propose to develop a regulatory measure that would require manufacturers of off-road equipment and/or engines to produce for sale zero-emission equipment and/or powertrains as a percentage of their annual statewide sales volume to ensure these globally emerging zero-emissions products and related innovations come to California.	No other state requires zero-emission off-road engine standards.

CARB Control Program MSM Analysis for the SCAQMD 2024 12 µg/m³ annual PM2.5 Plan

Type of Control Measure	Most Stringent Control Program Identified	Summary of Findings from Analysis	Other Jurisdiction(s) Analyzed
Off-Road Mobile Sources			
		(Note: CARB has committed to pursue the Off-Road Zero-Emission Targeted Manufacturer Rule measure, but this measure has not yet been proposed to the Board for approval/adoption)	
In-Use Emission Controls			
In-Use Emissions Controls: Fleet Rules (Off-Road Equipment – General)	<p>In-Use Off-Road Diesel-Fueled Fleets Regulation (Off-Road Regulation) (CARB)</p> <p>Future Measure: <i>Clean Off-Road Fleet Recognition Program</i> (CARB)</p>	<p>California’s in-use emission controls for off-road equipment are the most stringent in the nation. CARB’s off-road regulation controls diesel PM and NOx emissions from >150,000 in-use off-road engines by requiring their owners to retire, replace, or repower older engines, and/or installing verified exhaust retrofit control technologies. Additionally, all vehicles are reported and labeled, and older, dirtier vehicles are restricted from entering fleets.</p> <p>With the 2022 Amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation, CARB further reduced emissions from the in-use off-road diesel equipment sector by increasing the stringency of the regulation’s requirements. These amendments create additional requirements to the currently regulated fleets by targeting the oldest and dirtiest equipment that is allowed to operate indefinitely under the current regulation’s structure. The amendments will require fleets to phase-out use of the oldest and highest polluting off-road diesel vehicles in California; prohibit the addition of high-emitting vehicles to a fleet; and require the use of R99 or R100 renewable diesel in off-road diesel vehicles. The amendments phase-in starting in 2024 through the end of 2036 and include changes to enhance enforceability and encourage the adoption of zero-emission technologies.</p> <p>CARB anticipates further emission reductions from the off-road equipment fleets through the Clean Off-Road Fleet Recognition Program measure, which would create a non-monetary incentive to encourage off-road fleets to go above and beyond existing regulatory fleet rule compliance and adopt advanced technology equipment with a strong emphasis on zero-emission technology. This measure would provide a standardized methodology for contracting entities, policymakers, state and local government, and other interested parties to establish guidelines for contracting criteria or require participation in the program to achieve their individual policy goals.</p> <p>(Note: CARB has committed to develop the Clean Off-Road Fleet Recognition Program measure, but this measure has not yet been proposed to the Board for approval/adoption)</p>	While Chicago (IL) and New York City (NY) have in-use fleet controls for construction equipment, no other state or nonattainment area controls in-use off-road equipment fleets more stringently than CARB.
Source-Specific Rules			
New Engine Standards: Agricultural equipment	Tier 4 Off-Road Engine Standards (CARB and U.S. EPA)	U.S. EPA and California adopted equivalent Tier 4 standards in 2004 that require additional emission reductions from off-road engines, including those used in mobile agricultural equipment.	No state has more stringent requirements for new emission performance standards for agricultural equipment engines than California.
In-Use Emissions Controls: Agricultural Equipment	Funding Agricultural Replacement Measures for Emission Reductions (FARMER) Program (CARB)	<p>California’s in-use emission control program for agricultural equipment is among the most stringent in the nation.</p> <p>CARB’s Funding Agricultural Replacement Measures for Emission Reductions (FARMER) Program provides funding through local air districts for agricultural harvesting equipment, heavy-duty trucks, agricultural pump engines, tractors, and other equipment used in agricultural operations. Local air districts receive funds based on a formula and award them to farmers and agricultural businesses for individual projects.</p>	CARB’s agricultural equipment fleet controls are among the most stringent in the nation.

CARB Control Program MSM Analysis for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan

Type of Control Measure	Most Stringent Control Program Identified	Summary of Findings from Analysis	Other Jurisdiction(s) Analyzed
Off-Road Mobile Sources			
New Engine Standards: Airport Ground Support Equipment (GSE)	Large Spark Ignition (LSI) Fleet Regulation (CARB) Tier 4 Off-Road Engine Standards (CARB and U.S. EPA) Future measure: <i>Zero-Emission Airport Ground Support Equipment measure (CARB)</i>	California's emission controls for Airport Ground Support Equipment (GSE) are the most stringent in the nation. NOx limits for the LSI Engine Standard for engines > 1.0 liter (the typical engine size for GSE) is 0.6 g/bhp-hr. Engines meeting this standard are 70 percent cleaner than LSI engines produced as recent as 2009. Additionally, diesel engines in newly manufactured GSE must meet the Tier 4 emission standards applicable to off-road compression ignition engines. CARB is anticipated to further increase the stringency of emission controls with the Zero-Emission Airport Ground Support Equipment measure, which will act as a catalyst to further adoption of zero-emission equipment in the off-road sector, facilitate the transfer of technology to suitable heavier duty-cycle applications, and expand use of zero-emission infrastructure. <i>(NOTE: CARB has committed to pursue the Zero-Emission Airport Ground Support Equipment measure, but it has not yet been proposed to the Board for approval/adoption.)</i>	No other state has more stringent exhaust emission standards for airport ground support equipment than California.
In-Use Emissions Controls: Fleet Rules (Airport Ground Support Equipment)	In-Use Off Road Diesel-Fueled Fleets Regulation (CARB) Large Spark-Ignition (LSI) Engine Fleet Requirements Regulation (CARB) Portable Diesel-Engines Air Toxic Control Measure (CARB) Future Measure: <i>Zero-Emission Airport Ground Support Equipment measure (CARB)</i>	California's in-use emission controls for airport ground support equipment (GSE) are the most stringent in the nation. The In-Use Off-Road Diesel-Fueled Fleets Regulation requires GSE fleets operating in-use diesel equipment to meet an annual fleet average emissions target that decreases over time. For example, for equipment over 175 and under 750 HP, the final 2023 NOx fleet average target is 1.5 g/bhp hr, which is equivalent to the interim Tier 4 NOx standard for newly produced engines. Fleets that do not meet the required annual fleet average must meet the BACT requirements that require turnover, repower or retrofit of a specific percent of a fleet's total HP. These requirements are currently being phased in. Airport GSE fleets operating LSI GSE must meet the in-use LSI engine fleet requirements. Adopted in 2006, the LSI Engine Fleet Requirements Regulation requires GSE fleets to maintain an average emission level of no more than 2.5 g/bhp hr HC+NOx, starting January 1, 2013. Non-mobile GSE such as portable air-start units, ground power units and air conditioners may be subject to the Portable Diesel-Engines Air Toxic Control Measure (ATCM). CARB is anticipated to further increase the stringency of emission controls with the Zero-Emission Airport Ground Support Equipment measure. <i>(NOTE: CARB has committed to develop the Zero-Emission Airport Ground Support Equipment measure, but it has not yet been proposed to the Board for approval/adoption.)</i>	No other state or nonattainment area controls airport GSE more stringently than CARB.
New Engine Standards: Cargo Handling Equipment (CHE)	Cargo Handling Equipment Regulation (CARB) Future Measure: <i>Cargo Handling Equipment</i>	California's emission controls for Cargo Handling Equipment (CHE) are the most stringent in the nation. CARB's Cargo Handling Equipment regulation sets performance standards for newly acquired engines, as well as in-use mobile CHE at ports or intermodal rail yards. CARB is anticipated to further increase the stringency of the CHE Regulation by transitioning CHE to zero-emission beginning in 2026. Based on the current state of zero-emission CHE technological developments, the transition to zero-emission would most likely be achieved largely through the electrification of CHE.	No other state has more stringent exhaust emission standards for cargo handling equipment than California.

CARB Control Program MSM Analysis for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan

Type of Control Measure	Most Stringent Control Program Identified	Summary of Findings from Analysis	Other Jurisdiction(s) Analyzed
Off-Road Mobile Sources			
	<i>Amendments measure (CARB)</i>	Staff anticipates that all yard trucks and forklifts would be zero-emission by 2030, rubber-tired gantry cranes would be zero-emission by 2032, and 90 percent of other CHE will be zero-emission by 2036. <i>(Note: CARB has committed to pursue the Cargo Handling Equipment Amendments measure, but this measure has not yet been proposed to the Board for approval/adoption)</i>	
In-Use Emissions Controls: Fleet Rules (Cargo Handling Equipment)	Cargo Handling Equipment Regulation (CARB) Future measure: <i>Amendments to the Cargo Handling Equipment measure (CARB)</i>	California's in-use emission controls for cargo handling equipment (CHE) are the most stringent in the nation. The Cargo Handling Equipment regulation was adopted in 2005 to establish BACT requirements for in-use and newly purchased CHE, and amended in 2011 to include opacity monitoring requirements. The CHE regulation includes performance standards for in-use, mobile CHE at ports or intermodal rail yards in California, and requires that all newly purchased yard truck and non-yard truck equipment brought onto a port or intermodal rail yard must have either a Tier 4 Final off road engine or an on-road engine meeting the 2010 or newer on-road emission standards, and that all legacy in-use non-yard truck engines that are still in service (Tier 0 – Tier 3) must have a Verified Diesel Emission Control Strategy (VDECS) installed. CARB is anticipated to further increase the stringency with the Amendments to the Cargo Handling Equipment Regulation would set in-use requirements for diesel cargo handling equipment at ports and rail yards, including but not limited to: yard trucks (hostlers), rubber-tired gantry cranes, container handlers, and forklifts. Staff would assess the availability and performance of zero-emission technology as an alternative to all combustion-powered cargo equipment. The regulatory amendments would propose an implementation schedule for new equipment with effective dates beginning in 2026. <i>(Note: CARB has committed to pursue the Amendments to the Cargo Handling Equipment measure, but this measure has not yet been proposed to the Board for approval/adoption)</i>	No other state or nonattainment area has more stringent in-use fleet requirements for CHE than California.
New Engine Standards: Commercial Harbor Craft (CHC)	Commercial Harbor Craft Regulation (CARB)	California's emission controls for commercial harbor craft (CHC) are the most stringent in the nation. CARB's 2008 and 2011 CHC Regulations reduced NOx and diesel PM emissions from crew and supply boats, ferries, excursion vessels, towboats, push boats, tug boats, barges and dredges. CARB amended the CHC regulation in 2022, establishing expanded and more stringent in-use requirements to cover more vessel categories, including all tank barges, pilot vessels, research vessels, workboats, commercial passenger fishing, and commercial fishing vessels. The amendments also mandate accelerated deployment of zero-emission and advanced technologies in vessel categories where technological feasibility has been demonstrated.	No other state has more stringent exhaust emission standards for commercial harbor craft than California.
In-Use Emissions Controls: Fleet Rules (Commercial Harbor Craft)	Commercial Harbor Craft Regulation (CARB)	California's in-use emission controls for commercial harbor craft (CHC) are the most stringent in the nation. The Commercial Harbor Craft regulation (adopted in 2008 and amended in 2010) included in-use limits that required diesel PM and NOx emission controls on ferries, excursion vessels, and tugboats, towboats, and push boats. The 2011 amendments extended the types of CHC for which in-use engine requirements apply to include crew and supply, barges and dredges. CARB amended the CHC regulation in 2022, establishing expanded and more stringent in-use requirements to cover more vessel categories including all tank barges, pilot vessels, research vessels, workboats, commercial passenger fishing, and commercial fishing vessels. The amendments also mandate accelerated deployment of zero-emission and advanced technologies in vessel categories where technology feasibility has been demonstrated.	No other state or nonattainment area controls in-use CHC emissions more stringently than CARB.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Type of Control Measure	Most Stringent Control Program Identified	Summary of Findings from Analysis	Other Jurisdiction(s) Analyzed
Off-Road Mobile Sources			
New Engine Standards: Forklifts	<p>Tier 4 Off-Road Engine Standards (CARB and U.S. EPA)</p> <p>Future Measures: <i>Zero-Emission Off-Road Forklift Regulation Phase 1 measure (CARB)</i></p> <p><i>Off-Road Zero-Emission Targeted Manufacturer Rule measure (CARB)</i></p>	<p>California's emission controls for forklifts are the most stringent in the nation. Forklifts powered by LSI engines (gasoline and natural gas) are subject to new engine standards that include both criteria pollutant and durability requirements since 2001, with the cleanest requirements phased-in starting in 2010. Diesel Forklifts > 25 HP are subject to Tier 4 Final emission standards (based on the use of advanced after-treatment technologies such as diesel particulate filters and selective catalytic reduction) starting in 2013.</p> <p>CARB is anticipated to further increase the stringency of emission controls with the Zero-Emission Off-Road Forklift Regulation Phase I measure, which would be designed to accelerate the deployment of zero-emission forklift technologies. The regulatory amendments would propose requirements that prohibit the new purchases of LSI forklifts, with an implementation schedule beginning in 2026. <i>(NOTE: CARB has committed to pursue the Zero-Emission Off-Road Forklift Regulation Phase 1 measure, but it has not yet been proposed to the Board for approval/adoption.)</i></p> <p>CARB is anticipated to further increase the stringency of in-use emission controls for forklifts through the Off-Road Zero-Emission Targeted Manufacturer Rule measure. <i>(NOTE: CARB has committed to pursue the Off-Road Zero-Emission Targeted Manufacturer Rule measure, but it has not yet been proposed to the Board for approval/adoption.)</i></p>	No state has more stringent requirements for new emission performance standards for forklifts engines than California.
In-Use Emissions Controls: Fleet Rules (Forklifts)	<p>Off-road Diesel Regulation (CARB)</p> <p>LSI Fleet Regulation (CARB)</p> <p>2022 Amendments to the In-Use Off-Road Diesel Fueled Fleets Regulation (CARB)</p> <p>Future Measure: <i>Zero-Emission Off-Road Forklift Regulation Phase 1 (CARB)</i></p> <p>Future Measure: <i>Amendments to the Cargo Handling Equipment measure (CARB)</i></p>	<p>California's in-use emission controls for forklifts are the most stringent in the nation. Forklift fleets subject to both the LSI fleet regulation (if powered by gasoline or propane), and the off-road diesel fleet regulation (if powered by diesel) are required to retire, repower, or replace higher-emitting equipment in order to maintain fleet average standards. Diesel Forklifts > 25 HP are subject to fleet average emission requirements under the Off-Road Diesel Regulation starting in 2010.</p> <p>Under the 2022 Amendments to the In-Use Off-Road Diesel Fueled Fleets Regulation, forklifts are also subject to requirements begin to transition fleets from the oldest and highest-emitting off-road engines in operation in California by phasing out Tier 0 – Tier 2 equipment beginning in 2024. Also beginning in 2024, the regulation includes requirements to restrict the addition of new vehicles and/or engines with Tier 3 and 4i engines.</p> <p>CARB is anticipated to further increase the stringency of in-use emission controls with the Zero-Emission Off-Road Forklift Regulation Phase I measure, which would be designed to accelerate the deployment of zero-emission forklift technologies. The regulatory amendments would propose requirements for fleets to retire existing LSI forklifts that are 13 years and older, and would propose an implementation schedule beginning in 2026. <i>(NOTE: CARB has committed to develop the Zero-Emission Off-Road Forklift Regulation Phase 1 measure, but it has not yet been proposed to the Board for approval/adoption.)</i></p> <p>CARB is also anticipated to further reduce the emissions from forklifts operating at ports and intermodal rail yards through the Amendments to the Cargo Handling Equipment Regulation measure. Under the CHE measure, forklifts would begin transitioning to zero-emission technologies. Staff anticipates that all forklifts operating at ports and intermodal rail yards would be zero-emission by 2030. <i>(NOTE: CARB committed to pursue the Amendments to the Cargo Handling Equipment measure, but this measure has yet to be proposed to the Board for approval/adoption.)</i></p>	No other state or nonattainment area has more stringent fleet requirements for in-use forklifts than CARB.

CARB Control Program MSM Analysis for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan

Type of Control Measure	Most Stringent Control Program Identified	Summary of Findings from Analysis	Other Jurisdiction(s) Analyzed
Off-Road Mobile Sources			
New Engine Standards: Marine Engines	Exhaust Emission Regulations for Spark-Ignition Marine Engines (CARB) Tier II Emission Standards for Inboard and Stern-Drive Marine Engines (CARB) Evaporative Emission Control Standards (CARB) Future Measure: <i>Spark-Ignition Marine Engine Standards measure (CARB)</i>	CARB's recreational boats and marine engine program exceeds the stringency of U.S. EPA's federal standards and are the most stringent in the nation: <ul style="list-style-type: none"> The Exhaust Emission Regulations for Spark-Ignition Marine Engines (1998) controls emissions at the same level of stringency as national regulations; The Tier II Emission Standards for Inboard and Stern-Drive Marine Engines (2001) controls emissions at the same level of stringency as national regulations; and The Evaporative Emission Control Standards (2015) exceeds the stringency of applicable national regulations set by U.S. EPA in 2008 for gasoline-fueled spark-ignition marine watercraft >30 kilowatts. <p>The Spark-Ignition Marine Engine Standards measure would reduce emissions from new spark-ignition (SI) marine engines by adopting more stringent exhaust standards for outboard and personal watercraft, which currently do not use catalyst control technologies. Staff estimates that stricter standards could reduce combined HC or ROG and NO_x emissions by approximately 70 percent below the current HC+NO_x standard (≈16.5 grams per kilowatt-hour (g/kW-hr)) for engines greater than or equal to 40 kilowatts (kW) in power, and by approximately 40 percent for engines less than 40 kW in power. CARB staff is also evaluating whether some outboard and personal watercraft vessels could be propelled by zero-emission technologies in certain applications. For example, zero-emission powertrains have the potential to gradually replace most outboard engines less than 19 kW, as well as many new personal watercraft engines.</p> <p><i>(Note: CARB has committed to pursue the Spark-Ignition Marine Engine Standards measure, but this measure has not yet been proposed to the Board for approval/adoption)</i></p>	No other state has the authority to set exhaust emission and/or evaporative emission standards that exceed the stringency of U.S. EPA's national standards.
New Engine Standards: Off-Highway Recreational Vehicles (OHRVs)	Exhaust Emission Standards for OHRVs (CARB) Evaporative Emission Standards for OHRVs (CARB)	California's emission controls for Off-Highway Recreational Vehicles (OHRVs) are the most stringent in the nation. CARB's exhaust emission standards control emissions from off-highway motorcycles, all-terrain vehicles, and utility terrain vehicles at more stringent levels than applicable national standards set by U.S. EPA for MY 2022 – 2027+. CARB evaporative emission standards harmonize with federal limits for MY 2020 – 2026. California's evaporative emission standards will exceed the stringency of federal requirements for MY 2027+.	No other state has the authority to set exhaust emission and/or evaporative emission standards that exceed the stringency of U.S. EPA's national standards.
In-Use Emissions Controls: Fleet Rules (Off-Highway Recreational Vehicles)	OHRV "Red Sticker" program (CARB)	California's in-use emission controls for Off-Highway Recreational Vehicles (OHRVs) are the most stringent in the nation. CARB's "Red Sticker" program requires in-use OHRVs that do not meet the applicable exhaust emission standards display a red registration sticker that limits operation at certain off highway recreational vehicle parks located in nonattainment areas during peak ozone season.	No other state or nonattainment area controls in-use emissions from OHRV more stringently than CARB.
New Engine Standards: Small Off-Road Engines (SORE)	Exhaust and Evaporative Standards for Small Off-Road Engines (CARB)	California's emission controls for small off-road engines (SORE) are the most stringent in the nation. CARB's current SORE program (through MY 2023) aligns the exhaust and evaporative standards for SORE with federal standards, and sets requirements for Zero-Emission SORE equipment. <p>CARB further increased the stringency of emission controls with the 2021 Amendments to the SORE Regulations, which will accelerate the deployment of zero-emission technologies, set tighter exhaust and evaporative emission standards (MY 2024+), and enhance enforcement of current emission standards for SORE. Beginning in MY 2024, exhaust and evaporative emission standards were lowered to zero, except</p>	No other state has the authority to set exhaust emission and/or evaporative emission standards that exceed the stringency of U.S. EPA's national standards.

CARB Control Program MSM Analysis for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan

Type of Control Measure	Most Stringent Control Program Identified	Summary of Findings from Analysis	Other Jurisdiction(s) Analyzed
Off-Road Mobile Sources			
		for pressure washers with engine displacement greater than or equal to 225 cubic centimeters and generators (phase-in for ZE pressure washers and generators begins in MY 2028 and 2024, respectively). For MY 2024 and subsequent years, CARB's emission control requirements for SORE will exceed federal requirements.	
New Engine Standards: Transport Refrigeration Units (TRU)	Airborne Toxic Control Measure for In-Use Diesel-Fueled TRUs and TRU Generator Sets (TRU ATCM) (CARB) Future Measure: <i>Transport Refrigeration Units (TRU) Regulation Part 2 measure (CARB)</i>	California's emission controls for Transport Refrigeration Units (TRU) are the most stringent in the nation. CARB adopted the Airborne Toxic Control Measure (ATCM) for In-Use Diesel-Fueled TRUs and TRU Generator Sets, and Facilities Where TRUs Operate (TRU ATCM) in 2004 and amended it in 2010 and 2011 to reduce diesel particulate matter (PM) emissions and resulting health risk from diesel-powered TRUs used to control the environment of temperature-sensitive products. In 2022, CARB further amended the TRU ATCM (2022 Amendments), which included requirements that MY 2023 and newer trailer TRU, DSC TRU, railcar TRU, and TRU generator set engines shall meet a PM emission standard of 0.02 grams per brake horsepower-hour or lower (aligns with the United States Environmental Protection Agency Tier 4 final off-road PM emission standard for 25-50 horsepower engines). CARB is anticipated to further increase the stringency of in-use emission controls on TRUs via the Transport Refrigeration Units Regulation Part 2 measure, which would be designed to require zero-emission trailer TRUs, domestic shipping container TRUs, railcar TRUs, and TRU generator sets. <i>(Note: CARB has committed to pursue the Transport Refrigeration Unit Regulation Part 2 measure, but this measure has not yet been proposed to the Board for approval/adoption)</i>	No other state or nonattainment area requires as stringent of emission standards for TRUs
In-Use Emission Controls (Fleet Standard): Transport Refrigeration Units (TRU)	Air Toxic Control Measure for Transport Refrigeration Units and TRU Generator Sets (CARB) Future measure: <i>Transport Refrigeration Units (TRU) Regulation Part 2 measure (CARB)</i>	California's in-use emission controls for Transport Refrigeration Units (TRUs) are the most stringent in the nation. CARB adopted the Airborne Toxic Control Measure (ATCM) for In-Use Diesel-Fueled TRUs and TRU Generator Sets, and Facilities Where TRUs Operate (TRU ATCM) in 2004 and amended it in 2010 and 2011 to reduce diesel particulate matter (PM) emissions and resulting health risk from diesel-powered TRUs used to control the environment of temperature-sensitive products. In 2022, CARB further amended the TRU ATCM (2022 Amendments), which included Zero-emission truck TRU fleet requirements. Beginning December 31, 2023, TRU owners shall turnover at least 15 percent of their truck TRU fleet (defined as truck TRUs operating in California) to ZE technology each year (for seven years). All truck TRUs operating in California shall be ZE by December 31, 2029. CARB is anticipated to further increase the stringency of in-use emission controls on TRUs via the TRU Regulation Part 2 measure, which would be designed to require zero-emission trailer TRUs, domestic shipping container TRUs, railcar TRUs, and TRU generator sets. <i>(Note: CARB has committed to pursue the Transport Refrigeration Unit Regulation Part 2 measure, but this measure has not yet been proposed to the Board for approval/adoption)</i>	No other state or nonattainment area controls in-use emissions from TRUs more stringently than CARB.
Primarily Federally and Internationally Regulated Sources			
New Engine Standards: Locomotives	Tier 4 NOx and PM Locomotive emission standards (U.S. EPA) CARB has petitioned U.S. EPA to further increase stringency.	U.S. EPA has the sole authority to establish emissions standards for locomotives. CARB petitioned U.S. EPA in 2017 to increase stringency by developing Tier 5 national emission standards for newly manufactured locomotives, and more stringent national requirements for remanufactured locomotives (by ~2020) <i>(NOTE: CARB has petitioned U.S. EPA for more stringent locomotive standards given the needs in California's nonattainment areas, but approval/adoption of this MSM rests exclusively with U.S. EPA and is thus beyond the purview of CA.)</i>	No state has emission standards for locomotives that differ from U.S. EPA's.

CARB Control Program MSM Analysis for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan

Type of Control Measure	Most Stringent Control Program Identified	Summary of Findings from Analysis	Other Jurisdiction(s) Analyzed
Off-Road Mobile Sources			
	<i>(2016 State SIP Strategy's More Stringent National Locomotive Emission Standards measure)</i>		
<p>In-Use Emission Controls (Locomotives):</p> <p>In-Use Locomotive Regulation</p>	<p>1998 Locomotive NOx Fleet Average Emissions Agreement in the South Coast Air Basin</p> <p>Statewide Rail Yard Agreement for California Rail Yards (Locomotive Memorandum of Understanding) (CARB)</p> <p>In-Use Locomotive Regulation (CARB)</p>	<p>California's in-use emission reduction measures for locomotives are the most stringent in the nation.</p> <p>The 1998 Locomotive NOx Fleet Average Emissions Agreement in the South Coast Air Basin (1998 MOU), signed by CARB, Union Pacific Railroad and BNSF Railway, accelerated the introduction of cleaner locomotives into the South Coast Air Basin. Under the MOU, UP and BNSF agreed to operate locomotive fleets that meet an average Tier 2 NOx emission standard, beginning in 2010 and running through 2030.</p> <p>The 2005 Statewide Rail Yard Agreement for California Rail Yards, a Memorandum of Understanding (MOU) with the Class I Railroads to increase the use of idle control devices, lowered locomotive idle times to 15 minutes, and opened a collaboration to produce Health Risk Assessments on 18 major railyards in the State, which was completed in 2015.</p> <p>Adopted in April 2023, the In-Use Locomotive Regulation accelerates the adoption of advanced, cleaner technologies for locomotive operations, including zero-emission technologies. The regulatory elements include:</p> <ul style="list-style-type: none"> Starting in 2024: Spending Account Locomotive operators would be required to fund their own trust account based on the emissions created by their locomotive operations in California. The dirtier the locomotive, the more funds must be set aside. Spending Account funds would be used to fund turnover to cleaner locomotives, rail equipment, and/or related infrastructure. Starting in 2030: In-Use Operational Requirements Only locomotives less than 23 years old would be able to be used in California. Switchers industrial and passenger locomotives with original engine build dates of 2030 or newer would be required to operate in a ZE configuration in California. Freight line haul locomotives with original engine build dates of 2035 and newer would be required to operate in a ZE configuration in California. Starting in 2024: Idling Limit All locomotives with automatic shutoff devices (AESS) would not be permitted to idle longer than 30 minutes, unless for an exempt reason. Exemptions closely align with those described by U.S. EPA, and would be granted for reasons like maintaining air brake pressure or to perform maintenance. Starting in 2024: Registration and Reporting Locomotives operating in the State would be required to register with CARB. Reporting includes and annual administrative payment. Locomotive activity, emission levels and idling data would be required to be reported annually. <p>Local air districts may also pursue indirect source rules for freight facilities that could result in reductions from this category.</p>	<p>No other state has a regulation to accelerate the adoption of advanced, cleaner locomotive operations technologies, including zero-emission.</p>
<p>New Engine Standards:</p> <p>Ocean-Going Vessels</p>	<p>Tier III emission standards (IMO)</p> <p>Future Measure:</p>	<p>The International Maritime Organization (IMO) has the sole authority to establish emissions standards for ocean-going vessels. The IMO regulates NOx emissions from OGVs, but does not limit PM exhaust emissions.</p>	<p>No state has emission standards for ocean-going vessels that differ from the IMO's standards.</p>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Type of Control Measure	Most Stringent Control Program Identified	Summary of Findings from Analysis	Other Jurisdiction(s) Analyzed
Off-Road Mobile Sources			
	<i>Future Measures for Ocean-Going Vessel Emission Reductions measure (CARB)</i>	<p>In the 2022 State SIP Strategy, CARB also committed to a future measure to further reduce in-use emissions from OGVs with the Future Measures for Ocean-Going Vessel Emission Reductions measure. Due to the IMO's authority on setting emission standards, for this measure, CARB would strongly advocate for stricter emission regulations and highlight the need to reduce pollution to protect public health</p> <p><i>(Note: CARB has committed to pursue the Future Measures for Ocean-Going Vessel Emission Reductions measure, but this measure has not yet been proposed to the Board for approval/adoption)</i></p>	
<p>In-Use Emission Controls:</p> <p>Ocean-Going Vessels</p>	<p>Ocean-Going Vessel Fuel Regulation (CARB)</p> <p>At-Berth Regulation (CARB)</p> <p>Future Measure: <i>Future Measures for Ocean-Going Vessel Emission Reductions measure (CARB)</i></p>	<p>California's in-use emission reduction measures for ocean-going vessels are the most stringent in the nation.</p> <p>CARB's 2008 Ocean Going Vessel (OGV) Fuel Regulation reduces PM, NO_x, and SO_x emissions from OGVs by requiring operators of OGVs to use less polluting marine distillate fuels instead of heavy fuel oil in their diesel engines and auxiliary boilers while operating within approximately 24 nautical miles (nm) of the California coastline (otherwise known as Regulated California Waters, or RCW). Under Annex VI, the IMO sets fuel sulfur limits. The fuel sulfur limit in the North American Emission Control Areas (ECAs) is 0.1 percent sulfur within 200 nm, the same percent sulfur (as CARB's Ocean-Going Vessel OGV Fuel Regulation. However, there are some differences between the regulations. The California regulation specifies the use of cleaner "distillate" grades of fuel, rather than just a sulfur limit, and the federal ECA provides exemptions for many vessels that are not exempted by CARB's OGV Fuel Regulation (E.g. scrubbers, ultra-low sulfur fuel oil). California is the only state that further regulates the sulfur content and type of fuels that can be used in OGVs, above what the IMO requires.</p> <p>CARB's OGV At-Berth Regulation (At-Berth Regulation), which was amended in 2020, reduces emissions from vessels docked at California ports by requiring that vessels turn off their auxiliary diesel engines and plug in to shore-based grid electrical power, or utilize alternative technologies to achieve comparable emission reductions. Although California is the only state in the United States that has a regulation requiring vessels to control emissions at berth, other states around the country have installed and are using shore power to control OGV emissions at berth. Seattle, New York, and New Jersey provide shore side power for cruise vessels. In addition, the Port of Tacoma has provided shore power to container ships since 2010 and is adding shore power to be ready for use by the end of 2023. The Port of Miami has plans to install five shore power systems for cruise ships by the end of the year, which when finished, will be the largest shore power system in the world.</p> <p>In the 2022 State SIP Strategy, CARB also committed to a future measure to further reduce in-use emissions from OGVs with the Future Measures for Ocean-Going Vessel Emission Reductions measure. Under this measure, CARB will consider available control options through the use of operational changes and new technologies currently in development, including advances in exhaust capture and control, mobile shore power connections, cleaner fuels (such as LNG, hydrogen, methanol, ammonia, etc.), alternative power sources (including batteries and fuel cells), as well as potential vessel side technologies (such as water-in-fuel emulsion). Incentives or regulatory measures may be pursued to achieve emissions reductions from using cleaner engines or cleaner fuels, reducing emissions while anchored within RCW, sailing at slower speeds while in RCW (Vessel Speed Reduction, aka VSR), and requiring bulk/general cargo vessels to reduce emissions at berth.</p>	<p>California is the only state that further regulates the sulfur content and type of fuels that can be used in OGVs, above what the IMO requires.</p> <p>California is the only state in the United States that has a regulation requiring vessels to control emissions at-berth.</p> <p>There are no other states outside of California that regulate shipping emissions</p>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Type of Control Measure	Most Stringent Control Program Identified	Summary of Findings from Analysis	Other Jurisdiction(s) Analyzed
Off-Road Mobile Sources			
		<p>Certain areas and ports within California currently use incentive programs to support OGV emissions reductions through VSR and other mechanisms, The Port of Long Beach has employed a Green Ship Incentive Program since 2012 which is a voluntary program that incentivizes cleaner vessel visits, with incentives ranging from \$600 to \$6,000 depending on the vessel's Environmental Ship Index (ESI) score. The Port of Los Angeles also participates in the ESI Program, and provides incentives for Tier III vessels to come into port (incentive grant of \$5,000 per call), and offers a Technology Advancement Program grant (\$750 per call) for OGVs that demonstrate an emission reduction technology that reduces diesel particulate matter and NOx emissions. While there are no other states outside of California that regulate shipping emissions, other ports in the United States also incentivize ships to use cleaner technology and practices that reduce emissions beyond the regulatory requirements set by the IMO. The Ports of New York and New Jersey's Clean Vessel Incentive Program offers financial incentives to encourage OGVs to voluntarily enhance their engines, fuel, and technology. The program employs a scoring system that rewards VSR and the vessel's Environmental Ship Index (ESI) score, with additional points given to vessels meeting clean engine standards.</p> <p><i>(Note: CARB has committed to pursue the Future Measures for Ocean-Going Vessel Emission Reductions measure, but this measure has not yet been proposed to the Board for approval/adoption)</i></p>	
<p>In-Use Emission Controls (Aircraft):</p> <p>Future Measures for Aviation Emission Reductions</p>	<p>Future Measure: <i>Future Measures for Aviation Emission Reductions (CARB)</i></p>	<p>Future Measures for Aviation Emissions Reductions would reduce emissions from airport and aircraft related activities, including main aircraft engines, auxiliary power units (APU), and airport ground transportation. Due to U.S. EPA's authority on setting emission standards, for this measure, CARB would strongly advocate for stricter emission regulations and highlight the need to reduce pollution to protect public health.</p> <p>CARB would also explore requiring all larger airports to perform a comprehensive and standardized emission inventory. An accurate emission inventory that reflects all on-ground and near-ground emissions would establish a baseline and enable verifiable and quantifiable future emissions reductions. CARB would continue to assess technology development for the aviation sector. The purpose is to help inform and support CARB planning, regulatory, and voluntary incentive efforts. Concurrently, CARB would support, track, and explore current, in-development, and future emission reduction technology advancements. CARB would evaluate federal, State, and local authority in setting operational efficiency practices to achieve emissions reductions. Operational practices include landing, takeoff, taxi, and running the APU, and contribute to on-ground and near-ground emissions. CARB would similarly work with U.S. EPA, air districts, airports, and industry stakeholders in a collaborative effort to develop regulations, voluntary measures and incentive programs.</p> <p><i>(Note: CARB has committed to pursue the Future Measures for Aviation Emission Reductions, but this measure has not yet been proposed to the Board for approval/adoption)</i></p>	<p>No state has emission standards for aircraft that differ from U.S. EPA's and FAA's.</p>
Fuels			
<p>Fuels Standards:</p> <p>Diesel Standards</p>	<p>CARB Diesel Fuel Regulations and Ultra Low Sulfur Diesel (CARB)</p> <p>Future measure:</p>	<p>California's fuel standards for diesel are the most stringent in the nation. CARB Diesel Fuel Regulations include stringent requirements for fuel mixture specifications for aromatic hydrocarbons and sulfur, and have establish a lubricity standard and applies to sales of fuel used in on-road vehicles and off-road vehicles and locomotives in California. CARB's ULSD program reduces NOx and PM emissions significantly relative to U.S. EPA requirements, providing approximately 7 percent more NOx reductions and 25 percent more PM reductions than federal diesel.</p>	<p>No state requires cleaner burning diesel than California. The California diesel fuel regulations exceed federal requirements in stringency.</p>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Type of Control Measure	Most Stringent Control Program Identified	Summary of Findings from Analysis	Other Jurisdiction(s) Analyzed
Off-Road Mobile Sources			
	<i>Low Emission Diesel measure (CARB)</i>	CARB is anticipated to further increase the stringency of controls on criteria pollutant emissions diesel products. <i>(NOTE: CARB has committed to pursue the Low Emission Diesel measure, but it has not yet been proposed to the Board for approval/adoption.)</i>	CARB staff are aware of only one other state, Texas, who has a boutique diesel fuel program that is approved into the SIP. An independent analysis of The Texas Low Emission Diesel program (TxLED) showed that the TxLED fuel emissions performance does not provide as significant of emission reduction benefits as the California specifications.
Fuels Standards: Alternative Fuel Standards (Diesel substitutes)	Low Carbon Fuel Standard (LCFS) (CARB) Alternative Diesel Fuel Regulation (ADF) (CARB)	California's fuel standards for diesel substitutes are the most stringent in the nation. The LCFS and ADF regulations work together to reduce the carbon intensity of the California fuel supply while requiring limits on criteria emissions from alternative fuels and/or alternative fuel mix blends. The LCFS regulation supports alternative fuels used in several off-road applications. However, the program does not apply to fossil jet fuel, aviation gasoline, fuels used in interstate locomotives or fuels used for propulsion of ocean-going vessels.	No other state has set criteria emission requirements on alternative fuels and alternative fuel blends. The Federal Renewable Fuel Standard (RFS II) does not specify criteria requirements for alternative fuels. Other states with low carbon fuel and/or clean fuel programs: <ul style="list-style-type: none"> • Oregon, Washington, and British Columbia have low carbon fuel standard programs, California participates in the Pacific Coast Collaborative with these states/provinces. • Other states that are considering a clean fuel regulation include: NY, MI, MN, NM, VT, IL, MA.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

EMISSION STANDARDS FOR NEW ENGINES AND EQUIPMENT

Off-Road Equipment (General)

CARB **Tier 4 Off-Road Equipment Standards** are nearly identical to those finalized by U.S. EPA in its Clean Air Nonroad Diesel Rule. These regulations require engine manufacturers to meet aftertreatment-based exhaust standards for PM and NO_x starting in 2011 that are over 90 percent lower than the previous engine generation's emission levels. CARB's new engine standards for off-road equipment is thus aligned with most stringent control program of any in the nation.

Due to constraints in the Act, California is the only state that can set new engine standards (including control measures such as emission standards, sales mandates, warranty provisions, and OBD requirements) that are more stringent than U.S. EPA's national standards. Other states can adopt California programs for which U.S. EPA has provided California with authorizations. While the Act allows other states to adopt CARB's regulations for off-road engine or off-road vehicles (provided that such standards are identical to the CARB standards for which an authorization has been obtained), other states have not yet adopted off-road engine emission standards equivalent to the California off-road regulation, although there are some states currently considering doing so.

CARB has also committed to increase the stringency of off-road equipment emission standards with the **Tier 5 Off-Road Vehicles and Equipment measure** and the **Off-Road Zero-Emission Targeted Manufacturer Rule measure**. Under the Tier 5 Off-Road Vehicles and Equipment measure, CARB would develop and propose standards and test procedures for new off-road CI engines. More stringent PM and NO_x standards for engines greater than or equal to 56 kW (75 hp). The Off-Road Zero-Emission Targeted Manufacturer Rule would accelerate the development and production of zero-emission off-road equipment and powertrains into more sectors.

IN-USE EMISSION CONTROLS FOR OFF-ROAD ENGINES AND EQUIPMENT

Fleet Rules: Off-Road Equipment (General)

In aggregate, CARB's fleet requirements for off-road equipment are the most stringent in the nation. CARB's **Cleaner In-Use Off-Road Equipment Regulation (Off-Road Regulation)** controls diesel PM and NO_x emissions from >150,000 in-use offroad engines by requiring their owners to retire, replace, or repower older engines, and/or installing verified exhaust retrofit control technologies to BACT-equivalent engines. Additionally, all vehicles are reported and labeled, and older, dirtier vehicles are restricted from entering fleets.

CARB's Off-Road Regulation controls emissions from aerial lifts, aircraft tugs, backhoes, baggage tugs, belt loaders, cargo loaders, crawler tractors (such as bulldozers), excavators, forklifts, graders, loaders, mowers, rollers, rough terrain forklifts, rubber tired loaders, scrapers, skid steer loaders, snow blowers, tractors,

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

trenchers, as well as several types of on-road vehicles, such as two-engine vehicles, and workover rigs. Furthermore, CARB has also committed to further emission reductions from the off-road equipment fleets through the **Clean Off-Road Fleet Recognition Program** measure, which would create a non-monetary incentive to encourage off-road fleets to go above and beyond existing regulatory fleet rule compliance and adopt advanced technology equipment with a strong emphasis on zero-emission technology.

Some nonattainment areas have fleet requirements that also require BACT-equivalent levels of controls for some off-road equipment (i.e. construction equipment), which are described below.

- New York City's Local Law 77 requires use of ultra-low sulfur diesel fuel and BACT for reducing emissions from non-road equipment above 37 kW used on city construction projects.
- Chicago (IL) Clean Diesel Construction Ordinance bans high-polluting diesel equipment from City construction sites. While the California program requires fleets to turnover to Tier 4 or equivalent control levels, the Chicago ordinance only requires fleets to turnover to Tier 2 or equivalent control levels (on-road vehicles MY 1998 and earlier and pre-US Environmental Protection Agency Tier 1 equipment will be banned under the Chicago ordinance.)

No other state or nonattainment area controls in-use off-road equipment fleets more stringently than CARB. Neither of the New York or Chicago programs cover the full suite of off-road equipment engine types and applications that are regulated under CARB's program. Additionally, they do not have as stringent of labeling and reporting requirements as CARB. Finally, the use of ULSD in off-road equipment in New York provides significantly less emission reductions than the use of ULSD inside of California (as is required – see fuels section for more information), as federal USLD specifications allow significantly less stringent caps on sulfur and aromatic hydrocarbon content in fuels than CARB diesel specifications.

OFF-ROAD ENGINES AND EQUIPMENT: SOURCE-SPECIFIC RULES

Beyond the regulations that apply to the majority of the off-road category, CARB also controls sub-categories of off-road equipment through source-specific emission standards and fleet requirements, as described below.

[Agricultural Equipment](#)

Emission Standards for Agricultural Equipment

CARB's new engine standards for off-road agricultural equipment (ag equipment) is consistent with the most stringent of any in the nation. In 2004, U.S. EPA and California adopted equivalent **Tier 4 Off-Road Engine Emission Standards**, which includes requirements for agricultural equipment engines. Beyond the Off-Road Regulation, CARB also controls sub-categories of off-road equipment through specific fleet requirements, as described below.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

In-Use Controls: Agricultural Equipment

CARB's agricultural equipment fleet controls are among the most stringent in the nation. The Funding Agricultural Replacement Measures for Emission Reductions (FARMER) Program provides funding through local air districts for agricultural harvesting equipment, heavy-duty trucks, agricultural pump engines, tractors, and other equipment used in agricultural operations. Local air districts receive funds based on a formula and award them to farmers and agricultural businesses for individual projects. Funding is supported in part by California Climate Investments, a statewide program that puts billions of Cap-and-Trade dollars to work. In April 2022, CARB expanded the project categories within the FARMER Program to include zero-emission agricultural equipment. As of September 2022, \$685 million has been allocated, with \$347.6 million implemented across 8,057 projects. The emission reductions benefits associated with these projects include 22,400 tons of NO_x reductions, and 1,350 tons of PM 2.5 reductions, Statewide.

[Airport Ground Support Equipment \(GSE\)](#)

Emission Standards for Airport GSE

CARB's new engine standards for airport GSE is the most stringent in the nation. New airport GSE is subject to emission standards under CARB's **Large Spark Ignition (LSI) Fleet Regulation** (natural gas and gasoline engines), and under CARB's **Tier 4 Off-Road Engine Standards** (diesel engines). NO_x limits for the LSI Engine Standard for engines > 1.0 liter (the typical engine size for GSE) is 0.6 g/bhp-hr. Engines meeting this standard are 70 percent cleaner than LSI engines produced as recent as 2009. Additionally, diesel engines in newly manufactured GSE must meet the Tier 4 emission standards applicable to off-road compression ignition engines. Non-mobile GSE such as portable air-start units, ground power units and air conditioners may be subject to the **Portable Diesel-Engines Air Toxic Control Measure (ATCM)**. The ATCM reduces PM emissions by requiring engine replacement in a schedule based on a fleet's weighted PM emission average. No other state has more stringent exhaust emission standards for airport GSE than CARB. Furthermore, CARB is anticipated to further increase the stringency of emission controls beyond MSM under the **Zero-Emission Airport Ground Support Equipment measure** committed to in the 2016 State SIP Strategy.

In-Use Controls: Airport GSE

CARB's new engine standards for airport GSE is the most stringent in the nation. New airport GSE is subject to emission standards under CARB's **Large Spark Ignition (LSI) Fleet Regulation** (natural gas and gasoline engines), and under CARB's **Tier 4 Off-Road Engine Standards** (diesel engines). NO_x limits for the LSI Engine Standard for engines > 1.0 liter (the typical engine size for GSE) is 0.6 g/bhp-hr. Engines meeting this standard are 70 percent cleaner than LSI engines produced as recent as 2009. Additionally, diesel engines in newly manufactured GSE must meet the Tier 4 emission standards applicable to off-road compression ignition engines. Non-mobile GSE such as portable air-start units, ground power units and air conditioners may be subject to the **Portable Diesel-Engines Air Toxic Control Measure (ATCM)**. The ATCM reduces

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

PM emissions by requiring engine replacement in a schedule based on a fleet's weighted PM emission average. No other state has more stringent exhaust emission standards for airport GSE than CARB. Furthermore, CARB is anticipated to further increase the stringency of emission controls beyond MSM under the **Zero-Emission Airport Ground Support Equipment measure** committed to in the 2016 State SIP Strategy.

CARB's airport GSE fleet requirements are the most stringent in the nation. CARB's **In-Use Off-Road Diesel-Fueled Fleets Regulation** requires fleets operating in-use diesel equipment to meet an annual fleet average emissions target that decreases over time to become equivalent to the interim Tier 4 NO_x standard for newly produced engines. Airport GSE fleets operating Large Spark-Ignition (LSI) GSE must meet the in-use LSI engine fleet requirements. Adopted in 2006, **the LSI Engine Fleet Requirements Regulation** requires GSE fleets to maintain an average emission level of no more than 2.5 g/bhp hr HC+NO_x, starting January 1, 2013. Non-mobile GSE such as portable air-start units, ground power units and air conditioners may be subject to the **Portable Diesel-Engines Air Toxic Control Measure (ATCM)**. The ATCM reduces PM emissions by requiring engine replacement in a schedule based on a fleet's weighted PM emission average. CARB is anticipated to further increase the stringency of emission controls beyond MSM with **the Zero-Emission Airport Ground Support Equipment measure**. No other state or nonattainment area controls airport GSE more stringently than CARB.

[Cargo Handling Equipment \(CHE\)](#)

Emission Standards for CHE

CARB's **Cargo Handling Regulation** established engine performance standards for new CHE used to transfer goods or perform maintenance and repair activities and includes equipment such as yard trucks (hostlers), rubber-tired gantry cranes, top handlers, side handlers, forklifts, and loaders at ports and intermodal rail yards. CARB CHE emission standards are the most stringent of any in the nation, with further increases in stringency anticipated through the **Cargo Handling Equipment Amendments measure** committed to in the 2022 State SIP Strategy, which will go beyond MSM and transition CHE to zero-emission equipment. CARB obtained U.S. EPA authorization in 2012. No other state or nonattainment area has more stringent exhaust emission standards for CHE than California.

In-Use Controls: CHE

CARB's **Cargo Handling Equipment Regulation** includes in-use limits that require diesel PM and NO_x emission controls for mobile CHE at ports or intermodal rail yards. The CHE Regulation requires that all newly purchased yard truck and non-yard truck equipment brought onto a port or intermodal rail yard must have either a Tier 4 Final off road engine or an on-road engine meeting the 2010 or newer on-road emission standards, and that all legacy in-use non-yard truck engines that are still in service (Tier 0 – Tier 3) must have a Verified Diesel Emission Control Strategy (VDECS) installed. CARB is anticipated to further increase the stringency with **the Amendments**

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

to the Cargo Handling Equipment Regulation, which would go beyond MSM and set in-use requirements for diesel cargo handling equipment at ports and rail yards. No other state or nonattainment area has more stringent in-use fleet requirements for CHE than California.

Commercial Harbor Craft (CHC)

Emission Standards for CHC

CARB's new engine standards for CHC is the most stringent of any in the nation. The **Commercial Harbor Craft Regulation** controls NO_x and PM emissions from crew and supply boats, ferries / excursion vessels, towboats, push boats, tugboats, barges, and dredges. CARB amended the CHC regulation in 2022, establishing expanded and more stringent in-use requirements to cover more vessel categories, and to accelerate the deployment of zero-emission and advanced technologies in vessel categories where technological feasibility has been demonstrated. No other state has more stringent exhaust emission standards for commercial harbor craft than California.

In-Use Controls: CHC

CARB's **Commercial Harbor Craft Regulation** (adopted in 2007) includes in-use limits that require diesel PM and NO_x emission controls, which was amended in 2010 and 2022 to extend the types of CHC for which in-use engine requirements apply. The regulation includes in-use limits that required diesel PM and NO_x emission controls on ferries, excursion vessels, tugboats, towboats, push boats, crew and supply boats, barges, dredges, tank barges, pilot vessels, research vessels, workboats, commercial passenger fishing, and commercial fishing vessels. The 2022 amendments also mandate accelerated deployment of zero-emission and advanced technologies in vessel categories where technology feasibility has been demonstrated. No other state or nonattainment area controls in-use CHC emissions more stringently than CARB.

Forklifts

Emission Standards for Forklifts

CARB's new engine standards for forklifts are the most stringent of any in the nation. Forklifts powered by LSI engines (gasoline and natural gas) are subject to new engine standards that include both criteria pollutant and durability requirements since 2001 with the cleanest requirements phased-in starting in 2010. Diesel Forklifts > 25 HP are subject to fleet average emission requirements under the Off-Road Diesel Regulation starting in 2010 and **Tier 4 Off-Road Engine Standards** (based on the use of advanced after-treatment technologies such as diesel particulate filters and selective catalytic reduction) starting in 2013. Furthermore, the stringency of these requirements is anticipated to increase under **the Zero-Emission Off-Road Forklift Regulation Phase 1 measure** committed to in the 2016 State SIP Strategy and the **Off-Road Zero-Emission Targeted Manufacturer Rule measure**, committed to in the 2022 State SIP Strategy. Both of these measures would increase the deployment of zero-emission forklifts. No other state has more stringent forklift emission standards than CARB.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

In-Use Controls: Forklifts

California forklifts are subject to either the **LSI Fleet Regulation** (if powered by gasoline or propane), and the **Off-Road Diesel Fleet Regulation** (if powered by diesel). Under both regulations, forklift fleets are required to retire, repower, or replace higher-emitting equipment in order to maintain fleet average standards. Under the 2022 Amendments to the **In-Use Off-Road Diesel Fueled Fleets Regulation**, forklifts are also subject to requirements begin to transition fleets from the oldest and highest-emitting off-road engines in operation in California by phasing out Tier 0 – Tier 2 equipment beginning in 2024. Also beginning in 2024, the regulation includes requirements to restrict the addition of new vehicles and/or engines with Tier 3 and 4i engines. CARB is anticipated to further increase the stringency of emission controls the emissions for from forklifts operating at ports and intermodal rail yards beyond MSM through the **Zero-Emission Cargo Handling Equipment Regulation** measure, which begin transitioning to zero-emission technologies. Staff anticipates that all forklifts operating at ports and intermodal rail yards would be zero-emission by 2030. No other state or nonattainment area has more stringent fleet requirements for in-use forklifts than CARB.

Marine Engines

Emission Standards for Marine Engines

CARB's new engine standards for recreational boats are the most stringent of any in the nation, and exceed the stringency of U.S. EPA federal standards:

- The **Exhaust Emission Regulations for Spark-Ignition Marine Engines** (1998) controls emissions at the same level of stringency as national regulations;
- The **Tier II Emission Standards for Inboard and Stern Drive Marine Engines** (2001) controls emissions at the same level of stringency as national regulations; and
- The **Evaporative Emission Control Standards** (2015) exceeds the stringency of applicable national regulations set by U.S. EPA in 2008 for gasoline-fueled spark-ignition marine watercraft >30 kilowatts.

Furthermore, CARB is anticipated to increase the stringency of marine engine controls beyond MSM with the **Spark-Ignition Marine Engine Standards measure**, which would reduce emissions from new spark-ignition marine engines by adopting more stringent exhaust standards for outboard and personal watercraft, which currently do not use catalyst control technologies. No other state has the authority to set exhaust emission and/or evaporative emission standards that exceed the stringency of U.S. EPA's national standards.

Off-Highway Recreational Vehicles (OHRV)

Emission Standards for OHRV

CARB's new engine standards for OHRV are the most stringent of any in the nation. CARB's program sets **Exhaust Emissions Standards and Evaporative Emission Standards for OHRVs**, together with amendments to the testing procedures to ensure the most stringent level of emission reductions are achieved. CARB's exhaust emission

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

standards control emissions from off-highway motorcycles, all-terrain vehicles, and utility-terrain vehicles at more stringent levels than applicable national standards set by U.S. EPA for MY 2022 – 2027+. CARB evaporative emission standards harmonize with federal limits for MY 2020 – 2026. California's evaporative emission standards will exceed the stringency of federal requirements for MY 2027 and subsequent years. U.S. EPA has issued authorization for CARB's OHRV regulations. No other state or nonattainment area controls emissions from new OHRV more stringently than CARB.

In-Use Controls: OHRV

CARB's In-Use controls for OHRV under the ***"Red Sticker" program*** controls in-use emissions from OHRV more stringently than any other state or nonattainment area in the nation. Under this program, engines that do not meet the applicable emission standard for new engines are subject to in-use restrictions that limits operation at certain off-highway recreational vehicle parks located in ozone nonattainment areas during the summer peak ozone season. CARB is currently in the process of phasing out the Red Sticker program in favor of more stringent emission controls, and has ended Red Sticker certification of new OHRVs with no emission controls beginning in Model Year 2022. The seasonal riding restrictions on existing red sticker vehicles, however, continues through December 2024, providing for ongoing in-use emission controls for the legacy vehicle fleet. No other state or nonattainment area controls in-use emissions from OHRV more stringently than CARB.

Small Off-Road Engines (SORE)

Emission Standards for SORE

California's emission controls for SORE are the most stringent in the nation. CARB's current SORE program (through MY 2023) aligns the exhaust and evaporative standards for SORE with federal standards. CARB further increased the stringency of emission controls with the 2021 Amendments to the SORE Regulations, which will accelerate the deployment of zero-emission technologies, set tighter exhaust and evaporative emission standards, and enhance enforcement of current emission standards for SORE. Beginning in MY 2024, exhaust and evaporative emission standards were lowered to zero, except for pressure washers with engine displacement greater than or equal to 225 cubic centimeters, and generators (phase-in for ZE pressure washers and generators begins in MY 2028 and 2024, respectively). For MY 2024 and subsequent years, CARB's emission control requirements for SORE will exceed federal requirements. No other state has the authority to set exhaust emission and/or evaporative emission standards that exceed the stringency of U.S. EPA's national standards.

Transport Refrigeration Units (TRU)

Emission Standards for TRU

California's emission controls for Transport Refrigeration Units (TRU) are the most stringent in the nation. CARB adopted the ***Airborne Toxic Control Measure (ATCM) for In-Use Diesel-Fueled TRUs and TRU Generator Sets, and Facilities Where TRUs Operate (TRU ATCM)*** in 2004 and amended it in 2010 and 2011 to reduce diesel

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

particulate matter (PM) emissions and resulting health risk from diesel-powered TRUs used to control the environment of temperature-sensitive products. In 2022, CARB further amended the TRU ATCM (2022 Amendments), which included requirements that MY 2023 and newer trailer TRU, DSC TRU, railcar TRU, and TRU generator set engines shall meet a PM emission standard of 0.02 grams per brake horsepower-hour or lower (aligns with the United States Environmental Protection Agency Tier 4 final off-road PM emission standard for 25-50 horsepower engines). Furthermore, CARB is anticipated to further increase the stringency of in-use emission controls on TRUs beyond MSM via the ***Transport Refrigeration Units Regulation Part 2 measure***, which would be designed to require zero-emission trailer TRUs, domestic shipping container TRUs, railcar TRUs, and TRU generator sets. No other state or nonattainment area requires as stringent of emission standards for TRUs.

In-Use Controls: TRU

CARB's ATCM for TRUs and TRU Generator Sets (***ATCM for In-Use Diesel-Fueled TRUs***) requires engines to meet in-use diesel PM emission standards by the end of the seventh year after manufacture, and applies to TRUs that operate in California, regardless of whether they are registered in or outside of the State. CARB's program is the most stringent of its type in the nation. Furthermore, CARB is anticipated to further increase the stringency of emission controls beyond MSM under the ***TRU Regulation Part 2 measure*** committed to in the 2022 State SIP Strategy, which is anticipated to increase NO_x and PM emission reductions by reducing the amount of time TRUs operate while stationary. No other state or nonattainment area controls in-use emissions from TRUs more stringently than CARB.

[Primarily Federally and Internationally Controlled Sources](#)

Emission Standards for Locomotives

U.S. EPA sets nationwide emission standards for locomotives, the most recent of which is the Tier 4 NO_x and PM Locomotive Emission Standards. No state, including California, has the authority to regulate emission standards for locomotives. Thus, CARB's locomotive controls are equivalent to the controls used in all other nonattainment areas in the nation. Nonetheless, further increases in stringency of locomotive emission controls are needed for California nonattainment areas, including the South Coast, to attain federal ambient air quality standards. For this reason, CARB has petitioned U.S. EPA to set more stringent emission controls for locomotives.

In-Use Emission Controls for Locomotives

While emission standards for locomotives are set by U.S. EPA, CARB has accelerated reductions from this source through efforts that have focused on increasing the use of cleaner locomotives. The ***2005 Statewide Rail Yard Agreement for California Rail Yards***, a MOU obligated the railroads to increase the use of idle control devices, lowered locomotive idle times to 15 minutes, and opened a collaboration to produce Health Risk Assessments on 18 major railyards in the State which was completed in 2015. CARB also recently adopted more stringent in-use locomotive emission controls with the ***In-Use Locomotive Regulation***, which accelerates the adoption of advanced,

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

cleaner technologies for locomotive operations, including zero-emission technologies. No other state or nonattainment area has an agreement with Class I railroads to accelerate the introduction of cleaner locomotive engines, or has achieved similarly significant levels of emission reductions from in-use locomotives than CARB.

Emission Standards for Ocean-Going Vessels

The IMO, under Annex VI (“Regulations for the Prevention of Air Pollution from Ships”), specifies new engine NO_x standards. Tier 2 IMO NO_x standards have applied to new vessels since 2011, and Tier 3 NO_x standards apply within NO_x Emission Control Areas (ECAs) such as the North American ECA since 2016. However, the Tier 3 NO_x limits are relatively high compared to the standards that apply to landside diesel engines. Annex VI regulations also do not limit PM exhaust emissions from new engines.

Neither CARB nor U.S. EPA have the regulatory authority to set emission limits for OGVs; thus no state, including California, has the authority to regulate emission standards for OGVs at levels different from those set by the IMO. Therefore, CARB’s OGV emission standard controls are equivalent to the controls used in all other nonattainment areas in the nation. Nonetheless, further increases in stringency of OGV emission controls are needed for California nonattainment areas, especially the South Coast, to attain federal ambient air quality standards. For this reason, CARB, together with U.S. EPA, the Coast Guard, and international partners, continues to urge the IMO to adopt more stringent emission standards for new OGVs and efficiency requirements for existing vessels.

In-Use Emission Controls for Ocean-Going Vessels

CARB’s ***Ocean-Going Vessel Fuel Regulation***, “Fuel Sulfur and Other Operational Requirements for Ocean-Going Vessels within California Waters and 24 Nautical Miles of the California Baseline,” (2008) reduces PM, NO_x, and sulfur oxide emissions from ocean-going vessels by requiring operators of OGVs to use less polluting marine distillate fuels instead of heavy fuel oil in their diesel engines and auxiliary boilers while operating within approximately 24 nautical miles (nm) of the California coastline. CARB’s fuel requirements require the use of either marine gas oil (MGO) with a maximum sulfur limit of 1.5 percent, or marine diesel oil (MDO) with a maximum sulfur limit of 0.1%. Under Annex VI, the IMO sets fuel sulfur limits. The fuel sulfur limit in the North American Emission Control Areas (ECAs) is 0.1 percent sulfur, the same as CARB’s Ocean-Going Vessel Fuel Regulation. However, there are some differences between the regulations. The California regulation specifies the use of cleaner “distillate” grades of fuel, rather than just a sulfur limit, and the federal ECA provides exemptions for many vessels that are not exempted by CARB’s OGV Fuel Regulation.

In 2007, CARB adopted the ***Ocean-Going Vessels At Berth Regulation (At-Berth Regulation)***, which was amended in 2020. The At-Berth Regulation reduces emissions from vessels docked at California ports. At berth, auxiliary engines are used by vessels to run power for lighting, ventilation, pumps, communication, heating, and other onboard equipment while a vessel is docked. The At-Berth Regulation requires that vessels turn off their auxiliary diesel engines and plug in to shore-based grid electrical power, or utilize alternative technologies to achieve comparable emission reductions.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Although California is the only state in the United States that has a regulation requiring vessels to control emissions at berth, other states around the country have installed and are using shore power to control OGV emissions at berth. Seattle, New York, and New Jersey provide shore side power for cruise vessels.¹¹⁸ In addition, the Port of Tacoma has provided shore power to container ships since 2010 and is adding shore power to be ready for use by the end of 2023. The Port of Miami has plans to install five shore power systems for cruise ships by the end of the year, which when finished, will be the largest shore power system in the world.¹¹⁹

CARB measure from the 2022 State SIP Strategy, ***Future Measures for Ocean-Going Vessel Emission Reductions***, considers available options to go beyond MSM and achieve further emissions reductions, including developing a statewide vessel speed reduction program, and/or through the use of operational changes and new technologies currently in development, including advances in exhaust capture and control, mobile shore power connections, cleaner fuels (such as LNG, hydrogen, methanol, ammonia, etc.), alternative power sources (including batteries and fuel cells), as well as potential vessel side technologies (such as water-in-fuel emulsion). The Port of Long Beach has employed a Green Ship Incentive Program since 2012 which is a voluntary program that incentivizes cleaner vessel visits, with incentives ranging from \$600 to \$6,000 depending on the vessel's ESI score.¹²⁰ The Port of Los Angeles also participates in the ESI Program, and provides incentives for Tier III vessels to come into port (incentive grant of \$5,000 per call), and offers a Technology Advancement Program grant (\$750 per call) for OGVs that demonstrate an emission reduction technology that reduces diesel particulate matter and NOx emissions.¹²¹

While there are no other states outside of California that regulate shipping emissions, other ports in the United States incentivize ships to use cleaner technology and practices that reduce emissions beyond the regulatory requirements set by the IMO. The Ports of New York and New Jersey's Clean Vessel Incentive Program offers financial incentives to encourage OGVs to voluntarily enhance their engines, fuel, and technology. The program employs a scoring system that rewards VSR and the vessel's Environmental Ship Index (ESI) score, with additional points given to vessels meeting clean engine standards.¹²²

¹¹⁸ Shore Power Technology Assessment at U.S. Ports, 2022 Update, U.S. EPA, December 2022, <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1016C86.pdf>

¹¹⁹ MarineLog, PortMiami to deploy world's largest shore power system, February 16, 2023, <https://www.marinelog.com/passenger/cruiseships/portmiami-to-deploy-worlds-largest-shore-power-system/#:~:text=The%20PowerCon%20system%20will%20provide,to%20bring%20shore%20power%20to>

¹²⁰ Port of Long Beach, Port of Long Beach Increases Green Ship Incentive, May 26, 2021, <https://polb.com/port-info/news-and-press/port-of-long-beach-increases-green-ship-incentive-05-26-2021/>

¹²¹ The Port of Los Angeles, Port of Los Angeles Voluntary Environmental Ship Index Program, <https://www.portoflosangeles.org/environment/air-quality/environmental-ship-index>

¹²² Port of New York and New Jersey, Clean Vessel Incentive Program, <https://www.panynj.gov/port/en/our-port/sustainability/clean-vessel-incentive-program.html>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

In-Use Emission Controls for Aircraft

No state has emission standards for aircraft that differ from U.S. EPA's and FAA's. To control emissions from airport and aircraft related activities, including main aircraft engines, auxiliary power units (APU), and airport ground transportation, CARB has committed to the ***Future Measures for Aviation Emissions Reductions***. Due to U.S. EPA's authority on setting emission standards, for this measure, CARB has identified opportunities for EPA to adopt cleaner emission standards for aircraft. Toward that end, CARB would strongly advocate U.S. EPA for stricter emission regulations and highlight the need to reduce pollution to protect public health.

FUELS

CARB Diesel Fuel Regulations

U.S. EPA began regulating sulfur content in diesel in 1993. At that time, uncontrolled fuels (i.e. non-CARB diesel) contained approximately 5,000 ppm of sulfur. In 2006, U.S. EPA began to phase-in more stringent requirements under the federal ULSD regulations, which lowered the amount of sulfur allowed in federal diesel fuels. U.S. EPA's Nonroad Diesel Fuel Standards were phased in from 2007 to 2014, and require that all off-road engines, including those used in locomotives and off-road equipment, use ULSD fuel (with some exemptions for older locomotives and marine engines). The Nonroad Standards also require that diesel fuel sold into the market for off-road use must be ULSD. It is important to note that while U.S. EPA defines ULSD as ≤ 15 ppm for on-road applications, the definition of off-road ULSD is significantly less stringent, defined as ≤ 500 ppm standard.

For the off-road fleet, CARB's current ULSD regulation is significantly more stringent than the applicable current federal ULSD standards (Phase III):

- Whereas the federal ULSD program differs in requirements for on- and off-road fuels, CARB's ultra-low sulfur diesel program sets the same requirements for fuels burned in on- and off-road applications. CARB limits sulfur content at 15 ppm rather than the federal limit of 500 ppm for off-road ULSD. Compared with CARB ULSD standards, federal off-road ULSD allows 33 times the sulfur content.
- CARB's ULSD significantly reduces emissions relative to federal on-road ULSD, which is much cleaner than federal off-road ULSD. Both federal on-road ULSD and CARB ULSD limit sulfur content (a precursor to secondary atmospheric formation of PM_{2.5}) to 15 ppm, yet CARB's fuel emits ~25 percent less PM. Given that federal off-road ULSD sulfur content is capped at levels 3,000 percent higher than CARB's ULSD, the California program is significantly more stringent in terms of its ability to control emissions of sulfur oxide emissions.
- In addition, CARB controls hydrocarbons and aromatics, unlike U.S. EPA requirements.
- Furthermore, CARB is anticipated to further increase the stringency of controls on criteria pollutant emissions diesel products under the Low Emission Diesel measure committed to in the State SIP Strategy.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

As was discussed in the on-road diesel fuel section, only one other state has a boutique fuel program with requirements that differ from federal specifications, the Low Emission Diesel Program in Texas (TxLED). An independent analysis of TxLED, CARB ULSD and federal ULSD shows that the TxLED fuel emissions performance does not provide as significant of emission reduction benefits as the California specifications.¹²³ Furthermore, the stringency of Texas' testing requirements are based on the federal Complex Model, which is less stringent and nuanced than the California Predictive Model that is used to determine compliance with California fuel requirements. CARB diesel specifications are more stringent than federal and other states' programs. CARB's ULSD program reduces NO_x and PM emissions significantly relative to U.S. EPA requirements, providing approximately 7 percent more NO_x reductions and 25 percent more diesel PM reductions than federal diesel. Furthermore, CARB is anticipated to further increase the stringency of controls on criteria pollutant emissions diesel products under **the Low Emission Diesel measure**. No other state or nonattainment area controls criteria emissions from off-road diesel fuels more stringently than CARB.

Controlling Criteria Emissions from Renewable Fuels

The **Low Carbon Fuel Standard (LCFS) and Alternative Diesel Fuel (ADF) regulations** work together to reduce the carbon intensity of the California fuel supply while requiring limits on criteria emissions from alternative fuels and/or alternative fuel mix blends. While other states have adopted or are considering adopting similar programs to the California LCFS, no other state has set criteria emission requirements on alternative fuels and alternative fuel blends. The Federal Renewable Fuel Standard (RFS II), which is the most equivalent program type at the federal level, increases the renewable content of the fuel mix nationally (as the LCFS does in California), however it does not specify criteria requirements for alternative fuels. No other state or nonattainment area controls criteria emissions from renewable fuels more stringently than CARB.

¹²³ American Transportation Research Institute (ATRI) 2008 "Energy and Other Fuel Property Changes with On-Road Ultra-Low Sulfur Diesel Fuel" <http://www.atri-online.org/research/results/environmentalfactors/2008ATRIDiesel.pdf>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

STEP 3(A): EVALUATION OF STRINGENCY: OFF-ROAD CONTROL MEASURES

Step 3(a) calls for an evaluation of each of the potential MSM control measures identified in Step 2, in order to evaluate their stringency and determine whether they meet all applicable requirements to satisfy the definitions of MSM as discussed in Section 1 and Section 2.

As shown in the **Error! Reference source not found.** in Step 2(b), CARB's programs are the most stringent in the nation. This comparison between CARB's control measures and the measures currently in place at the Federal level and/or within other States and jurisdictions illustrates the stringency of the current CARB off-road control program, which meets the stringency requirements of MSM.

Furthermore, CARB staff have conducted an analysis of the timing of the new measures included in the 2022 State SIP Strategy, which go beyond the stringency of the current control program as it is now being implemented. Many of these measures are still in their development phases and are not yet being implemented and thus beyond MSM; the development timeline, however, is critical to allowing industry and technological advancements to progress sufficiently such that the newly emerging technologies called for in these regulatory actions (most of which are technology-inducing regulations) have sufficient time to attain market readiness. **Error! Reference source not found.** summarizes the timeframe considerations for each of the applicable off-road control measures, and indicates why a more expedited timeframe is neither technologically nor economically feasible. For these reasons, the measures meet the MSM requirement of being phased in as "expeditiously as practicable" and go beyond MSM requirements in terms of stringency.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Table 21: Off-Road Control Measures – Stringency and Timeline for Implementation

Measures	Implementation Begins	12 ug/m3 Annual (2012)
Off-Road Control Standards (General)		
Off-Road New Vehicle, Equipment and Engine Standards (General)		
Tier 4 Off-Road Engine Emission Standards	ongoing	MSM
Tier 5 Off-Road Vehicles and Equipment (2022 State SIP Strategy measure with commitment)	2029	<u>Beyond</u> MSM
California’s emission standards for off-road diesel engines are consistent with those of U.S. EPA and the most stringent in the nation, with NOx limits at 0.3 g/bhp-hr, and PM limits at 0.015 g/bhp-hr. With the Tier 5 Off-Road Vehicles and Equipment Measure, CARB has committed to develop and propose standards and test procedures for new off-road CI engines. More stringent PM and NOx standards for engines greater than or equal to 56 kW (75 hp). It is expected that Tier 5 requirements would rely heavily on technologies manufacturers are developing to meet the recently approved low-NOx standards and enhanced in-use requirements for on-road heavy-duty engines. With the commitment to adopt Tier 5 emission standards, California’s control program for new off-road engines will be further lowered to a nation-leading level; these levels will be technology-forcing, and will take years of lead time to enable manufacturers sufficient time to develop, test, certify, and manufacture the necessary low-emission engines and components. Further increases in stringency are not feasible. New off-road emission standards for new vehicles and engines are dependent on technological developments, and require years of lead time to be developed, certified, manufactured, and implemented; a more accelerated timeline is infeasible.		
Zero-Emission Off-Road New Equipment and Engine Standards (General)		
Off-Road Zero-Emission Targeted Manufacturer Rule (2022 State SIP Strategy measure with commitment)	2031	<u>Beyond</u> MSM
The Off-Road Zero-Emission Targeted Manufacturer Rule would accelerate the development and production of zero-emission off-road equipment and powertrains into more sectors (including wheel loaders, excavators, and bulldozers) as technology advancements occur due to existing CARB zero-emission regulations and regulations in the forklifts, cargo handling equipment, off-road fleets, and small off-road engines sectors. As a technology-forcing regulation, the Off-Road Zero-Emission Targeted Manufacturer Rule will accelerate the development and deployment of Zero-Emission off-road engines and powertrains; further increases in stringency are not feasible. Manufacturer sales requirements need years of lead time to be implemented; it would be infeasible to implement on a more accelerated timeframe.		
In-Use Control Measures – Off-Road Fleets (General)		
In-Use Off-Road Diesel-Fueled Fleets Regulation (Off-Road Regulation)	ongoing	MSM
2022 Amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation (2022 State SIP Strategy measure, adopted November 2022)	2024	MSM
Clean Off-Road Fleet Recognition Program (2022 State SIP Strategy measure with commitment)	2027	<u>Beyond</u> MSM
California’s in-use emission controls for off-road equipment are the most stringent in the nation. CARB’s off-road regulation controls diesel PM and NOx emissions from >150,000 in-use off road engines by requiring their owners to retire, replace, or repower older engines, and/or installing verified exhaust retrofit control technologies. Additionally, all vehicles are reported and labeled, and older, dirtier vehicles are restricted from entering fleets. The 2022 Amendments to the Off-Road Regulation create additional requirements to the currently regulated fleets by targeting the oldest and dirtiest equipment that is allowed to operate indefinitely under the current regulation’s structure. The amendments will require fleets to phase-out use of the oldest and highest polluting off-road diesel vehicles in California, starting in 2024, and include changes to enhance enforceability and encourage the adoption of zero-emission technologies. CARB anticipates further emission reductions from the off-road equipment fleets through the Clean Off-Road Fleet Recognition Program measure, which would create a non-monetary incentive to encourage off-road fleets to go above and beyond existing regulatory fleet rule compliance and adopt advanced technology equipment with a strong emphasis on zero-emission technology. Fleet requirements need years of lead time to be implemented for reasons of technological and economic feasibility. As purchasing requirements and fleet turnover cannot happen immediately, it would be infeasible to accelerate the implementation schedule for new purchasing requirements. California’s currently committed to off-road fleet requirements are technology-forcing and are the most stringent in the nation, requiring the lowest-emitting internal combustion engine and equipment technology, with zero-emission elements; further increases in stringency are not feasible.		

CARB Control Program MSM Analysis for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan

Measures	Implementation Begins	12 ug/m3 Annual (2012)
Off-Road Control Measures - Source Category Specific		
Agricultural Equipment		
Tier 4 Off-Road Engine Emission Standards	ongoing	MSM
U.S. EPA and California adopted equivalent Tier 4 standards in 2004 that require additional emission reductions from off-road engines, including those used in mobile agricultural equipment. No State has more stringent requirements for new emission performance standards for agricultural equipment engines than California. Further increases in stringency, or an accelerated timeline for implementation are not feasible.		
Funding Agricultural Replacement Measures for Emission Reductions (FARMER) Program	ongoing	MSM
California's in-use emission control program for agricultural equipment is among the most stringent in the nation. The Funding Agricultural Replacement Measures for Emission Reductions (FARMER) Program provides funding through local air districts for agricultural harvesting equipment, heavy-duty trucks, agricultural pump engines, tractors, and other equipment used in agricultural operations. Local air districts receive funds based on a formula and award them to farmers and agricultural businesses for individual projects. Funding is supported in part by California Climate Investments, a statewide program that puts billions of Cap-and-Trade dollars to work. In April 2022, CARB expanded the project categories within the FARMER Program to include zero-emission agricultural equipment. As of September 2022, \$685 million has been allocated, with \$347.6 million implemented across 8,057 projects. The emission reductions benefits associated with these projects include 22,400 tons of NO _x reductions, and 1,350 tons of PM 2.5 reductions, Statewide. California's agricultural equipment fleet rules are among the most stringent in the nation; further increases in stringency are not feasible. Fleet turnover programs need years of lead time to be implemented for reasons of technological and economic feasibility; because fleet turnover cannot happen immediately, it would be infeasible to accelerate the implementation schedule for new purchasing requirements.		
Airport Ground Support Equipment (GSE)		
Tier 4 Off-Road Engine Emission Standards	ongoing	MSM
LSI Engine Fleet Requirements Regulation	ongoing	MSM
In-Use Off-Road Diesel-Fueled Fleets Regulation (Off-Road Regulation)	ongoing	MSM
Portable Diesel-Engine ATCM	ongoing	MSM
Zero-Emission Airport Ground Support Equipment (GSE) (2016 State SIP Strategy measure, not yet adopted)	TBD	<u>Beyond</u> MSM
California's emission controls for Airport Ground Support Equipment (GSE) are the most stringent in the nation:		
<ul style="list-style-type: none"> • Diesel engines in newly manufactured GSE must meet the Tier 4 Emission Standards applicable to off-road compression ignition engines; • NOx limits for the LSI Engine Standard for engines > 1.0 liter (the typical engine size for GSE) is 0.6 g/bhp-hr. Engines meeting this standard are 70 percent cleaner than LSI engines produced as recently as 2009; • Airport GSE fleets operating LSI GSE must meet the In-Use LSI Engine Fleet Requirements. Adopted in 2006, the LSI fleet rule requires GSE fleets to maintain an average emission level of no more than 2.5 g/bhp hr HC+NO_x; • The In-Use Off-Road Diesel-Fueled Fleets Regulation requires GSE fleets operating in-use diesel equipment to meet an annual fleet average emissions target that decreases over time, which are currently being phased in; • Non mobile GSE such as portable air-start units, ground power units and air conditioners may be subject to the Portable Diesel-Engines ATCM; • CARB is anticipated to further increase the stringency of emission controls with the Zero-Emission Airport Ground Support Equipment measure, which will act as a catalyst to further adoption of zero-emission equipment. 		
The stringency of California's control program for Airport GSE leads the nation, and will be further lowered with the Zero-Emission Airport GSE measure; these levels will be technology-forcing, and will take years of lead time to enable manufacturers sufficient time to develop, test, certify, and manufacture the necessary low-emission engines and components. Further increases in stringency are not feasible. New emission standards and fleet requirements for GSE are dependent on technological developments, and require years of lead time to be developed, certified, manufactured, and implemented; a more accelerated timeline is infeasible.		
Cargo Handling Equipment (CHE)		
Cargo Handling Equipment (CHE) Regulation	ongoing	MSM

CARB Control Program MSM Analysis for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan

Measures	Implementation Begins	12 ug/m3 Annual (2012)
Amendments to CHE Regulation (2022 State SIP Strategy measure with commitment)	2026	<u>Beyond MSM</u>
California's emission controls for Cargo Handling Equipment (CHE) are the most stringent in the nation. CARB's Cargo Handling Equipment regulation sets performance standards for newly acquired engines, as well as in-use mobile CHE at ports or intermodal rail yards. The CHE regulation also includes performance standards for in-use, mobile CHE at ports or intermodal rail yards in California. CARB is anticipated to further increase the stringency of the CHE Regulation by transitioning CHE to zero-emission beginning in 2026. As committed to in the 2022 State SIP Strategy, CARB's amendments to the Cargo Handling Equipment Regulation would set in-use requirements for diesel cargo handling equipment at ports and rail yards, including but not limited to: yard trucks (hostlers), rubber-tired gantry cranes, container handlers, and forklifts. CARB's control measures are the most stringent in the nation, and the requirements committed will be technology-forcing and the most stringent feasible, including zero-emission requirement; further increases in stringency are not feasible. New standards for CHE are dependent on technological developments, and require years of lead time to be developed, certified, manufactured, and implemented; a more accelerated timeline is infeasible.		
Commercial Harbor Craft (CHC)		
Commercial Harbor Craft (CHC) Regulation	ongoing	MSM
2022 Amendments to CHC Regulation (2022 State SIP Strategy measure, adopted May 2022)	ongoing	MSM
California's emission controls for commercial harbor craft (CHC) are the most stringent in the nation. As amended in 2011, CARB's CHC Regulations reduce NO _x and diesel PM emissions from crew and supply boats, ferries, excursion vessels, towboats, push boats, tugboats, barges, and dredges, and included in-use limits that required diesel PM and NO _x emission controls. CARB amended the CHC regulation in 2022, establishing expanded and more stringent in-use requirements to cover more vessel categories including all tank barges, pilot vessels, research vessels, workboats, commercial passenger fishing, and commercial fishing vessels. The amendments also mandate accelerated deployment of zero-emission and advanced technologies in vessel categories where technology feasibility has been demonstrated. CARB's CHC control measures are technology forcing and the most stringent in the nation; further increases in stringency are infeasible. The requisite technology developments need years of lead time for development, certification, and implementation; it is not technologically feasible to accelerate the implementation timeline.		
Forklifts		
Tier 4 Off-Road Engine Emission Standards	ongoing	MSM
In-Use LSI Engine Fleet Requirements	ongoing	MSM
In-Use Off-Road Diesel-Fueled Fleets Regulation (Off-Road Regulation)	ongoing	MSM
Zero-Emission Off-Road Forklift Regulation Phase 1 (2016 State SIP Strategy measure with commitment)	2026	<u>Beyond MSM</u>
Amendments to the CHE Regulation (2022 State SIP Strategy measure with commitment)	2026	<u>Beyond MSM</u>
Off-Road Zero-Emission Targeted Manufacturer Rule (2022 State SIP Strategy measure with commitment)	2031	<u>Beyond MSM</u>
California's emission controls for forklifts are the most stringent in the nation. Forklifts powered by LSI engines (gasoline and natural gas) are subject to new engine standards that include both criteria pollutant and durability requirements. Diesel Forklifts > 25 HP are subject to Tier 4 Final emission standards (based on the use of advanced after-treatment technologies such as diesel particulate filters and selective catalytic reduction). Under the 2022 Amendments to the In-Use Off-Road Diesel Fueled Fleets Regulation, forklifts are also subject to requirements begin to transition fleets from the oldest and highest-emitting off-road engines in operation in California by phasing out Tier 0 – Tier 2 equipment beginning in 2024. Also beginning in 2024, the regulation includes requirements to restrict the addition of new vehicles and/or engines with Tier 3 and 4i engines. CARB is anticipated to further increase the stringency of emission controls: <ul style="list-style-type: none"> • The Zero-Emission Off-Road Forklift Regulation Phase I measure would be designed to accelerate the deployment of zero-emission forklift technologies, with an implementation schedule beginning in 2026; • For forklifts operating at ports and intermodal rail yards, the Amendments to the Cargo Handling Equipment Regulation measure that CARB committed to in the 2022 State SIP Strategy measure would also require transitioning to zero-emission technologies. Staff anticipates that all forklifts operating at ports and intermodal rail yards would be zero-emission by 2030; • The Off-Road Zero-Emission Targeted Manufacturer Rule measure would further increase the stringency of emission controls for forklifts, transitioning more fully to zero-emission powertrains. The stringency of California's forklift control program leads the nation, and will be further lowered with the Zero-Emission Off-Road Forklift Regulation Phase 1, the Amendments to CHE Regulation, and the Off-Road Zero-Emission Targeted Manufacturer Rule measures; the levels committed to with these measures will be technology-forcing, and will take years of lead time to		

CARB Control Program MSM Analysis for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan

Measures	Implementation Begins	12 ug/m3 Annual (2012)
enable manufacturers sufficient time to develop, test, certify, and manufacture the necessary low-emission engines and components. Further increases in stringency are not feasible. New emission standards and fleet requirements for forklifts are dependent on technological developments, and require years of lead time to be developed, certified, manufactured, and implemented; a more accelerated timeline is infeasible		
Marine Engines		
Exhaust Emission Regulation for Spark-Ignition Marine Engines	ongoing	MSM
Tier II Emission Standards for Inboard and Stern-Drive Marine Engines	ongoing	MSM
Marine Engine Evaporative Emission Control Standards	ongoing	MSM
Amendments to Spark-Ignition Marine Engine Standards (2022 State SIP Strategy measure with commitment)	2031	<u>Beyond</u> MSM
<p>CARB's recreational boats and marine engine program exceeds the stringency of U.S. EPA's federal standards and are the most stringent in the nation:</p> <ul style="list-style-type: none"> • The Exhaust Emission Regulations for Spark-Ignition Marine Engines (1998) controls emissions at the same level of stringency as national regulations; • The Tier II Emission Standards for Inboard and Stern Drive Marine Engines (2001) controls emissions at the same level of stringency as national regulations; and • The Evaporative Emission Control Standards (2015) exceeds the stringency of applicable federal regulations set by U.S. EPA in 2008 for gasoline-fueled SI marine watercraft >30 kilowatts. <p>The Spark-Ignition Marine Engine Standards measure would reduce emissions from new spark-ignition (SI) marine engines by adopting more stringent exhaust standards for outboard and personal watercraft, which currently do not use catalyst control technologies. Staff estimates that stricter standards could reduce combined HC or ROG and NO_x emissions by approximately 70 percent below the current HC+NO_x standard. CARB staff is also evaluating whether some outboard and personal watercraft vessels could be propelled by zero-emission technologies in certain applications.</p> <p>California's control program for marine engines is currently the most stringent in the nation, and will be further lowered with the Spark-Ignition Marine Engine Standards measure; these levels will be technology-forcing, and will take years of lead time to enable manufacturers sufficient time to develop, test, certify, and manufacture the necessary low-emission engines and components. Further increases in stringency are not feasible. New marine engine emission standards are dependent on technological developments, and require years of lead time to be developed, certified, manufactured, and implemented; a more accelerated timeline is infeasible.</p>		
Off-Highway Recreational Vehicles (OHRV)		
Exhaust and Evaporative Emission Standards for OHRVs	ongoing	MSM
<p>California's emission controls for Off-Highway Recreational Vehicles (OHRVs) are the most stringent in the nation. CARB's exhaust emission standards and evaporative emission standards control emissions from motorcycles, all-terrain vehicles, and utility-terrain vehicles at more stringent levels than applicable national standards set by U.S. EPA for MY 2022 – 2027+. CARB evaporative emission standards harmonize with federal limits for MY 2020 – 2026, and will exceed the stringency of federal requirements for MY 2027+. CARB's "Red Sticker" program requires in-use OHRVs that do not meet the applicable exhaust emission standards display a red registration sticker that limits operation at certain off highway recreational vehicle parks located in nonattainment areas during peak ozone season. CARB's OHRV program is the most stringent in the nation; further increases in stringency or an accelerated implementation timeframe are not feasible.</p>		
Small Off-Road Engines		
SORE Exhaust Emission Standards and Test Procedures	ongoing	MSM
Evaporative Emission Standards for SORE	ongoing	MSM
2021 Amendments to the Small Off-Road Engines (SORE) Regulation	2024	MSM
<p>California's emission controls for small off-road engines (SORE) are the most stringent in the nation. CARB's current SORE program (through MY 2023) aligns the exhaust and evaporative standards for SORE with federal standards, and sets requirements for Zero-Emission SORE equipment. CARB further increased the stringency of emission controls with the 2021 Amendments to the SORE Regulations, which will accelerate the deployment of zero-emission technologies, set tighter exhaust and evaporative emission standards (MY 2024+), and enhance enforcement of current emission standards for SORE. Beginning in MY 2024, exhaust and evaporative emission standards were lowered to zero, except for pressure washers with engine displacement greater than or equal to 225 cubic centimeters and generators (phase-in for ZE pressure washers and generators begins in MY 2028 and 2024, respectively). As a technology-forcing regulation, the SORE Regulation will accelerate the development and deployment of zero-emission SORE; further increases in stringency are not feasible. New exhaust and evaporative emission standards need years of lead time to be implemented; it would be infeasible to implement on a more accelerated timeframe.</p>		
Transport Refrigeration Units (TRUs)		
ATCM for In-Use Diesel-Fueled Transport Refrigeration Units (TRUs) and TRU Generator Sets	ongoing	MSM

CARB Control Program MSM Analysis for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan

Measures	Implementation Begins	12 ug/m3 Annual (2012)
Transport Refrigeration Unit Regulation Part 2 (2022 State SIP Strategy measure with commitment)	2028	<u>Beyond MSM</u>
California's emission controls for Transport Refrigeration Units (TRU) are the most stringent in the nation. Amended in 2022, the TRU ATCM requires that MY 2023 and newer trailer TRU, DSC TRU, railcar TRU, and TRU generator set engines meet a PM emission standard of 0.02 grams per brake horsepower-hour or lower (aligns with the United States Environmental Protection Agency Tier 4 final off-road PM emission standard for 25-50 horsepower engines). Beginning December 31, 2023, TRU owners shall turnover at least 15 percent of their truck TRU fleet (defined as truck TRUs operating in California) to ZE technology each year (for seven years). All truck TRUs operating in California shall be ZE by December 31, 2029. CARB has committed to increasing the stringency of TRU controls with the TRU Regulation Phase 2, which would establish zero-emission options for non-truck TRUs. These levels will be technology-forcing, and will take years of lead time to enable manufacturers sufficient time to develop, test, certify, and manufacture the necessary low-emission engines and components. Further increases in stringency are not feasible. New emission standards and zero-emission requirements for TRUs are dependent on technological developments, and require years of lead time to be developed, certified, manufactured, and implemented; a more accelerated timeline is infeasible.		
In-Use Emission Control Measures for Primarily Federally and Internationally Regulated Sources		
In-Use Railroad Control Measures		
Statewide Rail Yard Agreement for California Rail Yards (Railroad MOU)	ongoing	MSM
In-Use Locomotive Regulation (2022 State SIP Strategy measure, adopted April 2023)	2024	MSM
U.S. EPA has the sole authority to establish emissions standards for locomotives. California's in-use emission reduction measures for locomotives are the most stringent in the nation. The 2005, Statewide Rail Yard Agreement for California Rail Yards, a Memorandum of Understanding (MOU) with the Class I Railroads to increase the use of idle control devices, lowered locomotive idle times to 15 minutes, and opened a collaboration to produce Health Risk Assessments on 18 major railyards in the state was completed in 2015. Adopted in April 2023, the In-Use Locomotive Regulation accelerates the adoption of advanced, cleaner technologies for locomotive operations, including zero-emission technologies. The regulatory elements include: <ul style="list-style-type: none"> Starting in 2024: Spending Account Locomotive operators would be required to fund their own trust account based on the emissions created by their locomotive operations in California. The dirtier the locomotive, the more funds must be set aside. Spending Account funds would be used to fund turnover to cleaner locomotives, rail equipment, and/or related infrastructure. Starting in 2024: Idling Limit All locomotives with automatic shutoff devices (AESS) would not be permitted to idle longer than 30 minutes, unless for an exempt reason. Exemptions closely align with those described by U.S. EPA., and would be granted for reasons like maintaining air brake pressure or to perform maintenance. Starting in 2030: In-Use Operational Requirements Only locomotives less than 23 years old would be able to be used in California. Switchers, industrial, and passenger locomotives with original engine build dates of 2030 or newer would be required to operate in a ZE configuration in California. Freight line haul locomotives with original engine build dates of 2035 and newer would be required to operate in a ZE configuration in California. CARB's in-use emission controls for locomotives are the most stringent in the country, and with the In-Use Locomotive Regulation, which includes zero-emission elements, stringency will be increased further; these requirements are technology-forcing and additional increases in stringency are not feasible. Fleet requirements need years of lead time to be implemented; it would be infeasible to accelerate the implementation timeframe.		
In-Use Ocean-Going Vessel Control Measures		
Ocean-Going Vessel Fuel Regulation	ongoing	MSM
Ocean-Going Vessels At-Berth Regulation (At-Berth Regulation)	ongoing	MSM
Future Measures for Ocean-Going Vessel Emissions Reductions (2022 State SIP Strategy measure, not yet adopted)	2027+	<u>Beyond MSM</u>

CARB Control Program MSM Analysis for the SCAQMD 2024 12 µg/m³ annual PM2.5 Plan

Measures	Implementation Begins	12 ug/m3 Annual (2012)
<p>The International Maritime Organization (IMO) has the sole authority to establish emissions standards for ocean-going vessels. California's in-use emission reduction measures for OGVs are the most stringent in the nation. The 2008 Ocean Going Vessel Fuel Regulation reduces PM, NOx, and SOx emissions from ocean-going vessels by requiring operators of OGVs to use less polluting marine distillate fuels instead of heavy fuel oil in their diesel engines and auxiliary boilers while operating within approximately 24 nautical miles (nm) of the California coastline. The At-Berth Regulation, which was amended in 2020, reduces emissions from vessels docked at California ports by requiring that vessels turn off their auxiliary diesel engines and plug in to shore-based grid electrical power, or utilize alternative technologies to achieve comparable emission reductions. With the Future Measures for Ocean-Going Vessel Emissions Reductions measure, which may include developing a statewide vessel speed reduction program, and/or through the use of operational changes and new technologies currently in development, including advances in exhaust capture and control, mobile shore power connections, cleaner fuels (such as LNG, hydrogen, methanol, ammonia, etc.), alternative power sources (including batteries and fuel cells), as well as potential vessel side technologies (such as water-in-fuel emulsion), stringency will be increased further; these requirements are technology-forcing and additional increases in stringency are not feasible. Fleet requirements need years of lead time to be implemented; it would be infeasible to accelerate the implementation timeframe.</p>		
In-Use Aviation Control Measures		
Future Measures for Aviation Emission Reductions (2022 State SIP Strategy measure with commitment)	2029	<u>Beyond MSM</u>
<p>The authority to establish emissions standards for aircraft lies at the federal level; no state has emission standards for aircraft that differ from those set by U.S. EPA and the FAA. CARB's Future Measures for Aviation Emissions Reductions would reduce in-use emissions from airport and aircraft related activities, including main aircraft engines, auxiliary power units (APU), and airport ground transportation. These emission control strategies would be nation-leading in terms of stringency; further increases in stringency are not feasible. These strategies are also dependent on technological and operational developments, and require sufficient lead time for regulated parties to comply; an accelerated implementation timeline would not be feasible.</p>		
Fuels Control Measures		
Conventional Diesel Fuel Standards		
CARB Ultra Low Sulfur Diesel (ULSD)	ongoing	MSM
Low-Emission Diesel Requirement (2016 State SIP Strategy measure, not yet adopted)	TBD	<u>Beyond MSM</u>
<p>CARB's Ultra Low Sulfur Diesel regulation was last amended 2003 to establish more stringent standards for diesel fuel, lowering the sulfur limit to 15 ppmw. The California Diesel Fuel Regulations apply to essentially all diesel fuel supplied, sold, or offered for sale in California. The original applicability of the regulations was to vehicular diesel fuel; however, the applicability of the regulations has been extended by the adoption of ATCMs to non-vehicular diesel fuel, such as fuel for stationary engines, locomotives, and marine harbor craft. The Low Emission Diesel measure would require diesel fuel providers to steadily decrease criteria pollutant emissions from their fuels, which will reduce NOx and PM tailpipe emissions. CARB fuel regulations reduce emissions from even those vehicles registered out of state and therefore not subject to CARB's other mobile source control measures. CARB's diesel standards and requirements are the most stringent in the nation, and some of the most stringent in the world; it is not feasible to require further stringency of fuel specifications.</p>		
Alternative Fuel Standards		
Low Carbon Fuel Standard (LCFS)	ongoing	MSM
Alternative Diesel Fuel (ADF)	ongoing	MSM
<p>California's fuel standards for diesel substitutes are the most stringent in the nation. The LCFS and ADF regulations work together to reduce the carbon intensity of the California fuel supply while requiring limits on criteria emissions from alternative fuels and/or alternative fuel mix blends (due to regulatory constraints, the LCFS and ADF do not apply to aviation gasoline, nor fuels used in interstate locomotives and ocean-going vessels – regulatory control over these fuels lies at the national and international level). The regulations were amended in 2018 to extend the carbon intensity target of 20 percent to 2030. No other state or federal requirements have set as stringent of criteria emission requirements on alternative fuels and alternative fuel blends than California. The LCFS and ADF are technology-forcing regulations, and are the most stringent in the nation; further stringency would not be feasible. As it takes fuel producers years to develop, certify, and manufacture new alternative fuel types to meet the increasingly stringent requirements of the LCFS and ADF, an accelerated implementation timeframe would not be feasible.</p>		

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

STEP 3(B): EVALUATION OF FEASIBILITY: OFF-ROAD CONTROL MEASURES

Step 3(b) calls for an assessment of the feasibility of implementing any measure that is not included in the proposed South Coast SIP, but which is identified as a potential MSM control measure in Step 2. During the public process for the 2022 State SIP Strategy, CARB staff received a public measure suggestion for an additional potential control measure, as described below:

- **Indirect Source Rule**

This measure could involve CARB writing a Suggested Control Measure which acts as a model rule to assist the air districts in the rule development process. An indirect source can be any facility, building, structure, or installation, or combination thereof, which attracts or generates mobile source activity that results in emissions – these include warehouses, railyards, ports, airports, and mobile sources attracted to those warehouses, railyards, ports, and airports. Only a few air districts in California have indirect source rules to limit emissions of this nature on a facility basis.

CARB staff has been investigating the feasibility and potential benefits of this suggested measure, and is continuing to explore this suggested measure and how it can meet the Clean Air Act requirements for SIP measure approvability. CARB staff has also been exploring its feasibility, given the current limitations of State law and the nature of how emission control authority is designated amongst CARB and local air districts. (How do we want to phrase this limit to our statutory authority?) Nonetheless, CARB staff have included an Indirect Source Rule as one potential element of the **Zero-Emission Trucks measure** committed to in the 2022 State SIP Strategy. In addition, CARB staff will explore opportunities to expand existing State law to provide partnership opportunities for CARB and air districts to work together to develop, adopt, and implement indirect source rules.

CARB staff continue to investigate the feasibility of this public measure suggestion, as well as whether it would meet the U.S. EPA's approvability criteria for SIP measures, and legal questions around statutory authority as designated to CARB and the air districts. While CARB staff have included an Indirect Source Rule as one potential element of the Zero-Emission Trucks measure, due to feasibility and approvability issues, this suggestion has not yet been formally organized into a SIP control measure.

Commercial and Residential Building Appliances

STEP 2(A): CALIFORNIA'S COMMERCIAL AND RESIDENTIAL BUILDING APPLIANCES CONTROL MEASURE

In the 2022 State SIP Strategy, CARB committed to achieving emissions reductions for combustion sources used in buildings through the ***Zero Emission Standard for Space and Water Heaters measure***. The primary goal of this measure is to reduce emissions from new residential and commercial space and water heaters sold in California. CARB would set a zero-emission standard for space and water heaters to go into effect in 2030. This measure would be the first time CARB would be regulating these sources of emissions which are also subject to various other requirements at the State and local levels. As such, CARB would design any such standard in collaboration with energy and building code regulators, and with air districts, to ensure it was consistent with all state and local efforts.

The South Coast AQMD controls NO_x emissions from residential space and water heaters through two rules: Rule 1121 – Control of Oxides of Nitrogen (NO_x) from Residential Type, Natural Gas-Fired Water Heaters; and Rule 1111 – Reduction of NO_x Emissions from Natural-Gas Fired, Fan-Type Central Furnaces, which regulates residential space heating sources.

Rule 1111 reduces NO_x emissions from residential and commercial gas-fired fan-type space heating furnaces with a rated heat input capacity of less than 175,000 BTU per hour or, for combination heating and cooling units, a cooling rate of less than 65,000 BTU per hour. The rule applies to manufacturers, distributors, and installers of such furnaces. The rule was originally adopted in 1978, and has been subsequently amended, including a 2009 amendment that lowered the NO_x emissions from 40 to 14 nanograms per Joule (ng/J), and a 2014 amendment that provided an alternate compliance option that allows the manufacturer to pay a per-unit mitigation fee, in lieu of meeting the new lower NO_x emission limit, for up to 36 months past the applicable compliance date.¹²⁴

Rule 1121, which was last amended in 2004, applies to manufacturers, distributors, retailers, and installers of natural gas-fired water heaters, with heat input rates less than 75,000 Btu per hour. The most stringent limits in SCAQMD Rule 1121 went into effect for all applicable units less than 75,000 Btu/hr between 2006 and 2008, and require a 10 ng/J standard for gas-powered water heaters.¹²⁵

The South Coast AQMD controls NO_x emissions from commercial and industrial space and water heaters through three rules:

¹²⁴ SCAQMD 2021 Preliminary Draft Staff Report Proposed Amended Rule 1111 – Reduction of NO_x Emissions from Natural Gas-Fired, Fan-Type Central Furnaces https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1111/par-1111_preliminary-draft-staff-report_june-18-2021.pdf?sfvrsn=6#:~:text=Rule%201111%20reduces%20emissions%20of,than%2065%2C000%20BTU%20per%20hour.

¹²⁵ SCAQMD 2004 RULE 1121 Control of NO_x from Residential Type, Natural Gas-Fired water Heaters <http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1121.pdf>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

- Rule 1146: Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters applies to existing boilers, steam generators, and process heaters with maximum rated heat input capacities greater than or equal to 5 million British thermal units per hour (MMBtu/hr);
- Rule 1146.1: Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters applies to boilers, steam generators, and process heaters with maximum rated heat input capacities greater than 2 MMBtu/hr and less than 5 MMBtu/hr;
- Rule 1146.2: Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters establishes NO_x emission limits for large water heaters, boilers and process heaters less than or equal to 2 MMBtu/hr.

Rules 1146, 1146.1 and 1146.2 update NO_x emission limits for boilers, heaters, and steam generators applicable to these rules. The revised NO_x emission limits represent BARCT and apply to former RECLAIM and non-RECLAIM facilities. Table 22 summarizes the applicability and existing NO_x emission limits in Rules 1146, 1146.1 and 1146.2.¹²⁶

Table 22: Applicability and NO_x Limits for Rules 1146, 1146.1, and 1146.2

Rule	Applicability	Size	Summary of NO _x Emission Limits
1146	Boilers, steam generators, and process heaters	≥ 5 MMBtu/hr	<ul style="list-style-type: none"> • 5 ppm for units burning natural gas ≥ 75 MMBtu/hr • 9 ppm for units burning gaseous fuels 5 to 75 MMBtu/hr • 30 ppm for thermal fluid heaters burning gaseous fuels • 40 ppm for nongaseous fuels • 12 ppm for atmospheric units • 15 ppm for units burning digester gas • 25 ppm for units burning landfill gas
1146.1	Boilers, steam generators, and process heaters	> 2 and < 5	<ul style="list-style-type: none"> • 9 ppm for units burning natural gas • 30 ppm for thermal fluid heaters burning gaseous fuels • 12 ppm for atmospheric units • 15 ppm for units burning digester gas • 25 ppm for units burning landfill gas
1146.2	Natural gas-fired water heaters, boilers, and process heaters	≤ 2 MMBtu/hr	<ul style="list-style-type: none"> • Manufacturer limit of 20 ppm • End-user limit of 30 ppm

¹²⁶ SCAQMD 2018, "PARs 1146, 1146.1 and 1146.2, and PR 1100 Final Staff Report" <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2018/2018-dec7-028.pdf?sfvrsn=6>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

During the adoption of the 2016 AQMP, the South Coast AQMD Board directed staff to transition the NO_x RECLAIM program to a command-and-control regulatory structure requiring Best Available Retrofit Control Technology (BARCT) as soon as practicable. In December 2018, the South Coast AQMD Board adopted source-specific rules establishing BARCT emission limits, which are needed for equipment at former RECLAIM facilities as they transition to a command-and-control regulatory program. The 2018 Amendments to Rules 1146, 1146.1 and 1146.2 updated NO_x emission limits for boilers, heaters, and steam generators. The revised NO_x emission limits represent BARCT and apply to former RECLAIM and non-RECLAIM facilities. Facilities with Rule 1146/1146.1 units had until January 1, 2022 to retrofit all existing units, and until January 1, 2023 to replace any existing units. Rule 1146.2 units (between 400,000 to 2 million British thermal units per hour) are required to comply with the 30 ppm limit by December 31, 2023.

Additionally, in their *2022 Air Quality Management Plan*, the South Coast AQMD has committed to develop zero-emission standards for commercial and residential space and water heaters in installations in both new and existing residences, in addition to incentive-based strategies.¹²⁷

As previously mentioned, CARB committed in the 2022 State SIP Strategy to achieving additional emissions reductions for combustion sources used in buildings through the ***Zero Emission Standard for Space and Water Heaters measure***. This would be the first Statewide measure of its kind, as no other state has enacted such a requirement. Through meaningful engagement with communities and the process outlined below, CARB would adopt a statewide zero-emission standard which would have criteria pollutant benefits as a key result along with GHG reductions. Beginning in 2030, 100 percent of sales of new space heaters and water heaters would need to comply with the emission standard. CARB would design any such standard in collaboration with energy and building code regulators, and with air districts, to ensure it was consistent with all State and local efforts, and would work carefully with communities to consider any housing cost or affordability impacts, recognizing that reducing emissions from space and water heaters can generate health benefits and cost-savings with properly designed standards.

CARB understands that this measure needs to be part of a suite of equity-promoting and complementary building decarbonization policies deeply informed by public process that include scaling back natural gas infrastructure, expanding construction of zero-emission buildings, and building a sustainable market by increasing affordability and accessibility through expanding incentive programs, ensuring utility rates are supportive of electrification, developing the workforce, and increasing consumer education. Although this measure is the only component appropriate for including in the SIP, before setting an emission standard, CARB will work in collaboration with other agencies, industry, environmental stakeholders, and community representatives to

¹²⁷ SCAQMD. *2022 Air Quality Management Plan*. December 2, 2022. Retrieved from: <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/final-2022-aqmp.pdf?sfvrsn=10>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

ensure that the measure is developed and implemented in an equitable manner to benefit low-income and disadvantaged communities. As such, community engagement will be a critical aspect of the entire process. Furthermore, as this proposal is developed, this measure may be expanded to include other end-uses.

For this measure, CARB would develop and propose zero-emission standards for space and water heaters sold in California using its regulatory authority for GHGs (which includes consideration of related criteria pollutant reduction benefits). CARB would collaborate with the U.S. Department of Energy and the California Energy Commission which are responsible for establishing appliance standards focused on maximizing energy efficiency at the federal and state level. CARB would consult with the California Building Standards Commission, Housing and Community Development and the California Energy Commission which have authority to develop building standards for new construction, additions, and alterations of residential and commercial buildings to ensure this measure is complementary. At the regional level, CARB would work with air districts in the development of a statewide zero-emission standard and to support further tightening district rules to drive increased adoption of zero-emission technologies. Finally, CARB would engage with community-based organizations and other key stakeholders to incorporate equitable considerations for low-income and environmental justice communities where feasible. This proposed measure is a key component of a broader portfolio of strategies to advance equitable building decarbonization in California. This measure would not mandate retrofits in existing buildings, but some buildings would require retrofits to be able to use the new technology that this measure would require. Beginning in 2030, 100 percent of new space and water heaters (for either new construction or replacement of burned-out equipment in existing buildings) sold in California would need to meet the zero-emission standard.

This measure has the potential to significantly accelerate the transition away from pollution associated with combustion in these sources, while creating economic opportunities for building retrofits. CARB staff has been analyzing the feasibility and potential benefits of this measure and expect that this regulation would rely heavily on currently-available heat pump technologies, which are now being sold to electrify new and existing homes. CARB staff have included in the Zero Emission Standard for Space and Water Heaters measure the potential to expand beyond space and water heaters to include additional end-uses as suggested via a public measure suggestion.

In addition to the proposed standard for space and water heaters, California has in place programs to ensure weatherization and energy efficiency of new buildings. The State of California's Building Energy Efficiency Standards for Residential and Nonresidential Buildings (California Energy Code, Title 24, Part 6) are in effect Statewide and affect both new builds and alterations of existing buildings. The Building Energy Efficiency Standards were last updated in 2022 (effective as of January 1, 2023); the 2022 updates set in place new standards to encourage building decarbonization, emphasizing in particular on heat pumps for space heating and water

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

heating, and extended the benefits of photovoltaic and battery storage systems and other demand flexible technology to work in combinations with heat pumps.

California also has a number of funding programs, including the California Department of Community Services and Development's (CSD) Low-Income Weatherization Program to provides low-income households with solar photovoltaic systems and energy efficiency upgrades at no cost to residents, including specific components to support low-income farmworkers and multi-family properties. The California CSD also provides additional resources and administers certain federal weatherization programs including the U.S. Department of Energy's Weatherization Assistance Program, and the U.S. Department of Health and Human Services' Low-Income Home Energy Assistance Program; California CSD works with local energy services providers throughout the state installing weatherization and energy efficiency measures for low-income homeowners and renters to facilitate these programs. Further, the California Public Utilities Commission has an Energy Savings Assistance Program which provides no-cost weatherization services to consumers who meet the income limits under the California Alternate Rates for Energy program.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

STEP 2(B): OTHER STATES' AND NONATTAINMENT AREAS' COMMERCIAL AND RESIDENTIAL BUILDING APPLIANCES CONTROL MEASURES

Table 23 summarizes the most stringent control measures currently in use in any state that have been identified and discussed for commercial and residential building appliances.

Table 23: Comparison of Stringency – Commercial and Residential Building Appliances
CARB Control Program Compared to Federal Standards and Control Programs in Other States

Type of Control Measure	Most Stringent Control Program Identified	Summary of Findings from Analysis	Other Jurisdiction(s) Analyzed
Commercial and Residential Building Appliances			
Space and Water Heaters			
Emission standard (new sales): Zero-Emission Standard for Space and Water Heaters	Future measure: Zero-emission Standard for Space and Water Heaters (CARB)	<p>CARB's Zero-Emission Standard for Space and Water Heaters measure is the most stringent standard of its type at the state level. This measure would reduce emissions from new residential and commercial space and water heaters sold in California. CARB would set an emission standard for space and water heaters to go into effect in 2030. CARB would adopt a statewide zero-emission standard which would have criteria pollutant benefits as a key result along with GHG reductions. Beginning in 2030, 100 percent of sales of new space heaters and water heaters would need to comply with the emission standard.</p> <p><i>(Note: CARB has committed to pursue the Zero-Emission Standard for Space and Water Heaters measure, but this measure has not yet been proposed to the Board for approval/adoption)</i></p>	<p>No other state has emission standards that require space and water heaters sales to be exclusively zero-emission by 2030.</p> <p>Maryland passed the Climate Solutions Now Act, establishing Building Energy Performance Standards for buildings 35,000 square feet and larger to achieve a 20 percent reduction in net direct greenhouse gas (GHG) emissions by 2030 and net-zero emissions by 2040. The regulation also requires holistic retrofits of low-income households, including weatherization and heat pump installations.¹²⁸</p> <p>New York supports statewide building decarbonization in new construction and existing buildings through a combination of building codes and appliance efficiency standards, among other strategies.¹²⁹</p>

¹²⁸ Maryland Department of Environment. "Building Energy Performance Standards: Summary of Authorizing Law for the Development of Regulations." Accessed on April 13, 2023 at: <https://mde.maryland.gov/programs/air/ClimateChange/Pages/BEPS.aspx>.

¹²⁹ New York State Energy Research and Development Authority. 2022. "New York's Carbon Neutral Buildings Roadmap." Available at: <https://www.nyserda.ny.gov/All-Programs/Carbon-Neutral-Buildings>.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

While there may be certain local jurisdictions with requirements for zero-emission space and water heaters that establish earlier implementation dates, CARB has analyzed other State-level requirements and must evaluate feasibility for implementation on a statewide level. As shown in Table 23 summarizes the most stringent control measures currently in use in any state that have been identified and discussed for commercial and residential building appliances.

Table 23 above, CARB's Zero-Emission Standard for Space and Water Heaters measure is the most stringent State-level requirement of its type within the U.S. and thus goes beyond MSM requirements.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

**STEP 3(A): EVALUATION OF STRINGENCY: COMMERCIAL AND RESIDENTIAL
BUILDING APPLIANCES CONTROL MEASURES**

CARB has committed to bringing to the Board by 2025 a measure for zero-emission commercial and residential building appliances, which would propose to require, beginning in 2030, that 100 percent of new space and water heaters sold in California meet the zero-emission standard. No other state is engaged in more stringent efforts to require zero-emission space and water heaters.

Furthermore, CARB staff have conducted an analysis of the timing of the new space and water heater measure included in the 2022 State SIP Strategy. This measure is still in its development phase and is not yet being implemented; the development timeline, however, is critical to allow industry sufficient time to implement the requisite changes in their business models to transition to exclusively selling the required zero-emission technologies called for in this proposed regulatory action, and for manufacturers to scale up production to levels sufficient to meet the demand stimulated by a statewide requirement: A more expedited timeframe would be neither technologically nor economically feasible.

The public process to undertake a rulemaking of this scope would be at least two years. Additionally, manufacturers need time to ramp up production of zero-emission technologies to meet the expected demand. For example, despite the fact that appliance saturation studies in California show residential electric use for space heating has quadrupled over the last 10 years, manufacturing and deployment would need to continue to accelerate to meet the demand under a new zero-emission space and water heater standard.¹³⁰ Further, CARB would need to design any such standard in collaboration with energy regulators (U.S. Department of Energy and California Energy Commission), and building code regulators (California Building Standards Commission, California Department of Housing and Community Development, and California Energy Commission), and with air districts, ensure it was consistent with all State and local efforts, and would work carefully with communities to consider any housing cost or affordability impacts, recognizing that reducing emissions from space and water heaters can generate health benefits and cost-savings with properly designed standards.

CARB understands that this measure needs to be part of a suite of equity-promoting and complementary building decarbonization policies deeply informed by public process that include scaling back natural gas infrastructure, expanding construction of zero-emission buildings, and building a sustainable market by increasing affordability and accessibility through expanding incentive programs, ensuring utility rates are supportive of electrification, developing the workforce, and increasing consumer education. As part of the public process for equity promoting building decarbonization, CARB is reviewing and considering reports like Building Energy, Energy and Power (BEEP) Coalition's

¹³⁰ Opinion Dynamics, *California Heat Pump Residential Market Characterization and Baseline Study*, Figure 18. May 17, 2022. Retrieved from: <https://www.calmac.org/publications/OD-CPUC-Heat-Pump-Market-Study-Report-5-17-2022.pdf>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Community Priorities for Equitable Building Decarbonization Equitable.¹³¹ Community engagement will be a critical aspect of the entire public process. CARB needs to engage with community-based organizations and other key stakeholders to incorporate equitable considerations for low-income and environmental justice communities where feasible.

For these reasons, the Zero Emission Standard for Space and Water Heaters measure meets the MSM requirement of being phased in as “expeditiously as practicable” and goes beyond MSM requirements in terms of stringency.

¹³¹ Building Energy, Equity and Power Coalition, *Community Priorities for Equitable Building Decarbonization*. March 1, 2022. Retrieved from: https://ww2.arb.ca.gov/sites/default/files/2022-03/BEEP%20Letter%20and%20Report_Equitable%20Decarb%20March%202022.pdf

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Table 24: Commercial and Residential Building Appliances Control Measures – Stringency and Timeline for Implementation

Measures	Implementation Begins	12 ug/m3 Annual (2012)
State SIP Strategy Residential and Commercial Building Appliance Measures (with Commitment)		
Zero Emission Standard for Space and Water Heaters measure	2030	<u>Beyond MSM</u>
<p>With the Zero-Emission Standard for Space and Water Heaters measure, CARB would set a statewide zero-emission standard for space and water heaters. Beginning in 2030, 100 percent of the sales of new space heaters and water heaters would need to comply with the emission standard. This standard would be the most stringent of any state in the U.S., and would exceed the stringency of Federal requirements; further increases in stringency are not feasible. New zero-emission standards take years of lead time to ensure manufacturers have sufficient time to implement the necessary changes in their business models and to scale up production to a sufficient level to meet the demand produced by a Statewide standard; a more accelerated timeline is not feasible</p>		

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

**STEP 3(B): EVALUATION OF FEASIBILITY: COMMERCIAL AND RESIDENTIAL
BUILDING APPLIANCES CONTROL MEASURES**

Step 3(b) calls for an assessment of the feasibility of implementing any measure that is not included in the proposed South Coast SIP, but which is identified as a potential MSM control measure in Step 2. Staff developed the Zero-Emission Standard for Space and Water Heaters measure in response to a public measure suggestion received during the public process for the 2022 State SIP Strategy, which is described below:

- **Additional Building Emission Standards**
CARB could propose additional emissions standards for combustion sources used in buildings by working with air districts to set such standards and, with building and energy code agencies on standards for new construction, or by taking other actions (including potentially incentive programs) to accelerate the removal of fossil fuels from the building stock in both new and existing buildings.

CARB staff has been investigating the feasibility and potential benefits of this suggested measure and have included in the 2022 State SIP Strategy the Zero-Emission Standard for Space and Water Heaters measure, which also includes the potential to include other end-uses.

CARB staff do not recommend eliminating any of the potential commercial and residential building appliance control measures identified on the basis of technical or economic infeasibility.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Summary of Steps 2 and 3

STEP 2: POTENTIAL MOBILE SOURCE CONTROL MEASURES IDENTIFIED

The purpose of Step 2 is to identify all potential MSM control measures for the emission sources identified Step 1. Per U.S. EPA guidance, staff began to identify the list of all potential MSM control measures by starting with California's control program (Step 2(a)), which includes:

- Control measures adopted in the SIP for the South Coast (i.e. the current control program); and
- Additional control measures committed to in the 2022 State SIP Strategy.

In Step 2(b), staff expanded the scope of focus beyond California's controls to identify any additional potential MSM control measures that are in use in other nonattainment areas and states, and which exceed the stringency of California's controls identified in Step 2(a). The analysis undertaken for Step 2(b) found that, while there are some measures in other jurisdictions that have emission controls which are individually more stringent than an individual CARB control program, the comprehensive stringency of similar control measures committed to in the 2022 State SIP Strategy meets and/or exceeds the stringency of the controls in use in other jurisdictions. Thus, Step 2(b) did not identify any additional potential MSM control measures in use in other jurisdictions that are more stringent than the California control measures previously identified in Step 2(a).

To meet statutory requirements for the MSM plans, staff also reviewed all previous South Coast PM_{2.5} SIPs in Step 2(c), and found no CARB mobile source control measures that were proposed in previous Moderate or Serious attainment plan control strategies for the area that were not subsequently adopted and/or implemented.

As there are no applicable control measures previously rejected as infeasible for the South Coast's MSM demonstration process, Step 2(c) did not identify any additional potential MSM control measures beyond the control measures identified in Steps 2(a) and 2(b).

STEP 3: ANALYSIS OF STRINGENCY AND FEASIBILITY

The analysis of stringency and feasibility for each possible MSM control measure identified in Step 2 has shown that California's control program is at least consistent with the most stringent of any nonattainment area or state in the nation, with the majority of California control measures exceeding the stringency of controls in use in the rest of the nation.

The control measures included in the proposed 2024 12 µg/m³ annual PM_{2.5} Plan represent the full suite of emission control approaches that aligns with the most stringent levels of control feasible, given the current status of technology and its potential in the near future. Furthermore, CARB staff has not received any public comments to date indicating that more stringent control technologies than those included in the proposed South Coast SIP would be commercially available and/or

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

technologically and economically feasible to implement in the timeframe required for the area's PM_{2.5} SIPs. The CARB current control measures analyzed in this document therefore meet the requirements of Most Stringent Measures (MSM), and all 2022 State SIP Strategy measure commitments go beyond MSM requirements.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Section V. Step 4: Adoption of Control Measures

The final step required by the Act's step-wise process is to adopt and implement feasible control measures identified in Step 3 to satisfy MSM requirements.

The CARB control program for the proposed South Coast 2024 12 µg/m³ annual PM_{2.5} Plan includes all of the measures identified as MSM in Step 3. The control measures included in this analysis have been shown to meet or go beyond the MSM requirements. The control measures described in this chapter are in varying stages of the adoption and implementation process at CARB:

- Most of the measures identified as MSM have already been adopted by the Board, submitted into the SIP, and are currently being implemented as part of CARB's current control program.
- Additional control measures which go beyond MSM have been committed to in the 2022 State SIP Strategy, which the Board adopted in September 2022, yet many of these control measures themselves have not yet been adopted by the Board. The Board's adoption of the 2022 State SIP Strategy created a commitment to adopt measures according to a defined schedule, and a commitment to achieve specified emission reductions in the South Coast.

Board adoption of the proposed South Coast 2024 12 µg/m³ annual PM_{2.5} Plan – including the control measures described in the 2022 State SIP Strategy – will satisfy the requirements of Step 4.

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

Section VI. Conclusion: Findings of MSM Analysis

California's long history of comprehensive and innovative emissions control has resulted in the strongest mobile source control program in the nation. U.S. EPA has acknowledged the strength of these programs in their approval of CARB's regulations and through the waiver and authorization process. In addition, U.S. EPA has provided past determinations that CARB's mobile source control programs meet Best Available Control Measure (BACM) requirements, which are more stringent than RACM, as part of their 2019 approval of the South Coast's 24-hour PM_{2.5} Plan¹³²:

"Overall, we believe that the program developed and administered by CARB and SCAG provide for the implementation of BACM for PM_{2.5} and PM_{2.5} precursors in the South Coast nonattainment area."

Additionally, in their 2020 proposed approval of the San Joaquin Valley's PM_{2.5} Serious Area 2018 Plan,¹³³ U.S. EPA further found that CARB's mobile source control program met the more stringent level of MSM. In their 2020 proposal for that plan, U.S. EPA found that,

"CARB's programs constitute the most stringent emission control programs currently available for the mobile source and fuels categories, taking into account economic and technological feasibility."¹³⁴

Since then, CARB has continued to enhance and accelerate reductions from our mobile source control programs through the implementation of more stringent engine emissions standards, in-use requirements, incentive funding, and other policies and initiatives as described in the preceding sections. These efforts not only ensure that all source sectors continue to achieve maximum emission reductions through implementation of the cleanest current technologies, but also promote the ongoing development of more advanced zero and near-zero technologies. As a result, California's current mobile source control programs reflect the most stringent and feasible level of emissions control in the nation and fully meet the requirements for MSM.

Additionally, this analysis shows that CARB's control measures committed to in the 2022 State SIP Strategy for mobile sources and commercial and residential building appliances also meets go beyond the requirements of MSM.

As the requirements for MSM are inclusive of the requirements for BACM – and indeed, are more stringent than BACM requirements – this analysis shows that CARB's control

¹³² 83 FR 5923 <https://www.federalregister.gov/documents/2018/02/12/2018-02677/air-quality-state-implementation-plans-approvals-and-promulgations-california-south-coast-moderate>

¹³³ 85 FR 44192 <https://www.federalregister.gov/documents/2020/07/22/2020-14471/clean-air-plans-2006-fine-particulate-matter-nonattainment-area-requirements-san-joaquin-valley> While elements of this plan were later disapproved and remanded due to a 9th Circuit Court of Appeals decision, the Court's findings nonetheless upheld EPA's approval of mobile source control measure finding of MSM.

¹³⁴ 85 FR 17382 <https://www.federalregister.gov/documents/2020/03/27/2020-05914/clean-air-plans-2006-fine-particulate-matter-nonattainment-area-requirements-san-joaquin-valley>

**CARB Control Program MSM Analysis
for the SCAQMD 2024 12 µg/m³ annual PM_{2.5} Plan**

measures for mobile sources and for commercial and residential building appliances also meet the requirements of BACM, in addition to MSM.

In conclusion, CARB followed the procedures outlined by U.S. EPA for determining MSM, and have found that California's control programs for mobile sources and commercial and residential building appliances satisfy and, in certain cases, go beyond the applicable requirements for the PM_{2.5} standard in this analysis.

**South Coast Air Basin Attainment Plan for the 2012
Annual PM2.5 Standard**

Appendix III

**ATTACHMENT C: QUANTITATIVE ANALYSIS FOR WOOD
BURNING CURTAILMENT THRESHOLD**

Emission Reduction Analysis for Rule 445 in Comparison to San Joaquin Valley Rule 4901

Summary

Rule 445 on Wood-Burning Devices establishes mandatory burning curtailment across the entire South Coast Air Basin (Basin) when daily PM_{2.5} concentration in any source receptor area (SRA) is projected to exceed 29 µg/m³. Residences located 3,000 or more feet above mean sea level and low-income households are exempt from this curtailment. The emission reductions associated with this Basin-wide approach are compared to the potential emission reductions that would be achieved if San Joaquin Valley Air Pollution Control District's (SJVAPCD) Rule 4901 were to be applied to the Basin.

Rule 4901 Structure and Its Application to the South Coast Air Basin

SJVAPCD Rule 4901 establishes a tier system for emission curtailment that is based on whether devices are U.S. EPA certified (See Table III-C-1). Rule 4901 includes a registration procedure where household can register certified devices, which provides data on the penetration of certified devices within the San Joaquin Valley. In contrast, the Basin does not have implemented any registration system, and as a result, there is no reliable information on the percentage of households that use certified devices. And most of wood burning devices exist in the Basin are fireplaces used for ambience, not for heating or cooking. For simplicity and conservative approach, this analysis assumed that all wood burning devices are uncertified and subject to the most stringent thresholds: 20 µg/m³ in non-hotspot areas, and 12 µg/m³ for hotspot areas.

TABLE III-C-1
SAN JOAQUIN VALLEY'S RULE 4901 TIER STRUCTURE FOR EMISSIONS CURTAILMENT

	Certified Devices		Uncertified Devices & Fireplaces	
	Non-Hotspot	Hotspot	Non-Hotspot	Hotspot
Level 1	N/A	N/A	20 µg/m ³	12 µg/m ³
Level 2	65 µg/m ³	35 µg/m ³	20 µg/m ³	12 µg/m ³

Identifying Hotspots in the South Coast Air Basin

The quantitative analysis presented in this section utilizes General Forecasting Areas (GFA)SRAs as the geographical unit to delineate hotspots and non-hotspots. There are 35 SRAs in the basin that are grouped in 13 GFAs based on the similar topographical and demographical features that are distinctive from other

SRAs.¹ South Coast AQMD issues air quality forecasts each day and reports current air quality conditions for each SRA. This information is disseminated to the public, website, and newspapers, television and radio stations. SJVAPCD Rule 4901 establishes hotspots and non-hotspots across nine forecast areas. Each county is considered a single forecast area, with the exception of Tulare County, which is divided into two separate areas. Total population of the SJVAPCD jurisdiction is 4.2 million, which leads to an average of 0.47 million people per forecast area. The air quality forecast for the Basin is partitioned into 35 SRAs. Air quality forecast including PM_{2.5} is issued every day, tailored to individual SRA. In contrast, the average populations of an SRA and a GFA are approximately 0.49 and 1.32 million, respectively, both exceeding the population density of each forecast area in the San Joaquin Valley. According to the latest demographic data from SCAG's regional transportation plan, the Basin accommodates approximately 17.3 million residents. In addition, Rule 445 used to implement residential wood burning curtailment program by SRA until May 2020 when it was amended to incorporate contingency measure components to comply with PM_{2.5} and ozone SIP requirements. While SRA is a smaller area than a county, transport and dispersion are embedded in the South Coast AQMD's daily forecast system. The air quality forecast reflects emissions, meteorological conditions, topography, photochemistry, and transport, given that these pieces of information are reflected in the measurements and photochemical models of which results are input to the daily forecast system. Therefore, SRA is an equivalent unit to the county of SJV, this analysis uses GFA unit to define hotspots per U.S. EPA's comment. A hotspot is defined as a GFASRA where the design value projected for the 2030 baseline exceeds 12 µg/m³. This is consistent with the approach adopted by SJVAPCD, which defined hotspots as the forecast areas that exceed the annual PM_{2.5} standard after "incorporating an exhaustive list of aggressive potential measures in (San Joaquin) Valley wide."² The 2030 baseline design values employed in this analysis align with those utilized in the modeling results presented in Chapter 5. Spatial interpolation methods, identical to those applied in the unmonitored area analysis, were employed to assign design values for GFASRAs lacking valid measurement-based data. The unmonitored area analysis utilizes inverse distance weighting with model gradient adjustment. The resulting SRAs-GFAs classified as hotspots are illustrated in Figure III-C-1.

¹ South Coast AQMD General Forecast Areas and Source Receptor Areas <http://www.aqmd.gov/docs/default-source/default-document-library/map-of-monitoring-areas.pdf>

² Adoption of proposed amendments to San Joaquin Valley Air Pollution Control District's Rule 4901, June 2019. https://www.valleyair.org/Board_meetings/GB/agenda_minutes/Agenda/2019/June/final/13.pdf

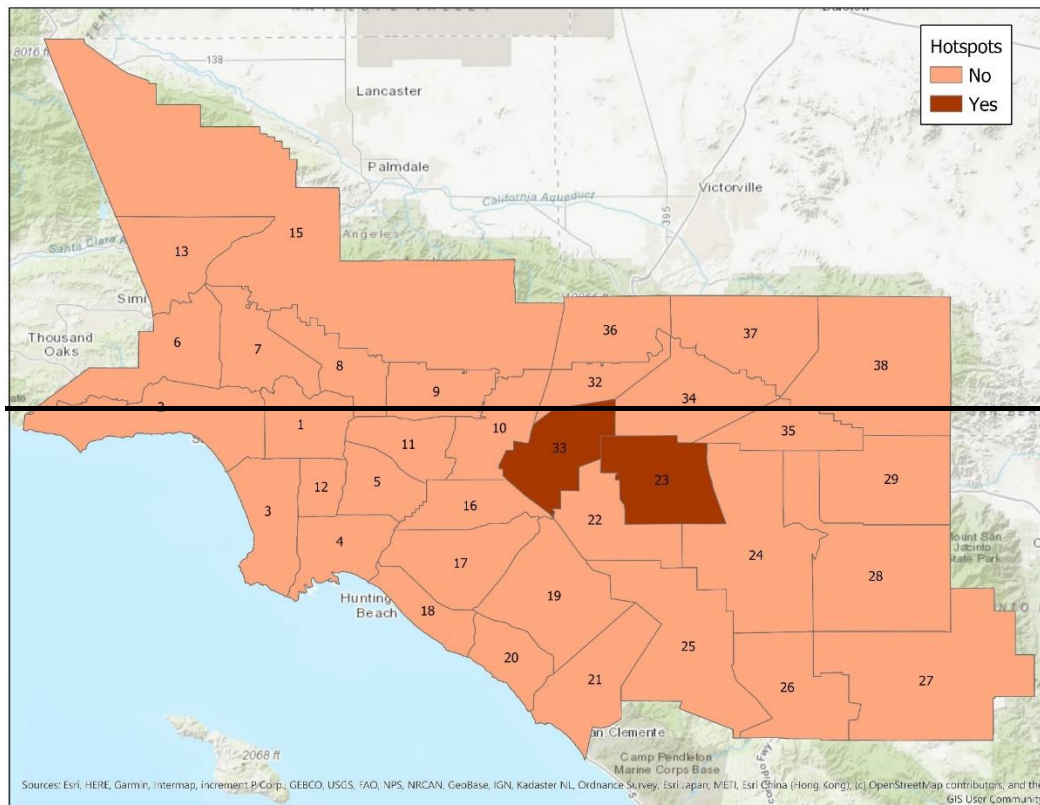
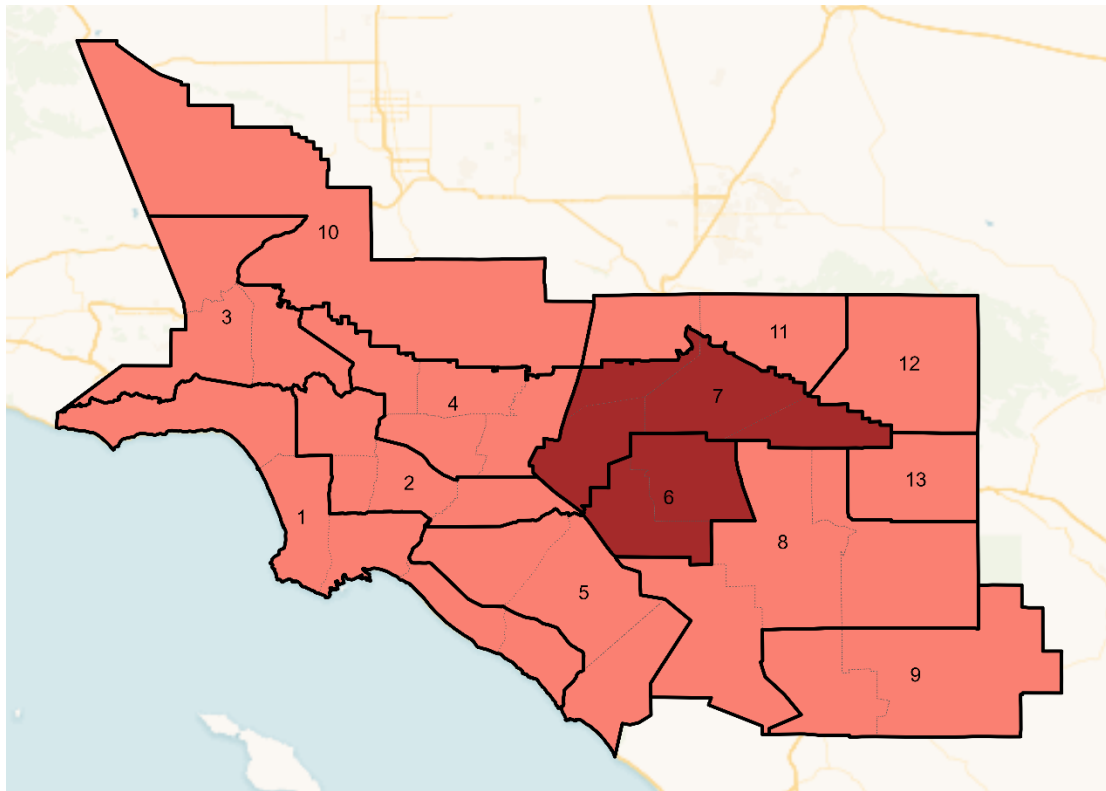


FIGURE III-C-1
HOTSPOT AND NON-HOTSPOT SOURCE RECEPTOR AREAS GENERAL FORECAST AREAS
(SRASGFAS).

Quantification of Emission Reductions

Emission reductions due to curtailment are quantified using the following procedure:

- 1) Determine the monthly emissions:

Emissions by GFASRA are determined by spatially allocating county-wide emissions from residential wood combustion with the spatial surrogate factors employed in air quality modeling. The spatial allocation factors are available at 1 km grid spacing. The emissions were allocated to each month based on levoglucosan measurements. These monthly allocation factors were utilized in the October 2020 amendment of the Rule 445,³ the current version of the rule. The total emissions subject to Rule 445 are shown by area in Table III-C-2. The emissions are estimated with no curtailment in place. For the basin-wide emissions, the total excludes emissions above 3,000 feet to account for the exemption included in Rule 445. In contrast, emissions by GFASRA include all emissions without any exemption related to altitude because such exemption is not included in SJVAPCD Rule 4901.

TABLE III-C-2
EMISSIONS FROM RESIDENTIAL WOOD COMBUSTION BY AREA WITHOUT ANY CURTAILMENT

GFASRA	Emissions (tons/month)			
	January	February	November	December
Basin total*	330.8	214.0	350.2	583.7
<u>11</u>	<u>66.814.9</u>	<u>43.39.6</u>	<u>70.615.8</u>	<u>117.826.3</u>
<u>22</u>	<u>45.515.4</u>	<u>29.410.0</u>	<u>48.116.3</u>	<u>80.227.2</u>
<u>33</u>	<u>35.220.4</u>	<u>22.813.2</u>	<u>37.321.6</u>	<u>62.136.0</u>
<u>44</u>	<u>38.314.7</u>	<u>24.99.5</u>	<u>40.615.5</u>	<u>67.725.9</u>
<u>55</u>	<u>29.713.6</u>	<u>19.38.8</u>	<u>31.414.4</u>	<u>52.424.0</u>
<u>66</u>	<u>22.615.6</u>	<u>14.710.1</u>	<u>24.016.5</u>	<u>40.027.5</u>
<u>77</u>	<u>50.815.2</u>	<u>32.99.8</u>	<u>53.816.1</u>	<u>89.526.8</u>
<u>88</u>	<u>24.66.6</u>	<u>15.84.3</u>	<u>25.97.0</u>	<u>43.211.6</u>
<u>99</u>	<u>11.911.5</u>	<u>7.77.5</u>	<u>12.612.2</u>	<u>20.920.4</u>
<u>1010</u>	<u>7.79.4</u>	<u>5.06.1</u>	<u>8.19.9</u>	<u>13.516.6</u>
<u>1111</u>	<u>4.010.8</u>	<u>2.67.0</u>	<u>4.211.5</u>	<u>7.119.1</u>
<u>1212</u>	<u>4.37.6</u>	<u>2.84.9</u>	<u>4.68.0</u>	<u>7.613.4</u>

³ Staff report for the amendment to Rule 445, approved in October 2020. Available at: <https://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2020/2020-oct27-001.pdf>

<u>1313</u>	<u>2.84.4</u>	<u>1.82.9</u>	<u>3.04.7</u>	<u>5.07.8</u>
<u>15</u>	<u>7.7</u>	<u>5.0</u>	<u>8.1</u>	<u>13.5</u>
<u>16</u>	<u>9.4</u>	<u>6.1</u>	<u>9.9</u>	<u>16.5</u>
<u>17</u>	<u>19.1</u>	<u>12.4</u>	<u>20.2</u>	<u>33.7</u>
<u>18</u>	<u>12.0</u>	<u>7.8</u>	<u>12.7</u>	<u>21.2</u>
<u>19</u>	<u>7.7</u>	<u>5.0</u>	<u>8.1</u>	<u>13.5</u>
<u>20</u>	<u>4.3</u>	<u>2.8</u>	<u>4.5</u>	<u>7.5</u>
<u>21</u>	<u>2.9</u>	<u>1.9</u>	<u>3.1</u>	<u>5.2</u>
<u>22</u>	<u>10.0</u>	<u>6.5</u>	<u>10.6</u>	<u>17.7</u>
<u>23</u>	<u>12.6</u>	<u>8.2</u>	<u>13.4</u>	<u>22.3</u>
<u>24</u>	<u>12.9</u>	<u>8.3</u>	<u>13.6</u>	<u>22.7</u>
<u>25</u>	<u>5.8</u>	<u>3.7</u>	<u>6.1</u>	<u>10.2</u>
<u>26</u>	<u>11.6</u>	<u>7.5</u>	<u>12.3</u>	<u>20.5</u>
<u>27</u>	<u>0.3</u>	<u>0.2</u>	<u>0.3</u>	<u>0.4</u>
<u>28</u>	<u>5.9</u>	<u>3.8</u>	<u>6.2</u>	<u>10.3</u>
<u>29</u>	<u>2.8</u>	<u>1.8</u>	<u>3.0</u>	<u>5.0</u>
<u>32</u>	<u>11.4</u>	<u>7.4</u>	<u>12.1</u>	<u>20.1</u>
<u>33</u>	<u>13.8</u>	<u>8.9</u>	<u>14.6</u>	<u>24.3</u>
<u>34</u>	<u>19.5</u>	<u>12.6</u>	<u>20.6</u>	<u>34.3</u>
<u>35</u>	<u>6.1</u>	<u>4.0</u>	<u>6.5</u>	<u>10.8</u>
<u>36</u>	<u>0.1</u>	<u>0.1</u>	<u>0.1</u>	<u>0.2</u>
<u>37</u>	<u>3.9</u>	<u>2.5</u>	<u>4.1</u>	<u>6.9</u>
<u>38</u>	<u>4.3</u>	<u>2.8</u>	<u>4.6</u>	<u>7.6</u>

* Basin total excludes emissions located above 3,000 feet.

2) Determine the number of (“no-burn”) days exceeding varying thresholds:

Air quality data recorded in the period from 2019 through 2023 is processed using a retrospective archive of PM_{2.5} values from South Coast AQMD’s AQI mapping system. This system is run in real-time to report hourly values of PM_{2.5}, PM₁₀, O₃, NO₂, CO, and AQI on the South Coast AQMD website (www.aqmd.gov) and on the South Coast AQMD mobile app (www.aqmd.gov/mobileapp). This peer-reviewed algorithm⁴ blends data from regulatory monitors, low-cost sensors, and chemical transport model simulations of ozone and PM_{2.5} from the National Air Quality Forecast Capability. This map has been operational since November 2020, but staff conducted a reanalysis to recreate the gridded hourly values from 2019 through 2023. The hourly values were then aggregated into daily values for each 5 km by 5 km grid cell. The highest daily PM_{2.5} value of all the grid cells in each GFA⁵ was determined for everyday between 2019 to 2023. The number of days exceeding the thresholds of 12 µg/m³ and 20 µg/m³ in each GFA is

⁴ Schulte N., Li X., Ghosh J. K., Fine P. M., Epstein S. A., 2020. Responsive high-resolution air quality index mapping using model, regulatory monitor, and sensor data in real-time. Environmental Research Letters, 15, 1040a7. DOI: 10.1088/1748-9326/abb62b

provided in Table III-C-3. In comparison, the number of days exceeding a specific threshold anywhere in the basin – $12 \mu\text{g}/\text{m}^3$, $20 \mu\text{g}/\text{m}^3$, and varying from $25 \mu\text{g}/\text{m}^3$ to $30 \mu\text{g}/\text{m}^3$ – is presented in Table III-C-4. Hotspot areas in Mira Loma (~~GFA SRA-236~~) and Ontario CA-60 Near-Road (~~SRA-GFA 337~~) exhibit high number of days exceeding thresholds. In contrast, many non-hotspot ~~SRA~~GFA, e.g., ~~SRA-26-29~~GFA and ~~37-38-13~~, exhibit a low number of curtailment days. Because the basin, as a whole, includes all the areas that may exceed a certain threshold, the basin-wide numbers are always higher than the exceeding days of any given ~~GFA~~SRA.

TABLE III-C-3
NUMBER OF CURTAILMENT DAYS THAT WOULD BE CALLED UNDER TWO THRESHOLDS:
12 $\mu\text{g}/\text{m}^3$ AND 20 $\mu\text{g}/\text{m}^3$

	Threshold = 12 $\mu\text{g}/\text{m}^3$					Threshold = 20 $\mu\text{g}/\text{m}^3$			
GFASRA	Jan	Feb	Nov	Dec		Jan	Feb	Nov	Dec
1	1915	1410	2118	2115		84	32	108	105
2	2111	147	2315	2312		103	32	126	123
3	1618	1211	1919	2020		48	23	810	67
4	1319	914	1421	1521		68	32	79	510
5	1720	1013	1721	1922		79	33	810	710
6	208	156	1915	2116		112	60	134	114
7	2016	1412	1819	2120		104	62	128	116
8	712	67	1113	813		22	12	35	24
9	411	27	612	613		04	02	16	14
10	511	59	1212	913		25	13	47	24
11	313	49	914	915		16	12	27	15
12	421	314	423	623		010	03	012	112
13	43	52	79	66		10	10	13	11
15	5	5	12	9		2	1	4	2
16	15	10	16	18		7	3	8	7
17	17	10	17	19		7	3	8	7
18	15	6	14	15		4	1	4	5
19	13	8	14	12		5	2	6	5
20	7	3	9	8		3	1	2	4
21	7	5	11	10		3	2	3	4
22	20	15	18	20		11	6	12	11
23	20	15	19	21		10	6	13	11
24	7	6	11	8		1	1	3	2
25	6	5	10	8		2	1	3	2
26	4	2	6	6		0	0	1	1
27	2	2	3	1		0	0	0	1
28	5	6	8	7		1	1	2	2
29	4	5	7	6		1	1	1	1
32	8	7	13	12		4	2	6	3
33	20	14	18	21		10	6	12	11
34	10	8	16	16		3	2	8	7
35	3	3	10	8		0	1	2	2
36	3	3	9	7		1	1	2	1
37	3	4	8	9		0	0	0	1
38	4	3	4	6		0	0	0	1

TABLE C-4
NUMBER OF CURTAILMENT DAYS IN THE BASIN THAT WOULD BE CALLED UNDER VARYING
BASIN-WIDE THRESHOLDS

Threshold ($\mu\text{g}/\text{m}^3$)	January	February	November	December
12	26 26	20 20	27 27	27 27
20	15 15	9 9	16 16	16 16
21	14 14	9 9	14 14	14 14
22	13 13	8 8	14 14	14 14
23	12 12	7 7	13 13	13 13
24	10 10	6 6	12 12	12 12
25	10 10	5 5	11 11	10 10
26	9 9	4 4	10 10	10 10
27	8 8	4 4	10 10	9 9
28	7 7	3 3	9 9	9 9
29	7 7	3 3	8 8	8 8
30	6 6	2 2	8 8	7 7

- 3) Determine the curtailed emissions under SJVAPCD's Rule 4901 scenario in the South Coast Air Basin:

Emissions avoided by the curtailment are calculated by multiplying the number of days exceeding curtailment threshold by the emissions specified per month and geographical area. The curtailment thresholds are $12 \mu\text{g}/\text{m}^3$ for hotspot ~~SRA~~GFAs and $20 \mu\text{g}/\text{m}^3$ for non-hotspots ~~SRA~~GFAs. Emissions avoided for the period of November through February are shown in Table III-C-5. The total emission reductions resulting from this hotspot/non-hotspot scenario add up to ~~458~~301 tons per year. These reductions include areas above 3,000 feet, because SJVAPCD Rule 4901 does not include an exemption for high-altitude areas.

TABLE III-C-5
EMISSIONS REDUCTIONS BY GFASRA DUE TO CURTAILMENT USING 12 µg/m³ FOR HOTSPOT
AND 20 µg/m³ FOR NON-HOTSPOT

SRAGFA	Hotspot	Curtailed Emissions (tons/year)
11	No	8311
22	No	688
33	No	2822
44	No	3017
55	No	2917
66	Yes	657
77	Yes	14212
88	No	83
99	No	17
1010	No	37
1111	No	18
1212	No	011
1313	No	01
15	No	4583
16	No	839
17	No	6819
18	No	287
19	No	305
20	No	292
21	No	651
22	No	14215
23	Yes	836
24	No	14
25	No	32
26	No	11
27	No	00
28	No	01
29	No	4580
32	No	836
33	Yes	6839
34	No	2816
35	No	301
36	No	290
37	No	650
38	No	1420
Total		458301

- 4) Compare emission reductions based on Rule 4901 approach to a Basin-wide curtailment approach:

The amount of emissions avoided due to Basin-wide curtailment was calculated by multiplying the number of exceeding days by the Basin-total emissions subject to Rule 445. Table III-C-6 presents the resulting curtailed emissions under various thresholds from 25 to 29 $\mu\text{g}/\text{m}^3$, excluding emissions from areas above 3,000 ft altitude. The current Basin-wide curtailment threshold of 29 $\mu\text{g}/\text{m}^3$ ~~already achieves higher lower~~ emission reductions compared to SJVAPCD Rule 4901. To achieve the same emissions reductions as in the SJVAPCD rule, the Basin-wide curtailment threshold would have to be lowered to 25 $\mu\text{g}/\text{m}^3$.

~~In addition, per U.S. EPA's recommendation, additional analysis was conducted to include the areas above 3,000 ft altitude. Since the high altitude area accounts for less than 4 percent of the total wood burning emissions, even if the area is excluded, the curtailment threshold equivalent to the hotspot-based analysis would be still 29 $\mu\text{g}/\text{m}^3$.~~

TABLE III-C-6
EMISSION REDUCTIONS (IN TONS PER YEAR) UNDER VARIOUS BASIN-WIDE CURTAILMENT THRESHOLDS

	Threshold ($\mu\text{g}/\text{m}^3$)								
	21	22	23	24	25	26	27	28	29
Basin-wide Emission Reductions (tons/year)	645	627	578	519	462	432	402	372	342



APPENDIX IV-A

South Coast AQMD's Stationary and Mobile Source Measures



Table of Contents

Introduction	1
Control Measures	1
Rule Effectiveness	6
Format of Control Measures	6
BCM-01: EMISSION REDUCTIONS FROM REPLACEMENT WITH ZERO EMISSION OR LOW NO _x APPLIANCES – RESIDENTIAL WATER HEATING	10
BCM-02: EMISSION REDUCTIONS FROM REPLACEMENT WITH ZERO EMISSION OR LOW NO _x APPLIANCES – RESIDENTIAL SPACE HEATING	17
BCM-03: EMISSION REDUCTIONS FROM RESIDENTIAL COOKING DEVICES	24
BCM-04: EMISSION REDUCTIONS FROM REPLACEMENT WITH ZERO EMISSION OR LOW NO _x APPLIANCES – RESIDENTIAL OTHER COMBUSTION SOURCES	29
BCM-05: EMISSION REDUCTIONS FROM EMERGENCY STANDBY ENGINES	37
BCM-06: EMISSION REDUCTIONS FROM DIESEL ELECTRICITY GENERATING FACILITIES	42
BCM-07: EMISSION REDUCTIONS FROM INCINERATORS	45
ECC-01: CO-BENEFITS FROM EXISTING AND FUTURE GREENHOUSE GAS PROGRAMS, POLICIES, AND INCENTIVES	48
ECC-02: CO-BENEFITS FROM EXISTING AND FUTURE RESIDENTIAL AND COMMERCIAL BUILDING ENERGY EFFICIENCY MEASURES	52
ECC-03: ADDITIONAL ENHANCEMENTS IN REDUCING EXISTING RESIDENTIAL BUILDING ENERGY USE	57
BCM-08: EMISSION REDUCTIONS FROM LIVESTOCK WASTE AT CONFINED ANIMAL FACILITIES	63
BCM-09: AMMONIA EMISSION REDUCTIONS FROM NO _x CONTROLS	69
BCM-10: EMISSION REDUCTIONS FROM DIRECT LAND APPLICATION OF CHIPPED AND GROUND UNCOMPOSTED GREENWASTE	72
BCM-11: EMISSION REDUCTIONS FROM ORGANIC WASTE COMPOSTING	77
BCM-12: FURTHER EMISSION REDUCTIONS FROM COMMERCIAL COOKING	86
BCM-13: EMISSION REDUCTIONS FROM INDUSTRIAL COOLING TOWERS	96
BCM-14: FURTHER EMISSION REDUCTIONS FROM PAVED ROAD DUST SOURCES	101
BCM-15: EMISSION REDUCTIONS FROM ABRASIVE BLASTING OPERATIONS	105
BCM-16: EMISSION REDUCTIONS FROM STONE GRINDING, CUTTING AND POLISHING OPERATIONS ..	108
BCM-17: EMISSION REDUCTIONS FROM PRESCRIBED BURNING FOR WILDFIRE PREVENTION	111
BCM-18: FURTHER EMISSION REDUCTIONS FROM WOOD-BURNING FIREPLACES AND WOOD STOVES	119
BCM-19: EMISSION REDUCTIONS FROM UNPAVED ROAD DUST SOURCES	124
BCM-20: APPLICATION OF ALL FEASIBLE MEASURES	128

EGM-01: EMISSION GROWTH MANAGEMENT FROM NEW DEVELOPMENT AND REDEVELOPMENT	131
EGM-02: EMISSION REDUCTIONS FROM CLEAN CONSTRUCTION POLICY	137
MOB-01: EMISSION REDUCTIONS AT COMMERCIAL MARINE PORTS.....	142
MOB-02: EMISSION REDUCTIONS AT NEW AND EXISTING RAIL YARDS.....	152
MOB-03: EMISSION REDUCTIONS AT WAREHOUSE DISTRIBUTION CENTERS.....	159
MOB-04: EMISSION REDUCTIONS AT COMMERCIAL AIRPORTS	163
MOB-05: ACCELERATED RETIREMENT OF LIGHT-DUTY AND MEDIUM-DUTY VEHICLES.....	169
MOB-06: ACCELERATED RETIREMENT OF ON-ROAD HEAVY-DUTY VEHICLES.....	173
MOB-07: ON-ROAD MOBILE SOURCE EMISSION REDUCTION CREDIT GENERATION PROGRAM	178
MOB-08: SMALL OFF-ROAD ENGINE EQUIPMENT EXCHANGE PROGRAM.....	182
MOB-09: FURTHER EMISSION REDUCTIONS FROM PASSENGER LOCOMOTIVES	186
MOB-10: OFF-ROAD MOBILE SOURCE EMISSION REDUCTION CREDIT GENERATION	190
MOB-11: EMISSION REDUCTIONS FROM INCENTIVE PROGRAMS.....	193
MOB-12: PACIFIC RIM INITIATIVE FOR MARITIME EMISSION REDUCTIONS	200
MOB-13: RULE 2202 – ON-ROAD MOTOR VEHICLE MITIGATION OPTIONS	212

Introduction

This Appendix describes the South Coast Air Quality Management District (South Coast AQMD) staff's proposed stationary and mobile source control measures to be included in the PM2.5 Plan. Control measures presented in this appendix are designed to achieve the 2012 Annual PM2.5 National Ambient Air Quality Standard (NAAQS) by 2030. The proposed control measures are further divided into stationary source NOx, NH3, and PM2.5 measures and mobile source measures. The measures are based on a variety of control strategies and incentive programs that are at or near commercial availability and/or are deemed technologically feasible in the next few years. South Coast AQMD will prioritize distribution of incentive funding in Environmental Justice (EJ) areas and seek opportunities to expand funding to benefit the most disadvantaged communities.

Control Measures

A control measure is a set of specific technologies and methods identified for potential implementation to reduce emissions to attain an air quality standard. South Coast AQMD's proposed stationary source measures are designed to assist with attainment of the 2012 Annual PM2.5 standard primarily through reductions of NOx, NH3, and direct PM2.5 emissions. Co-benefits from greenhouse gas (GHG) emissions reduction policies and other measures are included as well. The NOx, NH3, and direct PM2.5 stationary measures are identified by the three-letter prefix BCM. Measures pursuing co-benefits from Energy and Climate Change Programs are identified by the three-letter prefix ECC.

In the PM2.5 Plan, South Coast AQMD is proposing a total of 38 control measures. Out of the 38 proposed control measures, 23 target reductions from stationary sources. South Coast AQMD's control measures focus on stationary sources as that is the area where South Coast AQMD has the strongest regulatory authority. The majority of these measures are anticipated to be developed in the next several years and implemented prior to 2030. Table IV-A-1 provides a list of South Coast AQMD proposed PM2.5 measures for stationary sources along with anticipated emission reductions in 2030.

TABLE IV-A-1
SOUTH COAST AQMD PROPOSED STATIONARY SOURCE MEASURES

Number	Title [Pollutant]	Emission Reductions (2030) (tons per day)
South Coast AQMD Stationary Source NOx Measures:		
BCM-01	Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Water Heating [PM2.5, NOx]	TBD
BCM-02	Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Space Heating [PM2.5, NOx]	TBD
BCM-03	Emission Reductions from Residential Cooking Devices [PM2.5, NOx]	TBD
BCM-04	Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Other Combustion Sources [PM2.5, NOx]	TBD
BCM-05	Emission Reductions from Emergency Standby Engines [PM2.5, NOx]	0.04 [PM2.5] 0.36 [NOx]
BCM-06	Emission Reductions from Diesel Electricity Generating Facilities [NOx]	0.16
BCM-07	Emission Reductions from Incinerators [NOx]	0.81
	Total Quantified PM2.5 and NOx Reductions	0.04 [PM2.5] 1.33 [NOx]
South Coast AQMD Co-Benefits from Energy and Climate Change Programs Measures:		
ECC-01	Co-benefits from Existing and Future Greenhouse Gas Programs, Policies, and Incentives [All Pollutants]	TBD
ECC-02	Co-benefits from Existing and Future Residential and Commercial Building Energy Efficiency Measures [All Pollutants]	TBD
ECC-03	Additional Enhancements in Reducing Existing Residential Building Energy Use [All Pollutants]	TBD
South Coast AQMD NH3 Measures:		
BCM-08	Emission Reductions from Livestock Waste at Confined Animal Facilities [NH3]	0.27
BCM-09	Ammonia Emission Reductions from NOx Controls [NH3]	TBD

Number	Title [Pollutant]	Emission Reductions (2030) (tons per day)
BCM-10	Emission Reductions from Direct Land Application of Chipped and Ground Uncomposted Greenwaste [NH3]	0.08
BCM-11	Emission Reductions from Organic Waste Composting [NH3]	TBD
	Total Quantified NH3 Reductions	0.35
South Coast AQMD Direct PM2.5 Measures:		
BCM-12	Further Emission Reductions from Commercial Cooking [PM2.5]	TBD
BCM-13	Emission Reductions from Cooling Towers [PM2.5]	TBD
BCM-14	Further Emission Reductions from Paved Road Dust Sources [PM2.5]	TBD
BCM-15	Emission Reductions from Abrasive Blasting Operations [PM2.5]	TBD
BCM-16	Emission Reductions from Stone Grinding, Cutting and Polishing Operations [PM2.5]	TBD
BCM-17	Emission Reductions from Prescribed Burning for Wildfire Prevention [PM2.5]	TBD
BCM-18	Further Emission Reductions from Wood-Burning Fireplaces and Wood Stoves [PM2.5]	<u>0.33</u> TBD
BCM-19	Emission Reductions from Unpaved Road Dust Sources [PM2.5]	TBD
	Total Quantified Direct PM2.5 Reductions	<u>0.33</u>TBD
South Coast AQMD Other Measures:		
BCM-20	Application of All Feasible Measures [All Pollutants]	TBD

Note: TBD are reductions to be determined once the measure is further evaluated, the technical assessment is complete, and inventories and cost-effective control approaches are identified, and are not relied upon for attainment demonstration purposes.

South Coast AQMD proposes a total of 15 mobile source measures which are categorized into five groups – emission growth management, facility-based mobile sources, on-road and off-road, incentives, and other (see Table IV-A-2). Two emission growth management measures (EGM-01 to EGM-02) are proposed to identify actions to help mitigate and potentially provide emission reductions due to new development and redevelopment projects, and clean construction. Four facility-based mobile source measures (FBMSMs) (MOB-01 to MOB-04) seek to identify actions that will result in additional emission reductions at commercial marine ports, rail yards, warehouse distribution centers, and commercial airports. FBMSMs

for marine ports and rail yards are currently undergoing a process to develop Indirect Source Rules and/or other voluntary based measures. Six on-road and off-road mobile source measures (MOB-05 to MOB-10) focus on on-road light/medium/heavy-duty vehicles, international shipping vessels, passenger locomotives and small off-road engines. Additionally, two incentive-based measures (MOB-11 and MOB-12) will use established protocols such as Carl Moyer Program guidelines and report to the Governing Board periodically. MOB-12, Pacific Rim Initiative for Maritime Emission Reductions seeks NO_x emission reductions from partnership with local, State, federal and international entities. One other measure (MOB-13) focuses on fleet vehicle mitigation options and the development of a work plan to support and accelerate the deployment of zero emission infrastructure needed for the widespread adoption of zero emission vehicles and equipment.

TABLE IV-A-2
SOUTH COAST AQMD PROPOSED MOBILE SOURCE MEASURES

Number	Title [Pollutant]	Emission Reductions (2030) (tons per day)
South Coast AQMD Emission Growth Management Measures:		
EGM-01	Emission Reductions from New Development and Redevelopment [All Pollutants]	TBD
EGM-02	Emission Reductions from Clean Construction Policy [All Pollutants]	TBD
South Coast AQMD Facility-Based Measures:		
MOB-01	Emission Reductions at Commercial Marine Ports [PM _{2.5} , NO _x]	TBD
MOB-02	Emission Reductions at New and Existing Rail Yards [PM _{2.5} , NO _x]	TBD
MOB-03	Emission Reductions at Warehouse Distribution Centers [PM _{2.5} , NO _x]	TBD
MOB-04	Emission Reductions at Commercial Airports [PM _{2.5} , NO _x]	TBD
South Coast AQMD On-Road and Off-Road Measures:		
MOB-05	Accelerated Retirement of Light-Duty and Medium-Duty Vehicles [PM _{2.5} , NO _x]	TBD
MOB-06	Accelerated Retirement of On-Road Heavy-Duty Vehicles [NO _x]	TBD
MOB-07	On-Road Mobile Source Emission Reduction Credit Generation Program [NO _x]	TBD
MOB-08	Small Off-Road Engine Exchange Program [PM _{2.5} , NO _x]	TBD

Number	Title [Pollutant]	Emission Reductions (2030) (tons per day)
MOB-09	Further Emission Reductions from Passenger Locomotives [PM2.5, NOx]	TBD
MOB-10	Off-Road Mobile Source Emission Reduction Credit Generation Program [PM2.5, NOx]	TBD
South Coast AQMD Incentive-Based Measures:		
MOB-11	Emission Reductions from Incentive Programs [PM2.5, NOx]	TBD
MOB-12	Pacific Rim Initiative for Maritime Emission Reductions [PM2.5, NOx]	TBD
South Coast AQMD Other Mobile Source Measures:		
MOB-13	Rule 2202 – On-Road Motor Vehicle Mitigation Options [PM2.5, NOx]	TBD

Rule Effectiveness

The U.S. Environmental Protection Agency (U.S. EPA) has adjustment factors by industry type, but an adjustment is not necessary when emissions can be calculated by means of a direct determination. In most cases, South Coast AQMD calculates emission reductions by means of direct determination. As described below under Rule Compliance and Test Methods, the compliance demonstration for each proposed control measure, where the South Coast AQMD accounted for emission reductions, identifies the compliance mechanisms such as recordkeeping, inspection and maintenance activities, etc., and test methods such as South Coast AQMD, California Air Resources Board (CARB), and U.S. EPA approved test methods. South Coast AQMD's ongoing source testing and on-site inspection programs also strengthen the status of compliance verification. In addition, South Coast AQMD conducts workshops, and compliance education programs to inform facility operators of rule requirements and assist them in performing recordkeeping and self-inspections. These compliance tools are designed to ensure that rule compliance would be achieved on a continued basis. As a result, the majority of control measures proposed in this appendix with quantifiable emission reductions are based on a rule effectiveness of 100 percent. With respect to implementation of existing rules, emissions reported through South Coast AQMD's Annual Emission Reporting (AER) program are based on actual emissions, substantiated by source testing or other processing data. Any upset conditions or emissions under variance are also included in the AER.

Format of Control Measures

Included in each control measure description is the title, a summary table, a description of the source category (including background and regulatory history), the proposed method of control, estimated emission reductions, rule compliance, test methods, cost-effectiveness, and references. The information that can be found under each of these subheadings is described below.

Control Measure Number

Each control measure is identified by a control measure number such as "CM # BCM-01" located at the upper right-hand corner of every page. "CM #" signifies "control measure number" and is immediately followed by a three-letter designation, such as "BCM," which represents the abbreviation for a source category or specific programs. For example, "BCM" is an abbreviation for "Best Control Measures." The following provides a description of the abbreviations for each of the measures.

- BCM Best Control Measures
- ECC Energy and Climate Change Sources
- EGM Emission Growth Management Sources
- MOB Mobile Sources

Title

The title contains the control measure name and the major pollutant(s) controlled by the measure.

Summary Table

Each measure contains a table that summarizes the measure and is designed to identify the key components of the control measure. The table contains a brief explanation of the source category, control method, baseline emissions, emission reductions, control costs, and implementing agency.

Some measures in the summary table are listed as “TBD” (to be determined) for emission inventory, emission reductions and/or cost control. The “TBD” measures require further technical and feasibility evaluations to determine the emission reduction potential and thus, the attainment demonstration is not dependent on these measures. However, they are included in the PM2.5 Plan as part of a comprehensive plan with all feasible measures. These measures will require further development after the approval of the Plan, but could be proposed for rule or program development at a later date. Emission reductions achieved and quantified by these measures can be applied toward contingency requirements, make up for any shortfalls in reductions from other quantified measures, be credited towards rate-of-progress reporting, and/or be incorporated into future SIP revisions.

Description of Source Category

This section provides an overall description of the source category and the intent of the control measure. The source category is presented in two sections, background and regulatory history. The background has basic information about the source category such as the number of sources in the South Coast Air Basin (Basin), description of emission sources, and pollutants.

The regulatory history contains information regarding existing regulatory control of the source category such as applicable South Coast AQMD rules or regulations and whether the source category was identified in prior air quality plans.

Proposed Method of Control

The purpose of this section is to identify potential control options an emission source can use to achieve emission reductions. If an expected performance level for a control option is provided, it is intended for informational purposes only and should not be interpreted as the targeted overall control efficiency for the proposed control measure. To the extent feasible, the overall control efficiency for a control measure should take into account achievable controls in the field by various subcategories within the control measure. A more detailed type of this analysis is typically conducted during rulemaking, not in the planning stage. It has been South Coast AQMD's long standing policy not to exclude any control technology and to intentionally identify as many control options as possible to spur further technology development.

In addition to the proposed control methods discussed in each control measure, affected sources may have the option of partially satisfying the emission reduction requirements of each control measure with incentive programs that will become available in the future from the implementation of control measure. Examples of incentive programs currently available and future enhancements to those incentive programs would be described in this section.

Emission Reductions

The emission reductions are estimated based on the baseline inventories prepared for the PM_{2.5} Plan and are provided in the Control Measure Summary Table. The emissions section of the control measure summary table includes the 2018 base year inventory and the 2030 future year inventory. The 2030 inventory projections reflect implementation of existing adopted rules.

The emission reductions listed in the control measure summary table represent the current best estimates, which are subject to change during rule development. As demonstrated in previous rulemakings, South Coast AQMD is always seeking maximum emission reductions when proven technically feasible and cost-effective. For emission accounting purposes, a weighted average control efficiency is calculated based on the targeted controls. The concept of a weighted average acknowledges the fact that a control measure or rule may consist of several subcategories, and the emission reduction potential for each subcategory is a function of proposed emission limitation and the associated emission inventory. Therefore, the use of control efficiency to estimate emission reductions does not represent a commitment by South Coast AQMD to require emission reductions uniformly across source categories. In addition, due to the current structure of emission inventory reporting system, a control measure may partially affect an inventory source category (e.g., certain size of equipment or certain level of material usage). In this case, an impact factor is incorporated into the calculation of a control efficiency to account for the fraction of inventory affected. During the rule development, the most current inventory will be used. However, for tracking rate-of-progress for the SIP emission reduction commitment, the approved PM_{2.5} Plan inventory will be used. More specifically, emission reductions that are permanent and achieved due to mandatory or voluntary, but enforceable, actions will be credited towards SIP obligations.

Rule Compliance and Test Methods

This section addresses requirements in the 1990 Clean Air Act by which the U.S. EPA has indicated that it is necessary to have a discussion of rule compliance with each control measure. This section discusses the recordkeeping and monitoring requirements envisioned for the control measure. In general, South Coast AQMD would continue to verify rule compliance through site inspections, recordkeeping, and submittal of compliance plans (when applicable).

In addition to requiring recordkeeping and monitoring requirements, the U.S. EPA has stated that “An enforceable regulation must also contain test procedures in order to determine whether sources are in compliance.” This section identifies appropriate approved South Coast AQMD, CARB, and U.S. EPA source test methods.

Cost Effectiveness

Staff relied on control measure cost-effectiveness analyses presented in the 2016 and 2022 AQMPs. Cost-effectiveness approaches include Discounted Cash Flow (DCF), Levelized Cash Flow (LCF), and Modified LCF (MLCF). The approaches differ in how compliance costs are calculated: DCF converts all costs to the present value while LCF annualizes all costs over the equipment life. The conversions are done irrespective of how the compliance costs are actually financed by each affected facility. The difference in cost conversion between DCF and LCF means that the dollar costs of compliance alternatives are expressed at different time periods; therefore, the cost-effectiveness results, albeit both in dollar per ton, are not directly comparable to each other. MLCF is an approach that uses the traditional LCF method, but modifies it to only include costs incurred between 2023-2037, which aligns with the planning horizon in the 2022 AQMP.

The cost-effectiveness values contained herein represent the best available information at this time. As additional information regarding technology, affected facilities, and existing processes becomes available, the cost-effectiveness will be revised and analyzed during rulemaking.

Implementing Agency

This section identifies the agency(ies) responsible for implementing the control measure. Also included in this section is a description of any legal or jurisdictional issues that may affect the control measure's implementation.

References

This section identifies directly cited references, or those references used for general background information.

BCM-01: EMISSION REDUCTIONS FROM REPLACEMENT WITH ZERO EMISSION OR LOW NOx APPLIANCES – RESIDENTIAL WATER HEATING

[PM2.5, NOx]

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	RESIDENTIAL WATER HEATING	
CONTROL METHODS:	REGULATORY APPROACH: ZERO EMISSION AND LOW NOX LIMIT, AND INCENTIVE APPROACH: ZERO EMISSION TECHNOLOGY	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
PM2.5 INVENTORY	0.59	0.56
PM2.5 REDUCTION	-	TBD
PM2.5 REMAINING	-	TBD
ANNUAL AVERAGE [NOx]:	2018	2030
NOx INVENTORY	1.89	1.80
NOx REDUCTION	-	TBD
NOx REMAINING	-	TBD
CONTROL COST:	TBD	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD	

Description of Source Category

Background

Control measure BCM-01 seeks further NO_x emission reductions from residential building water heating sources that are subject to Rule 1121 - Control of Oxides of Nitrogen (NO_x) from Residential Type, Natural Gas-Fired Water Heaters.

BCM-01 sources were previously included under the 2016 AQMP control measure CMB-02 for NO_x emission reductions from residential and commercial appliances, with a control strategy focused on a combination of long-term regulation and short-term incentives to replace existing water heaters with new zero emission or low NO_x emission units. BCM-01 is derived from 2022 AQMP control measure R-CMB-01.

Regulatory History

Rule 1121 - Control of Nitrogen Oxides from Residential Type, Natural-Gas-Fired Water Heaters, applies to manufacturers, distributors, retailers, and installers of natural gas-fired water heaters, with heat input rates less than 75,000 Btu per hour. This type of water heater is typically a tank type for residential water heating. Rule 1121, last amended in 2004, requires the implementation of 10 ng/J NO_x emission limit, which currently remains one of most stringent NO_x standards for this appliance in the nation.

Rule 1121 was originally adopted in 1978, establishing a 40 ng/J NO_x emission limit for residential water heaters. This rule was amended in 1999 to lower the emission limit by two steps, from 40 ng/J to 20 ng/J on July 1, 2002 (interim limit) and then 10 ng/J on January 1, 2005 (final limit). The rule was amended in 2004 to extend the compliance date for the final rule limit. With that amendment, the final emission limit of 10 ng/J became applicable on January 1, 2006, for conventional water heater of 50-gallon capacity or less, on January 1, 2007 for conventional water heater greater than 50 gallon capacity, and on January 1, 2008 for direct-vent, power-vent, and power direct-vent water heaters. Manufacturers paid a mitigation fee during the interim period prior to the final compliance date.

Proposed Method of Control

Control measure BCM-01 seeks NO_x emission reductions from residential building water heating sources by: (1) requiring zero emission water heating units through a regulatory approach for both new and existing residences; and (2) allowing low NO_x technologies as a transitional alternative in lieu of installing and operating zero emission water heaters, when installing a zero emission unit is determined to be infeasible (e.g., colder climate zones, or architecture design obstacles). A mitigation fee will be considered where appropriate. The mitigation fee collected would be utilized as incentives to accelerate the adoption of zero emission units.

A primary zero emission residential water heating technology is the all-electric heat pump water heater. Most homeowners who have heat pumps use them to heat and cool their homes. But a heat pump also can be used to heat water, either as stand-alone water heating system, or as a combination water heating and space conditioning system. Because they remove heat from the air, any type of air-source heat pump system works more efficiently in a warm climate. Manufacturers' heat pump water heater development involves expanding the number of available models, further improving unit energy efficiency, enhancing heat pump performance for colder weather, and developing a heat pump water heater that can operate from a (residential standard) 120-volt plug-in. The low power 120-volt design can plug into existing wall outlets without requiring expensive panel upgrades and/or home rewiring that can be required for traditional heat pumps that require 240-volts, providing a more cost-effective solution for retrofit applications.

The primary lower NOx water heating technologies include fuel cell water heaters and gas heat pump water heaters. Residential fuel cells used for the generation of electricity and hot water have been available commercially in Europe since 2009. This technology is yet to be utilized in the United States market. A residential fuel cell with a hot water storage tank is a suitable technology to provide hot water usage for a small number of residents. South Coast AQMD also has funded a natural gas heat pump water heater demonstration by Stone Mountain Technologies. A natural gas heat pump water heater is another lower NOx emission technology that uses a natural gas fired engine instead of electricity, to drive the heat pump compressor. Control measure BCM-01 also proposes to incentivize zero emission technologies adoption with a focus on electric panel upgrades needed for older homes especially for homes in disadvantaged communities. The collected mitigation fees would fund the incentives. Staff plans to allocate a significant percentage of funding to residents in disadvantaged communities and offer higher rebate amounts to those residents. Furthermore, staff will conduct outreach to disadvantaged communities including public meetings to gain feedback on the incentive program development and processes. The incentive approach would not only promote more participation in building electrification but also provide an opportunity to address any potential inequities on cost burden by allocating a portion of funding to overburdened communities. During rule development, staff will consider technical feasibility, identify industry-specific affordability issues, cost-effectiveness and incremental cost-effectiveness, and may consider alternative compliance mechanisms.

Incentives Implementation

Integrity Elements

Emission reductions that are projected to be achieved from the voluntary incentive measures must be demonstrated to be quantifiable, surplus, enforceable, and permanent. This demonstration must include project type(s); project life; applicable incentive program guideline(s), by title, year, chapter(s); and analysis of applicable incentive program guideline(s) for consistency with integrity elements. The following describes the definitions and provides examples of the key elements of such a demonstration:

- **Quantifiable:** Emission reductions are quantitatively measurable supported by existing and acceptable technical data. The quantification should use well-established, publicly available, and approved

emission factors and accepted calculation methodology. There must be procedures to evaluate and verify over time the level of emission reductions actually achieved.

Potential emission reductions associated with various equipment types are discussed in the Proposed Method of Control section. The following table provides an overview of the sources, emission reductions, and proposed incentives for targeted sources.

- Surplus: Emission reductions must be above and beyond any South Coast AQMD, state, or federal regulation. Emission reductions used to meet air quality attainment requirements are surplus as long as they are not otherwise relied on in the State Implementation Plan (SIP), SIP-related requirement, other State air quality programs adopted but not in the SIP, a consent decree, or federal rules that focus on reducing criteria pollutants or their precursors. In the event that SIP emission reductions are relied on to meet air quality-related program requirements, they are no longer surplus. In addition, the emission reductions are available only for the remaining useful life of the equipment being replaced (e.g., if the equipment being replaced had a remaining useful life of five years, the additional emission reductions from the new equipment are available for SIP or conformity purposes under this guidance for only five years).
- Enforceable: The South Coast AQMD will be responsible for assuring that the emission reductions credited in the SIP will occur. Emission reductions and other required actions are enforceable if:
 - They are independently verifiable;
 - Program violations are defined;
 - Those liable for emission reductions can be identified;
 - The South Coast AQMD and the U.S. EPA maintain the ability to apply penalties and secure appropriate corrective action where applicable;
 - The general public have access to all the emissions-related information obtained from the source;
 - The general public can file suits against sources for violations (with the exception of those owned and operated by Tribes); and
 - They are practically enforceable in accordance with other U.S. EPA guidance on practicable enforceability.

Actual emission reductions, for example, can be assured through the replacement equipment registration, recordkeeping and reporting, and inspections (initial inspection after installation and subsequent on a regular basis thereafter, if needed) throughout the term. Specific enforcement mechanisms will be addressed in the guidelines for the individual incentive measures.

- Permanent: The emission reductions need to be permanent throughout the term for which the credit is generated. The emission reductions are permanent if these reductions are ensured to occur over the duration of the SIP program, and for as long as they are relied on in the SIP.

For example, those awarded incentives would need to ensure the projects are properly implemented and the reductions are occurring and will continue to occur. Thus, recipients of the incentive awards

would agree to contract provisions, such as recordkeeping and reporting to track reductions and agreements that newly installed equipment would not be removed without concurrence with the South Coast AQMD (i.e., permanent placement) and the proof that the replaced equipment would be destructed or at least not be operated any more in the Basin (e.g., pictures, certification). Detailed procedures to ensure permanent reductions will be described in the guidelines for the individual incentive measures.

Guidelines

Each SIP needs to have detailed and comprehensive guidelines that are approved by the South Coast AQMD Governing Board. The guidelines will be the protocol to implement the program, to ensure SIP applicability, and to maintain SIP approvability:

- ☒ SIP should demonstrate compliance with the four key elements of the SIP: quantifiable emissions plus incentive costs, surplus reductions, enforceable compliance, and permanent reductions.
- ☒ A working group should be established to solicit public input and feedback during SIP guideline development.
- ☒ Process and procedures to apply for incentives should be clearly explained in the guideline.
- ☒ It needs to clearly describe how incentives would be awarded (e.g., priority to high emitters and/or age of equipment, tiered process, first come first serve, or EJ area priority).
- ☒ It should have conditions of some form for agreement (e.g., contracts) including tracking and ensuring permanent reductions. The following forms should be prepared:
 - ☒ Application Forms (samples are required).
 - ☒ Contracts with Conditions (samples are required).
 - ☒ Product Example.
- ☒ Tracking mechanism is required to ensure overall effectiveness of program and procedures to correct emission projections, such as reductions by the committed target date and submittal to the U.S. EPA annually. Tracking checklist should include:
 - ☒ Project Title.
 - ☒ Product.
 - ☒ Annual Emission Reductions (e.g., from 2030 to 2050, incremented by one year).
 - ☒ Life of project (e.g., 10 years).
 - ☒ Installation dates (e.g., fixed year 2030 or multiple installation years 2017 and 2018).
- ☒ Possible recordkeeping, reporting, and monitoring requirements need to be addressed.
- ☒ Individual outreach efforts (e.g., social media, email blasts) to promote the program, make aware of deadlines to apply, and provide timing locations of workshops.

- ☒ Program guidelines should be approved by the South Coast AQMD Governing Board and published online.

Emission Reductions

To be determined.

Rule Compliance and Test Methods

South Coast AQMD Method 100.1

Cost Effectiveness

To be determined.

Implementing Agency

South Coast AQMD has the authority to regulate emissions from these stationary sources.

References

South Coast Air Quality Management District. (2004). Rule 1121 – Control of Nitrogen Oxides from Residential Type, Natural Gas-Fired Water Heaters (Amended September 3, 2004).

South Coast Air Quality Management District. (2004). Final Staff Report: Proposed Amended Rule 1121 – Control of Nitrogen Oxides from Residential Type, Natural Gas-Fired Water Heaters. South Coast Air Quality Management District. August 2004.

South Coast Air Quality Management District. (2017). Final 2016 Air Quality Management Plan. South Coast Air Quality Management District. March 2017.

Department of Energy. Heat Pump Water Heater. <https://www.energy.gov/energysaver/water-heating/heat-pump-water-heaters>

Energy-Solution. California TECH Initiative. <https://energy-solution.com/tech/>

Advanced Water Heating Initiative. 120-Volt Heat Pump Water Heater Technology Validation and Commercialization. <https://www.advancedwaterheatinginitiative.org/120v-field-study>

Southern California Gas Company. Residential Natural Gas-fueled Heat Pump Water Heaters – Technology Advancements & Demonstration. <https://www.socalgas.com/sustainability/research-and-development>

Southern California Gas Company. (2018). Proposal in response to South Coast AQMD Air Pollution Control Projects that Reduce/Mitigate Emissions/Toxic Exposure P2018-06: Residential Fuel Cell Demonstration with Integrated PV and Storage. April 10, 2018.

California Air Resources Board, Proposed 2022 State SIP Strategy Appendix A: Economic Analysis, September 2022. https://ww2.arb.ca.gov/sites/default/files/2022-09/2022_State_SIP_Strategy_App_A.pdf

California Energy Commission. (2021). Building Energy Efficiency Measure Proposal to the California Energy Code, Title 24, Part 6 Building Energy Efficiency Standards Residential Electric Baseline – Residential HVAC and Residential Water Heating. May 2021.

Application of Southern California Edison Company for Approval of its Building Electrification Programs. December 2021. <https://docs.cpuc.ca.gov/SearchRes.aspx?docformat=ALL&docid=432773552>

**BCM-02: EMISSION REDUCTIONS FROM REPLACEMENT WITH ZERO EMISSION OR LOW
NO_x APPLIANCES – RESIDENTIAL SPACE HEATING**

[PM2.5, NO_x]

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	RESIDENTIAL SPACE HEATING	
CONTROL METHODS:	REGULATORY APPROACH: ZERO EMISSION AND LOW NO _x LIMIT, AND INCENTIVE APPROACH: ZERO EMISSION TECHNOLOGY	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
PM2.5 INVENTORY	0.90	0.88
PM2.5 REDUCTION	-	TBD
PM2.5 REMAINING	-	TBD
ANNUAL AVERAGE [NO _x]:	2018	2030
NO _x INVENTORY	11.66	7.64
NO _x REDUCTION	-	TBD
NO _x REMAINING	-	TBD
CONTROL COST:	TBD	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD	

Description of Source Category

Background

Control measure BCM-02 seeks nitrogen oxides (NOx) emission reductions from residential space heating sources regulated by Rule 1111 - Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces.

BCM-02 sources were previously included under the 2016 AQMP control measure CMB-02 for NOx emission reductions from residential and commercial appliances, with a control strategy focused on implementing 14 ng/J Rule 1111 NOx limit and the associated Clean Air Furnace Rebate Program. BCM-02 is derived from 2022 AQMP control measure R-CMB-02.

Regulatory History

Rule 1111 reduces emissions of NOx from gas-fired fan-type space heating furnaces with a rated heat input capacity of less than 175,000 Btu per hour or, for combination heating and cooling units, a cooling rate of less than 65,000 Btu per hour. The rule applies to manufacturers, distributors, and installers of such furnaces. The applicable furnaces are mainly utilized in residential buildings.

Rule 1111 was adopted by the South Coast AQMD Governing Board in December 1978 establishing a 40 ng/J NOx emission limit. The rule was amended in 2009 lowering the NOx emission limit from 40 to 14 ng/J with a future compliance date. Rule 1111 categorizes furnaces into condensing, non-condensing, weatherized furnaces, and mobile home furnaces. Depending on the furnace type, the compliance date has been postponed by the mitigation fee alternate compliance option or temporary exemption.

Implementation of 14 ng/J NOx limit for condensing and non-condensing furnaces (about 85 percent of market coverage) for installations in new buildings or replacements in existing buildings started on October 1, 2019, except for high-altitude furnaces.²⁸ Implementation of 14 ng/J NOx limit for weatherized furnaces (about 10 percent of market coverage) commenced on October 1, 2021. The most recent Rule 1111 amendment in September 2021 delayed the implementation for mobile home furnaces (about 4 percent of market coverage) to October 1, 2023 and provided special consideration for high-altitude furnaces. That is, condensing or non-condensing furnaces with 40 ng/J NOx are allowed to be installed in high-altitude areas until March 31, 2022, when 14 ng/J NOx limit becomes effective. Rule 1111 also provides an exemption for downflow and large-sized ($\geq 100,000$ Btu/hour) condensing or non-condensing furnaces, replacing existing furnaces in the high-altitude areas. This niche exemption would result in a negligible amount of emission reductions forgone.

In conjunction with the Rule 1111 implementation, the Clean Air Furnace Rebate Program was launched in June 2018 with a fund of \$3,000,000 to incentivize early deployment of compliant furnaces, which was

²⁸ Condensing or non-condensing furnaces installed at elevations greater than or equal to 4,200 feet above sea level

subsequently exhausted. So, in September 2020 this program was approved to be updated with an additional fund of \$3,500,000 and expanded to incentivize all-electric heat pumps to replace central ducted Rule 1111 non-compliant furnaces. Relevant to the 2016 AQMP CMB-02 implementation, a request for proposal was issued in January 2018 and twenty-six proposals for emission reduction and technology demonstration projects were approved to be funded by the Governing Board in January 2019. Among those proposals, one burner technology development project was for residential and commercial furnaces targeting NO_x emissions to be certified ranging from 7 to 8 ng/J. Although the Covid-19 pandemic caused a delay, those projects were completed in 2023. Current rulemaking is focused on zero emission standards in order to achieve air quality objectives.

Proposed Method of Control

Control measure BCM-02 seeks NO_x emission reductions from residential building space heating sources by: (1) requiring zero emission space heating units through a regulatory approach for both new and existing residences; and (2) allowing low NO_x technologies as a transitional alternative in lieu of installing and operating zero emission space heating units, when installing a zero emission unit is determined to be infeasible (e.g., colder climate zones, or architecture design obstacles). A mitigation fee will be considered where appropriate. The mitigation fee collected would be utilized as incentives to accelerate the adoption of zero emission units.

With regards to zero emission technologies, all-electric heat pumps offer an energy-efficient and zero emission alternative to natural gas furnaces. There are three types of heat pumps: (1) air-to-air, (2) water source, and (3) geothermal. The heat pump choice depends on whether the unit transfers heat between the building and outside air, water, or ground. The most common type is the air source heat pump. According to the United States Department of Energy, today's heat pump systems can reduce household electricity use for heating by approximately 50 percent compared to electric resistance heating such as furnaces and baseboard heaters. High-efficiency heat pumps also dehumidify better than standard central air conditioners, resulting in less energy usage and more cooling comfort during the summer months. For homes without ducts, air source heat pumps are also available in a ductless version, referred as a split system. Heat pumps have been used for many years in nearly all areas of the United States. However, when utilized in warmer climate zones such as in the South Coast Air Basin (Basin), heat pumps are even more energy-efficient and cost-effective.

A new type of heat pump for residential systems is the absorption heat pump, also called a natural gas heat pump, which is considered a low NO_x emission technology. Instead of using electricity to fuel the operation, a natural gas heat pump has a natural gas fired engine to drive the heat pump compressor.

Current Rule 1111 compliant furnaces are certified at achieving 14 ng/J NO_x level, however, many of these furnace models were tested below 10 ng/J for NO_x emissions. Staff reviewed the source test results for 24 base models that were certified in 2021 at 14 ng/J NO_x emissions. Fifteen models tested below 10 ng/J NO_x level, and six of them were at or below 7 ng/J NO_x level. Furthermore, lower NO_x emission rates are expected by new burner development projects as demonstrated by burner development projects

currently funded by South Coast AQMD. For example, Lantec Products has completed the burner design, operational testing, and certification of residential condensing and non-condensing furnaces emitting no more than 7 ng/J NO_x, and will seek to commercialize in the near future. Low NO_x space heating technologies would provide an alternative or off-ramp for situations when zero emission requirement is deemed not as feasible/efficient. The examples could include buildings in a cooler climate zone, or structures with special design or function.

In addition to a regulatory approach, incentives for the purchase and installation of zero emission technology (e.g., electric heat pump) or electric panel upgrade would be considered under this control measure not only for additional emission reductions, but also to encourage further development of future zero emission space heating technology for existing residential buildings. With the additional Rule 1111 mitigation fees that have been collected and utilization of the existing Clean Air Furnace Rebate Program, future Rule 1111 incentives could be readily implemented. During rule development, staff will consider technical feasibility, identify industry-specific affordability issues, cost-effectiveness and incremental cost-effectiveness, and may consider alternative compliance mechanisms. Incentives for residents to adopt zero-emission appliances would not only promote more participation in building electrification, but also provide an opportunity to address some of the inequities by allocating a significant percentage of funding to residents in disadvantaged communities and offering higher rebate amounts to those residents. Staff plans to conduct outreach to disadvantaged communities including public meetings to gain feedback on program development and processes.

Incentives Implementation

Integrity Elements

Emission reductions that are projected to be achieved from the voluntary incentive measures must be demonstrated to be quantifiable, surplus, enforceable, and permanent. This demonstration must include project type(s); project life; applicable incentive program guideline(s), by title, year, chapter(s); and analysis of applicable incentive program guideline(s) for consistency with integrity elements. The following describes the definitions and provides examples of the key elements of such a demonstration:

- **Quantifiable:** Emission reductions are quantitatively measurable supported by existing and acceptable technical data. The quantification should use well-established, publicly available, and approved emission factors and accepted calculation methodology. There must be procedures to evaluate and verify over time the level of emission reductions actually achieved.

Potential emission reductions associated with various equipment types are discussed in the Proposed Method of Control section. The following table provides an overview of the sources, emission reductions, and proposed incentives for targeted sources.

- **Surplus:** Emission reductions must be above and beyond any South Coast AQMD, state, or federal regulation. Emission reductions used to meet air quality attainment requirements are surplus as long as they are not otherwise relied on in the State Implementation Plan (SIP), SIP-related requirement, other State air quality programs adopted but not in the SIP, a consent decree, or federal rules that focus on reducing criteria pollutants or their precursors. In the event that SIP emission reductions are

relied on to meet air quality-related program requirements, they are no longer surplus. In addition, the emission reductions are available only for the remaining useful life of the equipment being replaced (e.g., if the equipment being replaced had a remaining useful life of five years, the additional emission reductions from the new equipment are available for SIP or conformity purposes under this guidance for only five years).

- Enforceable: The South Coast AQMD will be responsible for assuring that the emission reductions credited in the SIP will occur. Emission reductions and other required actions are enforceable if:
 - They are independently verifiable;
 - Program violations are defined;
 - Those liable for emission reductions can be identified;
 - The South Coast AQMD and the U.S. EPA maintain the ability to apply penalties and secure appropriate corrective action where applicable;
 - The general public have access to all the emissions-related information obtained from the source;
 - The general public can file suits against sources for violations (with the exception of those owned and operated by Tribes); and
 - They are practically enforceable in accordance with other U.S. EPA guidance on practicable enforceability.

Actual emission reductions, for example, can be assured through the replacement equipment registration, recordkeeping and reporting, and inspections (initial inspection after installation and subsequent on a regular basis thereafter, if needed) throughout the term. Specific enforcement mechanisms will be addressed in the guidelines for the individual incentive measures.

- Permanent: The emission reductions need to be permanent throughout the term for which the credit is generated. The emission reductions are permanent if these reductions are ensured to occur over the duration of the SIP program, and for as long as they are relied on in the SIP.

For example, those awarded incentives would need to ensure the projects are properly implemented and the reductions are occurring and will continue to occur. Thus, recipients of the incentive awards would agree to contract provisions, such as recordkeeping and reporting to track reductions and agreements that newly installed equipment would not be removed without concurrence with the South Coast AQMD (i.e., permanent placement) and the proof that the replaced equipment would be destroyed or at least not be operated any more in the Basin (e.g., pictures, certification). Detailed procedures to ensure permanent reductions will be described in the guidelines for the individual incentive measures.

Guidelines

Each SIP needs to have detailed and comprehensive guidelines that are approved by the South Coast AQMD Governing Board. The guidelines will be the protocol to implement the program, to ensure SIP applicability, and to maintain SIP approvability:

- ☑ SIP should demonstrate compliance with the four key elements of the SIP: quantifiable emissions plus incentive costs, surplus reductions, enforceable compliance, and permanent reductions.
- ☑ A working group should be established to solicit public input and feedback during SIP guideline development.
- ☑ Process and procedures to apply for incentives should be clearly explained in the guideline.
- ☑ It needs to clearly describe how incentives would be awarded (e.g., priority to high emitters and/or age of equipment, tiered process, first come first serve, or EJ area priority).
- ☑ It should have conditions of some form for agreement (e.g., contracts) including tracking and ensuring permanent reductions. The following forms should be prepared:
 - ☑ Application Forms (samples are required).
 - ☑ Contracts with Conditions (samples are required).
 - ☑ Product Example.
- ☑ Tracking mechanism is required to ensure overall effectiveness of program and procedures to correct emission projections, such as reductions by the committed target date (e.g., 2031, 2037) and submittal to the U.S. EPA annually. Tracking checklist should include:
 - ☑ Project Title.
 - ☑ Product.
 - ☑ Annual Emission Reductions (e.g., from 2030 to 2050, incremented by one year).
 - ☑ Life of project (e.g., 10 years).
 - ☑ Installation dates (e.g., fixed year 2030 or multiple installation years 2017 and 2018).
- ☑ Possible recordkeeping, reporting, and monitoring requirements need to be addressed.
- ☑ Individual outreach efforts (e.g., social media, email blasts) to promote the program, make aware of deadlines to apply, and provide timing locations of workshops.
- ☑ Program guidelines should be approved by the South Coast AQMD Governing Board and published online.

Emission Reductions

To be determined.

Rule Compliance and Test Methods

South Coast AQMD Method 100.1

Cost Effectiveness

To be determined.

Implementing Agency

South Coast AQMD has the authority to regulate emissions from these stationary sources.

References

South Coast Air Quality Management District. (2021). Rule 1111 – Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces (Amended October 3, 2021).

South Coast Air Quality Management District. (2017). Final 2016 Air Quality Management Plan. South Coast Air Quality Management District. March 2017.

South Coast Air Quality Management District. (2021). Staff Report: Proposed Amended Rule 1111 – NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces. South Coast Air Quality Management District. September 2021.

South Coast Air Quality Management District. (2018). Board meeting agenda No.3: Issue RFP for Emission Reduction Projects Using Incentive Funding from SOUTH COAST AQMD Special Revenue Funds, Allocate Funds, and Execute Contract. January 5, 2018.

South Coast Air Quality Management District. Clean Air Furnace Rebate Program:
<https://www.cleanairfurnacerebate.com/>

U.S. Department of Energy. Heat Pump Systems. <https://www.energy.gov/energysaver/heat-pump-systems>

California Energy Commission. Workshops, Notices, and Documents for 2022 Building Energy efficiency Standards. <https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency-0>

California Energy Commission. (2021). Staff presentation at the Lead Commissioner Hearing, 2022 energy code update rulemaking. May 24, 2021.

E3 study on Residential Building Electrification in California. April 2019. Available at:
https://www.ethree.com/wpcontent/uploads/2019/04/E3_Residential_Building_Electrification_in_California_April_2019.pdf

LANTEC Products. (2018). Proposal in response to South Coast AQMD Air Pollution Control Projects that Reduce/Mitigate Emissions/Toxic Exposure P2018-06: Next Generation Ultra Low NOx Forced Air Furnace. April 11, 2018.

Energy-Solution. California TECH Initiative. <https://energy-solution.com/tech/>

Application of Southern California Edison Company for Approval of its Building Electrification Programs. December 2021. Available at:
<https://docs.cpuc.ca.gov/SearchRes.aspx?docformat=ALL&docid=43277355>

BCM-03: EMISSION REDUCTIONS FROM RESIDENTIAL COOKING DEVICES
[PM2.5, NOx]

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	RESIDENTIAL COOKING DEVICES	
CONTROL METHODS:	Low NOx Burners, Induction Cooktops and Electric Cooking Devices	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
PM2.5 INVENTORY	0.10	0.10
PM2.5 REDUCTION	-	TBD
PM2.5 REMAINING	-	TBD
ANNUAL AVERAGE [NOx]:	2018	2030
NOx INVENTORY	1.28	1.23
NOx REDUCTION	-	TBD
NOx REMAINING	-	TBD
CONTROL COST:	TBD	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD	

Description of Source Category

Control Measure BCM-03 seeks to achieve NOx reductions from residential cooking devices including stoves, ovens, griddles, broilers, and others in new and existing residential buildings. Natural gas and electricity are the two main types of energy sources used in this source category. Conventional gas cooking appliances typically use atmospheric burners that mix primary air with fuel gas to create a combustible

mixture.²⁹ Gas cooking devices emit criteria pollutants such as NO_x, particulate matter, and CO through incomplete combustion and oxidation processes. Electric cooking devices and induction cooktops that utilize electricity rather than gas do not generate NO_x emissions on site. Induction cooktops are also highly energy efficient as they heat cookware directly, resulting in minimal heat loss. Replacing existing gas burners with zero emission and low NO_x emission appliances such as electric cooking devices, induction cooktops, and low NO_x gas burners can reduce emissions from residential cooking devices. Some emission sources in BCM-03 were previously included in the 2016 AQMP as control measure CMB-04, which addresses NO_x emission reductions from restaurant burners and residential cooking. The proposed method of control for CMB-04 in the 2016 AQMP was a combination of regulatory approaches, incentives and/or efficiency standards. BCM-03 is derived from 2022 AQMP control measure R-CMB-03.

Background

There are over 5.3 million occupied housing units in the South Coast Air Basin (Basin). Almost 75 percent of these households use gas appliances for cooking, while the remaining households use electric cooking devices, induction cooktop, and other fuels.³⁰ The transition from conventional gas burners to electric cooking devices, induction cooktops, or low NO_x gas burners would improve both indoor and outdoor ambient air quality.

As part of the 2022 State Strategy for the State Implementation Plan (2022 State SIP Strategy), the California Air Resources Board (CARB) has proposed statewide emissions standards for combustion-based appliances in residential and commercial buildings to accelerate the transition from fossil fuels. CARB proposed to adopt a statewide zero Greenhouse Gas (GHG) emissions standard for space and water heaters, which would have co-benefits of reducing criteria pollutants. Beginning in 2030, 100 percent of sales of new space and water heaters would need to meet zero emission standards. This requirement applies to both new construction and replacement of burned-out equipment in existing buildings. As part of the public measure suggestions, the 2022 State SIP Strategy includes the possibility of additional emissions standards for combustion-based appliances used in buildings such as stoves, work with air districts to set further such standards, work with building and energy code agencies to ready more buildings for zero emission appliances, or take other actions (including potentially incentive programs) to accelerate the removal of fossil fuels from the building stock in both new and existing buildings. Such measures can accelerate the transition away from pollution associated with combustion in these sources while creating economic opportunities for building retrofits.³¹

Regulatory History

NO_x emissions from residential cooking devices are not currently regulated by South Coast AQMD. In the last few years, the State of California has established aggressive goals to reduce GHG emissions across various sectors. State climate actions can help reduce combustion-related emissions from residential

²⁹ Primary air - air supplied and mixed with fuel prior to ignition that controls the amount of fuel to be burned

³⁰ 2019 California Residential Appliance Saturation Study

³¹ CARB 2022 State Strategy for the State Implementation Plan

cooking appliances. Senate Bill (SB) 100 signed in 2018 increased California's Renewables Portfolio Standard (RPS) to 60 percent renewable energy sources by 2030. California Governor's Executive Order (EO) B-55-18 established the goal of carbon neutrality and 100 percent carbon-free energy sources by 2045. The increase in renewable generation in the state will reduce NO_x emissions from electricity generating facilities.³² Furthermore, Assembly Bill (AB) 3232 requires the California Energy Commission (CEC) in consultation with the California Public Utilities Commission (CPUC) and CARB, to develop plans and projections to reduce greenhouse gas emissions from California's residential and commercial buildings to 40 percent below 1990 levels by 2030. Once materialized, AB 3232 is an opportunity to bring further NO_x emission reductions from residential and commercial buildings.

Proposed Method of Control

This proposed control measure seeks NO_x reductions from residential cooking devices by replacing conventional gas-fired cooking appliances with zero emission and low NO_x emission devices such as electric cooking devices, induction cooktops, and low NO_x burner technologies.

In the South Coast Air Basin, residential cooking accounts for about 11 percent of total residential combustion emissions in 2018. Electric and induction cooking devices offer the most reductions opportunities with no emissions on site and have been commercially available for years. Electric cooking devices include a coil or infrared heating element that generates heat by electric current and are often inexpensive due to their simple design. High efficiency induction cooktops do not have an open flame and transfer heat directly through magnetic cookware which minimizes heat loss to ambient air. Consequently, this reduces cooking times and NO_x emissions and adds extra safety in food preparation. Low NO_x gas burners can also provide NO_x reductions compared to conventional burners. Organizations such as the Lawrence Berkeley National Laboratory (LBL) have developed a low NO_x Ring Burner that can be used for residential and commercial gas cooking devices, as well as other appliances such as water heaters and furnaces. The low NO_x Ring Burner can achieve NO_x levels of less than 20 ppm, which is about 80 percent lower than the emissions from conventional gas burners.³³ Reductions are achieved by a ring burner design that burns a leaner premixed fuel/air mixture capable of more complete combustion and lower NO_x emissions. Additional research and development with an Original Equipment Manufacturer (OEM) are needed for the LBL Ring Burner to meet the American National Standards Institute (ANSI) cooktop standards for commercialization.

NO_x reductions could be achieved through a combination of regulatory and incentive approaches. Proposed method of control consists of two steps: step one is a technology assessment including testing of various cooking devices to establish emissions rates. Once emissions rates are defined, step two supports future rule development and incentive programs. The first applies to manufacturers, distributors, and installers establishing emission limits and the latter intends to encourage use of zero emission and low NO_x emission technologies. The rule working group will include a diverse group of

³² 2021 SB 100 Joint Agency Report

³³ Research and Development of Natural Draft Ultra-Low Emissions Burners for Gas Appliances

stakeholders representing manufacturers, distributors, and installers. As for the incentive approach, South Coast AQMD will consider funding various projects/programs to facilitate the deployment of zero emission and low NOx emission appliances, including, but not limited to technology development, public outreach to promote consumers' choice for clean technology, incentive funding for the purchase and installation of clean technology appliances. Partnerships with utilities will be pursued to implement incentive programs that maximize reductions in a cost-effective manner. Implementation of this control measure will be a combination of regulatory and incentive approaches. During rule development, staff will consider technical feasibility, identify industry-specific affordability issues, cost-effectiveness and incremental cost-effectiveness, and may consider alternative compliance mechanisms. Incentives for residents to adopt zero-emission appliances would not only promote more participation in building electrification, but also provide an opportunity to address some of the inequities by allocating a significant percentage of funding to residents in disadvantaged communities and offering higher rebate amounts to those residents. Staff plans to conduct outreach to disadvantaged communities including public meetings to gain feedback on program development and processes.

Emission Reductions

To be determined.

Rule Compliance and Test Methods

South Coast AQMD Method 100.1

Cost Effectiveness

To be determined.

Implementing Agency

South Coast AQMD has the authority to regulate emissions from these stationary and area sources.

References

California Energy Commission, 2019 California Residential Appliance Saturation Study, August 2021.
<https://www.energy.ca.gov/data-reports/surveys/2019-residential-appliance-saturation-study>

California Air Resources Board, 2022 State Strategy for the State Implementation Plan, January 2022.
<https://ww2.arb.ca.gov/resources/documents/2022-state-strategy-state-implementation-plan-2022-state-sip-strategy>

California Energy Commission, 2021 SB 100 Joint Agency Report, September 2021.

<https://www.energy.ca.gov/publications/2021/2021-sb-100-joint-agency-report-achieving-100-percent-clean-electricity>

Lawrence Berkeley National Laboratory, Research and Development of Natural Draft Ultra-Low Emissions Burners for Gas Appliances, September 2016. <https://www.osti.gov/biblio/1377849>

California Statewide Reach Codes Program. <https://localenergycodes.com/>

Energy and Environmental Economics, Inc., Residential Building Electrification in California, April 2019. https://www.ethree.com/wp-content/uploads/2019/04/E3_Residential_Building_Electrification_in_California_April_2019.pdf

California Energy Commission, Final 2021 Integrated Energy Policy Report Volume I: Building Decarbonization, February 2022. <https://efiling.energy.ca.gov/GetDocument.aspx?tn=241361>

Frontier Energy, Residential Cooktop Performance and Energy Comparison Study, July 2019. https://frontierenergy.com/wp-content/uploads/Residential-Cooktop-Performance-and-Energy-Comparison-Study_Induction-Range-Report-July-2019-Frontier-Energy.pdf

Navigant Consulting, Inc., Impacts of Residential Electrification, August 2018. <https://efiling.energy.ca.gov/GetDocument.aspx?tn=224761>

California Public Utilities Commission, Utility Costs and Affordability of the Grid of the Future, May 2021. https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/office-of-governmental-affairs-division/reports/2021/senate-bill-695-report-2021-and-en-banc-whitepaper_final_04302021.pdf

U.S. Energy Information Administration, 2020 Utility Bundled Sales to Ultimate Customers- Residential. https://www.eia.gov/electricity/sales_revenue_price/pdf/table6.pdf

Solar Energy Industries Association. <https://www.seia.org/states-map>

UCLA Fielding School of Public Health, Effects of Residential Gas Appliances on Indoor and Outdoor Air Quality and Public Health in California, April 2020. <https://coeh.ph.ucla.edu/effects-of-residential-gas-appliances-on-indoor-and-outdoor-air-quality-and-public-health-in-california/>

California Energy Commission, Building Energy Efficiency Standards - Title 24. <https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards>

South Coast Air Quality Management District, 2016 Air Quality Management Plan, September 2011. <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf?sfvrsn=15>

BCM-04: EMISSION REDUCTIONS FROM REPLACEMENT WITH ZERO EMISSION OR LOW NO_x APPLIANCES – RESIDENTIAL OTHER COMBUSTION SOURCES

[PM2.5, NO_x]

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	RESIDENTIAL - OTHERS	
CONTROL METHODS:	REGULATORY APPROACH: ZERO EMISSION AND LOW NO _x LIMIT, AND INCENTIVE APPROACH: ZERO EMISSION TECHNOLOGY	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
PM2.5 INVENTORY	0.22	0.23
PM2.5 REDUCTION	-	TBD
PM2.5 REMAINING	-	TBD
ANNUAL AVERAGE [NO _x]:	2018	2030
NO _x INVENTORY	3.53	3.74
NO _x REDUCTION	-	TBD
NO _x REMAINING	-	TBD
CONTROL COST:	TBD	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD	

Description of Source Category

Background

Control measure BCM-04, as residential-others, seeks NO_x emission reductions from residential combustion sources using natural gas and Liquefied petroleum gas (LPG) that are not water heating (See BCM-01), space heating (See BCM-02) and cooking equipment (See BCM-03). BCM-04 sources are miscellaneous, but primarily comprised of swimming pool heaters, laundry dryers, and barbecue grills. Further study is needed to identify other equipment that would be subject to this control measure. Such a study should be included in future rulemaking efforts.

Pool heaters are regulated under Rule 1146.2. Natural gas pool heaters normally have a capacity ranging from 75,000 to 450,000 Btu per hour. The 2012 AQMP estimated that there were about 200,000 residential pool heaters in the South Coast Air Basin (Basin).

According to the U.S. Department of Energy, laundry dryers with drum sizes less than 4.4 cubic feet are deemed as “compact sized” and dryers with drum sizes equal to or large than 4.4 cubic feet are classified as “standard sized.” Residential laundry dryer drum volumes may be compact sized but for gas models typical drum volumes are between 5.6 and 7.4 cubic feet with heat input ratings between 20,000 and 25,000 Btu/hour.

The laundry market is composed of both gas and electric devices. Gas laundry dryers can be fueled by either natural gas or LPG gas. Most electric dryers operate on 240-volt to heat the equipment’s coils. This is about twice the voltage used to operate the standard household devices. Some compact or portable electric dryers may operate on 110-volts. Gas and electric dryers typically have about the same equipment life. According to H&R Block (usnews.com), a gas dryer’s expected lifespan is about 13 years, compared to an electric dryer’s expected lifespan of 14 years.

According to a 2009 report by the Environmental Council of the States (ECOS), in 2008 U.S. consumers purchased nearly 7 million clothes dryers, of which 5.62 million were electric and 1.35 million were natural gas. That would mean 32,400 annual consumer purchase of natural gas residential laundry dryers in the South Coast Air Basin. This estimation is based on a 12 percent nationwide purchase being in California (California Energy Commission, 2013), and 20 percent California purchase being within the Basin.

For barbecue grills, according to www.statista.com, a 2013 study by Hearth, Patio & Barbecue Association found that 61 percent of users opted for gas grills and 10 percent of users owned electric rigs. In 2018, gas barbecue grill sales in the United States amounted to about 1.32 billion U.S. dollars. According to www.theatlantic.com, Hearth, Patio & Barbecue Association believes that the electric-grill market is expected to continue to grow at an average rate of 7 percent a year.

BCM-04 sources were previously included as a part of control measure CMB-02 in 2016 AQMP for NO_x emission reductions from residential and commercial appliances, with a control strategy focused on regulating those currently unregulated commercial furnaces used for space heating and incentivizing zero

emission and low NO_x emission technology appliances. BCM-04 is derived from 2022 AQMP control measure R-CMB-04.

Regulatory History

Pool heaters are regulated under Rule 1146.2 - Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters. The provisions of this rule are applicable to manufacturers, distributors, retailers, installers, and operators of new units with a rating at or less than 2,000,000 BTU per hour, excluding units regulated by Rule 1121. The provisions of this rule are also applicable to operators of existing units that are rated greater than 400,000 BTU per hour up to and including 2,000,000 BTU per hour. Rule 1146.2 does not regulate residential gas-fired tank type water heaters less than 75,000 BTU/hour heat input which are regulated under South Coast AQMD Rule 1121. Rule 1146.2 units are typically used for industrial and commercial water heating. Pool heaters are also regulated under Rule 1146.2. Natural gas pool heaters normally have a capacity ranging from 75,000 to 450,000 BTU per hour.

Rule 1146.2 was originally adopted in 1998 and was amended in 2006 to impose a lower NO_x emission limit. The current Rule 1146.2 limit for NO_x emissions is 14 ng/J (20 ppm), except for Type 1 units rated equal and greater than 400,000 BTU per hour installed prior to January 1, 2012 to which the NO_x limit is 55 ppm, and for Type 2 units rated between 400,000 and 2,000,000 BTU per hour installed prior to January 1, 2010 to which the NO_x limit is 30 ppm.

According to the 2018 amendment, Rule 1146.2 required a technology assessment that was due to the South Coast AQMD Governing Board by January 2022. This technology assessment was to determine if the current NO_x emission limit should apply to both RECLAIM and non-RECLAIM units, or if a BARCT assessment should be undertaken as part of the rulemaking process to seek a lower NO_x emission limit. Under the BARCT assessment, the technology to achieve a lower NO_x limit will need to be feasible, available, and cost-effective. This lower NO_x emission limit would apply to both RECLAIM and non-RECLAIM units. A technology assessment was completed by January 1, 2022, determining that the NO_x emission limits should be lowered in order to satisfy BARCT requirements. Staff evaluated water heaters and boilers rated less than or equal to 2,000,000 Btu/hr in both non-RECLAIM and RECLAIM facilities and reviewed certification test reports submitted in recent years to understand the actual emission levels of certified models and the potential for achieving NO_x emission reductions. Prior to the current rulemaking, staff reviewed 137 source tests conducted since 2017 for units required to be certified at 20 ppm for NO_x emissions and found that 39 units (28 percent of units) had NO_x concentrations less than 12 ppm and 21 units (15 percent of units) had NO_x concentrations less than 10 ppm. As part of the 2021 technology assessment, staff also met with stakeholders seeking their input and conducted a working group meeting on December 16, 2021. Staff recommended a future rule amendment and BARCT assessment to evaluate the potential for further NO_x emission reductions. Proposed Amended Rule 1146.2 is currently undergoing rule development for zero-NO_x-emissions.

Residential laundry dryers and gas grills are not regulated by any South Coast AQMD rule for NO_x emissions.

Proposed Method of Control

Control measure BCM-04 seeks NOx emission reductions from residential-other combustion sources by: (1) requiring zero emission technologies through a regulatory approach for some emission sources in both new and existing residences; and (2) allowing low NOx technologies as an alternative for the rest of emission sources. A mitigation fee may be required for certain lower NOx technology applications which will be evaluated during the future rulemaking process. The mitigation fee collected would be utilized as incentives to accelerate the adoption of zero emission units.

Although the currently available electric laundry dryers (electric resistance heating models) are considered zero NOx emission units, heat pump laundry dryers with a much higher energy efficiency would be the preferred zero emission technology for incentives.

Heat pump laundry dryer technology has been in existence for years as an alternative to electric resistance heating models. However, the market presence of this technology remains insignificant in the United States as the low number of this technology is probably due to the higher cost of this technology. Heat pump dryers may also have longer drying times than resistance heating models. This is due to a smaller heat pump that is typically used for cost and efficiency considerations.

Heat pump dryers with an integrated heat recovery exhaust condenser would increase the dryer's efficiency. This efficiency increase is a result of exhaust heat being captured and reused. As noted in the 2013 Department of Energy's study, under a demonstration project funded by the U.S. Department of Energy, a modified heat pump clothes dryer delivered 40-50 percent energy savings with 35 degrees Fahrenheit lower fabric temperatures and similar drying times for regular loads.

ENERGY STAR certified heat pump dryer models are available for the brands Asko, Beko, Blomberg, LG, Miele, Samsung, and Whirlpool.

The emerging zero emission technology for heating pools is the swimming pool heat pump. Heat pumps used for heating pools transfer heat from the outdoors into the water. Heat pump pool heaters work efficiently as long as the outside temperature remains above the 45–50 degrees Fahrenheit range. The warm climate of the South Coast Air Basin favors the application of pool heat pumps. As a pool heat pump works slower than a gas heater on heating the pool, it is better suited when a consistent pool temperature for a long period of time is desired. The most economical way to run this type of heater is to let the unit run automatically to keep "topping up" the heat.

Natural gas pool heaters are subject to Rule 1146.2 and it is certification requirement for NOx emissions. Staff reviewed source test results for Rule 1146.2 certification conducted since 2017. There are tests for six heater models identified by the vendors as pool heaters. As all six models were certified to meet the 55 ppm NOx limit, four of them showed emissions at 10 to 20 ppm. A low NOx limit may be feasible with the current technology.

With regards to gas grills, the electric-grill market is expected to continue to grow at an average rate of 7 percent a year. A regulatory approach would accelerate the turnover of some gas grills to zero emission grills. In addition to zero emission units, emission reductions could be achieved by lower emission technologies. As burner adjustment for cooking equipment as proposed by control measure BCM-03 would lower the NOx emissions by 70 percent, this technology could be potentially applied to gas grills as well. Further evaluation during future rulemaking will be conducted.

In addition to a regulatory approach, incentives for the purchase and installation of zero emission technology or electric panel upgrade would be considered under this control measure not only for additional emission reductions, but also to encourage further development of future zero emission space heating technology for existing residential buildings. Collected mitigation fee and future allocated funding would be utilized for the incentives. More local agencies are now proposing incentives for retrofitting gas appliances, including sources for this control measure. For example, the City of Santa Monica is offering a \$300-400 rebate for replacing a gas dryer with an electric heat pump clothes dryer, incentives to electric panel upgrade, and rebates to other zero emission appliances. During rule development, staff will consider technical feasibility, identify industry-specific affordability issues, cost-effectiveness and incremental cost-effectiveness, and may consider alternative compliance mechanisms.

Incentives Implementation

Integrity Elements

Emission reductions that are projected to be achieved from the voluntary incentive measures must be demonstrated to be quantifiable, surplus, enforceable, and permanent. This demonstration must include project type(s); project life; applicable incentive program guideline(s), by title, year, chapter(s); and analysis of applicable incentive program guideline(s) for consistency with integrity elements. The following describes the definitions and provides examples of the key elements of such a demonstration:

- **Quantifiable:** Emission reductions are quantitatively measurable supported by existing and acceptable technical data. The quantification should use well-established, publicly available, and approved emission factors and accepted calculation methodology. There must be procedures to evaluate and verify over time the level of emission reductions actually achieved.

Potential emission reductions associated with various equipment types are discussed in the Proposed Method of Control section. The following table provides an overview of the sources, emission reductions, and proposed incentives for targeted sources.

- **Surplus:** Emission reductions must be above and beyond any South Coast AQMD, state, or federal regulation. Emission reductions used to meet air quality attainment requirements are surplus as long as they are not otherwise relied on in the State Implementation Plan (SIP), SIP-related requirement, other State air quality programs adopted but not in the SIP, a consent decree, or federal rules that focus on reducing criteria pollutants or their precursors. In the event that SIP emission reductions are relied on to meet air quality-related program requirements, they are no longer surplus. In addition, the emission reductions are available only for the remaining useful life of the equipment being replaced (e.g., if the equipment being replaced had a remaining useful life of five years, the additional

emission reductions from the new equipment are available for SIP or conformity purposes under this guidance for only five years).

- Enforceable: The South Coast AQMD will be responsible for assuring that the emission reductions credited in the SIP will occur. Emission reductions and other required actions are enforceable if:
 - They are independently verifiable;
 - Program violations are defined;
 - Those liable for emission reductions can be identified;
 - The South Coast AQMD and the U.S. EPA maintain the ability to apply penalties and secure appropriate corrective action where applicable;
 - The general public have access to all the emissions-related information obtained from the source;
 - The general public can file suits against sources for violations (with the exception of those owned and operated by Tribes); and
 - They are practically enforceable in accordance with other U.S. EPA guidance on practicable enforceability.

Actual emission reductions, for example, can be assured through the replacement equipment registration, recordkeeping and reporting, and inspections (initial inspection after installation and subsequent on a regular basis thereafter, if needed) throughout the term. Specific enforcement mechanisms will be addressed in the guidelines for the individual incentive measures.

- Permanent: The emission reductions need to be permanent throughout the term for which the credit is generated. The emission reductions are permanent if these reductions are ensured to occur over the duration of the SIP program, and for as long as they are relied on in the SIP.

For example, those awarded incentives would need to ensure the projects are properly implemented and the reductions are occurring and will continue to occur. Thus, recipients of the incentive awards would agree to contract provisions, such as recordkeeping and reporting to track reductions and agreements that newly installed equipment would not be removed without concurrence with the South Coast AQMD (i.e., permanent placement) and the proof that the replaced equipment would be destructed or at least not be operated any more in the Basin (e.g., pictures, certification). Detailed procedures to ensure permanent reductions will be described in the guidelines for the individual incentive measures.

Guidelines

Each SIP needs to have detailed and comprehensive guidelines that are approved by the South Coast AQMD Governing Board. The guidelines will be the protocol to implement the program, to ensure SIP applicability, and to maintain SIP approvability:

- ☒ SIP should demonstrate compliance with the four key elements of the SIP: quantifiable emissions plus incentive costs, surplus reductions, enforceable compliance, and permanent reductions.

- ☑ A working group should be established to solicit public input and feedback during SIP guideline development.
- ☑ Process and procedures to apply for incentives should be clearly explained in the guideline.
- ☑ It needs to clearly describe how incentives would be awarded (e.g., priority to high emitters and/or age of equipment, tiered process, first come first serve, or EJ area priority).
- ☑ It should have conditions of some form for agreement (e.g., contracts) including tracking and ensuring permanent reductions. The following forms should be prepared:
 - ☑ Application Forms (samples are required).
 - ☑ Contracts with Conditions (samples are required).
 - ☑ Product Example.
- ☑ Tracking mechanism is required to ensure overall effectiveness of program and procedures to correct emission projections, such as reductions by the committed target date (e.g., 2031, 2037) and submittal to the U.S. EPA annually. Tracking checklist should include:
 - ☑ Project Title.
 - ☑ Product.
 - ☑ Annual Emission Reductions (e.g., from 2030 to 2050, incremented by one year).
 - ☑ Life of project (e.g., 10 years).
 - ☑ Installation dates (e.g., fixed year 2030 or multiple installation years 2017 and 2018).
- ☑ Possible recordkeeping, reporting, and monitoring requirements need to be addressed.
- ☑ Individual outreach efforts (e.g., social media, email blasts) to promote the program, make aware of deadlines to apply, and provide timing locations of workshops.
- ☑ Program guidelines should be approved by the South Coast AQMD Governing Board and published online.

Emission Reductions

To be determined.

Rule Compliance and Test Methods

South Coast AQMD Method 100.1

Cost Effectiveness

To be determined.

Implementing Agency

South Coast AQMD has the authority to regulate emissions from these stationary sources.

References

Paul Bendt, Chris Calwell, and Laura Moorefield. (2009). Residential clothes dryers: An investigation of energy efficiency test procedures and savings opportunities, December 6, 2009.

California Energy Commission. (2013). Codes and Standards Enhancement (CASE) Initiative for FY 2013: Title 20 Standards Development Analysis of Standards Proposal for Commercial Clothes Dryers. July 30, 2013.

ENERGY STAR. Heat pump dryer. https://www.energystar.gov/products/heat_pump_dryer

Home Depot. Gas and electric dryers. https://www.homedepot.com/b/Appliances/N-5yc1vZbv1w?cm_sp=d-flyout-Appliances

U.S. News. Gas vs. Electric Dryers. August 5, 2021. <https://www.usnews.com/360-reviews/dryers/gas-vs-electric>

Department of Energy. Heat pump swimming pool heaters. <https://www.energy.gov/energysaver/heat-pump-swimming-pool-heaters>

Statista. Share of grill ownership in the United States in 2020 by type of grill. <https://www.statista.com/statistics/271755/us-grill-ownership-by-type-of-grill/>

The Atlantic. The greenest way to grill. <https://www.theatlantic.com/science/archive/2021/07/grilling-emissions-environment/619394/>

BCM-05: EMISSION REDUCTIONS FROM EMERGENCY STANDBY ENGINES**[PM2.5, NOx]**

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	EMERGENCY STANDBY ENGINES	
CONTROL METHODS:	REGULATIONS	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
POLLUTANT INVENTORY	0.15	0.14
POLLUTANT REDUCTION	-	0.04
POLLUTANT REMAINING	-	0.10
ANNUAL AVERAGE [NOx]:	2018	2030
POLLUTANT INVENTORY	4.15	3.97
POLLUTANT REDUCTION	-	0.36
POLLUTANT REMAINING	-	3.61
CONTROL COST:	MODIFIED LCF METHOD: \$1,027,200/TON OF NOx REDUCED^	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD	

^Cost-effectiveness only considers NOx reductions. Including PM2.5 reductions would further reduce the ratio.

Description of Source Category

Internal combustion engines (ICEs) are commonly used for emergency backup for electric power generation. South Coast AQMD rules require permits for stationary ICEs rated over 50 brake horsepower (bhp). Based on South Coast AQMD's permitting database, there are over 12,000 permitted emergency standby ICEs at a wide range of facilities such as commercial buildings, hospitals, convalescent facility medical support systems, cell towers, police facilities, schools, etc. Approximately 90 percent of these ICEs are diesel-fueled, and an estimated 88 percent of these diesel emergency ICEs do not meet Tier 4 Final emission standards, and thus emit higher emissions.

Background

Emergency standby ICEs typically operate only when backup power is needed and for testing and maintenance purposes. In general, they have long lifespans, meaning that older, more polluting ICEs are kept in service when cleaner technologies are available. Under Rule 1110.2 – Emissions from Gaseous- and Liquid-Fueled Engines and Rule 1470 – Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines, emergency standby ICEs are exempt from emission limits provided permit conditions are established that limit use to 200 hours or less per year. Emissions from emergency standby ICEs are notable due to the large numbers of this equipment in the South Coast AQMD, as well as the advanced age of the equipment.

A control measure to reduce NOx and VOC emissions from emergency standby ICEs was included in the 2022 AQMP (L-CMB-04: Emissions Reductions from Emergency Standby Engines). The control measure sought to maximize NOx emission reductions by installing alternatives to ICEs where and when technically feasible and cost-effective. As described in the 2022 AQMP, alternatives to emergency standby ICEs are emerging technologies and may not be suitable for all applications. Accordingly, a feasibility assessment was identified as a first step to identify industries or specific applications (e.g., facilities with low standby power needs) that can move towards zero emission and low NOx technologies for emergency backup power. Emissions reductions for the 2022 AQMP control measure were therefore assigned to the year 2037. The purpose of this PM2.5 plan is to identify emissions reductions that can be achieved by 2030.

The PM2.5 Plan includes an emissions inventory for 2018 and 2030. The emissions inventory for L-CMB-04 (Emergency Standby Engines) in this control measure is based on emissions from point and area source ICEs.

Renewable Diesel Fuel

Renewable diesel is a synthetic diesel fuel produced from non-petroleum resources and meets CARB diesel specifications, as well as the ASTM International³⁴ D975 standard specification for diesel fuel. It is not interchangeable with biodiesel. Both are derived from similar feedstock, but undergo different processing methods and have different chemical properties, physical properties and environmental attributes. Biodiesel can reduce PM emissions, but can increase NOx emissions in some ICEs, and is used as a blend stock rather than as a replacement for CARB diesel fuel. Renewable diesel is currently widely available and is a drop-in replacement for CARB diesel fuel; it can be used in ICEs immediately, without the need to modify equipment or operations. The storage life of renewable diesel has also been found to be comparable with conventional diesel fuel. CARB-led evaluations of renewable diesel have found that using it in place of CARB diesel reduces PM emissions by approximately 30 percent, and NOx emissions by approximately 10 percent in ICEs without Tier 4 Final controls. In 2022, CARB amended Commercial

³⁴ ASTM International, formerly American Society for Testing and Materials, develops and publishes voluntary consensus technical standards for a wide range of materials, products, systems, and services (www.astm.org).

Harbor Craft (CHC) and In-Use Off-Road Diesel-Fueled Fleet (ORD) regulations to require the use of 99 or 100 percent renewable diesel fuel for mobile (non-Tier 4 Final) diesel-fueled ICEs by January 1, 2024.

A potential roadblock to the widespread use of renewable diesel in emergency standby ICEs is the cost differential compared to CARB diesel. The cost of renewable diesel to mobile source end-users is comparable with that of CARB diesel fuel due to credits and incentives provided by State and federal programs. There are no comparable programs for using renewable diesel in stationary sources.

Regulatory History

South Coast AQMD includes several regulations regarding ICEs, including:

- Rule 1110.2 – Emissions from Gaseous- and Liquid-Fueled Engines;
- Rule 1470 – Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines; and
- Rule 1472 – Requirements for Facilities with Multiple Stationary Emergency Standby Diesel-Fueled Internal Combustion Engines.

Newly permitted emergency standby ICEs must be demonstrated to meet Best Available Control Technology (BACT) emission requirements. ICEs rated 50 to 750 bhp must meet Tier 3 emission standards, and ICEs rated over 750 bhp must meet Tier 2. Rule 1110.2 and Rule 1470 exempt emergency ICEs from meeting the rule's NO_x, VOC, and CO emission limits provided that the engine has a permit condition limiting the engine to 200 operating hours or less per year. Nearly all, if not all, emergency standby ICEs are limited to 200 hours or less per year of operation. Additionally, Rule 1470 restricts operation of diesel emergency standby ICEs for maintenance and testing purposes to 50 hours a year or less and requires the use of CARB diesel fuel for all diesel-fueled ICEs rated over 50 brake horse power (bhp). These exempted emergency ICEs are also exempt from emissions testing, monitoring, reporting, and recordkeeping requirements of Rule 1110.2.

Proposed Method of Control

Most emergency standby ICEs within South Coast AQMD's jurisdiction are diesel-fueled, and most of those do not meet Tier 4 Final emission standards. Requiring the use of renewable diesel for all emergency standby ICEs that are not equipped with Tier 4 Final controls is a potential regulatory approach to achieve PM_{2.5} and NO_x emission reductions in the near term. Renewable diesel is a readily available drop-in alternative to CARB diesel, and would result in immediate emissions reductions. South Coast AQMD can work with other relevant agencies to explore the use of credits and other incentives to ensure that the cost of renewable diesel to non-mobile source ICE end-users is also comparable to that of CARB diesel.

Other longer-term controls for this source category were proposed in the L-CMB-04 control measure in the 2022 AQMP. The potential regulatory approach outlined in L-CMB-04 involved removing the oldest

ICEs in the South Coast AQMD from operation where and when technically feasible and cost-effective. The approach would target the oldest diesel ICEs in operation for replacement, starting with pre-Tier 0 (pre-1988 model year) engines and then focusing on Tier 0 (1988+ model year) and Tier 1 (1996+ model year) engines. If facilities are not able to install alternatives to ICEs and sought to install new ICEs, the units would be required to be the lowest emitting diesel ICEs available or natural gas ICEs. Staff anticipates that this potential regulatory approach would begin implementation post-2030.

Emission Reductions

For a non-Tier 4 Final diesel ICE, replacing CARB diesel with renewable diesel would reduce PM and NO_x emissions by approximately 30 percent and 10 percent, respectively. By applying these reductions to the emissions from all permitted non-Tier 4 Final diesel emergency standby ICEs, the estimated overall PM emissions reductions to this source category would be 27 percent, and the estimated overall NO_x emissions reductions would be nine percent. These estimates would be refined as part of future rulemaking activities.

Rule Compliance and Test Methods

Compliance with the provisions of this control measure would require the use of only renewable diesel in non-Tier 4 Final diesel emergency standby ICEs. CARB recently amended its CHC and ORD regulations to require the use of renewable diesel by January 1, 2024.

Cost Effectiveness

Costs of implementing BCM-05 are based on the analysis for L-CMB-04 in the 2022 AQMP. Alternative emergency standby power technologies are emerging and are more expensive than diesel engines. Another challenge is that many of these technologies are also currently not designed to be used solely for emergency standby power and are not like-for-like replacements of emergency standby ICEs. As technologies mature and newer technologies emerge, staff anticipates that their costs will become more competitive in future years. Based on the best available information, the cost effectiveness, determined using the Discounted Cash Flow (DCF) method is estimated to be \$592,000 per ton of NO_x reduced; the cost effectiveness, determined using the Modified Levelized Cash Flow (MLCF) method is estimated to be \$1,027,200 per ton of NO_x reduced. A refined cost-effectiveness analysis for the proposed methods of control will be developed during rule development.

Implementing Agency

South Coast AQMD has the authority to regulate emissions from stationary engines rated over 50 bhp.

References

Approximate Diesel Fuel Consumption Chart. Generator Source. Retrieved 2023, June 12.

https://www.generatorsource.com/Diesel_Fuel_Consumption.aspx.

California Environmental Protection Agency. *Multimedia Evaluation of Renewable Diesel*. May, 2015.

https://ww2.arb.ca.gov/sites/default/files/2018-08/Renewable_Diesel_Multimedia_Evaluation_5-21-15.pdf.

California Air Resources Board. *Low Carbon Fuel Standard*. Retrieved 2023, July 14.

<https://ww2.arb.ca.gov/sites/default/files/2020-09/basics-notes.pdf>.

California Air Resources Board. *Public Hearing to Consider Proposed Amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation – Staff Report: Initial Statement of Reasons*. September, 2022.

<https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/off-roaddiesel/isor.pdf>.

California Air Resources Board. Technical Support Document and Assessment of Marine Emission Control Strategies, Zero-Emission, and Advanced Technologies for Commercial Harbor Craft – Proposed Amendments to the Commercial Harbor Craft Regulation. September, 2021.

<https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2021/chc2021/appe.pdf>

Joint Statement issued by CARB and the State Water Resources Control Board (2013, July 31).

https://ww2.arb.ca.gov/sites/default/files/2018-08/Renewable_Diesel_Joint_Statement_7-31-13.pdf.

Silvas, M. et al. Neste. Video conference. (2023, June 14).

BCM-06: EMISSION REDUCTIONS FROM DIESEL ELECTRICITY GENERATING FACILITIES [NOX]

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	ELECTRIC GENERATING UNITS AT ELECTRIC GENERATING FACILITIES	
CONTROL METHODS:	LOW NOX AND ZERO EMISSION TECHNOLOGIES	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
POLLUTANT INVENTORY	0.43	0.34
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
ANNUAL AVERAGE [NOx]:	2018	2030
POLLUTANT INVENTORY	1.55	2.06
POLLUTANT REDUCTION	-	0.16
POLLUTANT REMAINING	-	1.90
CONTROL COST:	DCF METHOD: \$1,512,300/TON OF NOx REDUCED MODIFIED LCF METHOD: \$2,420,000/TON OF NOx REDUCED	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD/LOCAL OR REGIONAL AGENCIES	

Description of Source Category

There are six diesel permitted electric generating units in the South Coast Air Basin (Basin). Electric generating units at electricity generating facilities are regulated by Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities (Rule 1135). Electricity generating facilities are investor-owned electric utilities, publicly owned electric utilities, or facilities with a combined electrical power generation capacity of 50 Megawatts or more for distribution in the state or local electrical grid system. Rule 1135 was amended in 2018 to require BARCT level emission limits as directed by the 2016 Final AQMP Resolution to transition equipment in the RECLAIM program to a command-and-control regulatory

structure. This control measure seeks PM emission reductions from diesel electric generating units by using renewable diesel and low NOx and zero emission technologies.

Background

When RECLAIM was adopted in 1993, electricity generating facilities were initially included in NOx RECLAIM and could opt-in to SOx RECLAIM. In June 2000, RECLAIM program participants experienced a sharp and sudden increase in NOx RECLAIM trading credit (RTC) prices for both the 1999 and 2000 compliance years. Based on the 2000 RECLAIM Annual Report, electricity generating facilities reported approximately 4,400 tons per year over their initial allocation. This was primarily due to an increased demand for power generation and delayed installation of controls by electricity generating facilities. The electric power generating industry purchased a large quantity of RTCs, which depleted the available RTCs. This situation was compounded because few RECLAIM facilities added control equipment. As a result, in May 2001, the Board adopted Rule 2009 – Compliance Plan for Power Producing Facilities (Rule 2009). Rule 2009 required installation of BARCT through compliance plans at electricity generating facilities. However, the six diesel engines used for power generation on Santa Catalina Island were excluded from Rule 2009 and remain in operation today.

Regulatory History

Rule 1135 was adopted in 1989 and applied to electric power generating steam boiler systems, repowered units, and alternative electricity generating sources. A NOx system-wide average emission limit and a daily NOx emissions cap was established for each utility system. Additionally, Rule 1135 required Emission Control Plans and continuous emissions monitoring systems (CEMS).

Rule 1135 was amended in December 1990 to resolve implementation and enforceability issues raised by CARB. This amendment included accelerated retrofit dates for emission controls, unit-by-unit emission limits, modified compliance plan and monitoring requirements, computerized telemetering, and an amended definition of alternative resources. Rule 1135 was amended again July 1991 to address additional staff recommendations regarding system-wide emission rates, daily emission caps, annual emission caps, oil burning, and cogeneration, along with outstanding issues related to modeling and BARCT analysis. U.S. EPA approved Rule 1135 into the State Implementation Plan (SIP) on August 11, 1998.

In 2018, Rule 1135 was amended to establish BARCT NOx limits which are needed to transition electricity generating facilities in the NOx RECLAIM program to a command-and-control regulatory structure and to implement Control Measure CMB-05 of the 2016 AQMP. The 2018 amendment expanded Rule 1135 applicability to all electric generating units at RECLAIM NOx, former RECLAIM NOx, and non-RECLAIM NOx electricity generating facilities. The amendment updated emission limits to reflect current BARCT levels.

Rule 1135 was last amended in January 2022 to revise the emission requirements for diesel internal combustion engines located on Santa Catalina Island. Rule 1135 incorporates a compliance path for Catalina Island electric generating units to meet a NOx emission cap of 13 tons per year starting January 1, 2026, to be achieved using zero or low NOx emission technology with possibly diesel engine

replacements in the interim. Staff is in the process of conducting an updated BARCT assessment to evaluate current and emerging low NOx and zero emission technologies.

Proposed Method of Control

This control measure seeks NOx emission reductions from diesel electric generating units regulated by Rule 1135 and will focus on assessing renewable diesel, low NOx and zero emission technologies for power generation. This measure proposes to implement low NOx and zero emission technologies through a regulatory approach at electricity generating facilities and to require the use of renewable diesel for any remaining diesel engines used for backup power. This approach needs to consider electrical or alternative fuel infrastructure required to operate these equipment and future electrical grid stability when transitioning to zero emission electric generating units.

Emission Reductions

Emissions reductions for this control measure are estimated to be approximately 0.16 tons per day of NOx by 2030. The target of this approach is to replace existing diesel internal combustion engines with lower-emitting technologies and utilize renewable diesel for fueling the remaining diesel engines used for backup power. Direct PM2.5 emission reductions are to be determined.

Rule Compliance and Test Methods

Compliance with the provisions of this control measure would be based on monitoring, recordkeeping, and reporting requirements that have been established in Rule 1135. Compliance would be verified through inspections and other recordkeeping and reporting requirements.

Cost Effectiveness

The overall average cost-effectiveness for this control measure is \$1,512,300 per ton of NOx reduced.

Implementing Agency

South Coast AQMD has the authority to regulate emissions from stationary sources.

References

South Coast AQMD, 2018. Final Staff Report on Proposed Amendments to Rule 1135, November 2, 2018.
South Coast AQMD, 2022. Final Staff Report on Proposed Amendments to Rule 1135 and Proposed Rule 429.2, January 7, 2022.
California Air Resources Board, 2021. Renewable Diesel Fuel Effect on Exhaust Emissions from a Tier 3 GE ES44C4 Locomotive.

BCM-07: EMISSION REDUCTIONS FROM INCINERATORS [NOX]

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	INCINERATORS AND OTHER COMBUSTION EQUIPMENT	
CONTROL METHODS:	LOW NOX AND ZERO EMISSION TECHNOLOGIES	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
POLLUTANT INVENTORY	0.04	0.05
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
ANNUAL AVERAGE [NOx]:	2018	2030
POLLUTANT INVENTORY	1.11	1.13
POLLUTANT REDUCTION	-	0.81
POLLUTANT REMAINING	-	0.32
CONTROL COST:	DCF METHOD: \$900/TON OF NOX REDUCED MODIFIED LCF METHOD: \$1,500/TON OF NOX REDUCED	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD/LOCAL OR REGIONAL AGENCIES	

Description of Source Category

Control measure BCM-07 seeks emission reductions of NOx by replacement or retrofits with low NOx emission technologies on incinerators and other combustion equipment associated with incinerators and better control of ammonia injection used currently to control NOx. Incinerators are used to burn waste material at high temperatures until reduced to ash.

Background

South Coast AQMD has adopted a series of rules to promote clean, lower emission technologies, while encouraging economic growth and providing compliance flexibility. For existing sources, replacing older

higher-emitting equipment with zero emitting equipment can apply to a single source or an entire facility. The manufacturing and deployment of zero emission and low NO_x emission technologies will help reduce PM emissions in the region, accelerate removal of higher-emitting equipment that can otherwise last for many decades, and advance economic development and job opportunities in the region.

Regulatory History

Incinerators are regulated by Rule 404 – Particulate Matter - Concentration last amended in 1986.

Proposed Method of Control

Secondary PM_{2.5} are formed from chemical reactions of NO_x and ammonia. Feed-forward systems control ammonia injection into NO_x catalytic control systems. Closed loop control systems using sensors to provide feedback can more accurately reflect operating conditions reducing ammonia slip and excess NO_x. Burner technologies such as low NO_x burner systems (LNB) or ultra-low NO_x burner systems (ULNB) are combustion control technologies utilized to lower NO_x emissions. A variety of factors impact the NO_x emissions with LNB or ULNB, such as burner orientation and arrangement, firebox size, heater type (force or natural draft), and fuel type. Dependent on the burner configuration and operation, additional combustion controls are used to reduce NO_x emissions, such as fuel and air premix, staged fuel, staged air, and flue gas recirculation. During rule development, staff will consider technical feasibility, identify industry-specific affordability issues, cost-effectiveness and incremental cost-effectiveness, and may consider alternative compliance mechanisms.

Emission Reductions

NO_x emissions are estimated to be reduced by 0.81 tons per day by 2030. The target of this approach is to reduce ammonia emissions by utilizing a closed loop feed-forward control system and to reduce NO_x emissions with improved burner technologies. Direct PM_{2.5} emissions are to be determined.

Rule Compliance and Test Methods

Source test methods vary depending on the type of source and quality of emissions (e.g., criteria pollutant and toxic emissions). Source test methods may include, but are not limited to South Coast AQMD Methods 5.1, 25.1, 25.3, 100.1, 207.1 or other South Coast AQMD-approved test methods.

Cost Effectiveness

The overall average cost-effectiveness for this control measure is \$900 per ton of NO_x reduced.

Implementing Agency

South Coast AQMD has the authority to regulate emissions from stationary sources.

References

South Coast AQMD, 1986. Rule 404 – Particulate Matter - Concentration.

Jaaskelainen, H. and Majewski, W, 2018. Urea Dosing Control

https://dieselnet.com/tech/cat_scr_diesel_control.php

**ECC-01: CO-BENEFITS FROM EXISTING AND FUTURE GREENHOUSE GAS PROGRAMS,
POLICIES, AND INCENTIVES
[ALL POLLUTANTS]**

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	GHG PROGRAMS, POLICIES AND INCENTIVES	
CONTROL METHODS:	REDUCTIONS FROM PROGRAMS THAT REDUCE GHGS ALSO REDUCE CRITERIA POLLUTANTS	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE:	2018	2030
POLLUTANT INVENTORY	TBD	TBD
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
CONTROL COST:	TBD	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	VARIOUS AGENCIES	

Description of Source Category

Sources of greenhouse gases (GHG) are typically also emission sources of criteria pollutants. Federal, State, and local mandates and programs to reduce GHG emissions provide co-benefits of criteria pollutant reductions. This control measure seeks to capture the co-benefits from existing and future GHG programs, policies, and incentives.

Background

The State of California has a successful history of fighting climate change and reducing GHG emissions. Significant efforts are currently being undertaken and planned to further reduce GHGs under the State's 2030, 2045, and 2050 targets. To help achieve GHG reductions, many different regulations, market mechanisms, and incentive programs are being implemented in California. As these GHG reduction efforts are undertaken across all sectors, the co-benefit reductions of criteria pollutants will be accounted for under this control measure.

Regulatory History

The State of California adopted the Global Warming Solutions Act of 2006 (AB 32) to develop regulations and programs that reduce California's GHG emissions 20 percent below 1990 levels by 2020, along with authorizing a cap and trade program. Under the cap and trade program, an emissions limit is placed on the largest stationary sources of GHGs, fuel providers, and imports of electricity. The emissions cap on these sources is lowered over time and entities under the cap may choose to reduce their emissions or purchase allowances from the market to cover their emissions. Under AB 32, CARB must develop a Scoping Plan every five years that describes the approach to meeting the State's GHG reduction targets. Since the adoption of AB 32 several regulations and programs have been implemented along with executive orders to reduce GHG levels in California 80 percent below 1990 levels by 2050 and a midterm target of 40 percent by 2030. California has also successfully reduced GHG emissions from the electricity generating facilities. Prior to the adoption of AB 32, California established a 20 percent renewable portfolio standard (RPS) mandate for investor-owned utilities in 2010. The RPS mandate was then expanded in 2011 to include municipal owned utilities along with establishing a new mandate of 33 percent by 2020. The three large investor-owned utilities and the majority of municipal owned utilities either met or surpassed the 2020 annual RPS target of 33 percent in 2020.³⁵ In 2015, as part of SB 350, the RPS mandate was expanded to be 50 percent by 2030 along with increasing efficiency of existing buildings (see ECC-02 for more details on energy efficiency measures).

In the last few years, California Legislature passed a suite of bills that seek to continue to reduce greenhouse gas emissions from various sectors including electricity generation as well as residential and commercial buildings. In 2018, California passed SB 100 (California Renewables Portfolio Standard Program: Emissions of Greenhouse Gases), which sets new standards to California's renewable portfolio by requiring the State to use 50 percent renewable electricity by 2026, 60 percent renewable electricity by 2030, and 100 percent carbon-free electricity by 2045. In addition, two new laws directed towards the State's building sector, AB 3232 (Zero-emissions Buildings and Sources of Heat Energy) and SB 1477 (Low-emissions Buildings and Sources of Heat Energy), were signed in 2018. AB 3232 requires the California Energy Commission (CEC) to assess, by January 1, 2021, the potential for reducing GHG emissions from California's residential and commercial buildings to 40 percent below 1990 levels by 2030. The assessment³⁶ identified key options and policies for increasing heating efficiency while reducing carbon emissions from the State's commercial and residential buildings. SB 1477 helps promote and implement clean heating technology in the State by providing \$50 million per year through 2023 to encourage market-based development and adoption of low-emission, clean heating technologies for buildings. As part of the implementation of SB 1477, the CPUC created the Technology and Equipment for Clean Heating (TECH) Program and the Building Initiative for Low Emissions Development (BUILD) Program. The two programs are designed to provide incentives to reduce carbon emissions in buildings. In 2018, Governor

³⁵ <https://www.cpuc.ca.gov/-/media/cpuc-website/industries-and-topics/documents/energy/rps/cpuc-2021-rps-annual-report-to-legislature.pdf>.

³⁶ <https://www.energy.ca.gov/data-reports/reports/building-decarbonization-assessment>.

Brown also signed Executive Order B-55-18, committing California to total, economy-wide carbon neutrality by 2045.

At the federal level, the U.S. EPA is establishing regulations to limit the emissions of GHGs from stationary and transportation sources. Recently, federal targets have been established to achieve a 50-52 percent reduction from 2005 levels in economy-wide GHGs by 2030, create a carbon pollution-free power sector by 2035, and net zero emissions economy-wide by 2050.

Proposed Method of Control

GHG reductions being implemented through federal, State, and local programs are being implemented across multiple energy sectors and are generally mandated by law. The GHG emission reductions are being implemented through several mechanisms such as market programs, renewable energy targets, incentive and rebate programs, and promoting implementation and development of new technologies.

Within California, market mechanisms such as the cap and trade program provide GHG emissions monitoring, emissions caps, and emissions trading for required entities. Revenues generated from the cap and trade program are mandated to be further invested in GHG reductions. Other programs such as the Renewable Portfolio Standards require the procurement of renewable power onto the electrical grid. While many regulations are already in place, more regulations will likely be implemented at the State and federal levels along with new mechanisms for GHG emission reductions. Overall, California sets ambitious goals to promote clean technologies and reduce GHG emissions across all sectors. These State climate policies will result in NOx and PM2.5 reduction co-benefits in the mid to long term time frame.

Under this control measure, the criteria pollutant co-benefits associated with GHG reductions will be quantified and accounted for towards attainment of federal ozone standards. Existing and future incentives, programs, and partnerships will be evaluated for reduction of emissions of both GHGs and criteria pollutants. South Coast AQMD will also work closely with other agencies and stakeholders to focus GHG reduction programs within the South Coast Basin to maximize emission reductions across all pollutants. During rule development, staff will consider technical feasibility, identify industry-specific affordability issues, cost-effectiveness and incremental cost-effectiveness, and may consider alternative compliance mechanisms.

Emission Reductions

To be determined.

Rule Compliance and Test Methods

Performance of GHG reductions and criteria pollutant co-benefits will be measured through the relevant agencies' enforcement of GHG requirements as well as the South Coast AQMD and State agencies emission inventories along with reductions achieved through specific programs.

Cost Effectiveness

Because this control measure relies on other programs, no additional costs other than relatively minor administrative costs are anticipated as a direct result of this control measure.

Implementing Agency

South Coast AQMD has the authority to regulate emissions from stationary sources and will work with other regulatory agencies, businesses, and other stakeholders in implementation and program enhancements for the both the transportation and stationary sectors.

References

California's 2030 Climate Commitment: Double Energy Savings in Existing Buildings & Develop Cleaner Heating Fuels by 2030: http://www.arb.ca.gov/html/fact_sheets/2030_energyefficiency.pdf

U.S. EPA, "Roadmap for Incorporating Energy Efficiency/Renewable Energy Policies into State and Tribal Implementation Plans," 2012.

SB350 Clean Energy and Pollution Reduction Act of 2015:

http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB350

California's Existing Buildings Energy Efficiency Action Plan: <http://www.energy.ca.gov/ab758/>

2015 Integrated Energy Policy Report (CEC-100-2015-001-CMD):

http://www.energy.ca.gov/2015_energypolicy/

2015-2025 California Energy Demand Updated Forecast (CEC-200-2014-009-CMF):

<http://www.energy.ca.gov/2014publications/CEC-200-2014-009/CEC-200-2014-009-CMF.pdf>

**ECC-02: CO-BENEFITS FROM EXISTING AND FUTURE RESIDENTIAL AND
COMMERCIAL BUILDING ENERGY EFFICIENCY MEASURES
[ALL POLLUTANTS]**

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	EXISTING RESIDENTIAL AND COMMERCIAL POWER AND FUEL USE	
CONTROL METHODS:	REDUCED ENERGY USE	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
POLLUTANT INVENTORY	19.30	19.95
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
ANNUAL AVERAGE [NOx]:	2018	2030
POLLUTANT INVENTORY	27.43	23.02
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
CONTROL COST:	TBD	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	VARIOUS AGENCIES	

Description of Source Category

Energy consumption in existing residential and commercial buildings results in direct and indirect emissions of criteria pollutants, toxics, and greenhouse gases. Direct emissions result from combustion of fuels such as natural gas, propane, and wood. Indirect emissions are a result of energy use requiring electricity production from power sources, many of which burn fossil fuels. Improvements in residential

weatherization and other efficiency measures provide emission reductions through reduced energy use for heating, cooling, lighting, cooking, and other needs.

Background

In 1978, California adopted the California Code of Regulations building energy standards. The building energy standards adopted within Title 24 have been routinely made stronger since that time. The strengthening of Title 24 standards along with new building materials and more efficient appliances has resulted in newly constructed residences and commercial buildings being more efficient than previous constructions.

In addition to the Title 24 building energy standards, there are multiple programs that provide incentives, rebates, and loans for efficiency projects on residential and commercial structures. These assistance programs are largely administered through servicing utilities for the property and are voluntary. Despite the availability of multiple assistance programs and the many benefits from undertaking energy savings measures, there remain many barriers to overcome. One of the challenges is increasing energy efficiency within rental and leased properties where tenants are often responsible for utility costs. Within the South Coast Air Basin (Basin) it is estimated that 48 percent of the residential properties are occupied by tenants. In EJ communities in the South Coast Air Basin, 59 percent of residential properties are occupied by tenants. Other barriers to undertaking these projects are identifying the most worthwhile and cost-effective projects, finding suited contractors, and capital to fund the projects.

In California and the Basin there is significant potential to achieve large energy reductions from retrofitting existing buildings. Within the Basin, about 60 percent of the residential structures were constructed before 1979 when the California Title 24 building energy standard was first implemented. Additionally, energy efficiency measures provide cumulative benefits when implemented. Increased deployment and accelerating the rate of implementation of existing programs provides benefits in reduced energy costs, energy infrastructure needs, and emissions of greenhouse gases, toxics, and criteria pollutants. To further realize these benefits the State of California passed the Clean Energy Pollution Reduction Act of 2015 (SB 350) that sets a path to double the energy efficiency savings for electricity and natural gas use by retail customers and increase renewable energy sources from 33 to 50 percent by 2030. The bill establishes a legal mandate by requiring the State Energy Resources Conservation and Development Commission (California Energy Commission or CEC) to establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas end uses of retail customers by January 1, 2030. The bill would require the Public Utilities Commission to establish efficiency targets for electrical and gas corporations consistent with this goal. The bill would also require local publicly owned electric utilities to establish annual targets for energy efficiency savings and demand reduction consistent with this goal.

Regulatory History

The U.S. EPA has recognized the importance of efficiency and renewable energy efforts in reducing emissions. In July 2012, the U.S. EPA released the Roadmap for Incorporating Energy Efficiency/Renewable

Energy Policies into State and Tribal Implementation Plans. Under the guidance of this document, the emissions benefits not yet accounted for within the baseline inventory from efficiency measures set into action can be accounted for within State Implementation Plans as control measures. Emission reductions from efficiency efforts of SB 350 are reflected in the 2020 California Gas Report¹⁰ and the baseline inventory for the PM2.5 Plan. Meanwhile, significant efforts are currently being undertaken and planned to further reduce GHGs under the State's 2030, 2045, and 2050 targets. In the last few years, California Legislature passed a suite of bills that seek to reduce greenhouse gas emissions from various sectors including electricity generation as well as residential and commercial buildings. In 2018, California passed SB 100 (California Renewables Portfolio Standard Program: Emissions of Greenhouse Gases), which sets new standards to California's renewable portfolio by requiring the State to use 50 percent renewable electricity by 2026, 60 percent renewable electricity by 2030, and 100 percent carbon-free electricity by 2045. In addition, two new laws directed towards the State's building sector, AB 3232 (Zero-emissions Buildings and Sources of Heat Energy) and SB 1477 (Low-emissions Buildings and Sources of Heat Energy), were signed in 2018. AB 3232 requires the California Energy Commission (CEC) to assess, by January 1, 2021, the potential for reducing GHG emissions from California's residential and commercial buildings to 40 percent below 1990 levels by 2030.¹¹ The assessment identified key options and policies for increasing heating efficiency while reducing carbon emissions from the State's commercial and residential buildings. SB 1477 helps promote and implement clean heating technology in the State by providing \$50 million per year through 2023 to encourage market-based development and adoption of low-emission, clean heating technologies for buildings. In 2018, Governor Brown also signed Executive Order B-55-18, committing California to total, economy-wide carbon neutrality by 2045.

Overall, California sets ambitious goals to promote clean technologies and decrease energy use in California's existing and new building stock. Reducing, managing, and changing the way energy is used in the commercial and residential sectors can provide additional emission reductions, reduce energy costs, and provide multiple environmental benefits. These State climate policies will result in NOx and PM2.5 reduction co-benefits in the mid to long term time frame.

Proposed Method of Control

South Coast AQMD has worked with the local utilities and contractors to implement weatherization programs within the Environmental Justice Communities of Coachella Valley, Boyle Heights, San Bernardino and San Fernando Valley areas. South Coast AQMD staff will work with agencies, utilities, and other stakeholders to further implement weatherization and other measures that provide energy savings along with emission reductions within the Basin.

¹⁰ 2020 California Gas Report. https://www.socalgas.com/sites/default/files/2020-10/2020_California_Gas_Report_Joint_Utility_Biennial_Comprehensive_Filing.pdf

¹¹ California Building Decarbonization Assessment- Final Commission Report. <https://efiling.energy.ca.gov/GetDocument.aspx?tn=239311&DocumentContentId=72767>

Co-benefits from other existing and future residential and commercial building energy efficiency measures, such as Title 24 building energy standards, and incentive programs such as the Building Initiative for Low-Emissions Development (BUILD) Program will be monitored, and the energy savings and criteria pollutant emission benefits will be quantified. During rule development, staff will consider technical feasibility, identify industry-specific affordability issues, cost-effectiveness and incremental cost-effectiveness, and may consider alternative compliance mechanisms.

Emission Reductions

Weatherization and other efficiency measures are typically permanent measures that provide cumulative benefits. The existing energy efficiency programs are having impacts on emission reductions, such as implementation of SB 350, are generally taken into account within the baseline emissions inventory. Any future federal, State or local programs that significantly enhances the State's renewable energy and efficiency targets will result in co-benefits of NOx and PM2.5 reductions. The emission benefits from other existing and future energy efficiency measures would result in less fuel use such as natural gas usage. South Coast AQMD will continue to evaluate opportunities for additional feasible NOx and PM2.5 reductions in existing and new residential and commercial buildings through regulatory or incentive-based programs, and an evaluation of the benefits of these existing and emerging energy programs not reflected in the baseline inventory will be evaluated and quantified.

Rule Compliance and Test Methods

Not applicable.

Cost Effectiveness

No additional costs are anticipated beyond those that would otherwise be allocated to reduce GHG emissions through State programs. This measure seeks merely to quantify criteria pollutant reductions from these GHG programs. Furthermore, weatherization and efficiency measures, when appropriately applied, can realize short payback periods from reduced energy costs (two–seven years).

Implementing Agency

South Coast AQMD has the authority to regulate emissions from stationary sources and will work with other regulatory agencies to help implement this control measure.

References

California's 2030 Climate Commitment: Double Energy Savings in Existing Buildings & Develop Cleaner Heating Fuels by 2030: http://www.arb.ca.gov/html/fact_sheets/2030_energyefficiency.pdf

U.S. EPA, “Roadmap for Incorporating Energy Efficiency/Renewable Energy Policies into State and Tribal Implementation Plans,” 2012.

SB350 Clean Energy and Pollution Reduction Act of 2015:

http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB350

California’s Existing Buildings Energy Efficiency Action Plan: <http://www.energy.ca.gov/ab758/>

SB100: California Renewables Portfolio Standard Program: Emissions of Greenhouse Gases (2018):

https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180SB100

AB3232: Zero-Emissions Buildings and Sources of Heat Energy (2018):

https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180AB3232

2020 California Gas Report: [https://www.socalgas.com/sites/default/files/2020-](https://www.socalgas.com/sites/default/files/2020-10/2020%20California%20Gas%20Report%20Joint%20Utility%20Biennial%20Comprehensive%20Filing.pdf)

[10/2020 California Gas Report Joint Utility Biennial Comprehensive Filing.pdf](https://www.socalgas.com/sites/default/files/2020-10/2020 California Gas Report Joint Utility Biennial Comprehensive Filing.pdf)

2021 Integrated Energy Policy Report (CEC-100-2020-001-V3-CMD): [https://www.energy.ca.gov/data-](https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2021-integrated-energy-policy-report)

[reports/reports/integrated-energy-policy-report/2021-integrated-energy-policy-report](https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2021-integrated-energy-policy-report)

2021-2035 California Energy Demand Updated Forecast:

<https://efiling.energy.ca.gov/GetDocument.aspx?tn=241239>

**ECC-03: ADDITIONAL ENHANCEMENTS IN REDUCING EXISTING RESIDENTIAL
BUILDING ENERGY USE
[ALL POLLUTANTS]**

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	EXISTING RESIDENTIAL POWER AND FUEL USE	
CONTROL METHODS:	REDUCED ENERGY USE BEYOND EXISTING REGULATIONS	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
POLLUTANT INVENTORY	1.81	1.76
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
ANNUAL AVERAGE [NOx]:	2018	2030
POLLUTANT INVENTORY	18.36	14.42
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
CONTROL COST:	TBD	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	VARIOUS AGENCIES	

Description of Source Category

Energy consumption in residential and commercial buildings results in direct and indirect emissions of criteria pollutants, toxics, and greenhouse gases. Direct emissions result from combustion of fuels such as natural gas, propane, and wood. Indirect emissions are a result of electricity generation with fossil fuel. Efficiency improvements within the residential sector provide emission reductions along with reducing energy costs and help alleviate the need for additional energy infrastructure. Efforts in the residential sector under this control measure include weatherization, the use of energy efficient appliances and

addition of solar thermal and solar photovoltaic systems. Co-benefit reductions from existing and future energy efficiency programs are accounted for in control measure ECC-02 (Co-benefits from Existing and Future Residential and Commercial Building Energy Efficiency Measures).

ECC-03 seeks to maximize emission reductions by implementing advanced highly efficient zero emission appliance technologies and efficiency measures when cost-effective and feasible, including weatherization along with renewable energy sources and low emission technologies, such as renewable gas, in all other applications. This measure is designed to reduce end use energy consumption and provide emission reductions within existing residences. Implementation will be coordinated with utilities and other agencies to leverage and enhance existing programs and maximize energy savings and emission reductions.

Background

Improved appliance efficiencies, declining renewable energy prices, weatherization, and other demand-side energy measures have been shown to reduce the need for new energy infrastructure. The building energy standards adopted in California's Title 24, along with Title 20 appliance efficiency standards, have routinely become more efficient. In California, the strengthening of these building energy and appliance codes has resulted in newly constructed residences and buildings being more efficient than previous construction. Within the Basin, there is extremely high potential to reduce end use residential and commercial energy usage. Over 60 percent of the residential structures in Southern California were built before 1979, when the California Title 24 building energy standard was first implemented.

There are multiple programs that provide incentives, rebates, and loans for efficiency projects on residential and commercial structures that can assist in going beyond current regulations and enhance existing programs. One such opportunity could be targeting increased energy efficiency within rental and leased properties (approximately 48 percent in the region) where tenants are often responsible for utility costs. In California and the Basin, there is significant potential to achieve large energy reductions from retrofitting existing buildings. Additionally, energy efficiency measures provide cumulative long-term benefits once implemented. Accelerating implementation of these measures provides additional benefits in reduced energy costs, energy infrastructure needs, and reductions of emissions of greenhouse gases, toxics, and criteria pollutants.

Combustion appliances within residences account for the majority of direct emissions within the residential sector. Appliances are considered durable goods and most appliances last one or two decades before needing replacement. South Coast AQMD has several regulations including Rules 1121, 1146.2, and 1111, which establish limits on NOx emissions from combustion sources such as water heaters, pool heaters, and furnaces. Other residential combustion sources include cook stoves, and fireplaces. While South Coast AQMD regulations established NOx emission thresholds, there are zero and low NOx appliances that can provide further emission reductions and energy efficiency co-benefits beyond most existing and replacement appliances. This is especially true when appliances are coupled with renewable resources such as solar photovoltaic and/or solar thermal systems. Payback periods from these actions

with small incentives can be as short as 2 to 3 years depending on the cost of the equipment, available incentives, efficiency gains, and energy prices.

Many appliances such as water heaters are now available with energy factors (EF) greater than 0.8 for natural gas pilotless storage and EF levels over 2.4 for heat pump storage systems. While these highly efficient water heaters have higher upfront costs, savings from efficiency gains often make them attractive options. These longer-term benefits from higher efficiency appliances are often not apparent to consumers who generally look at upfront purchase prices. Therefore, the voluntary incentive program will encourage the purchase of these higher efficiency appliances in the Basin. High efficiency pool heaters, furnaces, and cook stoves are also available.

Declining costs in renewable energy and solar thermal heating sources can be coupled with existing appliances and/or be implemented with new appliances along with weatherization efforts. In the residential sector, solar thermal heating can help offset heating energy needs from water heaters, pool heaters, and, in some instances, clothes dryers. Solar thermal energy sources can range from rooftop heating systems to pool covers.

Traditionally, adding solar photovoltaics was done after load reductions occurred through weatherization and appliance upgrades. However, rapidly declining costs in solar photovoltaics provides an inexpensive technology to add electrical generation that can be coupled with highly efficient appliances, such as heat pump furnaces and water heaters, which help reduce electricity costs. A household's potential for improving appliance efficiency and weatherization could be coupled with the evaluation of solar opportunities when contractors review residences for solar panel additions. Sizing of the solar panel installations could then be adjusted for efficiency gains or increased electrical loads resulting from appliance replacements. A similar approach can be taken with solar thermal hot water heaters.

The increased appliance efficiencies and emission reductions within this measure will be surplus to current South Coast AQMD regulations and existing efficiency programs. This measure will be implemented in collaboration with State agencies and local utilities to develop incentive efforts. Additionally, other technologies and market programs, such as energy storage and smart grid measures like grid connected electric water heaters are expected to become less costly and incentivized more widely by utilities. The use of appliances as grid resources will be evaluated and considered during the development and implementation phases of this measure. Other residential combustion appliances, such as fireplaces, furnaces, space heaters, and outdoor heaters will also be evaluated for energy efficiency and eligibility for potential incentives.

All regulations, actions, and incentive programs directed at residential appliances will consider both energy efficiency and emission reductions. Zero emission and high efficiency applications will be prioritized to the extent they are feasible and cost-effective at the time of implementation. Lastly, South Coast AQMD will collaborate with utilities, agencies, and other organizations to attract funding and distribute them in coordination with similar existing programs.

Regulatory History

The U.S. EPA provided guidance to acknowledge emission benefits from energy efficiency measures and renewable energy mandates. While such measures are reflected in the baseline emissions, such as reduced natural gas consumption due to the requirement of energy efficiency, not all of them may be reflected in the baseline emissions due to challenges in quantifying such reductions. In such cases, those reductions will be quantified to the extent feasible and reflected as a benefit from this control measure. Emission reductions from efficiency efforts beyond current requirements and the use of smart grid technology will primarily be achieved through ambitious incentives and outreach.

Proposed Method of Control

South Coast AQMD has worked with local utilities and contractors to implement weatherization programs within the Environmental Justice Communities of Coachella Valley, Boyle Heights, San Bernardino and San Fernando Valley areas, helping to lower the implementation barrier of weatherization and smart grid efforts within Environmental Justice Communities.

South Coast AQMD staff will work with agencies, utilities, and other stakeholders to further implement weatherization and other measures that provide energy savings focusing on emission reductions within the Basin. South Coast AQMD staff will also assist in developing new tools or improving current tools that help effectively implement efficiency measures along with quantifying energy savings, emissions benefits along with educating consumers about short payback periods and cost savings opportunities.

Implementation of smart grid technology and other energy efficiency weatherization programs for residential buildings can be incentivized through voluntary public participation. To obtain credit in the SIP with emission reductions resulting from implementation, the integrity elements must be satisfied that are described in detail in the “Incentives Implementation” section. During rule development, staff will consider technical feasibility, identify industry-specific affordability issues, cost-effectiveness and incremental cost-effectiveness, and may consider alternative compliance mechanisms.

Emission Reductions

Weatherization, high efficiency appliances, renewable energy and smart grid measures are typically long-term measures that provide cumulative benefits. Existing energy efficiency programs with impacts on emission reductions are generally incorporated into the baseline emissions inventory. Emission benefits expected from actions going beyond SB 350 and Title 24 building energy standards are not yet within the future year emissions inventory. Accelerated focused deployment, additional programs, and additional incentives within the Basin can achieve NOx and PM2.5 emission reductions beyond existing efficiency programs and regulations. The reduction in NOx and PM2.5 emissions would largely be the result of less natural gas and electricity usage, and the magnitude of these benefits will be evaluated and quantified.

Rule Compliance and Test Methods

Not applicable.

Cost Effectiveness

The cost-effectiveness of this control measure varies based on many factors including the type of appliance to be replaced, infrastructure of the existing building, and the potential change in utility cost. ECC-03 pursues to maximize emission reductions by implementing advanced highly efficient zero emission appliance technologies and efficiency measures such as enhanced weatherization when cost-effective and feasible. Electric heat pump space and water heaters are found to be the most cost-effective high efficiency appliances, along with incorporating pool heaters and covers under current market and technology conditions. Adding solar thermal or solar photovoltaic systems can reduce energy costs, making these technologies more affordable in the long-term.

On the other hand, incentives such as rebates could lower the upfront cost. Incremental cost may be partially offset by local utility companies and State agencies who have proposed incentives for heat pumps (e.g., California TECH Initiative) or panel upgrades. Income-qualified homeowners in disadvantaged communities can be qualified for a free solar panel system to offset incremental utility costs. Incentivizing the purchase of a pool cover is the most cost-effective option at the lower end of the incentive cost range while weatherizing an entire existing home or installing a solar thermal pool heating system is at the higher end of the incentive cost range. The cost for heat pumps might be lowered when the market achieves greater penetration. Technology advancement in residential appliances may also lower the cost of equipment.

Overall, cost-effectiveness for this control measure varies depending on the type of appliance to be replaced, existing infrastructure, the potential change in utility cost, and the availability of incentives from other programs. As a result, the cost-effectiveness will be determined as incentive programs and projects are developed.

Implementing Agency

South Coast AQMD has the authority to regulate emissions from stationary sources and will work with other regulatory agencies, utilities, industry groups, and stakeholders to help develop and implement incentives under this control measure.

References

California's 2030 Climate Commitment: Double Energy Savings in Existing Buildings & Develop Cleaner Heating Fuels by 2030: http://www.arb.ca.gov/html/fact_sheets/2030_energyefficiency.pdf

U.S. EPA, Roadmap for Incorporating Energy Efficiency/Renewable Energy Policies into State and Tribal Implementation Plans, July 2012. https://www.epa.gov/sites/default/files/2016-05/documents/eeermanual_0.pdf

SB350 Clean Energy and Pollution Reduction Act of 2015:
http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB350

California's Existing Buildings Energy Efficiency Action Plan: <http://www.energy.ca.gov/ab758/>

Opportunities for Energy and Economic Savings by Replacing Electric Resistance Heat with Higher Efficiency Heat Pumps, American Council for an Energy-Efficient Economy, Report #A1603, May 2016.

Gas Swimming Pool Heaters, Department of Energy: energy.gov/energysaver/gas-swimming-pool-heaters

SB100: California Renewables Portfolio Standard Program: Emissions of Greenhouse Gases (2018):
https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180SB100

AB3232: Zero-Emissions Buildings and Sources of Heat Energy
(2018):https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180AB3232

2020 California Gas Report: https://www.socalgas.com/sites/default/files/2020-10/2020_California_Gas_Report_Joint_Utility_Biennial_Comprehensive_Filing.pdf

2021 Integrated Energy Policy Report (CEC-100-2020-001-V3-CMD): <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2021-integrated-energy-policy-report>

2021-2035 California Energy Demand Updated Forecast:
<https://efiling.energy.ca.gov/GetDocument.aspx?tn=241239>

California Energy Commission, Building Energy Efficiency Standards - Title 24.
<https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards>

Energy-Solution, California TECH Initiative. <https://energy-solution.com/tech/>

Navigant Consulting, Inc., Impacts of Residential Electrification, August 2018.
<https://efiling.energy.ca.gov/GetDocument.aspx?tn=224761>

Energy and Environmental Economics, Inc., Residential Building Electrification in California, April 2019.
https://www.ethree.com/wp-content/uploads/2019/04/E3_Residential_Building_Electrification_in_California_April_2019.pdf

GRID Alternatives, Disadvantaged Communities - Single-family Solar Homes (DAC-SASH) Program.
<https://www.gridsolar.org/sceresidentialpage/>

BCM-08: EMISSION REDUCTIONS FROM LIVESTOCK WASTE AT CONFINED ANIMAL FACILITIES

[NH3]

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	LIVESTOCK WASTE AT LARGE CONFINED ANIMAL FACILITIES	
CONTROL METHODS:	MANURE MANAGEMENT STRATEGIES	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [NH3]:	2018	2030
POLLUTANT INVENTORY	8.17	6.13
POLLUTANT REDUCTION	-	0.27
POLLUTANT REMAINING	-	5.86
CONTROL COST:	DCF METHOD: \$21,000/ton	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD/LOCAL OR REGIONAL AGENCIES	

Description of Source Category

The purpose of this control measure is to reduce ammonia emissions from livestock waste at large Confined Animal Facilities (CAFs). The first component seeks to lower the applicability thresholds in South Coast AQMD Rule 223 – Emission Reduction Permits for Large Confined Animal Facilities to align with the more stringent thresholds in San Joaquin Valley Air Pollution Control District (SJVAPCD) Rule 4570 – Confined Animal Facilities. This is the portion of the control measure that has been identified to satisfy Most Stringent Measures (MSM) requirements. Independent of MSM, this control measure also seeks to explore the feasibility of introducing more stringent manure management requirements to reduce ammonia emissions at CAFs.

Background

In 2018, there were approximately 126,000 dairy cattle, 1.6 million layer poultry, and 1,000 swine in the South Coast Air Basin (Basin). Although California is the largest dairy-producing state,¹² the livestock

¹² CARB 2022 Scoping Plan for Achieving Carbon Neutrality. https://ww2.arb.ca.gov/sites/default/files/2022-12/2022-sp_1.pdf

industry in the Basin is not growing. Livestock waste emits significant amounts of ammonia that contribute to PM_{2.5} via atmospheric reactions with NO_x to form ammonium nitrate. Emission reductions from the dairy and livestock sector have mainly been driven by the growing adoption of manure management strategies and a decreasing animal population.

Given the larger presence of dairies and CAFs in the San Joaquin Valley, South Coast AQMD consulted U.S. EPA's recent actions on SJVAPCD's PM_{2.5} SIP to develop control strategies that apply to this source category. U.S. EPA published a proposed rule on December 29, 2021 to approve SJVAPCD's 2018 Serious Area Plan for the 2012 annual PM_{2.5} NAAQS.¹³ However, based on adverse public comments, U.S. EPA reversed course and proposed disapproval of several plan requirements on October 5, 2022.¹⁴ A central issue in U.S. EPA's proposed disapproval relates to SJVAPCD's BACM analysis for Rule 4570. U.S. EPA referenced several research studies and guidance documents for ammonia reductions from CAFs that were not consulted as part of the process to develop potential control measures. Based on these references, South Coast AQMD's BACM/MSM analysis identified two measures with the potential to further reduce emissions from CAFs in the South Coast Air Basin: incorporation of solid cattle manure within 24 hours and acidifying amendments for poultry litter.

South Coast AQMD's BACM analysis also determined that SJVAPCD Rule 4570 has more stringent applicability thresholds than South Coast AQMD Rule 223 (1,000 milk cows in South Coast AQMD vs. 500 milk cows in SJVAPCD, and 650,000 birds in South Coast AQMD vs. 400,000 birds in SJVAPCD). This control measure therefore seeks to lower CAF applicability thresholds in Rule 223 to match those in SJVAPCD Rule 4570.

Regulatory History

Rule 1127 – Emission Reductions from Livestock Waste was adopted in August 2004 to address best management practices specifically for dairies, with requirements regarding manure removal, handling, and composting. Rule 1127 applies to dairy farms and related operations such as heifer and calf farms and the manure produced on them. It also applies to manure processing operations, such as composting operations and anaerobic digesters.

California Senate Bill 700 – Agriculture & Air Quality Summary and Implementation (SB 700), enacted into law on January 1, 2004, eliminated the exemption from the permit system of local air pollution control districts for agricultural operations in the farming of crops or raising of fowl or animals. The bill amended air pollution control requirements in the California Health & Safety Code to include requirements for agricultural sources of air pollution. SB 700 required California Air Resources Board (CARB) to develop a definition for the source category of large CAFs by July 1, 2005, to be used by the local air pollution control and air quality management districts to mitigate emissions from large CAFs.

¹³ 86 FR 74310

¹⁴ 87 FR 60494

Rule 223 – Emission Reduction Permits for Large Confined Animal Facilities was adopted in August 2006 to satisfy SB 700 and California Health & Safety Code requirements for nonattainment areas. Rule 223 requires a permit to operate for all large CAFs, defined as facilities with (1): 1,000 or more milking cows; or 3,500 or more beef cattle; or 7,500 or more calves, heifers, or other cattle; or (2): 650,000 or more laying hens; or (3): 3,000 or more swine. Pertaining to manure management, the dairy provisions in Rule 223 require that owners/operators implement at least six of 12 corral measures, two of seven solid manure or separated solids handling measures, one of eight liquid manure handling measures, and two of four land application measures. Poultry large CAF operators must implement at least one of seven solid manure or separated solids handling measures, and one of eight liquid manure handling measures.

In addition to ammonia, California's dairy and livestock industries account for roughly half of the State's total methane emissions from two primary sources, manure management and enteric fermentation. In 2016, the Legislature passed SB 1383 (Lara, Chapter 395, Statutes of 2016), which sets a 2030 methane emissions reductions goal of 40 percent below 2013 levels by 2030 for the dairy and livestock sector. To reach this target, CARB implemented a Short-Lived Climate Pollutant Reduction Strategy that could result in co-benefits of ammonia reductions. In 2022, CARB released an analysis on the progress the sector has made in achieving the 2030 target, as required by SB 1383.¹⁵ This analysis shows that the dairy and livestock sector is projected to achieve just over half of the annual methane emission reductions necessary to achieve the 2030 target through modifications to manure management systems, primarily using anaerobic digesters, and additional reductions through decreases in animal populations.

Proposed Method of Control

South Coast AQMD's BACM analysis identified three measures with the potential to reduce ammonia emissions from large CAFs beyond Rule 223: lowering Rule 223 applicability thresholds, incorporation of solid manure within 24 hours, and acidifying amendments for poultry litter.

To align with the more stringent thresholds in SJVAPCD Rule 4570, South Coast AQMD proposes to lower the Rule 223 applicability thresholds from 1,000 to 500 milk cows and from 650,000 to 400,000 birds. As the lower applicability thresholds are required in SJVAPCD, staff determined that they can feasibly be implemented in the Basin and, accordingly, identified this requirement as being needed satisfy MSM.

There are other proposed controls that will be further evaluated during rulemaking. Rule 1127 currently requires the disposal of dairy manure to either a manure processing operation (e.g., anaerobic digestion or composting facilities) or to agricultural lands approved for the spreading of manure. Soil incorporation of the manure on agricultural lands reduces NH₃ emissions by decreasing the exposed surface area of manure. For CAFs requiring a permit, Rule 223 includes land incorporation of all manure within 72 hours of removal as a Class One Mitigation Measure. It is technologically feasible to reduce the window from 72 hours to 24 hours while allowing exceptions (e.g., for extreme weather). Low-disturbance incorporation

¹⁵ CARB Analysis of Progress toward Achieving the 2030 Dairy and Livestock Sector Methane Emissions Target, March 2022. <https://ww2.arb.ca.gov/sites/default/files/2022-03/final-dairy-livestock-SB1383-analysis.pdf>

such as vertical tillage reduces ammonia emissions by 34 percent when manure is incorporated within 72 hours and by 50 percent when manure is incorporated within 24 hours. High-disturbance land incorporation, which requires chisel plowing followed by secondary tillage with a disk harrow or field cultivator, reduces ammonia emissions by 50 percent when manure is incorporated within 72 hours and by 75 percent when manure is incorporated within 24 hours. All ammonia control efficiencies for soil incorporation are estimated based on information from the Chesapeake Bay Program Watershed Model report.¹⁶ Based on this report, high-disturbance tillage is expected to achieve the greatest reductions.

Ammonia is a weak base and reducing the pH of litter binds ammonia and reduces its volatilization. Aluminum sulfate, also known as alum, is a common compound used to treat poultry litter to reduce ammonia emissions and bind phosphorous to prevent runoff. The typical recommended application rate for aluminum sulfate is within the range of 0.1 to 0.2 lb of aluminum sulfate per broiler placed.¹⁷ The lower bound of the aluminum sulfate application rate decreases the ammonia control efficiency by about 50% compared to application of 0.2 lb of aluminum sulfate per broiler placed.^{18, 19} Larger birds will require correspondingly larger application rates to achieve the same control of ammonia.²⁰

Emission Reductions

As shown in Table BCM-08-A, the total inventory for this source category is 6.13 tpd of NH₃ in 2030, yet dairy cattle are responsible for over 80 percent of those emissions. Lowering Rule 223 applicability thresholds results in an estimated 5 percent NH₃ emission reduction. Thus, the estimated reduction from lowering the thresholds in Rule 223 for dairy cattle and poultry layers is 0.27 tpd. Emission reductions for other proposed control measures including more stringent manure management practices will be estimated during the rulemaking process.

¹⁶ Chesapeake Bay Phase 6.0 Manure Incorporation and Injection Expert Review Panel: Dell, C., Allen, A., Dostie, D., Meinen, R., Maguire, R (December 2016) Manure Incorporation and Injection Practices for Use in Phase 6.0 of the Chesapeake Bay Program Watershed Model. Prepared for Chesapeake Bay Program, Annapolis, MD 21403. CBP/TRS-309-16. EPA Contract No. EP-C-12-055.

https://d18lev1ok5leia.cloudfront.net/chesapeakebay/documents/Phase_6_FINAL_MII_Final_Report.pdf

¹⁷ See Moore, P. Treating Poultry Litter with Aluminum Sulfate. USDA ARS. Developed by Livestock GRACEnet.

<https://www.ars.usda.gov/ARSUserFiles/np212/LivestockGRACEnet/AlumPoultryLitter.pdf>

¹⁸ Moore, P., Watkins, S. Treating Poultry Litter with Alum. University of Arkansas (U of A) Division of Agriculture Cooperative Extension Service. <https://www.uaex.uada.edu/publications/PDF/FSA-8003.pdf>

¹⁹ Moore, P., Miles, D., Burns, R. (March 2019). Reducing Ammonia Emissions from Poultry Litter with Alum. Livestock and Poultry Environmental Learning Community (LPELC). <https://lpelec.org/reducing-ammonia-emissions-from-poultry-litter-with-alum/>

²⁰ Anderson, K.; Moore, P.A., Jr.; Martin, J.; Ashworth, A.J. (2020) Effect of a New Manure Amendment on Ammonia Emissions from Poultry Litter. *Atmosphere*, 11, 257. <https://doi.org/10.3390/atmos11030257>

TABLE BCM-08-A
2030 BASELINE EMISSIONS FROM LIVESTOCK WASTE

Facility type	NH3 Emissions (tpd)
Dairy Cattle	5.08
Range Cattle	0.13
Poultry - Layers	0.28
Swine	0.02
Sheep	0.08
Horses	0.51
Goats and Others	0.05
Total	6.13

Rule Compliance and Test Methods

Compliance with Rule 223 requirements is determined through South Coast AQMD's permitting program.

Cost Effectiveness

Staff identified approximately 36 dairy farms and no poultry farms that would be impacted by lowering the applicability thresholds for large CAFs under Rule 223 from 1,000 to 500 milk cows and 600,000 to 400,000 birds, respectively.. Rule 223 requires the affected dairy farms to submit and implement an emission mitigation plan based on different classes of mitigation measures to minimize ammonia emissions. Costs will vary per facility depending on the measures implemented from the mitigation menu. For this control measure, cost effectiveness was determined using the anticipated incremental costs that would be incurred by the 36 impacted dairy farms for the additional cost of disposing manure through composting compared to disposing manure by land application, and the cost of more frequent corral cleaning (4 instead of 2 times per year per farm). Costs are based on data from the 2016 AQMP control measure BCM-04: Emission Reductions from Manure Management Strategies and inflated to 2022 dollars. Staff is not aware of additional costs beyond those estimated in 2016 AQMP control measure BCM-04: Emission Reductions from Manure Management Strategies. Therefore, the 2022 cost-effectiveness was adjusted from the 2016 cost-effectiveness using the ratio of Marshall & Swift Indices for both years, which is calculated to be 1.4. Cost-effectiveness is estimated at \$21,000 per ton of NH3 reduced. Cost-effectiveness for this control measure will be refined further during rulemaking.

Implementing Agency

South Coast AQMD has the authority to regulate emissions from these stationary and area sources.

References

CARB 2022 Scoping Plan for Achieving Carbon Neutrality.

https://ww2.arb.ca.gov/sites/default/files/2022-12/2022-sp_1.pdf

Clean Air Plans; 2012 Fine Particulate Matter Serious Nonattainment Area Requirements; San Joaquin Valley, California. 40 CFR 52, Federal Register, Volume 86, No. 247, pg. 74310. December 29, 2021.

<https://www.govinfo.gov/content/pkg/FR-2021-12-29/pdf/2021-27796.pdf>

Clean Air Plans; 2012 Fine Particulate Matter Serious Nonattainment Area Requirements; San Joaquin Valley, California. 40 CFR Part 52, Federal Register, Volume 87, No. 192, pg. 60494. October 5th, 2022.

<https://www.govinfo.gov/content/pkg/FR-2022-10-05/pdf/2022-21492.pdf>

CARB Analysis of Progress toward Achieving the 2030 Dairy and Livestock Sector Methane Emissions Target, March 2022. <https://ww2.arb.ca.gov/sites/default/files/2022-03/final-dairy-livestock-SB1383-analysis.pdf>

Chesapeake Bay Phase 6.0 Manure Incorporation and Injection Expert Review Panel: Dell, C., Allen, A., Dostie, D., Meinen, R., Maguire, R (December 2016) Manure Incorporation and Injection Practices for Use in Phase 6.0 of the Chesapeake Bay Program Watershed Model. Prepared for Chesapeake Bay Program, Annapolis, MD 21403. CBP/TRS-309-16. EPA Contract No. EP-C-12-055.

https://d18lev1ok5leia.cloudfront.net/chesapeakebay/documents/Phase_6_FINAL_MII_Final_Report.pdf

See Moore, P. Treating Poultry Litter with Aluminum Sulfate. USDA ARS. Developed by Livestock GRACEnet. <https://www.ars.usda.gov/ARSUserFiles/np212/LivestockGRACEnet/AlumPoultryLitter.pdf>

Moore, P., Watkins, S. Treating Poultry Litter with Alum. University of Arkansas (U of A) Division of Agriculture Cooperative Extension Service. <https://www.uaex.uada.edu/publications/PDF/FSA-8003.pdf>

Moore, P., Miles, D., Burns, R. (March 2019). Reducing Ammonia Emissions from Poultry Litter with Alum. Livestock and Poultry Environmental Learning Community (LPELC). <https://lpehc.org/reducing-ammonia-emissions-from-poultry-litter-with-alum/>

Anderson, K.; Moore, P.A., Jr.; Martin, J.; Ashworth, A.J. (2020) Effect of a New Manure Amendment on Ammonia Emissions from Poultry Litter. *Atmosphere*, 11, 257. <https://doi.org/10.3390/atmos11030257>

Ammonia: Supplemental Information for EPA in Support of 15 µg/m³ Annual PM_{2.5} Standard, CARB. March 2023.

BCM-09: AMMONIA EMISSION REDUCTIONS FROM NOX CONTROLS
[NH3]

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	NH3	
CONTROL METHODS:	IMPROVED SCR SYSTEMS	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [NH3]:	2018	2030
POLLUTANT INVENTORY	12.37	12.42
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
CONTROL COST:	TBD	
INCENTIVE COST:	N/A	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD	

Description of Source Category

Background

This control measure seeks to reduce ammonia from NOx controls such as Selective Catalytic Reduction (SCR) and Selective Non-Catalytic Reduction (SNCR). These systems can reduce Nitrogen Oxide (NOx) emissions from combustion sources very effectively. However, the use of systems also results in potential emissions of ammonia that “slip” past the control equipment and into the atmosphere. Ammonia (NH3) is a precursor gas for secondary PM formation, and so minimizing ammonia slip is essential for optimizing emission reductions from these controls.

Regulatory History

There were several rules that regulate equipment that have SCR systems. These rules include:

- 1- **Rule 1134 – Emissions of Oxides of Nitrogen from Stationary Gas Turbines** (last amended February 4, 2022). This Rule applies to turbines with generating capacity greater than 0.3 MW except those located electric generating facilities, landfills, petroleum refineries, and publicly owned treatment works or fueled with landfill gas. There are 37 facilities with 72 turbines that are subject to Rule 1134.

- 2- **Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities** (last amended January 7, 2022). This Rule regulates Boilers, internal combustion engines, and turbines located at investor-owned electric utilities, publicly owned electric utilities, and facilities with combined generation capacity of ≥ 50 MW. Rule 1135 applies to 133 combustion units at 32 facilities.
- 3- **Rule 1146 – Emission of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters** (last amended December 4, 2020). This Rule applies to boilers, steam generators, and process heaters of equal to or greater than 5 million Btu per hour rated heat input capacity used in all industrial, institutional, and commercial operations.
- 4- **Rule 1147 – NO_x Reductions from Miscellaneous Sources** (last amended May 6, 2022). Rule 1147 applies to manufacturers, distributors, retailers, installers, owners, and operators of combustion equipment with NO_x emissions that require a South Coast AQMD permit, and when other South Coast AQMD Regulation XI rules are not applicable to the Unit. Equipment that falls under specialized exemption language of an applicable South Coast AQMD Regulation XI rules is not being regulated under Rule 1147. This rule affects approximately 5,300 units located at approximately 3,000 facilities.
- 5- **Rule 1109.1 – Emission of Oxides of Nitrogen from Petroleum Refineries and Related Operations** (adopted November 5, 2021). This Rule establishes NO_x and CO concentration limits for combustion equipment at petroleum refineries and facilities with operations related to petroleum refineries. Rule 1109.1 regulated five major petroleum refineries, three small refineries, and four facilities with related operations with nearly 300 pieces of combustion equipment distributed among all facilities.

For all Rules, there is no ammonia emission limit as that is regulated under Regulation XIII and the limit is set on a case-by-case basis. Under Regulation XIII, the ammonia emissions must meet current Best Available Control Technology (BACT) limit of 5 ppm.

Proposed Method of Control

Post-combustion equipment for emission control technology systems includes SCRs. This technology reduces emissions of NO_x. This method to reduce NO_x emissions converts the NO_x to Nitrogen and water by the reaction of NO_x and NH₃. The reaction between these two compounds is not perfect and there is an excess of un-reacted NH₃ that goes into the atmosphere. This excess ammonia is known as ammonia slip. The units will be upgrading their SCR systems by tuning/optimizing to achieve the NO_x limits specified in each rule and as a result, the ammonia slip from the upgraded SCR systems will be reduced with improved Ammonia Injection Grid (AIG) from the new /retrofitted systems. The upgraded and improved AIG improves the contact with the flue gas thus resulting in lower excess ammonia slip.

Emission Reductions

To be determined.

Rule Compliance and Test Methods

The rule compliance and their respective compliance schedules for NO_x emissions along test methods are specified in each rule. Ammonia emissions are tested by source test method 207.1 – Determination of Ammonia Emissions from Stationary Sources.

Cost Effectiveness

The cost-effectiveness for each rule is based on NO_x control utilizing SCR technology to achieve the proposed NO_x limits.

Implementing Agency

South Coast AQMD

References

South Coast AQMD 2016 AQMP; [final2016aqmp.pdf \(aqmd.gov\)](#)

South Coast AQMD 2022 AQMP Appendix VI; [appendix-vi.pdf \(aqmd.gov\)](#)

South Coast AQMD Rule 1134; [Rule 1134](#)

South Coast AQMD Rule 1134, Staff Report; [Staff Report](#)

South Coast AQMD Rule 1135; [Rule 1135](#)

South Coast AQMD Rule 1135, Staff Report; [Staff Report](#)

South Coast AQMD Rule 1146; [Rule 1146](#)

South Coast AQMD Rule 1146, Staff Report; [Staff Report](#)

South Coast AQMD Rule 1147; [Rule 1147](#)

South Coast AQMD Rule 1147, Staff Report; [Staff Report](#)

South Coast AQMD Rule 1109.1; [Rule 1109.1](#)

South Coast AQMD Rule 1109.1 Staff Report; [Staff Report](#)

**BCM-10: EMISSION REDUCTIONS FROM DIRECT LAND APPLICATION OF CHIPPED AND
GROUND UNCOMPOSTED GREENWASTE
[NH3]**

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	GREENWASTE COMPOSTING EMISSION REDUCTIONS	
CONTROL METHODS:	COMPOSTING OF CHIPPED AND GROUND GREENWASTE	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [NH3]:	2018	2030
POLLUTANT INVENTORY	0.67	0.67
POLLUTANT REDUCTION	-	0.08
POLLUTANT REMAINING	-	0.59
CONTROL COST:	DCF METHOD: \$91,200/TON	
INCENTIVE COST:	N/A	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD	

Description of Source Category

This proposed control measure would seek reductions in ammonia (NH3) emissions from direct land application (DLA) of chipped and ground uncomposted greenwaste to agricultural land, to public land for erosion control or roadway management, and to consumers' properties for gardening or landscaping purposes (e.g., mulching). The control approach involves minimum composting requirements for chipped and ground greenwaste prior to DLA.

Background

Based on data reported to California's Department of Resources Recycling and Recovery (CalRecycle), California's 39.3 million residents and 1.7 million businesses generated an estimated 76.7 million tons of municipal solid waste in 2021, of which 36.9 million tons were recycled. The remaining 39.8 million tons were disposed. Disposed material contained approximately 28 percent (11.3 million tons) compostable organic materials, including 11 percent food, 6 percent landscape waste, and 16 percent wood waste. Recent legislation passed in California has aimed to reduce landfill disposal of organic materials. For example, Senate Bill (SB) 1383 (Short-Lived Climate Pollutants; Lara, Chapter 395, Statutes of 2016) targets a 50 percent reduction of statewide organic waste disposal from 2014 levels by 2020, and a 75 percent

reduction by 2025. SB 1383 also establishes an additional target that at least 20 percent of currently disposed edible food is recovered for human consumption by 2025. SB 1383 organic waste mandates are implemented by local jurisdictions with oversight from CalRecycle. CalRecycle conducted a formal rulemaking process through collaboration with other stakeholders that resulted in regulations for organic waste management programs. Under SB 1383 regulations, organic waste includes a broad range of waste categories such as food, green material, landscape and pruning waste, organic textiles and carpets, lumber, wood, paper products, printing and writing paper, manure, biosolids, digestate, and sludges that will be diverted from landfills and taken to the appropriate organic waste recovery facilities. Under SB 1383 regulations, all residents and businesses in California have been required to separate food and other organic materials from the rest of their garbage since January 1, 2022. Local governments are required to take enforcement against noncompliance starting January 1, 2024.

DLA and composting are the two primary alternatives to disposal of greenwaste in landfills. Farmers who have fallow land lacking in organic matter may find DLA of uncomposted greenwaste, which includes surface placement and incorporation of greenwaste into soil, to be beneficial because this method offers gradual release of organic matter and shields the exposed soil from the damaging effects of sunlight, wind, and rain. Additionally, it serves as a solution for areas where composting facilities are not sufficient to handle municipally collected greenwaste. DLA is also economically advantageous for landowners, as it is significantly cheaper than purchasing finished compost, and often requires only the expenses for delivery and spreading. Such applications may produce greenhouse gases (GHGs) and other air pollutants such as VOCs and NH₃ and have the potential to spread pathogens. With the implementation of SB 1383, DLA of greenwaste may become an increasingly common practice in California. There are limited studies, however, on the air quality impact of chipped and ground uncomposted greenwaste. According to Burger et al., uncomposted greenwaste incorporated into soil released lower GHG and VOC emissions than surface application of the greenwaste. The study also found that the VOC emissions contained greater amounts of monoterpenes, which are potent organic aerosol precursors, compared to composted greenwaste.

Organic mulch, which is a plant by-product such as bark, wood chips, or a recycled material such as chipped construction waste, is often applied as loose material to slopes and flat areas. Mulching is common following roadside plantings or highway improvement projects. Several types of organic mulch can be used including tree bark, wood chips, tree trimmings, etc. (see Caltrans' 2018 Standard Specification section 20-5.04 Wood Mulch). In general, these types of wood mulch should contain minimal leaves and must be cleaned and decontaminated from pathogens or pests prior to DLA. Wood mulch is high in carbon and low in nitrogen (carbon to nitrogen ratio = 600:1). Furthermore, it decays slowly and takes much longer to decompose compared to well-balanced greenwaste. For these reasons, emissions of NH₃ from uncomposted wood mulch are anticipated to be low.

Regulatory History

South Coast AQMD Rule 1133 – Composting and Related Operations – General Administrative Requirements, established administrative requirements for greenwaste disposal facilities such as

composting facilities, chipping and grinding facilities, and material recovery facilities (MRF). The facilities are required to register with South Coast AQMD and submit annual updates of their material handling and processing activities, including throughput of incoming materials (e.g., food, green, wood), type of operations (e.g., chipping and grinding, composting, aerated static piles), and tonnage of products as a result of operations.

South Coast AQMD Rule 1133.1 – Chipping and Grinding Activities, establishes requirements for holding green materials received on-site before and after chipping and grinding.

South Coast AQMD Rule 1133.3 – Greenwaste Composting Operations, establishes requirements of composting greenwaste and/or greenwaste with foodwaste. To control VOC and NH₃ emissions from composting operations, either best management practices (BMPs) or an add-on control is required based upon facility-wide annual throughput of foodwaste received. For a facility receiving up to 5,000 tons per year of foodwaste, the required BMPs are covering each composting pile with a layer of at least 6 inches of finished compost or compost overs for the first 15 days of the active phase of composting and watering the pile as needed. These BMPs have a control efficiency of 40 percent for VOCs and 20 percent for NH₃. Add-on controls, such as aerated static piles and in-vessel composting, are required for facilities processing greater than 5,000 tons of foodwaste per year and those that process active composting piles containing greater than 10 percent foodwaste. The required control efficiency of an add-on control device is 80 percent for VOCs and NH₃.

California Code of Regulations, Title 14, Section 17868.3 requires a pathogen reduction period of 15 days for a windrow composting process. The pathogen reduction period aligns with the active phase BMP requirements in Rule 1133.3. For aerated static piles or in-vessel composting, which are subject to the 80 percent VOCs and NH₃ add-on control efficiency requirement under Rule 1133.3, a minimum of three days is required to reduce pathogens.

Proposed Method of Control

Chipped and ground greenwaste used as ground cover may have increased emissions of GHGs, NH₃, and VOCs and contain pathogens if it does not first undergo composting. Therefore, this measure proposes to require composting of chipped and ground greenwaste, in accordance with the BMP requirements of Rule 1133.3, prior to DLA.

Based on Card and Schmidt's analysis, cumulative NH₃ emissions during the active phase of composting account for over 70 percent of total composting NH₃ emissions. Further analysis showed that up to 85 percent of NH₃ emissions occur in the first 15 days out of the 22-day active phase composting period. Rule 1133.3 already has requirements to control emissions during this period. Therefore, emission reductions can be achieved by having chipped and ground greenwaste undergo at least 15 days of active phase composting prior to DLA.

Emission Reductions

Twenty-three greenwaste processing facilities in the South Coast Air Basin are potentially subject to this control measure. Among the 23 facilities, five facilities are greenwaste composting facilities that produce finished compost on-site and the remaining 18 facilities are greenwaste chipping and grinding facilities that do not produce finished compost on-site.

The 2030 baseline inventory is 0.67 tpd of NH₃ for chipped and ground greenwaste that may be used for direct land application. About 70 percent of the emissions are associated with active-phase composting, while the remaining 30 percent are from the curing phase. The estimated emission reductions are 0.08 tpd of NH₃ based on 20 percent control efficiency during the first 15 days of active phase composting of chipped and ground greenwaste produced at chipping and grinding and/or composting facilities.

Several assumptions were made in the quantification of emission reductions including the uncontrolled NH₃ emission factor, 20 percent NH₃ emission control efficiency, the chipping and grinding activity data, and the percentage of NH₃ emissions during the first 15 days of active phase composting. NH₃ emission reductions were quantified using the same assumptions used in the 2016 AQMP, except that chipping and grinding activity data has been updated. The activity data is the tonnage of annual throughput that these facilities reported to the South Coast AQMD for the year 2018, which is required by the Rule 1133 Registration/Annual Update requirements. If the 2018 throughput data was not readily available for the facility, the most recent throughput available between 2014 and 2019 was used as a substitute.

Staff previously estimated NH₃ emissions from greenwaste composting stockpiles at an emission rate of 0.017 lbs/wet ton-day. However, emission rates from surface-applied chipped and ground, fresh greenwaste have not been investigated and thus warrant further research to refine the emissions inventory and estimated reductions.

Rule Compliance and Test Methods

A South Coast AQMD regulation or other enforceable instrument will be considered to ensure emission reductions. The most effective regulatory tool will be selected. Implementation of this control measure would not conflict with efforts under SB 1383. South Coast AQMD staff will work with CalRecycle, CARB, and Caltrans to develop appropriate test methods to quantify emissions.

Cost Effectiveness

Cost-effectiveness for this control measure is estimated based on the analysis of cost-effectiveness of 2016 AQMP control measure BCM-10. The 2016 AQMP estimated compliance costs by assuming that 18 chipping and grinding facilities would need to purchase cover material (either finished compost or compost overs) from local composting facilities. To reduce the cover material purchasing cost, which could be high depending on the size of mulch throughput, it is assumed that facilities would purchase it only for

the first year and then would produce finished compost on-site in the following years. Therefore, material cost is considered as a one-time cost, annualized over 15 years of a facility's lifetime. In addition to the cover material cost, watering, covering, and recordkeeping costs are also included in the compliance costs calculation. Five composting facilities would also need to perform mulch composting to achieve pathogen reduction for the first 15 days using the proposed BMPs. However, since the cover material is readily available on-site, the purchasing of cover material is not needed. Moreover, recordkeeping costs were not considered as the composting facilities are already subject to the recordkeeping requirements in Rule 1133.3.

Staff is not aware of additional costs beyond those estimated in the 2016 AQMP. Therefore, the 2022 cost-effectiveness was adjusted from the 2016 cost-effectiveness using the ratio of Marshall & Swift Indices for both years, which is calculated to be 1.4. Cost-effectiveness is estimated at \$91,200 per ton of NH₃ reduced. Cost-effectiveness for this control measure will be refined further during rulemaking.

Implementing Agency

South Coast AQMD has the authority to regulate emissions from stationary sources.

References

CalRecycle, 2021 Disposal Facility-based Waste Characterization Data Tables, November 2022

An Overview of SB 1383's Organic Waste Reduction Requirements.

<https://www2.calrecycle.ca.gov/Docs/Web/115800>

CalRecycle, Third Assessment of California's Compost- and Mulch-Processing Infrastructure – Management Practices and Market Conditions, August 2010

California Department of Transportation, Roadway Management Toolbox: Organic Mulch.
<https://dot.ca.gov/programs/design/lap-roadside-management-toolbox/tool4r-lap-organic-mulch>.

Accessed on June 6, 2023

California Department of Transportation, Standard Specifications, 2018

Burger, M., X. Zhu and P.G. Green, 2015. Research to Evaluate Environmental Impacts of Direct Land Application of Uncomposted Green and Woody Wastes on Air and Water Quality, Contractor's Report to CalRecycle, March 30, 2015

Card, T.R. and C.E. Schmidt, 2006. Air emissions source test: Jepson Prairie Organics Compost Facility, Vacaville, CA. Report to NorCal Waste Systems, Inc.

Card, T.R. and C.E. Schmidt, 2009. Northern Recycling Zamora Compost Facility Air Emissions Source Test. Report to Yolo Solano AQMD

BCM-11: EMISSION REDUCTIONS FROM ORGANIC WASTE COMPOSTING**[NH3]**

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	ORGANIC WASTE COMPOSTING	
CONTROL METHODS:	FOODWASTE CO-DIGESTION, INTEGRATION OF ANAEROBIC DIGESTION WITH COMPOSTING	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [NH3]:	2018	2030
POLLUTANT INVENTORY	0.63	0.96
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
CONTROL COST:	TBD	
INCENTIVE COST:	N/A	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD	

Description of Source Category

This proposed control measure would seek emission reductions of NH3 from the processing of organic waste materials including foodwaste, greenwaste, and agricultural waste. Control approaches include foodwaste co-digestion and integration of anaerobic digestion (AD) with composting.

Background

AD is a process through which bacteria decompose organic material such as animal manure, wastewater biosolids, and foodwaste in the absence of oxygen to produce biogas. AD occurs in a sealed vessel known as a reactor, which is designed and constructed in a variety of shapes and sizes based on the site and feedstock conditions. Multiple organic materials can be combined in one digester. Co-digested materials include manure, foodwaste (pre- and post-consumer), crop residues, and fats, oils and grease (FOG) from restaurant grease traps, and many other sources. Co-digestion can increase biogas production from low-yielding (e.g., biosolids, manure) or difficult-to-digest (e.g., yard waste) organic waste. These reactors contain complex microbial communities that digest the waste and produce resultant biogas and other useful co-products (i.e., solid and liquid portions of the digestate). Biogas is composed of methane, which is the primary component of natural gas, at a relatively high percentage (50 to 75 percent), carbon dioxide (CO₂), hydrogen sulfide, water vapor, and trace amounts of other gases. Biogas can be purified by

removing the low-value constituents to generate renewable natural gas which can be sold and injected into the natural gas distribution system, compressed and used as vehicle fuel, or processed further to generate alternative transportation fuel, energy products, or other advanced biochemicals and bioproducts. Digestate is the residual material left after the digestion process and is composed of liquid and solid portions. Both portions are separated and handled independently, and can be used in many beneficial applications, such as animal bedding (solids), nutrient-rich fertilizer (liquids and solids), a foundation material for bioproducts, organic-rich compost (solids), or as soil amendments (solids).²¹

Based on data reported to California's Department of Resources Recycling and Recovery (CalRecycle), California's 39.3 million residents and 1.7 million businesses generated an estimated 76.7 million tons of municipal solid waste in 2021, of which 36.9 million tons were recycled. The remaining 39.8 million tons were disposed. Disposed material contained approximately 28 percent (11.3 million tons) compostable organic materials, including 11 percent foodwaste, 6 percent landscape waste, and 16 percent wood waste. Foodwaste can be composted or utilized to generate renewable energy; landscape waste including grass clippings and tree trimmings can be composted; and wood waste such as lumber can be transformed into mulch, used in a biofilter, or burned in a biomass plant to generate renewable energy.²²

Recent legislation passed in California has aimed to reduce landfill disposal of organic materials. For example, Senate Bill (SB) 1383 (Short-Lived Climate Pollutants; Lara, Chapter 395, Statutes of 2016) targets a 50 percent reduction of statewide organic waste disposal from 2014 levels by 2020, and a 75 percent reduction by 2025. SB 1383 also establishes an additional target that at least 20 percent of currently disposed edible food is recovered for human consumption by 2025. SB 1383 organic waste mandates are implemented by local jurisdictions with oversight from CalRecycle. CalRecycle conducted a formal rulemaking process through collaboration with other stakeholders that resulted in regulations for organic waste management programs. Under SB 1383 regulations, organic waste includes a broad range of waste categories such as food, green material, landscape and pruning waste, organic textiles and carpets, lumber, wood, paper products, printing and writing paper, manure, biosolids, digestate, and sludges that will be diverted from landfills and taken to the appropriate organic waste recovery facilities. All residents and businesses in California have been required to separate food and other organic materials from their garbage since January 1, 2022. Local governments are required to take enforcement against noncompliance starting January 1, 2024.

Foodwaste has a high moisture content and decomposes quickly, resulting in greenhouse gases, VOC and NH₃ emissions in landfills. Foodwaste is second only to manure for NH₃ emissions in the organic waste composting category.^{23,24} The potential use of foodwaste as an energy source has long been studied

²¹ <https://www.epa.gov/agstar/how-does-anaerobic-digestion-work>

²² <https://calrecycle.ca.gov/climate/organics/>

²³ Nordahl, S.L., C.V. Preble, T.W. Kirchstetter, and C.D. Scown, 2023. Greenhouse gas and air pollutant emissions from composting. *Environ. Sci. Technol.* 57, 2235–2247

²⁴ Prado, G., R. Moral, E. Aguilera, 2015. A.D. Prado, Gaseous emissions from management of solid waste: a systematic review, *Global Change Biology*, 21, 1313–1327

because foodwaste has three times the methane (CH₄) production potential of biosolids,²⁵ and anaerobic co-digestion of foodwaste and sewage sludge can boost biogas generation.^{26,27}

According to CalRecycle's Draft Environmental Impact Report, 46 new or expanded compost facilities and 24 new or expanded anaerobic digester facilities would be required in the South Coast Air Basin by 2030 to process the diverted waste.²⁸ While overall Short-Lived Climate Pollutant emissions are expected to decline, emissions from processing of organic waste via composting and anaerobic digestion are expected to grow.

Regulatory History

South Coast AQMD Rule 1133 – Composting and Related Operations-General Administrative Requirements, established administrative requirements for green waste disposal facilities such as composting facilities, chipping and grinding facilities, and material recovery facilities (MRF). The facilities are mainly required to register with the South Coast AQMD and submit annual updates with their material processing activities including receiving materials throughput and outgoing products tonnage.

South Coast AQMD Rule 1133.2 – Emission Reductions from Co-Composting Operations, requires controls of VOC and NH₃ emissions from new and existing co-composting operations. Co-composting facilities which began operations after January 10, 2003 are required to conduct all active co-composting in an enclosure, to conduct all curing using a negative aeration system, and to vent the exhaust from the enclosure and the aeration system to an emission control system that has a control efficiency of 80 percent or greater for VOC and NH₃ emissions. Facilities that existed prior to January 10, 2003 are required to develop a compliance plan that demonstrates an overall emission reduction of 70 percent for VOC and NH₃ emissions.

South Coast AQMD Rule 1133.3 – Emission Reductions from Greenwaste Composting Operations, establishes requirements of composting greenwaste and/or greenwaste with foodwaste. To control VOC and NH₃ emissions from composting operations, either best management practices (BMPs) or add-on controls are required based upon facility-wide annual throughput of foodwaste received. For a facility receiving up to 5,000 tons per year of foodwaste, the required BMPs are covering each composting pile with a layer of at least 6 inches of finished compost or compost overs and watering the pile as needed for the first 15 days of the active phase composting. These BMPs have a control efficiency of 40 percent for VOCs and 20 percent for NH₃. Add-on controls are required for a facility receiving greater than 5,000 tons

²⁵ U.S. Environmental Protection Agency, 2014. The benefits of anaerobic digestion of food waste at wastewater treatment facilities, USEPA Region 9. <https://www.epa.gov/sites/production/files/documents/Why-Anaerobic-Digestion.pdf>

²⁶ Deena, S.R., A.S. Vickram, S. Manikandan, R. Subbaiya, N. Karmegam, B. Ravindran, S.W. Chang, M.K. Awasthi, 2022. Enhanced biogas production from food waste and activated sludge using advanced techniques – A review, *Bioresource Technology*, 355, 127234

²⁷ Kuo, J., J. Dow, 2017. Biogas production from anaerobic digestion of food waste and relevant air quality implications, *J. Air & Waste Manag. Assoc.* 67, 1000–1011

²⁸ CalRecycle, 2019. Draft Environmental Impact Report, SB 1383 Regulations Short-Lived Climate Pollutants: Organic Waste Methane Emission Reduction, Table 2-3. <https://www2.calrecycle.ca.gov/Docs/Web/119973>

of foodwaste per year and those that process active composting piles for a minimum of 22 days, containing greater than 10 percent foodwaste. The required control efficiency of an add-on control device is 80 percent for VOCs and NH3. While emission controls can be achieved either by BMPs or add-on controls depending on the throughput level of foodwaste, both active and curing phases of composting are required to produce the finished compost.

Proposed Method of Control

South Coast AQMD's Rules 1133.2 (Co-Composting) and 1133.3 (Greenwaste Composting) currently do not regulate the co-digestion of foodwaste with sewage sludge or the incorporation of foodwaste digestate into greenwaste composting. The digestate produced by foodwaste co-digestion contains treated sewage sludge (referred to as biosolids) and the solid residue from the digested foodwaste. Because biosolid composting is governed by Rule 1133.2, the digestate produced by foodwaste co-digestion would also be governed by Rule 1133.2. Emissions of NH3 can be reduced by using an emission control system specified by Rule 1133.2. If foodwaste is the only feedstock input to AD, the resulting digestate could be included into greenwaste composting and NH3 emissions reduction is governed by Rule 1133.3.

This control measure proposes to expand the applicability of Rules 1133.2 and 1133.3 to regulate the co-digestion of foodwaste with biosolids and the integration of foodwaste digestate with greenwaste composting for further emission reductions.

Foodwaste Co-Digestion

Emerging technologies are available for co-digestion of foodwaste. For example, Waste Management (WM) has a proprietary Centralized Organic Recycling equipment (COrE®)²⁹ that recycles commercial and institutional pre- and post-consumer organic waste materials (food scraps) into an Engineered BioSlurry (EBS®). This organic slurry is co-digested in anaerobic digesters with wastewater treatment plant (WWTP) biosolids (e.g., sewage sludge) to boost biogas output. According to laboratory bench tests, EBS® significantly increased biogas production. With 10 percent EBS® volume addition to anaerobic digesters, renewable biogas production in the bench reactors increased by 112 percent.³⁰

Co-digestion is a process in which energy-rich organic waste materials (e.g., FOG and/or food scraps) are added to dairy or WWTP digesters with excess capacity. COrE® accepts clean source-separated organics (SSO), pre-consumer (clean) and post-consumer (contaminated) organic waste, and packaged food material on a case-by-case basis. Wood and yard waste is not acceptable. Figure BCM-11-A illustrates co-digestion performance metrics with the WM COrE® process.

²⁹ <https://www.wm.com/us/en/inside-wm/sustainable-technology/organics-recycling>

³⁰ <https://www.biocycle.net/los-angeles-county-wrrf-embraces-codigestion/>

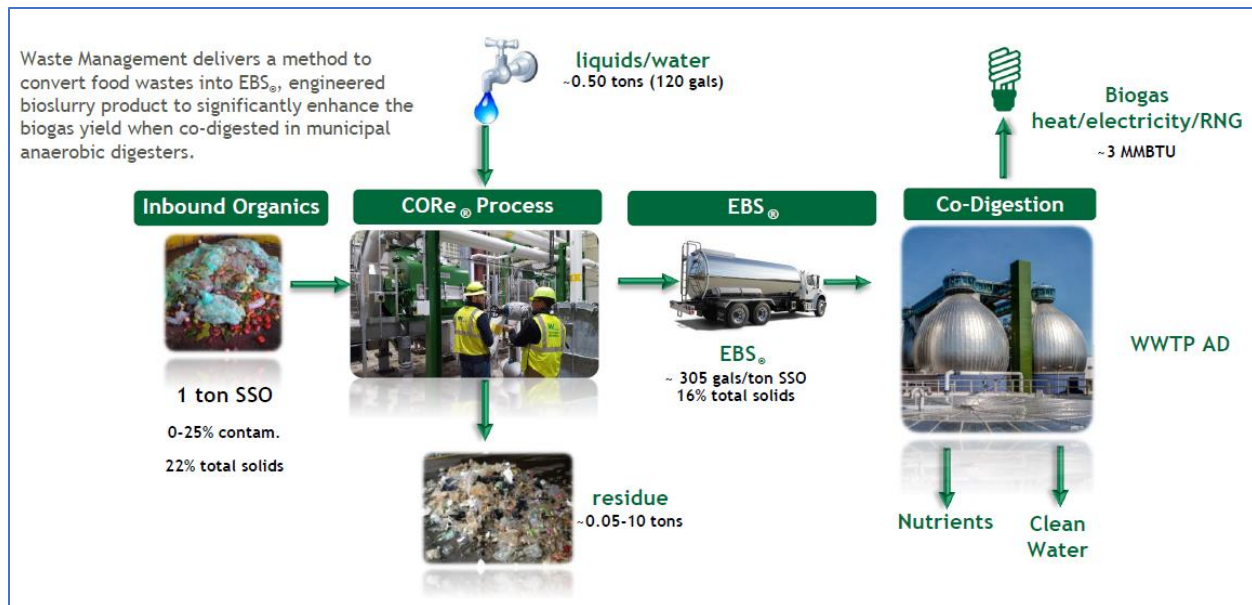


FIGURE BCM-11-A
WM CORE® AND CO-DIGESTION PERFORMANCE METRICS³¹

WM operates one CORE® facility in the South Coast Air Basin. SSO is transported to Orange County Transfer Station where the CORE® is located and loaded into the CORE® system's hopper and conveyed into a bioseparator, which separates organic material from inorganic waste. The separated organic waste is liquefied to create EBS® which is then transported via a tanker truck to the Los Angeles County Sanitation District (LACSD) Joint Water Pollution Control Plant in Carson, CA where the EBS® is added to the plant's anaerobic digestion system to increase the production of biogas. The biogas is collected and used to generate electricity and heat to serve the Plant's process needs to purify water. Leftover biosolids can be further composted.³² Under Rule 1133.2, existing co-composting operations are required to have a 70 percent control efficiency whereas new co-composting operations must have an 80 percent control efficiency for NH₃. The feasibility of the following control methods will be evaluated:

- Increasing the NH₃ control efficiency of existing co-composting operations from 70 percent to 80 percent; and
- Increasing the NH₃ control efficiency from 80 percent to 90 percent for new co-composting operations.

³¹ <https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/20230331-wm-core-codigestion-tech.pdf>

³² <https://localsites.wm.com/a4480000006o00bAAE/CORE+Flyer.pdf>

Some studies also find that NH₃ emissions can be reduced by optimizing the biofiltration or adding physical amendments to co-composting piles.^{33,34} This will be further explored during rulemaking.

Integration of Anaerobic Digestion with Composting

With an integrated AD-composting system, digestate from AD becomes an input to the composting process, making less overall waste and a more useful product, as illustrated in Figure BCM-11-B.

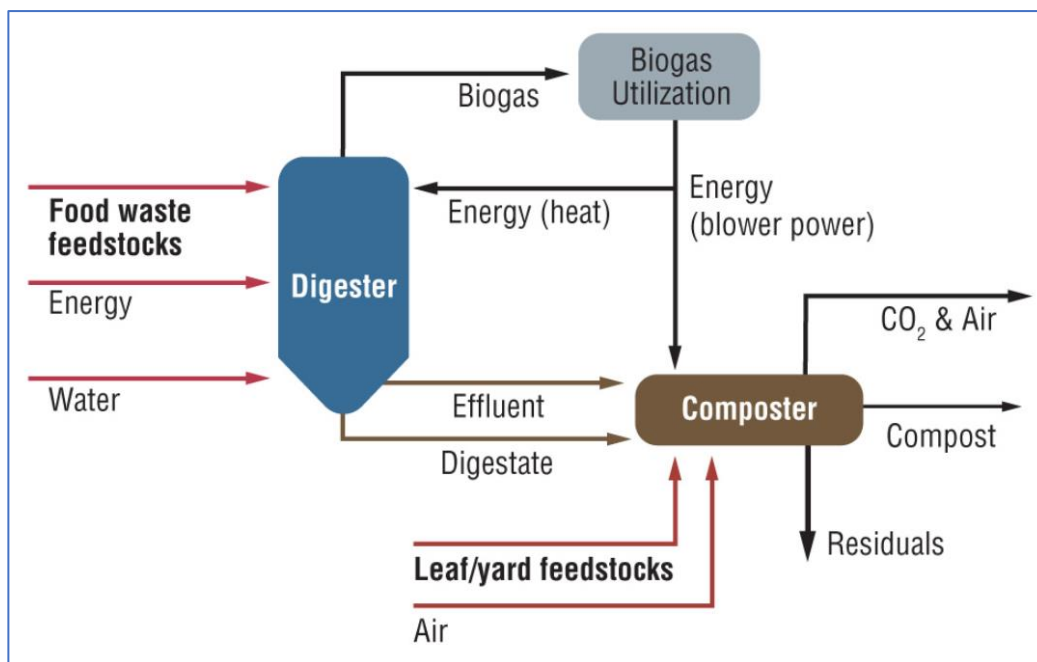


FIGURE BCM-11-B
INPUTS AND OUTPUTS FOR AN INTEGRATED AD AND COMPOSTING SYSTEM³⁵

This integrated system works best where foodwaste (primarily SSO) is digested and greenwaste (primarily leaves and yard trimmings) is composted at the same facility. Digestate from AD becomes a feedstock for greenwaste composting. Composting of raw foodwaste, which typically takes 8 to 12 weeks, can be reduced to as little as 2 to 3 weeks for digestate because the material has been partially decomposed in

³³ Hwang, H.Y., S.H. Kim, J. Shim, S.J. Park, 2020. Composting process and gas emissions during food waste composting under the effect of different additives. *Sustainability*. 12(18), 7811

³⁴ Manu, M.K., C. Wang, D. Li, S. Varjani, J.W.C. Wong, 2022. Impact of zeolite amendment on composting of food waste digestate. *Journal of Cleaner Production*, 371(15), 133408

³⁵ <https://www.biocycle.net/integrating-anaerobic-digestion-with-composting/>

the digestion process. When foodwaste is anaerobically digested prior to composting, NH₃ emissions can be up to 50 percent lower compared to composting the untreated foodwaste.³⁶

Other synergistic effects of combining AD with composting include:

- Reduction and, in some cases, elimination of digester effluent treatment. Digester effluent can supply the water required for composting. Nutrients in the effluent can potentially increase compost value.
- Minimization of foodwaste processing odor as foodwaste receiving and digesting is completely enclosed.
- Direct onsite use of biogas energy. Biogas can supply electric power directly to the composting system (e.g., aeration and ventilation to biofiltration), avoiding grid electricity costs.
- Increases of the overall plant capacity with minimal footprint increase – one site, one permit, and one receiving building.
- During startup and shutdown periods of the AD system, foodwaste can be diverted to the composting system.

Emission Reductions

The 2030 baseline inventory is 0.96 tpd of NH₃ for this source category. This source category has not been extensively investigated and thus warrants further research to refine the emissions inventory. As such, emission reductions will be determined during rulemaking.

Rule Compliance and Test Methods

A South Coast AQMD regulation or other enforceable instrument will be considered to ensure emission reductions. The most effective regulatory tool will be selected. Implementation of this control measure would not conflict with efforts under SB 1383. South Coast AQMD staff will work with CalRecycle and CARB to develop appropriate test methods to quantify emissions.

Cost Effectiveness

Cost-effectiveness will be determined during rulemaking.

Implementing Agency

South Coast AQMD has the authority to regulate emissions from stationary sources.

³⁶ Nordahl, S.L., C.V. Preble, T.W. Kirchstetter, and C.D. Scown, 2023. Greenhouse gas and air pollutant emissions from composting. Environ. Sci. Technol. 57, 2235–2247

References

U.S. Environmental Protection Agency. How Does Anaerobic Digestion Work?

<https://www.epa.gov/agstar/how-does-anaerobic-digestion-work>

CalRecycle. Organic Materials Management and Climate Change.

<https://calrecycle.ca.gov/climate/organics/>

Nordahl, S.L., C.V. Preble, T.W. Kirchstetter, and C.D. Scown, 2023. Greenhouse gas and air pollutant emissions from composting. *Environ. Sci. Technol.* 57, 2235–2247

Prado, G., R. Moral, E. Aguilera, 2015. A.D. Prado, Gaseous emissions from management of solid waste: a systematic review, *Global Change Biology*, 21, 1313–1327

U.S. Environmental Protection Agency, 2014. The benefits of anaerobic digestion of food waste at wastewater treatment facilities, USEPA Region 9.

<https://www.epa.gov/sites/production/files/documents/Why-Anaerobic-Digestion.pdf>

Deena, S.R., A.S. Vickram, S. Manikandan, R. Subbaiya, N. Karmegam, B. Ravindran, S.W. Chang, M.K. Awasthi, 2022. Enhanced biogas production from food waste and activated sludge using advanced techniques – A review, *Bioresource Technology*, 355, 127234

Kuo, J., J. Dow, 2017. Biogas production from anaerobic digestion of food waste and relevant air quality implications, *J. Air & Waste Manag. Assoc.* 67, 1000–1011

CalRecycle, 2019. Draft Environmental Impact Report, SB 1383 Regulations Short-Lived Climate Pollutants: Organic Waste Methane Emission Reduction, Table 2-3.

<https://www2.calrecycle.ca.gov/Docs/Web/119973>

Waste Management, Organics Recycling. <https://www.wm.com/us/en/inside-wm/sustainable-technology/organics-recycling>

Coker, Craig, 2017. Los Angeles County WRRF Embraces Codigestion. BioCycle.

<https://www.biocycle.net/los-angeles-county-wrrf-embraces-codigestion/>

Waste Management, CORE.

<https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/20230331-wm-core-codigestion-tech.pdf>

Waste Management. WM CORE, Converting Southern California Food Waste to Clean, Renewable Energy. <https://localsites.wm.com/a4480000006oO0bAAE/CORE+Flyer.pdf>

Hwang, H.Y., S.H. Kim, J. Shim, S.J. Park, 2020. Composting process and gas emissions during food waste composting under the effect of different additives. *Sustainability*. 12(18), 7811

Manu, M.K., C. Wang, D. Li, S. Varjani, J.W.C. Wong, 2022. Impact of zeolite amendment on composting of food waste digestate. *Journal of Cleaner Production*, 371(15), 133408

Kraemer, T. and S. Gamble, 2014. Integrating Anaerobic Digestion with Composting.
<https://www.biocycle.net/integrating-anaerobic-digestion-with-composting/>

Nordahl, S.L., C.V. Preble, T.W. Kirchstetter, and C.D. Scown, 2023. Greenhouse gas and air pollutant emissions from composting. Environ. Sci. Technol. 57, 2235–2247

BCM-12: FURTHER EMISSION REDUCTIONS FROM COMMERCIAL COOKING
[PM2.5]

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	CHARBROILERS	
CONTROL METHODS:	LOWER THRESHOLD FOR INTEGRATED CATALYTIC OXIDIZER REQUIREMENTS FOR CHAIN-DRIVEN CHARBROILERS	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
POLLUTANT INVENTORY	8.49	9.13
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
CONTROL COST:	TBD	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD/LOCAL OR REGIONAL AGENCIES	

Description of Source Category

This proposed control measure would seek PM2.5 reductions from commercial charbroilers.

Background

Cooking activities are the largest source of directly emitted PM2.5 emissions in the Basin. The inventory estimates provided in the above summary table include emissions from charbroilers (chain-driven and under-fired), griddles, deep fat fryers, ovens, and other equipment. Under-fired charbroilers are responsible for the majority of emissions from this source category (2007, SCAQMD) due to the higher emission potential when compared with other cooking devices (e.g., 32.5 lbs PM per 1,000 lbs of meat cooked via under-fired charbroiler compared to 5 lbs PM per 1,000 lbs of meat cooked via a griddle). However, emissions from under-fired charbroilers are estimated based on 1999 survey report data and growth projection from it, indicating room for improvement. An under-fired charbroiler consists of three

main components: a heating source, a high temperature radiant surface, and a slotted grill (grate). The grill holds the meat or other food while exposing it to the radiant heat. PM and VOC emissions occur when grease from the meat falls onto the high temperature radiant surface. Most under-fired charbroilers burn natural gas; however, solid fuels, such as charcoal or wood with or without the addition of ceramic stones, are sometimes used. Restaurant PM emissions are also classified as a black carbon source which recent studies identify as contributing to climate change both directly by absorbing sunlight and indirectly by disrupting cloud formation, precipitation patterns and water storage in snowpack.

Regulatory History

Efforts to reduce PM emissions from commercial cooking activities have been included in air quality plan control measures since the early 1990s. While the goal has been to develop a comprehensive rule applicable to all commercial cooking activities the only available, cost-effective PM control was initially limited to chain-driven charbroilers. In 1997, the South Coast AQMD Governing Board adopted Rule 1138 – Control of Emissions from Restaurant Operations, which requires chain-driven charbroilers to install a catalytic oxidizer (or equivalent) control device. These types of charbroilers were uniquely suited for the implementation of commercially available, low-cost catalyst oxidizers (flameless incineration) which operate with the necessary exhaust temperature of 700–800 °F. Rule 1138 applies to commercial cooking operations with chain-driven charbroilers cooking more than 875 pounds of meat per week and required control devices must be certified to achieve an 83 percent reduction in PM emissions.

Since adoption of Rule 1138, South Coast AQMD staff efforts to reduce emissions from commercial cooking operations have been focused on under-fired charbroilers and a series of reports were made to the South Coast AQMD Governing Board in 1999, 2001, and 2004 to present results of under-fired charbroiler control technology research. Affordable controls were not commercially available at that time for under-fired charbroilers.

In 2007, the Bay Area Air Quality Management District (BAAQMD) adopted Regulation 6, Rule 2 (Commercial Cooking) which included provisions for both chain-driven and under-fired charbroilers. The Bay Area regulation requires a catalytic oxidizer for chain-driven charbroilers with a throughput of at least 400 pounds of beef per week. Under-fired charbroilers with more than 10 square feet of cooking area are required to limit emissions to 1 pound of PM₁₀ per 1,000 pounds of cooked beef (80 to 85 percent reduction in direct PM₁₀ emissions) under the Bay Area rule. Requirements for chain-driven charbroilers have been successfully implemented, however, there are no commercially available devices that meet the Bay Area AQMD emissions standards for under-fired charbroilers. Additionally, enforcement of this regulation is minimal.

As a result of the Bay Area regulation, a subsequent South Coast AQMD rule development effort to control PM emissions from under-fired charbroilers was initiated in 2008. A Working Group of approximately 35 members from affected industry, equipment manufacturers and researchers were formed to initially discuss current research and later to provide comment on draft rule language. Three working group meetings were held in 2008 and 2009 and a public workshop was held in August 2009.

Due to concerns over control device availability and initial equipment costs affecting small businesses, Proposed Rule 1138 amendments were postponed. Instead, South Coast AQMD initiated further research on under-fired charbroiler control technologies with the goal of identifying and testing lower cost devices.

In 2015 the New York City Department of Environmental Protection (DEP) initiated a program to reduce PM emissions from commercial charbroilers. The DEP program generally follows South Coast AQMD and other California air district requirements for chain-driven charbroiler restaurants (e.g., flameless catalytic oxidizers) but also establishes requirements for new restaurants with under-fired charbroilers. Specifically, the DEP regulation prohibits operation of a new under-fired commercial charbroiler cooking more than 875 pounds of meat per week unless an Electrostatic Precipitator (ESP) or other type of device achieving a 75 percent PM₁₀ reduction (including condensable PM) is installed. Provisions for certification of emissions control devices and recordkeeping requirements are also established by the DEP program which is in effect as of September 1, 2016 (New York City, 2016). Currently, NYC DEP has an approved list of certified emission control devices with manufacturers, custom configurations, and model numbers. Configurations of multistage systems of Pollution Control Units (PCUs) commonly include filters with Maximum Efficiency Reporting Value (MERV) 15 ratings are paired with a HEPA filter or ESP (New York City, 2021). If commercial charbroiling restaurants would like to use an emission control device not listed, they are required to provide testing data to prove efficiency using EPA Method 5. Note the equivalent required PM_{2.5} control efficiency is about 50 percent, for new, non-solid fuel under-fired charbroilers. At this time, NYC DEP are not actively enforcing this code, so as a practical matter it is unclear whether the program is actually reducing emissions. However, NYC DEP are seeking to get approval for enforcement action on this ordinance in the near future.

AB 32 (California Global Warming Solutions Act of 2006) includes provisions to achieve and maintain Statewide GHG emission limits, however, recent legislation [Senate Bill 605 (SB 605), Lara, Chapter 523, Statutes of 2014] requires CARB to develop a plan to reduce what are referred to as short lived climate pollutants, including black carbon. In response to SB 605, CARB adopted the Short-Lived Climate Pollutant Reduction Strategy (SLCP Reduction Strategy) in March 2017 which acknowledges the benefits from control of smaller sources of PM, including commercial cooking.³⁷

Control Technology Research

In October 2011, the South Coast AQMD Governing Board approved approximately \$200,000 for control device testing and authorized the release of a Program Opportunity Notice (PON) to solicit proposals from control device manufacturers. Under the PON process, South Coast AQMD staff and an inter-agency working group consisting of representatives from U.S. EPA, SJVAPCD and Bay Area AQMD reviewed manufacturer proposals based on anticipated emission reductions and available cost data. Equipment showing promise would be subject to an initial screening test. Based on screening results, equipment could be tested using the full South Coast AQMD Test Protocol for Determining PM Emissions from Under-fired Charbroilers. All testing was initially funded by South Coast AQMD and conducted

³⁷ https://ww2.arb.ca.gov/sites/default/files/2020-07/final_SLCP_strategy.pdf

under an existing contract with the University of California at Riverside – Center for Environmental Research and Technology (CE-CERT). Subsequent additional funding was provided by U.S. EPA, and the Bay Area AQMD has funded a related charbroiler testing project at the CE-CERT facility.

To date, screening tests have been conducted on control device configurations provided by eight manufacturers. Protocol tests were then conducted on the most promising technologies and draft test results have been received on five control device configurations. Types of devices include commercially or near-commercially available technologies, including a multi-stage filter system, an Electrostatic Precipitator (ESP), and an in-hood baffle filter. Protocol tests were also conducted on prototype designs consisting of an inertial separator/aerosol mist device and a ceramic filter with microwave regeneration. Draft test results and preliminary device cost information is presented in Table BCM-12-A. The preliminary cost information is for control devices only and does not include installation or operation costs which can vary significantly based on the facility. Also, cost estimates for new facilities are not as expensive as for existing facilities that may require a complete system overhaul including fire suppression, ventilation, plumbing, ductwork, mounting, and electrical components which would be expected to increase cost estimates. Control equipment for new charbroiler installations at new sites can be designed with the controls integrated into the design of the overall site.

TABLE BCM-12-A
DRAFT CONTROL DEVICE TESTING RESULTS AND PRELIMINARY COST ESTIMATES

*Device Type	PM Control Efficiency	Preliminary Device Cost Estimates (CY\$)
Electrostatic Precipitator (ESP)	86%	\$84,000 (2023)
Multi-Stage Filter	80%	\$41,000 (2023)
Ceramic Filter/Microwave Regeneration	63%	\$20,000 (2016)
Centrifugal Separator/Aerosol Mist Nebulizer	58%	\$27,000 (2016)
In-Hood Baffle Filter (new – retrofit)	25%	\$225–\$250/linear ft. of exhaust hood (2016)

* Note that only the ESP, Multi-Stage Filter, and In-Hood Baffle Filter control devices have been demonstrated in practice. Other devices are shown for informational purposes, but they have not either been certified/proven in practice to date. Pricing and efficiency may eventually be determined to be higher also.

In addition to the above technologies, South Coast AQMD staff is reviewing test results from a low cost device intended to reduce emissions by preventing the generation of smoke at the source instead of removing particulates from the exhaust stream with a traditional PM control device. South Coast AQMD staff are also reviewing other promising technologies intended to provide low to mid-range control efficiencies at lower costs. All of the CE-CERT test results and manufacturer supplied cost data, along with previous control device testing, are being compiled and will be presented in a technical and cost feasibility analysis intended to guide future regulation of PM emissions from under-fired charbroilers.

An additional action was approved by the South Coast AQMD Governing Board in 2011 to develop a companion \$150,000 contract with CE-CERT to further characterize emissions from under-fired charbroilers. A report entitled “Characterization of the Physical, Chemical, and Biological Properties of PM Emissions, VOCs, and Carbonyl Groups from Commercial Cooking Operations” has been received by South Coast AQMD and the report confirms that under-fired charbroiler PM emissions are primarily less than one micron in size, are dominated by organic carbon and include compounds which are known toxics, mutagens, and carcinogens. As presented in Figure BCM-12-A, the CE-CERT Characterization report also documented that several of the control technologies could significantly reduce Polycyclic Aromatic Hydrocarbons (PAHs) compounds which have mutagenic and carcinogenic properties.

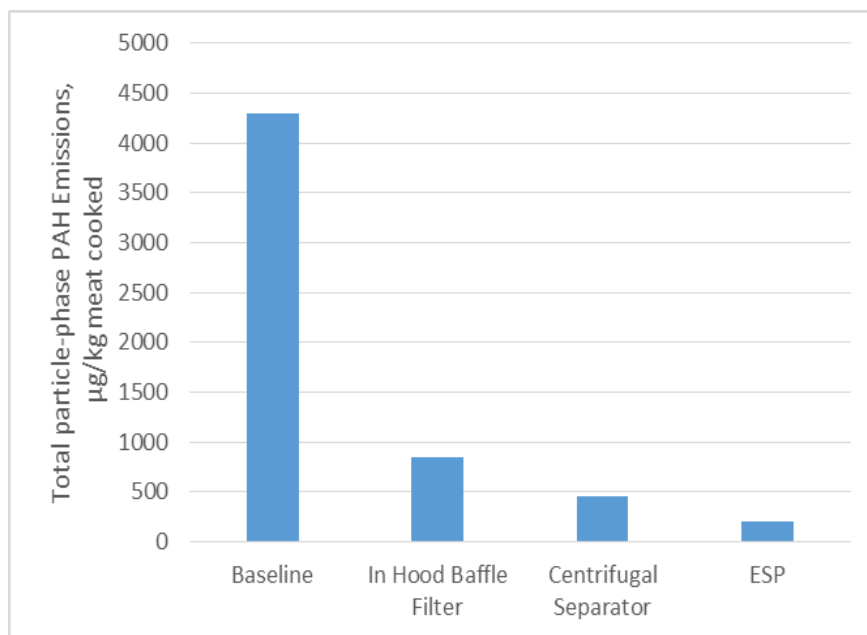


FIGURE BCM-12-A

PARTICLE-PHASE PAH EMISSIONS FOR BASELINE TEST AND THREE CONTROL TECHNOLOGIES

Findings to date show that while there is promising control technology the capital cost and required operating and maintenance costs remain prohibitively high. Also retrofitting controls on existing restaurants can be even more prohibitively expensive, and in some cases technologically infeasible. Based on discussions with restaurant operators, technology vendors, and other regulatory agencies, currently it can be extremely difficult and cost-prohibitive to add controls on existing restaurants. The installation may require structural, electrical, or water-line modifications that may not be feasible. This makes installation costs much higher for existing restaurants compared to new restaurants that can integrate emissions controls into the design. The existing structure may not have the necessary space or structural support for the control unit. Installing the control equipment may require the restaurant to temporarily shut down, resulting in loss of revenue. Furthermore, the existing restaurant may not have

the authority to make changes to the building if the space is leased and the landlord is unwilling to accommodate. Local ordinances, such as building and safety and/or fire codes will have to be followed as well.

Installation cost of controls can be prohibitively expensive. For example, SJVAPCD research shows the cost of control units themselves are expensive, ranging from \$30,000 to \$80,000 for the most complicated unit configurations. In addition, installation costs range from \$10,000 to \$20,000 for new construction and \$20,000 to \$60,000 or higher, depending on the structural and electrical modifications required, for retrofits. It is possible that some high-volume restaurants may be able to support this cost, but restaurants with less income would be financially unable to install these units without incentive support.

Maintenance of controls can also be prohibitively expensive. Regular maintenance of control devices is critical to ensure control effectiveness. Depending on the control technology and type and volume of food cooked, filter change-out is required on a monthly or quarterly basis, with more in-depth filter replacement or unit cleaning required annually. Annual maintenance costs including both labor and materials starts around \$6,000 and can exceed \$100,000 for the highest volume restaurants with solid-fuel fired under-fired charbroilers. Additional costs include electricity, water, staff labor, or cleaning service company costs.

Maintenance requires specially trained staff that may not be accessible to all restaurants: Control device cleaning is a complex process, requiring specially trained staff. Training restaurant staff to perform this task may not be feasible, and service companies capable of performing the maintenance may not be readily available nearby. Any delays in required maintenance could cause significant economic impacts to restaurants.

Due to the potential lack of economic and technological feasibility of requiring these controls and uncertainties in emissions inventory, staff recommends first obtaining current data regarding charbroilers. This could be achieved in one of two ways. The first option would be to require additional registration information of under-fired charbroilers pursuant to Rule 222. The second option would be to conduct a survey independent of Rule 222, whether it be in the South Coast AQMD jurisdiction or through a state-wide effort. Regardless of the option chosen substantial detailed data should be collected regarding throughput, hours of operation, type of restaurant and a verify of additional metrics that will allow for an accurate representation of charbroiler characteristics in the South Coast Air Basin. This report will detail meat throughputs, hours of operation, and any installed control technology. A detailed data set with several metrics evaluated will allow for a discussion of how any proposed amendment of Rule 1138 should be structured. Ideas could be further explored through focus and working group meetings prior to formally proposing a draft rule amendment.

Regarding under-fired charbroilers, research into new emission control technologies is ongoing. Specifically, South Coast AQMD is continues to monitor the situation seeking control devices that have affordable up-front costs and are cost-effective. Partnerships with other air districts, businesses, and manufacturers will be important. Demonstration and incentive funding could be the path forward to

assisting businesses with adopting currently available emission control technologies. Funding pilot studies to test efficacy and feasibility of emerging control technologies will be considered.

Proposed Method of Control

For chain-driven charbroilers, BAAQMD and SJVAPCD have adopted/amended their rules to lower the applicability threshold for emission control requirements. In 2009, SJVAPCD lowered their throughput quantity allowed for exemption from 875 pounds of meat cooked per week to 400 pounds of meat cooked per week to mirror BAAQMD's rule. South Coast AQMD currently has the applicability threshold set at 875 pounds of meat cooked per week and commits to consider reducing the threshold to 400 pounds per week. For BAAQMD and SJVAPCD, chain-driven charbroilers that require use of emission controls are required to use chain-driven charbroilers equipped with catalytic oxidizers certified by South Coast AQMD.

Emissions from under-fired charbroilers continue to be a significant contributor to the direct PM_{2.5} emission inventory. To date, a variety of control device technologies have been tested by CE-CERT and South Coast AQMD staff and the inter-agency working group has reviewed draft test results. Staff has also reviewed existing and proposed under-fired charbroiler control programs undertaken by the BAAQMD, the SJVAPCD, and the New York City DEP (NYC).

Based on testing conducted by CE-CERT and the demonstration projects in the San Joaquin Valley, control technology for under-fired charbroilers has continued to develop over the past few years. However, identification of affordable, commercially available PM control technologies, especially for retrofit projects at existing restaurants, remains elusive. Following identification of affordable commercially available control devices for existing restaurants, a tiered incentive and/or technology demonstration program could be developed that targets higher efficiency controls for under-fired charbroilers at large volume restaurants, with more affordable, lower efficiency controls at smaller restaurants. Small business incentive programs funded by mitigation fees or other sources could also be explored to help offset initial purchase and installation costs for existing restaurants.

South Coast AQMD will consider implementing a registration and reporting requirement for charbroilers in order to gather better inventory and emissions information for this source category since the current registration program under Rule 222 does not stratify the inventory of charbroilers. Using new survey/registration information, South Coast AQMD would better be able to pursue reductions in commercial charbroiler emissions.

South Coast AQMD's current emission and restaurant inventory is based on a 1999 survey report conducted by a third-party consultant. The emission inventory has been extrapolated using population growth factors for the 1999 through 2030 time period. Revising our current restaurant and charbroiler inventory is important to accurately determine what the actual emissions and inventory are and will enable us to perform calculations that reflect the current state of charbroiler inventory/emissions and set exemption thresholds.

Emission Reductions

Lowering the applicability threshold for chain-driven charbroilers from 875 pounds of meat per week to 400 pounds of meat per week would likely reduce PM_{2.5} emissions from this source category. However, without an accurate detailed charbroiler emission and restaurant inventory, we are unable to quantify the pollution reductions that might be achieved. A district-wide or state-wide effort to assess the restaurant and charbroiler inventory and throughputs would be helpful to determining throughput distributions, thresholds, and estimates of PM_{2.5} reductions.

Rule Compliance and Test Methods

Compliance determinations could be made through inspections aided by facility recordkeeping and equipment registrations or certifications.

The “Protocol – Determination of Particulate and Volatile Organic Compound Emissions from Restaurant Operations” is the test method currently being used for testing of charbroilers and potential control devices. The test methods are used by qualified labs to certify the emissions level of specific control systems but are not employed to test emissions at individual restaurants.

Similar to NYC DEP, South Coast AQMD could look into potentially implementing a certified under-fired charbroiler emission control list or adopt the list that NYC DEP has already produced.

Cost Effectiveness

To be determined.

Implementing Agency

South Coast AQMD has the authority to regulate PM emissions from restaurant operations. South Coast AQMD staff also participates in an ‘informal restaurant emissions’ working group with staff from other California air districts and U.S. EPA. During this process, participating agencies have shared staff resources and provided funding to conduct research projects.

References

Bay Area AQMD, 2007. Bay Area Air Quality Management District Staff Report, Regulation 6, Rule 2: Commercial Cooking Equipment; November 2007.

CARB, 2016. California Air Resources Board; Proposed Short-Lived Climate Pollutant Reduction Strategy; April 2016.

Federal Reserve Bank St. Louis, Federal Reserve Economic Data. Historical Population Data

<https://fred.stlouisfed.org/>

New York City, 2016. Emissions Control Devices for Commercial Char Broilers, Department of Environmental Protection, 2016.

<http://rules.cityofnewyork.us/content/emissions-control-devices-commercial-char-broilers>

New York City, 2021. Certified Emission Control Devices for Commercial Under-Fired Charbroilers, 2021.

<https://www.nyc.gov/assets/dep/downloads/pdf/air/approved-under-fired-technology.pdf>

Pacific Environmental Services, 1999. A Detailed Survey of Restaurant Operations in the South Coast Air Basin, Contract No. 98089; February 1999.

SCAQMD, 2006. Final – Methodology to Calculate Particulate Matter (PM) 2.5 and PM2.5 Significance Thresholds; October 2006.

SCAQMD, 2007. South Coast Air Quality Management District Final 2007 AQMP Appendix IV-A District's Stationary and Mobile Source Control Measures; June 2007.

SCAQMD, 2009. South Coast Air Quality Management District Preliminary Draft Staff Report, Proposed Amended Rule 1138 – Control of Emission from Restaurant Operations; August 2009.

SCAQMD, Test Protocol for Determining PM Emissions from Under-Fired Char-broilers, July 22 2009.

SCAQMD, 2011. South Coast Air Quality Management District Request to the Governing Board to Designate Funds and Issue Program Opportunity Notice for Testing Control Equipment for PM Reductions from Under-fired Char-broilers and Execute a Contract for Speciation and Toxicity Analysis of Emissions from Under-fired Char-broilers; October 7, 2011.

SCAQMD, 2012. South Coast Air Quality Management District Final 2012 AQMP, District's Stationary and Mobile Source Control Measures; February 2012.

SCAQMD, 2023. South Coast AQMD Certified Charbroilers with Integrated Catalysts, 2023.
<http://www.aqmd.gov/docs/default-source/permitting/product-certification/charbroilerscatalysts.pdf?sfvrsn=4>

SJVAPCD, 2009. San Joaquin Valley Air Pollution Control District Final Draft Staff Report: Rule 4692 (Commercial Charbroiling); August 2009.

SJVAPCD, 2012. San Joaquin Valley Air Pollution Control District Final 2012 PM2.5 Plan, Appendix D, Stationary and Area Source Control Technology; December 2012.

SJVAPCD, 2015. San Joaquin Valley Air Pollution Control District Governing Board Agenda Item 7: Approve Next Steps for Addressing Emissions from Under-fired Char-broilers at Valley Restaurants; July 2015.

SJVAPCD, 2018. San Joaquin Valley Air Pollution Control District 2018 Plan for the 1997, 2006, and 2012 PM2.5 Standards; November 15, 2018.

SJVAPCD, 2023. Proposed San Joaquin Valley Contingency Measure State Implementation Plan Revision; April 18, 2023.

State of California Department of Finance, Projections, State Population Projections
<https://dof.ca.gov/forecasting/demographics/projections/>

University of California Riverside, College of Engineering, Center for Environmental Research and Technology, Determination of Particulate Matter Removal Efficiency for Control Devices for Commercial Charbroiling Processes, Contract No. 10722; September 2017.

BCM-13: EMISSION REDUCTIONS FROM INDUSTRIAL COOLING TOWERS

[PM2.5]

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	INDUSTRIAL PROCESS COOLING TOWERS	
CONTROL METHODS:	DRIFT ELIMINATOR	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
POLLUTANT INVENTORY	0.76	0.78
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
CONTROL COST:	TO BE DETERMINED	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD	

Description of Source Category

This control measure seeks reductions of PM2.5 emissions from industrial process cooling towers with drift eliminator technologies.

Background

Industrial cooling towers are used to remove large amounts of heat absorbed in the circulating cooling water systems at power plants, petroleum refineries, petrochemical plants, natural gas processing plants, and a wide variety of industrial operations. They can be mainly classified into wet cooling towers and dry cooling towers.

Wet Cooling Towers

Wet cooling (direct or open circuit cooling tower) are enclosed structures containing a labyrinth-like packing or “fill” and are operated on the principle of latent and sensible cooling. The sensible cooling occurs as the air temperature increases by absorbing heat from the process water. The latent cooling occurs as some of the process water evaporates. As a result, hot water from the process stream is cooled

as it descends through the fill while in direct contact with air that passes through it. The cooled water is collected in a cold water basin and is recycled to absorb more heat. The heated air leaving the fill is discharged to the atmosphere. Wet cooling towers can be further categorized as mechanical-draft and natural-draft cooling towers.

Mechanical-draft cooling towers use large fans to force or draw air through the cooling towers and are referred to as forced or induced-draft. Mechanical forced-draft cooling towers use mounted fans from the sides to force air into the towers. The more common induced-draft towers use mounted fans at the top to draw air in through the sides and expel it through the top of the towers. The induced draft towers discharge warm air at higher velocities, resulting in better dispersion of the expelled air, minimizing re-circulation of discharged air flow back into the air intake, thus maximizing cooling towers performance.

Natural-draft cooling towers generate airflow from natural driving pressure caused by the difference in density between the outside cool air and the inside hotter, humid air. The driving pressure is a function of the outside and inside air density and the height of the cooling tower. Natural-draft cooling towers require significant height (can be in excess of 500-feet in height) to generate the required airflow through the tower and is less aesthetically desirable.

Drift Issues Associated with Wet Cooling Towers

Since wet cooling towers provide direct interaction of the cooling water and the air passing through, some of the water may be entrained in the air stream and carried out of the cooling towers as drift droplets. Drift droplets contain the same minerals and chemicals as the circulating water, and can be converted to airborne emissions upon release. Drift droplets can also potentially carry bacteria such as *Legionella*, which, when inhaled, can pose significant health issues.

Large drift droplets that settle out of the exhaust air stream and deposit near the towers can cause damage to surrounding equipment and vegetation due to wetting, icing, and salt deposit. Other drift droplets evaporate before being deposited on the surrounding areas, discharging PM emissions as the drift droplets evaporate and form fine particulate matter by crystallization of dissolved solids. The rate of PM discharged to the atmosphere depends upon the following:

- The mass fraction of Total Dissolved Solids (TDS) in circulating water;
- Drift factor which is the percentage of water that leaves as drift droplets with respect to circulating water flow rate; and
- Circulating water flow rate through the tower.

The amount of solid mass in each drop is dependent on the TDS content and drift droplet size distribution. The estimated fraction of PM emissions as PM₁₀ and PM_{2.5} therefore varies with TDS content. Cooling towers built in the 1970's and 1990's have drift rates of 0.01-0.002 percent, whereas cooling towers built more recently, in the 2000's, have a drift rate of 0.001 percent, due to drift eliminator advancements.

Drift Eliminators

Drift eliminators are incorporated into the design of cooling towers to limit the amount of drift droplets from the air stream before air exits the towers. Drift eliminators rely on the inertial impaction principle caused by sudden change in direction of the air stream passing through the eliminators. The momentum of the heavier water droplets causes them to separate from the air stream and impinge against the drift eliminators. The water droplets coalesce into a film that will fall back into the towers. Drift eliminators have various configurations and are made of various materials.

A recent study published in July 2023 by the California Energy Commission (CEC) measured drift emissions from two cooling towers, one that was constructed in 2004 with a specified drift eliminator efficiency of 5×10^{-4} percent, and the other constructed in 1957 with a specified drift eliminator efficiency of 0.2 percent. The study found that both cooling towers scrubbed nearly all coarse particulate matter, between 2.5 and 10 microns, from the incoming air, resulting in negative emissions from both towers. The study was unable to measure the PM_{2.5} scrubbing efficiency with certainty, but raised the possibility that cooling towers may have the same effect on these fine particles. The study also found that the drift eliminators of both cooling towers were more efficient than specified; the measured efficiency for the cooling towers were, roughly one order of magnitude lower for the tower built in 2004, and two orders of magnitude lower for the tower built in 1957.

More research may be required to verify the PM_{2.5} scrubbing efficiency of drift eliminators, as well as the overall efficiency of drift eliminators.

Dry Cooling Towers

Dry cooling towers are closed systems where circulating water does not interact with ambient air and heat rejection occurs through sensible heat transfer. Sensible heat transfer is achieved by passing the circulating water through finned tubes over which ambient air is passed. Sensible heat transfer limits the maximum attainable water outlet temperature to the local ambient dry bulb temperature.

Although dry cooling towers do not directly emit any pollutants to the atmosphere, they generate indirect emissions due to additional parasitic load losses and reduced heat transfer efficiency. Parasitic losses result from the additional fan load required to move more air in dry cooling towers. Reduced heat transfer efficiency and parasitic losses will require increased fuel consumption to attain an equivalent power output. In addition, according to the U.S. EPA, the installation cost of a dry cooling tower would be approximately 3.3 times that of an equivalent wet cooling tower.

Regulatory History

Cooling towers are largely exempt from permits per Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II, which exempts towers that are not used to cool process water by evaporation and do not use chromium compounds to treat circulating water.

Rule 1404 – Hexavalent Chromium Emissions from Cooling Towers was amended in April 1990 and prohibits the use of hexavalent chromium-containing water treatment chemicals from being added to cooling tower circulating water.

Rule 222 – Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II was amended in May 2017, establishing a registration program for industrial cooling towers. An industrial cooling tower is defined as a cooling tower located at a chemical plant, refinery or other industrial facility that is not used for comfort cooling. Under the registration program, facilities are required to submit information on water circulation rates and the average amount of total dissolved solids in the water for industrial cooling towers as a method of estimating PM emissions.

South Coast AQMD rules pertaining to PM mass rates and concentrations in discharged air could be applied to cooling towers (Rule 404 – Particulate Matter - Concentration and Rule 405 – Solid Particulate Matter - Weight). However, these rules are generally ineffective for the control of PM emissions from cooling towers due to characteristically lower emission rates or concentrations.

Proposed Method of Control

A potential control method outlined in the 2016 AQMP in BCM-02: Emission Reductions from Cooling Towers, proposed to phase in the use of drift eliminators with 0.001 percent drift rate for existing cooling towers where cost-effective. The proposed control method also discussed a potential BACT drift rate of 0.0005 percent for new construction. However, prior to developing a policy to implement controls, an emissions inventory and an equipment universe must be established. Information collected through the Rule 222 registration submittals may be used as a starting point to develop an equipment universe.

The recent CEC study also raised questions regarding the overall effect on emissions from cooling towers, with data showing that cooling towers may act as scrubbers for surrounding areas and emit negative emissions for coarse particles, and potentially have the same effect on PM_{2.5} emissions. The study also found that drift eliminators may vastly outperform their efficiency specifications. These findings should be examined prior to implementing controls.

Emission Reductions

To be determined.

Rule Compliance and Test Methods

To be determined.

Cost Effectiveness

The 2016 AQMP included a cost estimate of \$1.37 million to retrofit a local refinery cooling tower with a high efficiency drift eliminator. The reduction in total PM, PM10, and PM2.5 was also previously estimated at approximately 173, 11, and 0.4 tons per year, respectively. Cost-effectiveness for BCM-02 in the 2016 AQMP was estimated at approximately \$15,000 per ton of PM10, but was determined not cost-effective for reducing PM2.5 at over \$400,000 per ton. Adjusting previous AQMP cost assumptions to 2022 costs would result in a higher cost-effectiveness estimate above \$400,000 per ton. Additionally, it is possible that this control measure may be less cost-effective if the efficiencies of existing drift elimination installed at cooling towers are greater than specified, as outlined in the CEC study.

Implementing Agency

South Coast AQMD has the authority to regulate emissions from stationary sources such as cooling towers.

References

South Coast Air Quality Management District. (2017). 2016 Air Quality Management Plan, Appendix IV-A Stationary and Mobile Source Control Measures. (Published March 2017).

United States Environmental Protection Agency. (2015). *Compilation of Air Pollutant Emission Factors (AP-42), Fifth Edition, Volume I: Stationary Point and Area Sources, Chapter 5.1 Petroleum Refining*. <https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors>.

Wexler, A., Wallis, C. D., Chuang, P., and Leandro, M. (2023). Assessing Particulate Emissions from Power Plant Cooling Towers. <https://www.energy.ca.gov/publications/2023/assessing-particulate-emissions-power-plant-cooling-towers>

BCM-14: FURTHER EMISSION REDUCTIONS FROM PAVED ROAD DUST SOURCES
[PM2.5]

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	PAVED ROAD DUST	
CONTROL METHODS:	ENHANCED STREET CLEANING	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
POLLUTANT INVENTORY	8.55	9.11
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
CONTROL COST:	TO BE DETERMINED	
INCENTIVE COST:	TO BE DETERMINED	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD	

Description of Source Category

Background

Fugitive dust emissions occur whenever vehicles travel over a paved surface such as a road or parking lot through the re-suspension of loose material. While fugitive dust emissions are primarily in the coarse size fraction (PM10-2.5), entrained paved road dust is a major direct PM2.5 source due to the large number of roadways and high traffic volumes in the region. Paved road dust emissions have been found to vary with what is termed the “silt loading” present on the road surface. According to U.S. EPA, silt loading is more specifically defined as the mass of silt-sized material (75 microns or less) per unit area of the travel surface. Sources affecting silt loading generally include: 1) pavement wear and decomposition; 2) vehicle-related deposition; 3) dust fall; 4) litter; 5) mud and soil carryout from unpaved areas; 6) erosion from adjacent areas; 7) spills; 8) biological debris; 9) ice control compounds; 10) recent precipitation history; and 11) recent road sweeping/cleaning history. Because of the importance of silt loadings to emissions, paved road dust control techniques attempt to either prevent material from being deposited on the surface (preventative controls) or remove material deposited on travel lanes

(mitigative controls). U.S. EPA guidance encourages preventative over mitigative controls to reduce paved road dust PM emissions.

Regulatory History

In accordance with U.S. EPA guidance, South Coast AQMD has implemented a comprehensive program to reduce paved road dust emissions through both preventative and mitigative controls. Examples of preventative controls are included in numerous South Coast AQMD rules that require access improvements to reduce the amount of material tracked out from a facility onto surrounding paved public roads, including:

- Rule 403 – Fugitive Dust
- Rule 1156 – Further Reductions of Particulate Emissions from Cement Manufacturing Facilities
- Rule 1157 – PM₁₀ Emission Reductions from Aggregate and Related Operations
- Rule 1158 – Storage, Handling, and Transport of Coke, Coal and Sulfur
- Rule 1460 – Control of Particulate Emissions from Metal Recycling and Shredding Operations
- Rule 1466 – Control of Particulate Emissions from Soils with Toxic Air Contaminants

Additionally, Rule 1186 – PM₁₀ Emissions from Paved and Unpaved Roads, and Livestock Operations requires new or widened roads to be constructed with curbing or, as an alternative, paved shoulders. Most local governments implement mitigative controls through routine street sweeping conducted at frequencies of once or twice per week. Existing National Pollution Discharge Elimination System (NPDES) regulations also require local governments to establish street sweeping programs as part of a comprehensive effort to reduce debris from entering storm drains. South Coast AQMD has also established mitigative controls for paved road dust through requirements for local governments to procure only certified street sweeping equipment (Rule 1186) that operate on alternative fuels (Rule 1186.1 – Less Polluting Sweepers).

Proposed Method of Control

Existing South Coast AQMD regulations implement paved road dust controls based on U.S. EPA guidance. Since paved road dust emissions are a function of silt loadings, additional street cleaning could be a strategy to reduce PM_{2.5}, however, studies that examine the effect of street sweeping on ambient PM levels are scarce. A recent study in Chiayi City, Taiwan concluded that street sweeping combined with street washing is effective at reducing ultrafine particle concentrations. Another study conducted in Krakow, Poland found that street sweeping followed by intensive street washing reduced road dust PM_{2.5} by 20-33 percent. However, since NPDES regulations prohibit street washing due to concerns over increasing the amount of debris entering storm drains, these studies are not applicable to southern California. The only studies identified as potentially applicable found that closed system regenerative air sweepers are more efficient, and less polluting compared to vacuum and mechanical brush sweepers.

Emission Reductions

Mandating increased street sweeping frequencies has unknown impacts on PM_{2.5} levels. Therefore, a pilot project along with a comprehensive atmospheric measurement campaign would be needed to assess the effectiveness of street sweeping as a method to reduce ambient PM_{2.5}. New test protocols that evaluate the PM_{2.5} performance of sweepers, such as those in Toronto and Europe, may also be needed.

Rule Compliance and Test Methods

Compliance with this control measure can be monitored through recordkeeping and inspections.

Cost Effectiveness

Street sweeping costs vary greatly based on the number of miles and frequencies and whether the work is conducted with in-house or contracted resources. A survey of several large cities conducted in 2018 determined that the median annual cost of street sweeping was \$52.31 per curb mile. A curb mile is one mile of city street from the face of the curb, extending out onto the street by the width of the sweeper. In the case of streets or other roadways without curbs, a curb mile is one mile down the center of the roadway by the width of the sweeper. Total curb miles swept are determined by the frequency of the street cleaning and the road surface in the jurisdiction. For example, if one curb line of a road is swept for 2 miles on both sides of the street on a weekly basis, a total of 16 curb miles are swept during a month. The cost of mandating increased street sweeping frequencies can be substantial considering that the City of Los Angeles is responsible for over 230,000 curb miles. A pilot project would provide further insight into the cost-effectiveness of this measure.

Implementing Agency

South Coast AQMD has the authority to adopt and enforce rules and regulations to reduce emissions from fugitive dust sources.

References

City of Fullerton, 2015. Contact with Ty Richter, Street Supervisor, City of Fullerton, September 2015.

City of Toronto, 2016. PM₁₀ and PM_{2.5} Street Sweeper Efficiency Protocol. https://www.toronto.ca/wp-content/uploads/2018/02/94cd-CRCA_PM-Efficiency-Protocol-May2016.pdf

[City of Lancaster, 2018.](https://www.cityoflanasterca.org/Home/ShowDocument?id=39075) Requesting for Proposal for Street Sweeping Services, RFP No. 697-18. <https://www.cityoflanasterca.org/Home/ShowDocument?id=39075>

County Board of Supervisors, 2018. Comparative Street Cleaning Costs: San Francisco and 11 Other Cities. https://sfbos.org/sites/default/files/BLA_Report_Street_Cleaning_Cost_Survey_062518.pdf

ECORP Consulting, Inc., 2022. Strategic Street Sweeping Study prepared for Coachella Valley Association of Governments.

European Engineering Industries Association, 2023. Municipal Equipment, Sweepers. <https://www.eunited.net/eunited+aisbl/municipal-equipment/sweepers-/index.html>

Krylow, Malgorzata, et.al. Impact of Street Sweeping and Washing on the PM10 and PM2.5 Concentrations in Cracow (Poland) <https://ros.edu.pl/index.php?view=article&id=740:043-ros-v21-r2019&catid=51&lang=pl>

Lin, S.L., et.al, 2023. Do the Street Sweeping and Washing Work for Reducing the Near-ground Levels of Fine Particulate Matter and Related Pollutants? Aerosol Air Qual. Res. 23, 220338. <https://doi.org/10.4209/aaqr.220338>

Morgan, Christopher, 2007. Clean Roads to Air. American Public Works Association Reporter. <https://www.tymco.com/wp-content/themes/va/pdf/Cleanroads-APWAReporter-092007.pdf>

U.S. EPA, 1988. Control of Open Fugitive Dust Sources: Final Report. <https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=91010T54.TXT>

U.S. EPA, 1992. Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures <https://nepis.epa.gov/Exe/ZyPDF.cgi/2000JCJE.PDF?Dockey=2000JCJE.PDF>

U.S. EPA, 1996. U.S. Environmental Protection Agency, Compilation of Emission Factors (AP-42), Section 13.2.1, Paved Roads. [c13s0201_jan1996.pdf \(epa.gov\)](https://www.epa.gov/c13s0201_jan1996.pdf)

BCM-15: EMISSION REDUCTIONS FROM ABRASIVE BLASTING OPERATIONS [PM2.5]

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	PM2.5	
CONTROL METHODS:	AIR POLLUTION CONTROL (APC) EQUIPMENT	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
POLLUTANT INVENTORY	TBD	TBD
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
CONTROL COST:	TBD	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD	

Description of Source Category

This control measure seeks to reduce PM2.5 emissions from abrasive blasting operations.

Background

Existing South Coast AQMD Rule 1140 (Abrasive Blasting) regulates opacity requirements for confined and unconfined abrasive blasting operations using various abrasives. The California Health and Safety Code prohibits local districts from requiring emission and performance standards more or less stringent than the State regulation. Rule 1140 (Amended 1985) has been developed for consistency with the California Code of Regulations Title 17, Subchapter 6 – Abrasive Blasting. Current permit conditions for abrasive blasting require venting to a PM air pollution control (APC) equipment when in full use.

Regulatory History

Rule 1140 is considerably similar to the California Code of Regulations, Title 17, Subchapter 6 — Abrasive Blasting provisions, which have been adopted by most California Air Districts. State law prohibits more stringent requirements. As such, the current Rule 1140 meets the BACT requirements.

Proposed Method of Control

Baghouses or dry filters are the most frequently used APC equipment. This control measure proposes voluntary applications of a portable blasting enclosure/booth with a dust collection system by providing incentives, primarily focusing on dry abrasive blasting operations conducted in open areas using portable blasting equipment with or without a written South Coast AQMD permit.

Emission Reductions

To be determined.

Rule Compliance and Test Methods

South Coast AQMD's Rule 1140 states that before blasting all abrasives used for dry unconfined blasting shall contain no more than 1% by weight material passing a No. 70 U.S. Standard sieve, and after blasting the abrasive shall not contain more than 1.8% by weight material five microns or smaller.

All abrasives used for dry unconfined blasting shall comply with the performance requirements of sections (c)(1)(A) and (c)(1)(B) in Rule 1140 when tested in accordance with "Method of Test for Abrasive Media Evaluation, Test Method No. Calif. 371-A", or other test method approved by the Executive Officer. In addition, Rule 1140 states that visible emission evaluation of abrasive blasting operations shall be conducted in accordance with the following provisions:

1. Emissions shall be read in opacities and recorded in percentages.
2. The light source should be behind the observer during daylight hours.
3. The light source should be behind the emission during hours of darkness.
4. The observer position should be at approximately right angles to wind direction and at a distance no less than twice the height of the source but not more than a quarter mile from the base of the source.
5. Emissions from unconfined abrasive blasting shall be read at the densest point in the plume, which point shall be at least 25 feet from the source.
6. Where the presence of uncombined water is the only reason for failure to comply with opacity limits, the opacity limits shall not apply. The burden of proof in establishing that opacity limits shall not apply shall be upon the operator.

7. Emissions from unconfined abrasive blasting employing multiple nozzles shall be evaluated as a single source unless it can be demonstrated by the operator that each nozzle, evaluated separately, meets the requirements of this rule.
8. Emissions from confined abrasive blasting shall be read at the densest point after the air contaminant leaves the enclosure.

Cost Effectiveness

To be determined.

Implementing Agency

South Coast AQMD.

References

2016 AQMP; [final2016aqmp.pdf \(aqmd.gov\)](#)

Rule 1140 - Abrasive Blasting; [RULE 1140. ABRASIVE BLASTING \(aqmd.gov\)](#)

California Code of Regulations Title 17, Subchapter 6; [CCR: Title 17 Sections 92000 - 92530 Abrasive Blasting \(ca.gov\)](#)

BCM-16: EMISSION REDUCTIONS FROM STONE GRINDING, CUTTING AND POLISHING OPERATIONS

[PM2.5]

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	STONE FABRICATION OPERATIONS	
CONTROL METHODS:	WET DUST SUPPRESSION, PORTABLE HEPA FILTERS	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
POLLUTANT INVENTORY	TBD	TBD
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
CONTROL COST:	TBD	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD	

Description of Source Category

Stone fabrication such as grinding, cutting, drilling, scarifying, polishing, carving, and etching generates significant amounts of dust emissions containing PM10, some PM2.5, and silica particles which are known to cause lung diseases or silicosis. Uncontrolled PM emissions from stonework can contribute to regional PM levels and cause high concentrations of PM locally, while also elevating the exposure of workers and neighborhood residents to toxic silica particles.

Background

Masonry or building materials such as concrete, stone, granite, tile, brick, and mortar can be processed for a variety of purposes at confined (e.g., stone shops) or unconfined (outdoor) worksites. Examples of these processes include, but are not limited to, grinding, milling, cutting, scarifying, drilling, carving, etching, and polishing operations for residential and commercial new construction and renovation. Many of those operations are performed by builders, landscapers and remodeling contractors, and may not be

properly controlled for dust emissions. These operations are exempt from permitting requirements under South Coast AQMD Rule 219.

Regulatory History

South Coast AQMD Rule 219 does not require permits for machining equipment exclusively used for polishing, cutting, surface grinding, etc. However, South Coast AQMD Rule 403 – Fugitive Emissions, prohibits fugitive emissions from any onsite mechanical activities, including cutting, from exceeding a 20 percent opacity limit.

Proposed Method of Control

This control measure would seek to control PM including silica particles. Both dry and wet dust control options are available. Some of these methods of control are already regulated by the California Occupational Safety and Health Administration (Cal OSHA) as existing workplace standards.

- Wet Control Methods
 - Wet systems involve spraying water onto the rotating cutting disc to reduce dust emissions. Emissions are expected to be minimal, provided the waste material is disposed of properly. This method will produce a wet slurry associated with the wet dust suppression, in which case wet vacuuming, wet wiping, and wet sweeping can be implemented as housekeeping measures.
- Dry Control Methods
 - Local exhaust ventilation (LEV) would be suitable for hand-held power tools (e.g., cut-off saws and grinders). It uses guards and directors attached to the tools to act as a dust collecting hood. The guard or director is connected to an industrial vacuum cleaner which provides sufficient exhaust ventilation to capture the majority of dust emitted during the cutting or grinding operation. The vacuum cleaner is equipped with high efficiency particulate air (HEPA) filter to protect workers from silica dust.
 - Dry cutting emissions can be controlled at the point of operation using a portable dust collector, air scrubber and negative air machine to prevent dust from being released into the atmosphere. A combination of a variety of filter media can be customized to achieve appropriate controls, including HEPA filters.
- Incentives
 - Financial incentives can be made available to exchange existing dry/wet equipment with new equipment that includes integrated add-on controls.

Emission Reductions

HEPA filters are certified by manufacturers to be 99.97 percent efficient in removing particles 0.3 microns or larger once airborne dust is diverted to a collection system. However, the collection efficiency of these systems can vary widely. The PM emissions inventory and emission factors from these mechanical activities are currently not determined and will be examined during rule development.

Rule Compliance and Test Methods

Some work may be conducted at residential job sites, which presents enforcement challenges. A South Coast AQMD rule, other enforceable instrument, or use of equipment certification or incentives will be considered. The most efficient regulatory approaches will be selected considering cost-effectiveness.

Cost Effectiveness

To be determined during rule development.

Implementing Agency

South Coast AQMD has the authority to regulate emissions from stationary sources.

References

Occupational Safety and Health Administration (OSHA), Worker Exposure to Silica during Countertop Manufacturing, Finishing and Installation, OSHA – HA-3768-2015.

<https://www.osha.gov/sites/default/files/publications/OSHA3768.pdf>

California Code of Regulations, Title 8, Section 1530.1 – Control of Employee Exposures from Dust Generating Operations Conducted on Concrete or Masonry Materials

**BCM-17: EMISSION REDUCTIONS FROM PRESCRIBED BURNING FOR WILDFIRE
PREVENTION
[PM2.5, NOx]**

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	N/A	
CONTROL METHODS:	INCENTIVE FUNDING	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
PM2.5 INVENTORY	0.27	0.27
PM2.5 REDUCTION	-	N/A
PM2.5 REMAINING	-	N/A
ANNUAL AVERAGE [NOx]:	2018	2030
NOx INVENTORY	0.01	0.01
NOx REDUCTION	-	N/A
NOx REMAINING	-	N/A
CONTROL COST:	\$5,100 PER TON OF TSP PREVENTED; TBD FOR NOx	
INCENTIVE COST:	\$318,240	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD	

Description of Source Category

This proposed control measure will seek particulate matter emission reductions and property defensible space enhancements from fuel reduction efforts via hand-thinning, mechanical thinning, and the use of chipping equipment (chipping) to mitigate excess fuels at properties located in the residential urban-wild-interface (UWI) areas of the San Bernardino National Forest (SBNF).

Background

Wildfires are a natural part of healthy Southern California forest ecosystems. Frequent and low- to moderate-intensity natural wildfires allow for fire-adapted species to reproduce, remove dying or dead flora, and increase forest resiliency through maintaining a natural biomass density.

Beginning in the early 20th century, fire suppression became the standard approach to managing fire. Fueled by fire suppression initiatives from the U.S. Forest Service as a result of the Theodore Roosevelt administration, changes to the social perception of forests, and economic pressure for optimizing timberlands not for forest health but for timber density, the natural cycle of fire-induced forest clearing and rejuvenation was disrupted. Several areas, including Southern California, have experienced severe wildfires as a result of overgrown fuel sources that have accumulated over the last several decades. Combined with increasing urbanization and increased climate change, flagrant wildfires are becoming more destructive and frequent, with 9 of 10 of the largest, most destructive, and most deadly fires in California's history occurring within the last decade.

Since the last third of the 20th century, policies against controlled burns were lifted on public and private lands and prescribed fire began to reemerge as a tool to combat human-caused forest compositional changes. However, progress has been slow and many acres remain to be fully treated. A 2019 study "We're Not Doing Enough Prescribed Fire in the Western United States to Mitigate Wildfire Risk," written by University of Idaho fire scientist Crystal Kolden, concluded that although California intentionally burned around 90,000 acres in 2018, however, the ideal burn rate is 5-10 times that amount.

While effective, prescribed burns have a complex administrative process in order to be approved, including burn and smoke management plans requiring regulatory approval. Prescribed burns also have social and safety implications as they are inherently a stronger and more complex approach to fuel reduction than thinning mechanisms. Hand-thinning and mechanical-thinning are fuel reduction methods that can be used in addition to or in-place of prescribed burning to achieve the objective of reduced fuel loads. These methods are often chosen in UWI areas due to proximity to structures and human life.

Thinning methods are also often paired with either prescribed pile burns or with chipping. Prescribed pile burns are similar to prescribed burns (often called "broadcast burns") but are localized to individual piles of loaded fuel from thinning efforts. Chipping involves no burning but changes the physical composition of the fuel.

Fuel composition encompasses four different categories. *Ground fuels* are the lowest elevation fuel that do not generally contribute to wildfire intensity or spread and consist of below-surface materials such as organic soils, duff, decomposing litter, roots, buried logs, and portions of stumps that lie below the surface. *Surface fuels* are on or near the ground floor that are often the most hazardous fuels, which is especially true in drier forests that have been affected by fire suppression and hyper-focused timber harvesting. Surface fuels consist of leaf and needle litter, dead branch material, downed logs, bark, tree cones, short shrubs, grasses, and other herbaceous materials. *Ladder fuels* are the next vertical fuel layer and are the second-most dangerous fuel as they allow for vertical extension of lower-intensity ground and

surface fires into the canopy of larger trees. Ladder fuels consist of small trees, large shrubs, and the understory layer of trees. *Crown fuels* are the highest vertical fuel layer and include the canopy of large trees and play a smaller role in overall fire hazard potential.

Pairing thinning with chipping, also known as mastication, reduces flammable material and changes the physical composition from voluminous and flammable surface, ladder, and occasionally canopy fuels, into dense and less flammable chips. Thinning efforts primarily target ladder fuels to both reduce continuity between surface and crown fuels as well as promote native species propagation in areas where natural fires have been suppressed. Chips are a class of organic mulch and may be spread on the site where the fuel is collected, spread on private or government properties, or delivered to county facilities for processing. There is currently a shortage of data on mulch spread on the site of fuel collection on long-term ecological impact, with some studies showing an increase in non-native herbaceous and shrub flora and a short-term increase in surface fire hazard.

This mulch provides a multitude of benefits including reduced water consumption for adjacent flora, enhanced soil temperature insulation, reduced invasive weed propagation, improved erosion and dust control, mitigation of soil compaction, and aesthetic improvements. If gathered in sufficient enough quantities, chip material may also serve as an input to biomass processing facilities for energy production.

Homes and structures can catch fire through a variety of mechanisms, including embers which can float away from a main fire, radiant heat which can indirectly ignite materials from a sightline to a flame if in close enough proximity, and direct flame contact. Home hardening is the process of selecting materials, installation techniques, landscaping, and spacing considerations to increase the resiliency of homes or structures against these ignition mechanisms.

The California Department of Forestry and Fire Protection (CalFire) currently specifies 4 zones for defensible space for structures. *Zone 0* requirements, put into law in 2020 by Assembly Bill 3074, extend 0-5 feet from a structure and allows for no combustible material. *Zone 1* extends to 30 feet and requires removal of highly combustible materials such as dead vegetation. *Zone 2* extends to 100 feet and requires optimized spacing and vegetative care, such as no overgrown grass and appropriate spacing between plants, shrubs, and trees. CalFire also recommends removing all tree branches at least 6 feet from the ground and maintaining a vertical spacing under trees equal to 3 times the height of the tallest nearby shrub.

The practice of thinning and use of chips as ground cover can facilitate defensible space modifications by removing excess surface and ladder fuels and enhance the resiliency of underlying soil through increased water retention, complementing home hardening efforts.

The Mountain Rim Fire Safe Council (the "Council"), encompassing 110 square miles and much of the San Bernardino UWI, has successfully demonstrated the effectiveness of chipping initiatives and has successfully received CalFire and Southern California Edison funding in the past for thinning and chipping treatment.

Regulatory History

There are no South Coast AQMD funding initiatives specifically addressing fuel reduction efforts in communities in the San Bernardino National Forest. Rule 444 currently applies to open burning activities, which includes prescribed fire burning, but does not include a fuel reduction provision or mechanism for private landowners to conduct prescribed burning on residential properties. Rule 444 currently only allows for prescribed burning on public lands or lands open to the public, such as scout and Christian camps, when conducted by fire management agencies only.

Proposed Method of Control

The proposed method of control is to coordinate with other agencies to provide funding for chipping operations for the remaining untreated area in the Council's UWI. This would be similar to the CalFire and Southern California Edison grants the Council has received in the past. The Council has not been able to provide sufficient chipping operations to its constituency due to the overwhelming demand for the service that has already exhausted its most recent grant.

The Council has received a total of three grants for chipping operations, awarded in 2014, 2017, and 2018. Although the 2018 grant was intended to be a 4-year grant, the Council had a nearly 300 percent increase in enrollment in its constituency from the 2017 grant and the funds were exhausted 18 months early.

The Council has provided records detailing the volunteer match to the grant funds. With the chipping program in place, homeowners in the UWI are much more compliant and engaged with assisting with fuel load reduction by trimming and removing excess hazardous vegetation, such as dead trees and leaf litter, for chipping than without the program. Using the number of volunteer hours from these property owners for each grant and the California Volunteer Rate, the Council estimates a 440 percent volunteer match to grant funds.

The Council's 2017 and 2018 grants' funds were provided by the California Climate Investments Program, with a requirement to track the amount of fuel collected. The Council also tracked the 2014 amount of fuel collected. The total fuel collected was 1,682,215 cubic feet which is equivalent to approximately 20,187 green tons. The unit of measure, green tons, refers to the weight of material as it currently exists, moisture included, and bone-dry tons (BDT) refers to the dry-weight component of the green tonnage, without moisture.

As of 2021, the Council estimates that 25,000 properties still remain untreated, even after the three grants had been received and chipping was implemented.

Studies show that the combination of thinning and chipping costs approximately \$500-\$1,500 per acre treated. Over the course of the three grants, the Council has treated approximately 1,491 acres with grant funds of \$284,242 and a volunteer match of \$1,259,920, or a total of \$1,544,162 expended for fuel reduction. Adjusting each grant's funds and each grant's corresponding volunteer match for inflation to

June 2023, the total is \$1,895,756. This results in a cost-per-acre of \$1,271. Based solely on grant funds, the cost-per-acre is \$234/acre.

The 1,491 treated acres covered 2,281 properties, or an average of 0.65 acres per property. For the 25,000 remaining properties, a total of 16,250 acres remain to be treated assuming 0.65 acres per property. With the current grant-portion cost-per-acre of \$234, this results in grant funds of \$3,802,500. Given the extensive and ongoing nature of fuel reduction, it is advisable to stage the total number of treated acres over several years. This proposal recommends providing a portion of this total amount as funding for an initial pilot for one grant cycle to last 2 years. The increasing engagement of the chipping program in the subject area suggests that subsequent cycles have an increasing enrollment. The assumed number of participating properties is at least that of the highest enrollment in a previous year, which was 1,046 properties in 2020. Providing funding for 2 years results in a total of at least 2,092 properties or 1,360 acres. This results in pilot funding in the amount of \$318,240. Upon conclusion of this pilot, a review shall be completed and a vote conducted on whether to continue providing funding for additional years based on treated area and overall success of the pilot grant.

While it is possible additional CalFire grants may be received by the Mountain Rim Fire Safe Council, funds from the South Coast AQMD would supplement, enhance, and broaden the positive impact of chipping activities and allow any future CalFire grant funds to be targeted to any number of additional fire-related initiatives: fire hazard abatement assistance; hazardous dead tree removal, document shredding, elimination of interior fuels, the publication of "Living with Wildfire in the Inland Empire", house numbering, leaf litter and pine needle collection, and fire prevention outreach and education.

Additional projects are conducted by the Council without any funding: Gold-Spotted Oak Borer Task Force (an invasive species), goats for fuel reduction; BioChar for woody debris disposal, pine needle collection and disposal (for use as biochar and/or use at ski resorts), home hardening compliance, demonstration of fire safe gardens/landscape sites (to showcase drought resistant, low water native species in various areas), and others such as a statewide chipping locator service currently in development. During rule development, staff will consider technical feasibility, identify industry-specific affordability issues, cost-effectiveness and incremental cost-effectiveness, and may consider alternative compliance mechanisms.

Emission Reductions

While there are no direct emission reductions associated with this proposal, it provides a preventative mechanism that may reduce emissions in the future. A flagrant, uncontrolled wildfire is undesirable, and can lead to destruction of properties as well as multiple tons of pollutants, including toxic pollutants, depending on the size of the wildfire and what is burning. Fortunately, there has not been a major fire in the San Bernardino UWI area since 2018 and thus the mitigated impact in terms of wildfire severity cannot be measured. However, it is reasonable to assume that, should a wildfire break out, that the 1,360 acres' worth of fuel, if not collected, would be burned, which is a likely scenario given the collected fuel is primarily ladder fuels. Additionally, structures that have not had thinning and chipping treatment are at an increased risk of burning and emitting toxic contaminants from interior fuel burning such as benzene,

methylene chloride, vinyl chloride monomer, naphthalene, asbestos, and arsenic. These contaminants were released into the town of Paradise's drinking water supplies as it burned during the 2018 Camp Fire.

The average cubic feet of collected fuel per acre over the last 3 grants is 1,130 cubic feet per acre. Applied to the pilot grant's 1,360 acres, this equates to a total of 1,536,800 cubic feet of fuel proposed to be collected.

Several studies have reviewed the emissions profile of burned fuel. These emissions vary extremely widely depending on a number of factors including type of fuel (plant, shrub, or tree), species of fuel, humidity, available oxygen, temperature, wind, moisture content, and other factors.

One such source is a calculator developed by the University of Washington and used by the U.S. Forest Service which estimates emissions from pile burning based on fuel type, volume of fuel pile, packing density (large trees have higher packing density), bone-dry mass (removing moisture), and percentage of mass consumed. Using a total of 1,536,800 cubic feet of fuel collected (assumed to be a conifer composition with 90 percent combustion efficiency) and revising the calculator's packing density from 20 percent to 75 percent, the total emissions are 4.24 tons (PM), 3.00 tons (PM₁₀), 2.62 tons (PM_{2.5}), 60.72 tons (CO), 1,862 tons (CO₂), 4.91 tons (CH₄), and 3.32 tons (non-methane hydrocarbons). This source determines foregone emissions from preventing wildfire of the collected fuel only.

Another source is the U.S. EPA's AP-42, CH 13.1: "Wildfires and Prescribed Burning," which gives various emission factors for several different regions of the country. Although California is its own region (Region 5), due to the majority of California's forest being outside of Southern California and the region of the Council being closer in climate to that of the Southwestern region (Region 3), Region 3's emission factors were chosen. Region 3's emission factors are also lower than that of Region 5, providing a more conservative estimate of an emissions profile from burning. These emission factors are given in kg/Hectare units and are shown as 191 (PM), 1,570 (CO₂), 269 (CH₄), and 45 (NO_x). Converting the pilot acreage of 1,360 acres to hectares yields 550.37 hectares. Converting kilograms (kg) to tons yields a conversion factor of 0.0011 tons/kg. This yields the following: 115.6 tons (PM), 950.49 tons (CO₂), 162.85 tons (CH₄), and 27.24 tons (NO_x). This source determines foregone emissions from preventing wildfire of the total land area in the pilot grant. It is reasonable to assume that if a given land area is not treated, that more fuel than just that amount collected will burn as well. The collected fuel will contain excess ladder fuels, which if not collected, may lead to canopy fires and total combustion of a given land area.

Rule Compliance and Test Methods

Due to the nature of this control measure, no rules or test methods are proposed.

Cost Effectiveness

The pilot funding amounts to a grant of \$318,240 to treat 1,360 acres for fuel reduction in the San Bernardino UWI. Should these materials be prevented from burning in a wildfire, the PM emissions

prevented amount to 9.86 tons - 115.6 tons. Total Suspended Particles (TSP) will be used to aggregate all PM emissions and is defined as all particulates with a diameter less than or equal to 100 microns. A median of value of 62.73 tons TSP is selected, as the most probable scenario is that all of the excess surface and ladder fuels and a portion of canopy fuels would be combusted in a wildfire. Using this median value, the cost-effectiveness is \$318,240/62.73 tons = \$5,073 per ton of TSP prevented.

Implementing Agency

South Coast AQMD has the authority to provide grant funds to prevent emissions from excess fuel.

References

CalFire. (n.d.). *History*. Retrieved August 4, 2021, from <https://www.fire.ca.gov/about-us/history/>

CalFire. (n.d.). *Fuels Reduction Guide*. Retrieved August 4, 2021, from <https://www.fire.ca.gov/media/4jqerfjh/fuels-reduction-guide-final-2021-interactive.pdf>

CalFire. (n.d.). *Fire Probability for Carbon Accounting*. Retrieved August 4, 2021, from <https://egis.fire.ca.gov/FireProbability/>

CalFire. (n.d.). *Fire Hazard Severity Zones*. Retrieved August 4, 2021, from <https://osfm.fire.ca.gov/divisions/community-wildfire-preparedness-and-mitigation/wildfire-prevention-engineering/fire-hazard-severity-zones/>

CalFire. (n.d.). *Defensible Space*. Retrieved August 4, 2021, from <https://www.fire.ca.gov/programs/communications/defensible-space-prc-4291/>

California Fire Safe Council. (n.d.). *Annual Grant Reports*. Retrieved July 22, 2021, from <https://cafiresafecouncil.org/grants-and-funding/grants-clearinghouse/annual-grant-reports/>

Fire prevention: wildfire risk: defensible space: ember-resistant zones, Cal. Assemb. B. 3074, Chapter 259 (Cal. Stat. 2020).

Fitzgerald, S. (2013). *A Land Manager's Guide for Creating Fire-Resistant Forests* (M. Bennett, Ed.) [Review of *A Land Manager's Guide for Creating Fire-Resistant Forests*]. Oregon State University Extension Service. <https://www.nwfirescience.org/sites/default/files/publications/A%20Land%20Managers%20Guide%20for%20Creating%20Fire-resistant%20Forests%20.pdf>

Forest History Society. (n.d.). *U.S. Forest Service Fire Suppression*. Retrieved August 4, 2021, from <https://foresthstory.org/research-explore/us-forest-service-history/policy-and-law/fire-u-s-forest-service/u-s-forest-service-fire-suppression/>

Jakobs, J. (2020, September 15). *California Forests 80%-600% Denser Than 150 Years Ago, UC Researcher Says Biomass Is One of the Answers*. GV Wire. <https://gvwire.com/2020/09/15/california-forests-80-600-denser-than-150-years-ago-uc-researcher-says-biomass-is-one-of-the-answers/>

Kolden, C. A. (2019). We're Not Doing Enough Prescribed Fire in the Western United States to Mitigate Wildfire Risk. *Fire*, 2(2), 30. doi:10.3390/fire2020030

Minnesota Department of Natural Resources. (n.d.). *The Benefits of Prescribed Burning on Private Lands*. Retrieved August 4, 2021, from

https://files.dnr.state.mn.us/assistance/backyard/privatelandsprogram/benefits_prescribed_burning.pdf

Office of Air Quality Planning and Standards, Office of Air and Radiation (1995). AP-42 Fifth Edition: *Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources*. U.S. Environmental Protection Agency.

Rogstad, A., DeGomez, T., Hayes, C., Schalau, J., & Kelly, J. (n.d.). *Comparing the Ignitability of Mulch Materials for a Firewise Landscape* [Review of *Comparing the Ignitability of Mulch Materials for a Firewise Landscape*]. The University of Arizona Cooperative Extension. Retrieved August 4, 2021, from

https://www.firesafemarin.org/wp-content/uploads/2017/04/Comparing_the_ignitability_of_mulch_materials_for_a_firewise_landscape_az1440-2014.pdf

Schrader-Patton, C. C., & Underwood, E. C. (2021). New Biomass Estimates for Chaparral-Dominated Southern California Landscapes. *Remote Sensing*, 13(8), 1581. <https://doi.org/10.3390/rs13081581>

South Coast Air Quality Management District. (2013). Rule 444 – Open Burning (Amended July 12, 2013). <http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-444.pdf>

Wright, C. S. (2015). Piled fuels biomass and emissions calculator. Retrieved July 27, 2021, from <https://www.fs.usda.gov/pnw/tools/piled-fuels-biomass-and-emissions-calculator-tool>

BCM-18: FURTHER EMISSION REDUCTIONS FROM WOOD-BURNING FIREPLACES AND WOOD STOVES

[PM2.5]

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	RESIDENTIAL WOOD COMBUSTION	
CONTROL METHODS:	REMOVE LOW-INCOME EXEMPTION ALLOWING WOOD-BURNING ON NO-BURN DAYS	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
POLLUTANT INVENTORY	4.94	4.82
POLLUTANT REDUCTION	-	<u>0.33</u> TBD
POLLUTANT REMAINING	-	<u>4.49</u> TBD
CONTROL COST:	TBD	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD/LOCAL OR REGIONAL AGENCIES	

Description of Source Category

The purpose of this control measure is to seek additional PM2.5 emission reductions from residential wood burning activities.

Background

The types of devices used to burn wood in a typical residence are fireplaces and wood heaters (e.g., fireplace inserts and free-standing wood stoves). Since fireplaces are very inefficient heat sources and given the temperate climate in the Basin, they are used primarily for aesthetic purposes. Fireplace inserts and wood stoves are much more efficient and, in some residences, are used as the primary source of heating.

Emissions from residential wood burning devices are caused primarily by incomplete combustion and include PM, CO, NO_x, SO_x, and VOC. Particulate emissions, however, have been the focus of most air district control programs. Studies indicate that the vast majority of particulate emissions from residential wood combustion are in the fine (2.5 micrometers or less) fraction (PM_{2.5}). Additionally, incomplete combustion of wood produces polycyclic organic matter (POM), a group of compounds classified as hazardous air pollutants under Title III of the federal Clean Air Act. Biomass burning is also a source of black carbon (soot) which recent studies suggest can influence climate by directly absorbing light, reducing the reflectivity of snow and ice through deposition and interacting with clouds. According to CARB, soot from residential wood combustion is forecast to be the largest individual anthropogenic (man-made) source of black carbon in 2030 if no new programs are implemented.

Regulatory History

Control measures for residential wood combustion were included in the 2007 and 2012 AQMPs and Rule 445 was adopted in 2008 and amended in 2013 to implement those control measures. In 2020, South Coast AQMD amended Rule 445 to extend the No-Burn Day requirement by mandating Basin-wide curtailment in all cases where any source receptor area exceeds a daily air quality forecast of 30 µg/m³. Ozone and PM contingency measures were also added, including the establishment of new curtailment thresholds. Under the Rule 445 provisions, only gaseous-fueled hearth devices are allowed in new developments. For additions or modifications to existing developments, Rule 445 allows any gaseous-fueled device, but any wood-burning devices sold or installed must be U.S. EPA Phase II-certified or equivalent. Rule 445 prohibits the burning of any product not intended for use as a fuel (e.g., trash) in a wood burning device and requires commercial firewood facilities to only sell seasoned firewood (20 percent or less moisture content) from July through February. Rule 445 also established a mandatory wood burning curtailment program extending from November 1 through the end of February each winter season. During a wood burning curtailment period, the public is required to refrain from both indoor and outdoor solid fuel burning in specific areas when PM_{2.5} air quality is forecast to exceed 30 µg/m³. These no burn provisions apply to the entire Basin whenever a PM_{2.5} level of greater than 30 µg/m³ is forecast for any monitoring station that has recorded violations of the federal 24-hour PM_{2.5} standard in either of the previous two years. In 2021, this limit dropped to 29 µg/m³, when the first contingency measure in the rule was triggered due to a failure to attain the PM_{2.5} 24-hour standard by the due date. Lastly, Rule 445 requires commercial firewood or other wood-based fuel sellers to notify the public of the Check Before You Burn wood burning curtailment program through a labeling program.

AB 32 (California Global Warming Solutions Act of 2006) includes provisions to achieve and maintain Statewide GHG emission limits. Senate Bill (SB) 605 (Lara, Chapter 523, Statutes of 2014) requires CARB to develop a plan to reduce what are referred to as short-lived climate pollutants, including black carbon. In response to SB 605, CARB adopted the Short-Lived Climate Pollutant Reduction Strategy (SLCP Reduction Strategy)⁶⁵ in March 2017, which includes recommended control measures and emission reduction targets for residential wood combustion. Ultimately, the SLCP Reduction Strategy, along with

⁶⁵ https://ww2.arb.ca.gov/sites/default/files/2020-07/final_SLCP_strategy.pdf

other planning efforts, was incorporated into CARB's 2022 Scoping Plan Update⁶⁶ targeting to achieve carbon neutrality by 2045. Residential wood burning emissions, which account for 95 percent of residential black carbon emissions, are being reduced through Statewide programs like the Woodsmoke Reduction Program⁶⁷ established by SB 563 (Lara, Chapter 671, Statutes of 2017). The Woodsmoke Reduction Program offers financial incentives for homeowners to replace old, inefficient, and highly polluting wood stoves, wood inserts, or fireplaces with cleaner burning and more efficient home heating devices and is part of California Climate Investments,⁶⁸ a Statewide initiative that uses billions of dollars from the cap-and-trade program to improve public health and the environment, especially in disadvantaged communities, reduce greenhouse gas emissions, and boost the economy.

In 2019, the SJVAPCD amended Rule 4901 to introduce a two-tiered curtailment program which applies differently to hot-spot vs. non-hot-spot counties. In the "hot-spot" counties of Madera, Fresno, and Kern, the level one PM_{2.5} threshold is 12 µg/m³ and the level two PM_{2.5} threshold is 35 µg/m³. For the non-hot-spot counties in the San Joaquin Valley (San Joaquin, Stanislaus, Merced, Kings, and Tulare), the level one PM_{2.5} threshold is 20 µg/m³ and the level two PM_{2.5} threshold is 65 µg/m³. In 2023, the SJVAPCD amended Rule 4901 to add a contingency measure for applicable PM_{2.5} NAAQS (Section 2.5 – Section 5.7.3 Contingency Provision). If triggered, the contingency measure would align the non-hot-spot curtailment thresholds with the more stringent hot-spot thresholds.

Proposed Method of Control

Based on a review of other air districts' wood smoke control programs, the curtailment program in Rule 445 is as stringent as, if not more stringent than similar programs in other air districts. As presented in Appendix III, a quantitative analysis was conducted to compare the emission reductions achieved by Rule 445 to those that would be achieved if other air districts' programs were implemented in the Basin. The analysis demonstrated that the current Basin-wide curtailment threshold of 29 µg/m³ provides equivalent to or greater stringency than other air districts curtailment programs ~~if the low-income exemption is removed. However, based on U.S. EPA Region 9's comment, Therefore, South Coast AQMD will retain the current curtailment threshold. South Coast AQMD will also consider lowering the curtailment threshold to 25 µg/m³ and removing the low-income exemption, while retaining the sole-source of heat exemption to allow wood burning on no-burn days for the households with no other source of heating than wood burning. South Coast AQMD may also consider lowering the curtailment threshold if future analyses demonstrate that this would be necessary to maintain the stringency of Rule 445. South Coast AQMD will consider to remove the low-income exemption in Rule 445 as well.~~

Independent of MSM, this control measure also seeks to assess the feasibility of expanding access to incentives, especially for disadvantaged communities. Since 2008, South Coast AQMD has implemented programs which provide financial incentives to encourage the public to switch to cleaner hearth devices.

⁶⁶ <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf>

⁶⁷ <https://ww2.arb.ca.gov/our-work/programs/residential-woodsmoke-reduction/woodsmoke-reduction-program>

⁶⁸ <https://ww2.arb.ca.gov/our-work/programs/california-climate-investments>

The current program encourages households to upgrade wood-burning devices through South Coast AQMD incentives of up to \$1,600 to offset purchase and installation costs. Although this program has been effective, additional reductions may be achieved through the use of higher incentives or expansion of the eligible geographic area. Experience has shown that education and outreach to targeted households is vital to ensure program participation.

Emission Reductions

~~To be determined during rulemaking.~~ Refer to Attachment C of Appendix III for a quantification of reductions.

Rule Compliance and Test Methods

Compliance with this control measure is reliant on use of incentives and verification through complaint response. U.S. EPA is responsible for certifying wood burning devices under Title 40 Code of Federal Regulations, Part 60, Subpart AAA.

In general, compliance will be difficult to quantify as South Coast AQMD does not have the resources necessary to verify compliance with the curtailment program at the millions of residences with wood-burning devices.

Cost Effectiveness

The cost-effectiveness of this control measure has not been determined, however, increasing the number of curtailment days would result in few cost increases, if any, to the impacted community. Households that lack an alternative source of heat would continue to be able to burn on no-burn days so there would be no requirement to upgrade to a gas or electric furnace.

Implementing Agency

South Coast AQMD has the authority to regulate emissions from residential wood combustion sources. South Coast AQMD will also seek partnerships with CARB, hearth product manufacturers and other air districts to secure funding to expand on current incentive programs that encourage the public to switch to lower emission fireplaces and woodstoves through financial incentives.

References

Bay Area AQMD, 2015. Bay Area Air Quality Management District, Air District Proposed Amendments to Regulation 6, Rule 3: Wood Burning Devices, August 17, 2015.

CARB, 2011. California Air Resources Board; Area Source Methodology, Section 7.1 Residential Wood Combustion; March 2011.

CARB, 2016. California Air Resources Board; Proposed Short-Lived Climate Pollutant Reduction Strategy; April 2016.

Naeher, 2007. Woodsmoke Health Effects: A Review, Journal of Inhalation Toxicology, 19:67-107, 2007

SJVAPCD, 2014. San Joaquin Valley Air Pollution Control District, Rule 4901 – Wood Burning Fireplaces and Wood Burning Heaters; Amended September 18, 2014.

SJVAPCD, 2023. San Joaquin Valley Air Pollution Control District, Rule 4901 – Wood Burning Fireplaces and Wood Burning Heaters: Amended May 18, 2023.

SCAQMD, 2013. South Coast Air Quality Management District; Draft Final Staff Report for Proposed Rule 445 – Wood Burning Devices; May 2013.

SCAQMD, 2020. South Coast Air Quality Management District; Final Staff Report for Proposed Amended Rule 445 – Wood Burning Devices; October 2020

SCAQMD, 2020. South Coast Air Quality Management District; Draft Final Staff Report for Proposed Amended Rule 445 – Wood Burning Devices; June 2020.

U.S. EPA, 1996a. U.S. Environmental Protection Agency AP-42, Section 1.9, Residential Fireplaces; October 1996.

U.S. EPA, 1996b. U.S. Environmental Protection Agency AP-42, Section 1.10, Residential Wood Stoves; October 1996.

U.S. EPA, 2016. U.S. Environmental Protection Agency, Black Carbon Background Publication <https://www3.epa.gov/blackcarbon/basic.html#where> and Effects of Black Carbon Publication.

BCM-19: EMISSION REDUCTIONS FROM UNPAVED ROAD DUST SOURCES [PM2.5]

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	UNPAVED ROADS AND LOTS	
CONTROL METHODS:	DEVELOP AN INVENTORY TO ASSESS THE SUITABILITY FOR PAVING	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
POLLUTANT INVENTORY	1.67	1.67
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
CONTROL COST:	TBD	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD/LOCAL OR REGIONAL AGENCIES	

Description of Source Category

This measure seeks to evaluate the potential to reduce PM2.5 emissions from well-traveled unpaved lots, roads, shoulders and other surfaces by applying paving materials.

Background

Fugitive dust emissions occur whenever vehicles travel over a surface such as a paved or unpaved road or parking lot through the re-suspension of loose material. While fugitive dust emissions are primarily in the coarse size fraction 10 to 2.5 microns, entrained road dust is a major direct PM2.5 source. Road dust emissions vary according to the “silt loading” present on the road surface. According to U.S. EPA, silt loading is more specifically defined as the mass of silt-sized material (75 microns or less) per unit area of the travel surface. Unpaved roads entrain more fugitive PM per Vehicle Miles Traveled (VMT). Sources affecting silt loading generally include: 1) road composition; 2) vehicle-related deposition; 3) dust fall; 4) litter; 5) mud and soil; 6) erosion from adjacent areas; 7) spills; 8) biological debris; 9) ice control compounds; 10) recent or current precipitation; and 11) the vehicle types using the road. Because of the importance of silt loadings and road composition to emissions, paving an unpaved road is a

substantial contributor to reducing fugitive road dust emissions. U.S. EPA guidance encourages preventative over mitigative controls to reduce paved road dust PM emissions.

Paving of unpaved surfaces is a common strategy used in construction projects and other community improvement initiatives to reduce dust and airborne particulate matter emissions, including PM_{2.5}. Other air districts have implemented unpaved road dust control measures that include paving as one method of controlling particulate matter emissions. Some have established traffic thresholds that would trigger the paving requirements set therein, and methodologies for PM emissions quantification.

Regulatory History

In accordance with U.S. EPA guidance, South Coast AQMD has implemented a comprehensive program to reduce paved road dust emissions through both preventative and mitigative controls. Examples of preventative controls are included in South Coast AQMD rules that require access improvements to reduce the amount of material tracked out from a facility onto surrounding paved public roads, including:

- Rule 403 – Fugitive Dust
- Rule 1156 – Further Reductions of Particulate Emissions from Cement Manufacturing Facilities
- Rule 1157 – PM₁₀ Emission Reductions from Aggregate and Related Operations
- Rule 1158 – Storage, Handling, and Transport of Coke, Coal and Sulfur
- Rule 1460 – Control of Particulate Emissions from Metal Recycling and Shredding Operations
- Rule 1466 – Control of Particulate Emissions from Soils with Toxic Air Contaminants

Additionally, Rule 1186 – PM₁₀ Emissions from Paved and Unpaved Roads, and Livestock Operations requires new or widened roads to be constructed with curbing or, as an alternative, paved shoulders. Most local governments implement mitigative controls through routine street sweeping conducted at frequencies of once or twice per week. Existing National Pollution Discharge Elimination System (NPDES) regulations also require local governments to establish street sweeping programs as part of a comprehensive effort to reduce debris from entering storm drains. South Coast AQMD has also established mitigative controls for paved road dust through requirements for local governments to procure only certified street sweeping equipment (Rule 1186) that operate on alternative fuels (Rule 1186.1 – Less Polluting Sweepers).

South Coast AQMD's rules do not prohibit the construction of new unpaved roads in urban areas. However, the South Coast AQMD has recently developed a Paving Project Plan for the Eastern Coachella Valley as part of the AB 617 Community Air Protection Program (CAPP), which has been approved by CARB. This plan was developed in response to community concerns related to particulate matter emissions from unpaved surfaces in the community of Eastern Coachella Valley. This paving plan includes an emissions reduction quantification methodology based on VMT.¹ The quantification methodology has been approved by CARB and is being applied to this Control Measure for paving of unpaved surfaces in the SCAB.

SJVAPCD has also adopted two unpaved road regulations, Rules 8061 and 8071, that offer a template for how other air districts can manage this source of PM emissions.²

Proposed Method of Control

The purpose of this control measure is to develop an inventory of unpaved roads and parking lots within urban areas in the Basin and assess the suitability for paving. In total, there are approximately 1,900 miles of unpaved roads in the Basin. However, not all of these roads are well-traveled or highly used and therefore the suitability for paving must be determined on a case-by-case basis. Factors that will be considered include vehicle miles travelled, proximity to AB 617 communities, and whether the road exists in natural or protected lands (e.g., local and regional parks, National Forests, etc.). In addition, this control measure will further evaluate the effects of paving on climate-related drought conditions and heatwaves frequently experienced in the Basin. Paving surfaces that would otherwise allow for underground aquifers to replenish during rainstorms must be considered when assessing suitability for paving. Paving unpaved surfaces, especially in urban areas, also creates heat island effects resulting in higher temperatures than outlying areas. In densely urbanized areas, paved roads absorb and re-emit the sun's heat more than natural landscapes becoming "islands" of higher temperatures relative to outlying areas. The costs of less permeable areas for surface drainage and heat island effects will be evaluated.

Emission Reductions

To be determined during rulemaking.

Rule Compliance and Test Methods

To be determined during rulemaking.

Cost Effectiveness

The cost projections of paving unpaved areas vary due to materials used for paving, be it asphalt, concrete, or some combination, and the need for striping, curbing, and other improvements. The Fugitive Dust Handbook published by the Western Regional Air Partnership estimate the costs of paving one mile of unpaved road at \$44,100/mile-year with an estimated useful life of 25 years; a similar cost estimate for paving unpaved lots \$0.23/square foot-year for a useful life of 25 years, though these costs have likely increased since publication.³ CARB's Unpaved Road Dust, Non-Farm Roads Methodology estimated the total unpaved city and county land for the SCAB at 167.3 miles, though 'high-traffic' and adjacency to 617 communities were not limiting factors in these estimates.⁴ Using these figures, a high cost estimate for paving the total unpaved city and county land in the SCAB would be approximately \$184 million, though again these are total miles not 'high-traffic' miles, so the total unpaved lot area that would be considered by this measure would be significantly smaller. This methodology estimates that the tons of PM/year reductions of paving the total road miles at 553.3 tons/year, or 1.52 tpd for an estimated cost

effectiveness figure of \$13,334/ton. If only 10% of the road miles is paved, this could result in a reduction of 55 tons/year of PM. While most unpaved roads are in public jurisdictions, many unpaved lots are private and there is not currently an inventory of those spaces, and estimating cost effectiveness for those areas is not possible at this point. In addition, the costs of less permeable areas for surface drainage and heat island effects are unknown at this time.

Implementing Agency

South Coast AQMD has the authority to regulate emissions from stationary sources such as unpaved roads.

References

South Coast AQMD Final Paving Project Plan ECV, September 2022. <http://www.aqmd.gov/docs/default-source/ab-617-ab-134/steering-committees/eastern-coachella-valley/final-ecv-paving-project-plan.pdf?sfvrsn=8>

San Joaquin Valley Air Pollution Control District Rule 8061 – Paved and Unpaved Roads, August 2004. <https://www.valleyair.org/rules/currntrules/r8061.pdf>

San Joaquin Valley Air Pollution Control District Rule 8071 – Unpaved Vehicle and Equipment Traffic Areas, September 2004. <https://www.valleyair.org/rules/currntrules/r8071.pdf>

Western Regional Air Partnership Fugitive Dust Handbook, 2006. https://www.wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf

California Air Resources Board Miscellaneous Process Methodology 7.10, Unpaved Road Dust, Non-Farm Roads, 2012. https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-10_2012.pdf

South Coast AQMD Final CAPP Paving Project Plan, September 2022 <http://www.aqmd.gov/docs/default-source/ab-617-ab-134/steering-committees/eastern-coachella-valley/final-ecv-paving-project-plan.pdf?sfvrsn=8>

Lin, S.L., et.al, 2023. Do the Street Sweeping and Washing Work for Reducing the Near-ground Levels of Fine Particulate Matter and Related Pollutants? Aerosol Air Qual. Res. 23, 220338. <https://doi.org/10.4209/aaqr.220338>

Morgan, Christopher, 2007. Clean Roads to Air. American Public Works Association Reporter. <https://www.tymco.com/wp-content/themes/va/pdf/Cleanroads-APWAReporter-092007.pdf>

U.S. EPA, 1988. Control of Open Fugitive Dust Sources: Final Report. <https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=91010T54.TXT>

U.S. EPA, 1992. Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures <https://nepis.epa.gov/Exe/ZyPDF.cgi/2000JCJE.PDF?Dockey=2000JCJE.PDF>

U.S. EPA, 1996. U.S. Environmental Protection Agency, Compilation of Emission Factors (AP-42), Section 13.2.1, Paved Roads. [c13s0201_jan1996.pdf \(epa.gov\)](https://www.epa.gov/c13s0201_jan1996.pdf)

**BCM-20: APPLICATION OF ALL FEASIBLE MEASURES
[ALL POLLUTANTS]**

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	ALL SOURCE CATEGORIES	
CONTROL METHODS:	ALL AVAILABLE CONTROL METHODS	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
POLLUTANT INVENTORY	TBD	TBD
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
ANNUAL AVERAGE [NOx]:	2018	2030
POLLUTANT INVENTORY	TBD	TBD
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
CONTROL COST:	TBD*	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD	

* Emission reductions and cost-effectiveness will be determined after a source category and feasible controls are identified.

Description of Source Category

This control measure seeks to explore all feasible measures that achieve criteria pollutant reductions. Existing rules and regulations reflect current best available retrofit control technology (BARCT). However, BARCT continually evolves as new technology becomes available that is feasible and cost-effective. South Coast AQMD staff would continue to review actions taken by other air districts for applicability in our region. Through this proposed control measure, South Coast AQMD would commit to consider the

adoption and implementation of the new retrofit control technology standards, as well as new controls or limits on existing operations.

Background

This control measure serves as a placeholder for any future control measures that may become feasible, prior to subsequent State Implementation Plan (SIP) revisions, through technology advances and/or cost decreases. South Coast AQMD staff continually monitors evolving control technologies, price changes, and the actions of other air quality agencies to determine the feasibility of implementing additional controls to achieve emission reductions.

Regulatory History

The California Clean Air Act (CCAA) requires that “extreme” ozone nonattainment areas include all feasible measures.⁶⁹ Although this is a PM2.5 plan, feasible measures which achieve NOx reductions for ozone attainment will also assist with PM2.5 attainment. Feasible measures also encompass measures that target direct PM2.5 and ammonia reductions.

The term “feasible” is defined in the California Code of Regulations, section 15364, as a measure “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.” CARB guidance states that this definition, found in the CEQA Guidelines, applies to the requirements under air pollution laws. The required use of BARCT for existing stationary sources is one of the specified feasible measures. H&SC §40440 (b)(1) requires South Coast AQMD to adopt rules requiring best available retrofit control technology for existing sources. H&SC §40406 specifically defines BARCT as “an emission limitation that is based on the maximum degree of reduction achievable taking into account environmental, energy, and economic impacts by each class or category of source.”

Proposed Method of Control

South Coast AQMD staff will continue to review new emission limits or controls introduced through federal, State or local regulations to determine if South Coast AQMD regulations remain equivalent or more stringent than rules in other regions. If not, a rulemaking process will be initiated to perform a BARCT analysis with potential rule amendments if deemed feasible. In addition, South Coast AQMD will consider adopting and implementing new retrofit technology control standards, based on research and development and other information, that are feasible and cost-effective. During rule development, staff will consider technical feasibility, identify industry-specific affordability issues, cost-effectiveness and incremental cost-effectiveness, and may consider alternative compliance mechanisms.

⁶⁹ California Health and Safety Code (H&SC) § 40920.5

Emission Reductions

Further emission reductions would be sought from the adoption of new rules or amendment of existing rules and regulations to reflect new BARCT standards that may become available in the future prior to subsequent SIP revisions.

Rule Compliance and Test Methods

Compliance with this measure would be based on monitoring, recordkeeping, and reporting requirements that have been established in existing source specific rules and regulations. In addition, compliance would be verified through inspections and recordkeeping and reporting requirements.

Cost Effectiveness

Cost-effectiveness for this control measure cannot be determined because the future set of “all feasible” measures are not known. South Coast AQMD will continue to analyze the potential cost impact associated with implementing this control measure, conduct research on new control technologies, and provide cost-effectiveness information during any future rule making processes.

Implementing Agency

South Coast AQMD has the authority to regulate emissions from stationary sources.

References

California Health and Safety Code Sections 40913, 40914, 40920.5, 40406, and 40440 (b)(1)

California Code of Regulations, Section 153

**EGM-01: EMISSION GROWTH MANAGEMENT FROM NEW DEVELOPMENT AND
REDEVELOPMENT
[ALL POLLUTANTS]**

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	NEW DEVELOPMENT AND REDEVELOPMENT PROJECTS	
CONTROL METHODS:	TO BE DEVELOPED THROUGH A PUBLIC PROCESS	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE:	2018	2030
POLLUTANT INVENTORY	TBD	TBD
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
CONTROL COST:	TBD	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD/LOCAL OR REGIONAL AGENCIES	

Description of Source Category

The purpose of this control measure is to identify emission reduction opportunities and to mitigate and, where appropriate, reduce emissions from new development or redevelopment projects such as residential, commercial, and industrial projects that are otherwise not included in other Facility Based Mobile Source Measures (FBMSMs) identified in the PM2.5 Plan. These projects are considered indirect sources. An indirect source is any facility, building, structure, or installation, or combination thereof, which generates or attracts mobile source activity. Through a public process with the Working Group, the measure is designed to identify control measures and a path forward to reducing emissions related to indirect sources required to meet and balance the needs of the South Coast Air Basin (Basin) in demonstrating attainment of the federal standards with evolving land use development patterns, growing economy, and the needs of the Basin's increasing populations for clean air, public health, infrastructure, and jobs.

Background

The South Coast Air Basin population is projected to increase 7.9 percent by 2030, resulting in new residential, commercial, and industrial development activities, according to the Southern California

Association of Governments (SCAG). The majority of that growth will occur as infill to existing urbanized areas. By 2045, SCAG's 2020 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) expects 51 percent of housing and 60 percent of jobs to be located in areas served by high quality transit. They are increased from the projected 46 percent of housing and 55 percent of jobs for 2040 in SCAG's 2016 RTP/SCS. As a result of the changing distribution and density of development, SCAG reports an increase in vehicle miles traveled (VMT) in the Basin between 2018 and 2030: daily VMT is projected to increase by 1.8 percent, from 388 million miles to 395 million miles.

A variety of existing and future programs, such as California's 2016, 2019, and the recently adopted 2022 Building Energy Efficiency Standards (i.e., Title 24) will contribute to emission reductions when compared to existing development activities. New development and redevelopment projects will also be constructed in compliance with Title 24 green building requirements that greatly reduce construction and operational emissions compared with existing development. However, additional numbers and length of passenger vehicles and trucks trips, landscape maintenance equipment, and construction emissions from new developments and redevelopments will contribute to regional and localized air pollution. EGM-01 aims PM_{2.5} co-benefit emission reductions primarily from project construction activities by increasing the deployment of zero and low NO_x emission technologies for on-road and off-road mobile sources.

In recent years project developers and local jurisdictions have actively explored and implemented innovative policies that reduce emissions. One recent example includes the Net Zero Newhall Ranch development project located in the Santa Clarita Valley of Los Angeles County. The project is committed to reducing or mitigating the project's greenhouse gas emissions to zero. While net-zero greenhouse gas emission projects do not necessarily target Nitrogen Oxides (NO_x) emission reductions they may provide quantifiable co-benefits of NO_x and other criteria pollutant emissions. Another example includes Clean Construction policies used by Los Angeles County Metropolitan Transportation Authority (LA Metro), Los Angeles World Airport (LAX), and the Port of Los Angeles. These policies generally provide a step-down approach, where project developers must use Tier 4 final equipment, but are allowed to use lower tiered equipment if certain criteria are met (such as an inability to identify any manufacturers of a particular type of Tier 4 final equipment). While these policies reduce emissions for these specific projects, it is unclear if these are State Implementation Plan (SIP) creditable due to the complexity of demonstrating the U.S. EPA's integrity elements for SIP credit, which require the emission reductions to be surplus, permanent, enforceable and quantifiable. Finally, as part of the environmental review process under California Environmental Quality Act (CEQA) and/or National Environmental Policy Act (NEPA), some projects have chosen to contribute money to an air quality mitigation fund that would be used to incentivize the purchase and use of cleaner equipment to offset emissions.

A number of air districts in California have already adopted and are implementing indirect source rules, policies, and/or collection of mitigation fees to address emissions from new development and redevelopment projects. Common approaches include an emissions threshold test to determine the applicability of the rule, and mitigation fees, and/or demonstrations that feasible direct, on-site mitigation measures have been implemented. These examples by other air districts are provided for informational purposes only, and do not necessarily reflect a model of what an applicable rule that may be developed

by South Coast AQMD would entail. Given the uniqueness and severity of the air quality in the Basin in comparison to other regions in California and the United States, unique considerations will be given in developing enforceable mechanisms in order to meet federal air emissions standards.

In December 2005, the San Joaquin Valley Air Pollution Control District (SJVAPCD) adopted Rule 9510 – Indirect Source Review, which was approved by the U.S. EPA in May 2011. In December 2017, SJVAPCD amended Rule 9510. The purpose of the rule is to reduce emissions of NO_x and PM₁₀ from the construction of a development project that seeks to gain a final discretionary approval from a public agency (upon full build-out) with design features, on-site measures, and off-site measures. The rule also applies to transportation or transit development projects whose construction exhaust emissions will equal or exceed 2 tons per year of NO_x or 2 tons per year of PM₁₀. The rule requires applicants of new development projects to provide documents necessary to perform an emissions generation analysis. SJVAPCD calculates a required emission reduction amount based on total emissions and identifies credits for specific on-site emission reduction measures included in the project. Required reductions not achieved by voluntary on-site measures would be achieved off-site through a mitigation fee. Off-site reductions are subject to criteria including, but not limited to, being quantifiable and surplus. Such offsite reductions are analyzed annually to ensure their effectiveness.

Regulatory History

California Health and Safety Code (H&SC) Section 40716 states that “a district may adopt and implement regulations to reduce or mitigate emissions from indirect and areawide sources of air pollution”. As an example, a 1993 California Attorney General opinion states that “a district’s regulations may require the developer of an indirect source to submit the plans to the district for review and comment prior to the issuance of a permit for construction by a city or county. A district may also require the owner of an indirect source to adopt reasonable post-construction measures to mitigate particular indirect effects of the facility’s operation [as a stationary source]. Such regulations could be enforced through an action for civil penalties...”. (Cal. Attorney General Opinion 92-519.) While other types of indirect source measures could be developed, the same attorney general’s opinion concluded that a district may not impose a permitting system upon indirect sources per se, given the primacy of local land use control. H&SC Section 40716 also states that “nothing in the section constitutes an infringement on the existing authority of counties and cities to plan or control land use, and nothing in the section provides or transfers new authority over such land use to a district” when an air district adopts and implement regulations to reduce or mitigate emissions from indirect and areawide sources of air pollution or encourage or require the use of measures that reduce the number or length of vehicle trips.

EGM-01 was first adopted as part of the mobile source control measure strategies within the 2016 AQMP. After the adoption, South Coast AQMD staff convened an EGM-01 working group consisting of affected stakeholders from local governments, the building industry, developers, realtors, other business representatives, environmental/community organizations, and other stakeholders and held four Working Group meetings from May 2017 to January 2018 to explore a framework and identify opportunities, innovative approaches, strategies, and actions to mitigate and potentially reduce emissions from new

development or redevelopment projects. In March 2018, an initial concept for EGM-01 was developed and consisted of the pursuit of voluntary emission reduction strategies in addition to the development of an indirect source rule focused on reducing construction emissions from projects over a certain size or activity threshold using several compliance options. Potential options that staff proposed and presented to the South Coast AQMD's Governing Board included a new voluntary fleet certification program coupled with a facility/project requirement to utilize at least some certified clean fleets, a mitigation fee option, crediting options for activities like installation of charging/fueling infrastructure, or other emission reduction measures. In May 2018, the South Coast AQMD's Governing Board considered staff's proposal and directed staff to continue to work with the Working Group to develop rule concepts, timelines, and cost-benefits estimates.

Based on Governing Board direction, staff held three additional Working Group Meetings for the development of EGM-01 and surveyed the Working Group on investigative approaches to identify emission reduction costs. The Working Group identified that the fundamental step in proceeding with emission reduction strategies for New Development and Redevelopment Projects would require a cost-benefit analysis to investigate the costs of construction and assess the impacts of emission reduction strategies on these projects individually and at a larger scale regionally, specifically as it related to affordable housing projects. A Request for Proposal (RFP) to study the feasibility of emission reductions from construction and cost of emission reduction strategies on new development and redevelopment projects was drafted by staff with input from the Working Group. The RFP sought to profile the universe of off-road construction equipment available in the Basin and identify the incremental cost to upgrade existing off-road construction equipment to Tier 4 standards. The RFP was released for a 60-day period from September 2019 to November 2019. No proposals were received, and no contract was awarded.

Proposed Method of Control

South Coast AQMD is not required to adopt an indirect source rule simply because another air district found it feasible. However, a demonstration of infeasibility may be required in light of the actions taken by other air districts if South Coast AQMD does not pursue a regulatory approach in developing an indirect source rule for this facility sector.

South Coast AQMD staff will solicit public input including, but are not limited to, types of projects affected, including affordable housing projects; effects on real-estate prices and jobs; economic growth forecast and impacts; the latest Title 24 green building standards; and regionwide policy shifts toward infill development and active transportation with implications for trip generation, as documented in SCAG's 2020 RTP/SCS pursuant to SB 375. Promising emission reduction strategies are being pursued or implemented by new development or redevelopment projects under CEQA and/or NEPA. Through a public process, South Coast AQMD staff will continue to explore potential actions to encourage net-zero developments, use of zero emission technologies in developing new or redeveloping projects, and installation of charging and fueling infrastructure and develop concepts and innovative approaches that could include, but are not limited to, voluntary CEQA air quality mitigation programs. South Coast AQMD will continue collaborating with local utilities, local governments, SCAG, and the state Energy and Public

Utility Commissions and leverage their policies, programs, and resources to encourage acceleration of clean construction equipment and more rapid growth of alternative fuel and/or electric vehicle charging infrastructure in South Coast AQMD's jurisdiction. During rule development, staff will consider technical feasibility, identify industry-specific affordability issues, cost-effectiveness and incremental cost-effectiveness, and may consider alternative compliance mechanisms.

Emission Reductions

The amount of emission reductions that can be achieved from this measure will be determined dependent on the type and number of new development and redevelopment projects affected by the measure and the method of control to be implemented to reduce emissions for all pollutants. The reliance merely on VMT as an applicable metric will be avoided to the maximum extent possible due to the advances in fleet change and emission control technologies discussed earlier.

Rule Compliance and Test Methods

Compliance will be verified via South Coast AQMD outreach and field inspection. Approved emission quantification protocols by federal, State or local agencies will be used to track and report emission reductions for SIP purposes. If a protocol does not exist for a specific project, a protocol will be developed for the South Coast AQMD Governing Board's consideration for adoption.

Cost Effectiveness

South Coast AQMD will continue to work through a public process to identify methods for evaluating cost-effectiveness for the measure based on the control methods to be implemented by new development and redevelopment projects that will be subject to the measure.

Implementing Agency

Implementing agencies would include counties, cities, or other local or regional agencies that implement new development or redevelopment projects. South Coast AQMD may also be an implementing agency but may not "infringe upon the existing authority of counties and cities to plan or control land use" (California H&SC Section 40716).

References

Southern California Association of Governments. (2020). 2020 RTP/SCS. https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocal-plan_0.pdf?1606001176

California Energy Commission. (2021). The 2022 Building Energy Efficiency Standards. <https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022building-energy-efficiency>

Proposed Rule to Implement the Fine Particle National Ambient Air Quality Standards. 40 CFR Parts 51 and 52, Federal Register, Volume 70, No. 210, page 65984

November 1, 2005. San Joaquin Valley Air Pollution Control South Coast AQMD. (2017). Rule 9510 Indirect Sour Review (ISR). <https://www.valleyair.org/rules/currnrules/r9510-a.pdf>

San Joaquin Valley Air Pollution Control South Coast AQMD. (2015). PM2.5 Plan for the 1997 PM2.5 Federal Standard. http://www.valleyair.org/Air_Quality_Plans/PM25Plans2015.htm

United States Environmental Protection Agency. Menu of Control Measures. <http://www3.epa.gov/ttn/naaqs/pdfs/MenuOfControlMeasures.pdf>

Jones, D., Wu, R., Barros, C. and Peterson, J. (2013). Research Findings on the Use of Rubberized Warm-Mix Asphalt in California. http://ra-foundation.org/wp-content/uploads/2013/02/040-PAP_060.pdf

South Coast Air Quality Management District. (2010). Rule 1110.2 – Emission Reductions from Gaseous and Liquid Fueled Engines (Amended July 9, 2010)

EGM-02: EMISSION REDUCTIONS FROM CLEAN CONSTRUCTION POLICY
[ALL POLLUTANTS]

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	CONSTRUCTION EQUIPMENT/VEHICLES AND ACTIVITIES	
CONTROL METHODS:	TO BE DEVELOPED	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE:	2018	2030
POLLUTANT INVENTORY	TBD	TBD
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
CONTROL COST:	TBD	
INCENTIVE COST:	N/A	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD/LOCAL OR REGIONAL AGENCIES	

Description of Source Category

The purpose of this control measure is to identify potential approaches to mitigate and control emissions from construction activities in the South Coast Air Basin (Basin). This measure is to develop a Clean Construction Policy (CCP) with a set of recommended control measures and approaches that can be utilized for reference and voluntary implementation by local municipalities and public agencies.

Background

Indirect sources such as construction projects involve and attract mobile sources, both on- and off-road, that emit significant amounts of harmful air pollutants that can adversely affect air quality and public health. To mitigate and reduce emissions from these indirect sources, EGM-01: Emission Reductions from New Development and Redevelopment Projects, was first adopted as a control measure in the 2007 Air Quality Management Plan (AQMP) and subsequently included in the 2016 AQMP. EGM-01 is designed to reduce emissions related to new residential, commercial, industrial, and institutional development and redevelopment projects. While EGM-01 will be based on mandated measures and approaches, such as an indirect source rule, to address air emissions from the new development and redevelopment projects, the CCP to be developed under EGM-02 will be offered as a voluntary measure for municipalities and other public agencies to adopt fully or partially in their respective programs. If the CCP is adopted and widely applied by the large majority of municipalities and public agencies to mitigate and reduce emissions from

construction activities in the Basin, EGM-02 will be implemented in lieu of EGM-01 where applicable and feasible.

The California Health and Safety Code (H&SC) Section 40716 states that “a District may adopt and implement regulations to reduce or mitigate emissions from indirect and areawide sources of air pollution.” The objective of the voluntary Clean Construction Policy is to encourage the implementation of the cleanest technology and equipment available as well as best management practices for construction activities, especially those located in or near environmental justice communities.

Regulatory History

To mitigate and reduce emissions from construction activities, a number of municipalities and agencies in California have adopted clean (or green) construction policies for their own projects and/or public projects within their jurisdiction. In April 2007, the City and County of San Francisco adopted an Ordinance requiring public projects to reduce emissions at construction sites starting in 2009. In March 2015, the Ordinance was expanded to require construction sites to further reduce emissions in areas with high background levels of air pollutants. The Ordinance requires contractors of publicly funded construction projects (greater than 20 days in length) to significantly reduce emissions by implementing: (a) the use of cleaner diesel-fueled engines, (b) alternative sources of power (if available) instead of portable diesel engines, (c) the preparation of a Construction Emissions Minimization Plan, which includes best management practices, and (d) construction activities monitoring and reporting. In July 2011, the Los Angeles County Metropolitan Transportation Authority (Metro) adopted a Green Construction Policy (GCP) to reduce harmful diesel exhaust emissions from on-road vehicles, off-road equipment, and portable generators used for construction projects on their properties and at their rights-of-way. The GCP requires that off-road construction equipment must meet the Tier 4 engine standards, on-road vehicles to meet 2010 standards, and portable generators be BACT-compliant. In addition, the GCP requires the use of renewable diesel and 5-minute idling limit. It also requires contractors to consider, where feasible, emissions-reducing technology such as hybrid drives and specific fuel economy standards. To ensure compliance, Metro conducts periodic inspections of sites and construction equipment and also provides assistance to help contractors to meet the requirements. Other authorities such as the Port of Los Angeles (POLA) and the Los Angeles World Airports (LAWA) have implemented similar policies and guidelines to reduce emissions related to construction activities. In 2008, the POLA Board of Harbor Commissioners adopted the Los Angeles Harbor Department Sustainable Construction Guidelines, and on August 4, 2017, LAWA published a Sustainable Design & Construction Requirements for new construction and major renovation projects owned by LAWA or its tenants.

Together, these policies require cleanest-tier diesel engines available, hybrid and electric off-road equipment (where feasible), and best management practices.

Proposed Method of Control

This measure seeks to mitigate and reduce emissions generated by construction activities in the Basin through the voluntary adoption and use of a CCP. The goal of the CCP would be to reduce emissions by certain percentages compared to the statewide average for development projects. Although the CCP will be developed in collaboration with local municipalities and agencies, construction industry, and other affected stakeholders, a set of draft guidelines for the proposed CCP is provided below with recommended control measures and best management practices based on clean construction policies and ordinances that are already adopted and currently implemented in California.

The proposed approach to the CCP guidelines would consist of a hierarchy that prioritizes direct, on-site emission reductions. These emission reductions should first come from zero emission off-road construction equipment and on-road haul and material delivery trucks. If zero emission off-road and on-road equipment is not available or feasible for implementation, then the next cleanest, commercially available off-road and on-road equipment should be utilized during construction activities.

The alternative to direct, on-site emission reductions would be to achieve regional emission reductions off-site and outside of the area of the project. This may be accomplished through the use of credits from non-new source review programs, although this approach would be the least favorable and should be utilized as a last resort option to achieve emission reductions from construction activities.

Examples of potential voluntary measures that could be utilized to reduce emissions from construction activities are discussed below.

All off-road construction equipment used during construction activities should be zero emission to the extent possible. If it is not feasible to have all off-road construction equipment units be zero emission, then a step-down approach should be utilized to ensure that the majority of off-road construction equipment will be zero emission. Any diesel-powered off-road construction equipment greater than 50 horsepower should meet the U.S. EPA Tier 4 Final off-road emission standards, if possible. Additionally, any emissions control device used by contractor(s) should achieve emission reductions that are generally equivalent to what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. Although these are just examples of voluntary measures, the responsible entity should identify specific measures in applicable bid documents, purchase orders, and contracts.

A copy of each unit's certified tier specification, BACT documentation, and CARB or South Coast AQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment. All construction equipment must be tuned and maintained in compliance with the manufacturer's recommended maintenance schedule and specifications that optimize emissions without nullifying engine warranties. All maintenance records for each equipment and their construction contractor(s) should be made available for inspection and remain on-site for a period of at least two years from completion of construction.

All on-road construction equipment (e.g., haul and material delivery trucks), especially those greater than 14,000 lbs Gross Vehicle Weight Rating, should be zero emission to the extent possible. If it is not feasible to have all on-road construction equipment be zero emission, then a step-down approach should be utilized to ensure that the majority of on-road construction equipment will be zero emission. Any diesel-powered on-road construction equipment is encouraged to have engines that meet the 2010 U.S. EPA engine standards, or 0.2 g/bhp-hr NO_x and 0.01 g/bhp-hr PM.

Cleaner off- and on-road construction equipment will become increasingly more feasible and commercially available as technology advances. If using zero emission technologies is not feasible at the start of construction activities, it could become feasible in a reasonable period of time for projects with extended or long-term construction schedules. These projects are encouraged to develop a process with performance standards to require and/or accelerate the deployment of the lowest emission technologies and the utilization of zero emission or low NO_x emission off- and on-road construction equipment. Examples of these voluntary standards may include:

- Developing a minimum amount of zero emission or low NO_x off- and on-road construction equipment that must be used each year during construction to ensure adequate progress. Include this requirement in construction management plans and business development agreement(s).
- Establishing a contractor(s) selection policy that prefers contractor(s) who can supply and use zero emission or low NO_x off- and on-road construction. Include this policy in the Request for Proposal, procurement documents, and purchase order(s) for selecting contractor(s), tenant(s), or operator(s).
- Establishing a policy to select and use vendors that use zero emission or low NO_x on-road construction equipment. Include this policy in the vendor contracts and business agreements.
- Establishing a purchasing policy to purchase and receive materials from vendors that use zero emission or low NO_x on-road construction equipment to deliver materials. Include this policy in the procurement documents and purchase orders with vendors.
- Developing a project-specific process and criteria for periodically assessing progress in implementing the use of zero emission and low NO_x off- and on-road construction equipment during the duration of construction activities.
- Best management practices such as scheduling truck trips to avoid sensitive land use (e.g., homes and schools), limiting engine idling time, maintaining an equipment inventory, and reducing construction duration by 10 percent for projects located in environmental justice communities, and design considerations including appropriate points for staging areas, and maintaining a buffer zone between truck traffic and sensitive receptors.

Emission Reductions

Emission reductions are not estimated at this time. The amount of emission reductions that can be achieved from this measure will be based on the number and type of participating construction projects

and the method of control to be implemented to reduce Nitrogen Oxides (NOx) and fine Particulate Matter (PM2.5) emissions by each of those projects.

Cost Effectiveness

To Be Determined.

Implementing Agency

South Coast AQMD, Local Municipalities and Agencies.

References

2022 AQMP Control Measures Workshop - South Coast AQMD's Mobile Source Measures and CARB's State SIP Strategy Measures. 2021. <https://scaqmd.zoom.us/j/93576923378>

California Air Resources Board. 2021. Construction & Earthmoving Equipment. <https://ww2.arb.ca.gov/our-work/topics/construction-earthmoving-equipment>

Guide to Off-Road Vehicle & Equipment Regulations. California Air Resources Board. https://ww2.arb.ca.gov/sites/default/files/offroadzone/pdfs/offroad_booklet.pdf

Los Angeles International Airport. 2017. Sustainable Design & Construction Requirements. <https://www.lawa.org/-/media/lawa-web/tenants411/file/sustainable-design-constructionrequirements.ashx>

Low Carbon Fuel Standard. California Air Resources Board. <https://ww2.arb.ca.gov/sites/default/files/2020-09/basics-notes.pdf>

Los Angeles County Metropolitan Transportation Authority (LACMTA). 2011. LACMTA Green Construction Policy. http://boardarchives.metro.net/Items/2011/06_June/20110615EMACItem10.pdf

On-Road Heavy-Duty and Off-Road Compression Ignition Certification Programs: Useful Life Compliance and Durability Demonstration. California Air Resources Board. <https://ww2.arb.ca.gov/road-heavy-dutyand-road-compression-ignition-certification-programsuseful-life-compliance-and>

San Francisco Department of the Environment. 2015. San Francisco Clean Construction Ordinance – Implementation Guide for San Francisco Public Projects. https://www.sfdph.org/dph/files/EHSdocs/AirQuality/San_Francisco_Clean_Construction_Ordinance_2015.pdf

Truck and Bus Regulation Compliance Requirement Overview. California Air Resources Board. June 18, 2019. <https://ww3.arb.ca.gov/msprog/onrdiesel/documents/fsregsum.pdf>

U.S. EPA 2007/1010 Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements. <http://www.meca.org/regulation/us-epa-20072010-heavyduty-engine-and-vehiclestandards-and-highway-diesel-fuel-sulfur-control-requirements>

**MOB-01: EMISSION REDUCTIONS AT COMMERCIAL MARINE PORTS
[PM2.5, NOx]**

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	PORTS AND PORT-RELATED SOURCES (OCEAN-GOING VESSELS, ON-ROAD HEAVY-DUTY TRUCKS, LOCOMOTIVES, COMMERCIAL HARBOR CRAFT, AND CARGO HANDLING EQUIPMENT, AND STATIONARY PORT EQUIPMENT)	
CONTROL METHODS:	INDIRECT SOURCE RULES, MARKET INCENTIVES, VOLUNTARY PROGRAMS	
EMISSIONS (TONS/DAY)*:		
ANNUAL AVERAGE [PM2.5]:	2018	2030
POLLUTANT INVENTORY	0.71	TBD
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
ANNUAL AVERAGE [NOx]:	2018	2030
POLLUTANT INVENTORY	36.99	TBD
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
CONTROL COST:	TBD	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD, PORTS OF LOS ANGELES AND LONG BEACH	

Description of Source Category

The goal of this measure is to assist in achieving the committed emission reductions described in the State SIP (State Implementation Plan) Strategy related to on-road heavy-duty vehicles, off-road equipment, and federal and international sources that operate in and out of the Ports of Los Angeles and Long Beach (San Pedro Bay Ports or Ports). This measure is also a continuation of control measure MOB-01 from the 2016 and 2022 Air Quality Management Plans (AQMPs). It is not expected that this measure will achieve the full emission reductions associated with the committed measures from the State SIP Strategy. Instead, this measure seeks to reduce emissions from port-related sources through a rule, as well as incentive

funding and/or other voluntary programs. To the extent that these actions are sustained over a long-term basis and the emission reduction levels are maintained, the emission reductions may be credited as surplus reductions (as defined by the U.S. Environmental Protection Agency, U.S. EPA) into the SIP. Affected sources could include some or all port-related sources (on-road heavy-duty trucks, cargo handling equipment, harbor craft, marine vessels, locomotives, and stationary equipment), to the extent that cost-effective and feasible strategies are available.

Background

Emissions and Progress

The Ports of Los Angeles (POLA) and Long Beach (POLB) are the largest in the nation in terms of container throughput, and the mobile sources travelling to and from the ports collectively make up the single largest fixed source of air pollution in Southern California. Emissions from port-related sources were reduced significantly between 2006 and 2012 through efforts by the Ports and a wide range of stakeholders. In large part, these emission reductions resulted from programs developed and implemented by the Ports in collaboration with port tenants, marine carriers, trucking interests and railroads. Regulatory agencies, including the U.S. EPA, California Air Resources Board (CARB), and South Coast AQMD, participated in these earlier collaborative efforts, and some measures adopted by the Ports have led the way for adoption of analogous regulatory requirements that are now applicable Statewide as well as at the Ports. These earlier port measures included the first version of the Clean Trucks Program and actions to deploy shore-power and low emission cargo handling equipment. The Ports have also established incentive programs, which have not subsequently been adopted as regulations. These include incentives for routing of vessels meeting the International Maritime Organization (IMO) Tier II and III Nitrogen Oxides (NO_x) standards, and vessel speed reduction. In addition, the Ports are, in collaboration with the regulatory agencies, implementing a Technology Advancement Program to develop and deploy clean technologies of the future.

Recently, the Ports implemented an update to the Clean Trucks Program. The centerpiece of this new program is a charge to cargo owners of \$10 per twenty-foot equivalent unit (TEU) of loaded cargo that is trucked to or from the Ports. Zero emission trucks are exempt from the \$10/TEU rate. At POLB, low NO_x trucks (those meeting CARB's 0.02 g/hp-hr standard) purchased before November 8, 2021 are exempt from the \$10/TEU rate through the end of 2034, while low NO_x trucks entered into the drayage registry before the end of 2022, or purchased before July 31, 2022 and registered within a month after receipt are exempt through the end of 2031. At POLA, the low NO_x truck exemption only applies to low NO_x trucks entered into the drayage registry by the end of 2022, and only lasts through the end of 2027. The fee rate collection started in April 2022, with the funding disbursement anticipated in the following year. This program is anticipated to annually raise up to \$90 million, and funding will go primarily towards deploying zero emission trucks and funding zero emission infrastructure, with POLB having provided some early funding for low NO_x trucks using the anticipated fee revenue. Through September 2023, the Ports have collected \$116.1 million in revenue from the Clean Trucks Program fee, and are disbursing these funds

mainly as plus-ups to increase the level of incentive per truck provided through CARB's Hybrid and Zero Emission Truck and Bus Voucher Incentive Project (HVIP) for zero emission drayage truck purchases.

The supply chain has been disrupted in recent years with the COVID-19 pandemic, and the Ports experienced significant congestion beginning from late 2020. At its peak, there were more than 100 container vessels in queue waiting for a berth, and emissions may have increased by more than 25 tons of NOx and 0.5 tons of PM2.5 per day. A new voluntary program⁴³ was subsequently established by the Pacific Merchant Shipping Association, the Pacific Maritime Association, and the Marine Exchange to keep container vessels from anchoring within 150 miles from shore, resulting in lower emissions from vessels closer to shore.

Port-related sources such as marine vessels, locomotives, trucks, harbor craft and cargo handling equipment, continue to be among the largest sources of NOx in the region, thus contributing to PM2.5 emissions not only as primary but also secondary sources. Given the large magnitude of emissions from port-related sources, the substantial efforts described above play a critical part in the ability of the Basin to attain the national ozone and PM2.5 ambient air standards by federal deadlines. This measure provides assurance that emissions from the South Coast Air Basin (Basin)'s largest magnet of mobile sources will continue to support attainment of the federal 8-hour ozone and the 24-hour and annual PM2.5 standards. In addition, reductions in PM2.5 emissions will also reduce cancer risks from diesel particulate matter.

Clean Air Action Plan (CAAP)

The emission control efforts described above largely began in 2006 when the Ports of Los Angeles and Long Beach, with the participation and cooperation of staff of the South Coast AQMD, CARB, and the U.S. EPA, adopted the San Pedro Bay Ports CAAP. The CAAP was amended in 2010 and 2017, updating many of the goals and implementation strategies to reduce air emissions and health risks associated with port operations while allowing port development to continue. In addition to addressing health risks and greenhouse gas emissions from port-related sources, the CAAP sought the reduction of criteria pollutant emissions to the levels that assure port-related sources decrease their "fair share" of regional emissions to enable the Basin to attain State and federal ambient air quality standards. The CAAP includes proposed strategies on port-related sources that are implemented through new leases or port-wide tariffs, Memoranda of Understanding (MOU), voluntary action, grants or incentive programs.

In addition to the CAAP, the Ports have completed annual inventories of port-related sources since 2005. These inventories have been completed in conjunction with a technical working group composed of the South Coast AQMD, CARB, and the U.S. EPA. Based on the latest inventories, emissions from port-related sources are continuing to decrease from 2005 emission levels, albeit at slower levels in recent years compared to earlier years.⁴⁴ Although the ports met their 59 percent NOx reduction goal from the 2010 CAAP by 2020, this goal did not include emission reductions needed from the "black box" described in the

⁴³ Pacific Maritime Management Services (PacMMS). Online at: <https://mxsocal.org/>

⁴⁴ The congestion at the ports during 2021 showed an increase in emissions from previous years by 40% for NOx and 48% for PM2.5

2007 AQMP—which also contained defined (non-“black box”) measures that served as the basis for the 2010 CAAP emission reduction goals. In addition, the 2017 CAAP did not update the NO_x emission reduction goal. In 2021, the ports did not maintain the 59 percent NO_x reduction goal due to the significant increase in ocean-going vessel emissions during the recent Ports’ congestion period. Additional NO_x emission reductions are still needed to attain federal air quality standards. As an example, the Ports’ implementation of their 2017 CAAP is expected to result in about 2 to 3 tons per day of NO_x reductions by 2031, yet their ‘fair share’ as described in the 2022 AQMP is about 16 to 17 tons per day.⁴⁵

While many of the emission reduction targets in the CAAP result from implementation of federal and State regulations (either adopted prior to or after the CAAP), some are contingent upon the Ports taking and maintaining actions which are not required by air quality regulations. These actions include the Expanded Vessel Speed Reduction Incentive Program, lower-emission switch locomotives, and incentives for lower emission marine vessels.

Regulatory History

Port emission sources are regulated at the international, federal, and local level. There is also anticipated regulation that the IMO is proposing that would affect Port sources. The key regulations affecting Port sources are listed below.

The CAAP sets out the emission control programs and plans that will help mitigate air quality impacts from port-related sources. The CAAP relies on a combination of regulatory requirements and voluntary control strategies that go beyond the U.S. EPA or CARB requirements, or are implemented earlier than the requirements of applicable regulatory rules. The regulations that the CAAP relies on include international, federal and State requirements controlling port-related sources such as marine vessels, harbor craft, cargo handling equipment, locomotives, and trucks. Key regulatory and other actions taken to date are as follows:

International Maritime Organization (IMO) Emissions and Fuel Standards

The IMO’s International Convention for the Prevention of Pollution from Ships (MARPOL) Annex VI, which came into force in May 2005, set new international NO_x emission limits on marine engines with >130 kW power output installed on new vessels retroactive to the year 2000. In October 2008, the IMO adopted an amendment which placed a limit on marine fuel sulfur content of 0.1 percent by 2015 for specific areas known as Emission Control Areas (ECA). The North American and U.S. Caribbean Sea ECA extends 200 nautical miles from the U.S. Coast. The Basin off-coast waters are included in the ECA and ships calling at the Ports have to meet this new fuel standard or use SO_x scrubber as an alternative compliance method. In addition, the 2008 IMO amendment required new ships with their keel laid after January 1, 2016 that enter the North American and U.S. Caribbean Sea ECA to meet Tier III NO_x emission limits which are 80

⁴⁵ Determined by the percent reductions deemed necessary in the 2022 AQMP for each mobile source related to port operations, with the percent reductions applied to projected port-specific emissions based on the Ports’ emissions inventory figures

percent lower than the Tier I emission limits and 75 percent lower than the Tier II emission limits. However, only about 3.5 percent of vessels calling at the Ports met these standards in 2021. For Tier III vessels that use selective catalytic reduction (SCR) engine retrofit systems for NO_x control, any un-reacted ammonia emissions, or ammonia slip, from urea injection into the exhaust gas can potentially contribute to secondary formation of PM.

IMO GHG Strategy

In October 2018 IMO adopted an initial strategy to reduce GHG emissions from the global ship fleet. Compared to the 2008 level, the strategy set a reduction target of 40 percent by 2030 for carbon intensity and a reduction target of at least 50 percent by 2050 for total annual GHG emissions from international shipping. This strategy was further revised in 2023, including an amended 2050 target of net-zero GHG emissions, and new IMO standards are expected to be developed to implement the 2023 strategy. This level of GHG reductions will require the use of low or zero carbon fuels, with the latest target set at 5-10 percent of all energy used by international shipping by 2030; however, the effect on NO_x and PM from this fuel switch may vary widely depending on which fuels are used and what controls are added to ship engines. Several programs have been adopted in recent years as short-term measures to attain the decarbonization targets, including the energy efficiency design index (EEDI) for newbuilt ships, the efficiency existing ship index (EEXI) for in-service ships, and the carbon intensity indicator (CII). Collectively, by reducing fuel consumption, these measures may indirectly lower NO_x and PM emissions albeit to a limited extent.

U.S. EPA Marine Vessel Regulations

In 2010, the U.S. EPA adopted standards that apply to Category 3 (C3) engines (>30 liters per cylinder displacement) installed on U.S. vessels and to marine diesel fuels produced and distributed in the United States. That rule added two new tiers of engine standards for C3 engines consistent with the IMO standards described above. It also includes a regulatory program to implement IMO MARPOL Annex VI in the United States, including engine and fuel sulfur limits, and extends the ECA engine and fuel requirements to U.S. internal waters (i.e., rivers, lakes, etc.). The Department of State is the head of the U.S. delegation to the IMO; however, the U.S. EPA is also a participating member of the delegation. In that capacity the U.S. EPA has provided input to the fuel sulfur and NO_x emission standards adopted by IMO and also works within international organizations to establish global engine and fuel standards. The U.S. delegation to the IMO is generally led by the State Department, with Coast Guard, the U.S. EPA, and other relevant agencies provide any necessary support and technical advice.

CARB Marine Fuel Rule

Beginning in 2009, CARB began implementing the State's fuel sulfur regulation, applicable to both domestic and foreign flagged vessels, in waters out to 24 nm of the California baseline (i.e., Regulated California Waters or RCW). The rule initially limited sulfur content in marine gas oil (MGO) to 1.5 percent sulfur by weight and in marine diesel fuel (MDO) to 0.5 percent sulfur by weight. Beginning on January 1, 2012, all OGVs when operating in the RCW must switch to either type of distillate grade fuel with at

maximum 0.1 percent sulfur content in weight, and unlike the IMO sulfur oxides (SOx) ECA requirements, the use of SOx scrubber is not permitted as an alternative compliance method.

CARB At-Berth Regulation

In 2020 CARB amended its At-Berth regulation that requires ships to reduce emissions while they are docked at a berth. This emission reduction is achieved either by plugging a ship into the land-based electrical grid (shore power), or by capturing emissions and sending them to control equipment. The amended regulation requires all container, reefer, and cruise vessel visits to reduce emissions at berth by 2023, and ro-ro (roll-on, roll-off) and tanker vessels by 2025.

CARB Commercial Harbor Craft Regulation

In 2022 CARB amended its Commercial Harbor Craft regulation that requires vessel owners and operators to reduce emissions from harbor craft operations. The amended regulation establishes expanded and more stringent emission requirements for vessel engines starting in 2023 and requires deployment of zero emission and advanced technology (ZEAT) for certain vessel categories starting in 2025. The amended regulation also makes facility owners and operators jointly responsible for installation and maintenance of shore power and ZEAT support infrastructure.

CARB Cargo Handling Equipment Regulation

On December 8, 2005, CARB approved the Regulation for Mobile Cargo-Handling Equipment (CHE) at Ports and Intermodal Rail Yards (Title 13, CCR, Section 2479), which is designed to use Best Available Control Technology (BACT) to reduce diesel PM and NOx emissions from mobile cargo-handling equipment at ports and intermodal rail yards. The regulation became effective December 31, 2006. Since January 1, 2007, the regulation imposes emission performance standards on new and in-use terminal equipment that vary by equipment type. The CHE regulation was amended in 2011 to provide added compliance flexibility.

U.S. EPA Emission Standards for New Locomotives

To reduce locomotive emissions, the U.S. EPA in 2008 established a series of increasingly stricter emission standards for new locomotives, including remanufactured locomotive engines. The emission standards are implemented by “Tier” with Tier 0 as the least stringent and Tier 4 being the most stringent. For Tiers 0, 1, and 2, the remanufacture standards are more stringent than the new manufacture standards for those engines for some pollutants. Additionally, in 2023, the U.S. EPA removed from its rule certain provisions which previously preempted the State control of non-new locomotives for a period of 133 percent of the useful life of a new locomotive or engine.

CARB In-Use Locomotive Regulation

In April 2023, CARB adopted the In-Use Locomotive Regulation that will achieve emission reductions from locomotives operating throughout the state, including at the Ports. The final regulation includes a requirement for railroads to establish a spending account in 2026 and to pay into the account on an annual basis depending on the tier of locomotive used in the state. Lower tiers would pay more into the account than higher tiers. Funds from this account could be used to purchase Tier 4 and cleaner locomotives through 2030, and zero emission locomotives thereafter, or for the development of zero emission locomotive technologies including the supporting infrastructure. The regulation also would prohibit locomotives older than 23 years from operating in the state starting in 2030, and require new locomotives to be zero emissions if they are built in or after 2030 for switch, industrial, and passenger, and 2035 for line haul. The regulation provides flexibility for achieving compliance, allowing for alternatives to meet milestone deadlines and granting extensions in cases such as technological limitations or emergency circumstances. Finally, the proposal adopts the U.S. EPA's existing idling limits into state law.

U.S. EPA Emission Standards for New Trucks

To reduce emissions from on-road, heavy-duty diesel trucks, the U.S. EPA established a series of cleaner emission standards for new engines, starting in 1988. Currently, all new heavy-duty trucks of 2010 or later model years (MY) have to meet the emission standards including 0.20 g/bhp-hr for NO_x and 0.01 g/bhp-hr for PM.

On December 20, 2022, U.S. EPA adopted a regulation to reduce NO_x emissions from heavy-duty vehicles effective March 27, 2023. The rule requires control equipment on trucks to last longer, and to control emissions better in low load duty cycles (such as drayage activity). Starting with MY 2027, the adopted regulation will lower the 2010 NO_x emission standard by 82.5 percent. The adopted regulation also increases the useful life of regulated heavy-duty vehicles by at least 50 percent. However, for drayage trucks, this federal regulation is no more stringent than CARB's recently adopted Advanced Clean Fleets regulation for drayage trucks (see below).

U.S. EPA proposed the Heavy Duty Greenhouse Gas (HD GHG) Phase 3 regulation on April 12, 2023. This proposed update would provide new GHG standards for heavy-duty highway vehicles starting MY 2028 through MY 2032 and revise certain standards established under GHG Phase 2. This document proposes eliminating the last MY year of the HD GHG Phase 2 advanced technology incentive program for certain types of electric highway heavy-duty vehicles. U.S. EPA is proposing to add warranty requirements for batteries and other components of zero emission vehicles and to require customer-facing battery state-of-health monitors for plug-in hybrid and battery electric vehicles.

CARB Regulations for Drayage Trucks

In December 2007, CARB adopted regulation that applies to heavy-duty diesel trucks operating at California ports and intermodal rail yards. This regulation eventually required that all drayage trucks meet the 2007 on-road emission standards by 2014. From January 1, 2023, the Drayage Truck Regulation was

sunset, and drayage trucks are now subject to the Truck and Bus Regulation and must have a MY 2010 or newer engine.

In April 2023, CARB adopted the Advanced Clean Fleets Regulation which will apply a phase-in approach for ZE vehicle implementation for drayage, high priority, federal, state and local agency fleets. For medium- and heavy-duty vehicles, the regulation imposes a manufacture sales mandate which states manufacturers are only allowed to sell ZE medium- and heavy-duty vehicles for purchase in California, starting with MY 2036 vehicles. Drayage trucks will be required to start transitioning to ZE technology beginning in 2024 with full 100 percent ZE implementation by 2035.

Additionally, CARB also adopted the Heavy-Duty Inspection and Maintenance regulation, which began implementation in January 2023 and ensures that emissions control systems on in-use heavy-duty vehicles driven in California, including drayage trucks, are operating as designed and are repaired in a timely manner if they malfunction.

MOUs

In 1998, CARB entered into an MOU with Class 1 railroads UP and BNSF which established a fleet average emissions limit for locomotives operating in the Basin. The intended effect of this MOU was to accelerate introduction of Tier 2 or cleaner locomotives (achieving an approximate 57 percent level of NOx control) in this region. In June 2005, CARB entered into a second MOU with the same two railroads that is intended to reduce health risks near rail yards and identify actions to achieve a projected 20 percent reduction in DPM emissions. Finally, several years ago, the ports, shipping interests, and regulatory agencies entered into a MOU seeking voluntary reductions in vessel speed to reduce NOx emissions.

Proposed Method of Control

This measure seeks to reduce emissions related to on-road heavy-duty vehicles, off-road equipment, harbor craft, locomotives, and ocean-going vessels that operate in and out of the San Pedro Bay Ports. This measure will include development of a rule that will be applicable to sources at the San Pedro Bay Ports, as well as pursuit of incentive funding or other voluntary measures that can also achieve and/or facilitate emission reductions. In February 2022, South Coast AQMD began the rule development process for Proposed Rule 2304 –Commercial Marine Ports – Container Terminals. Depending upon how the proposed rule is ultimately structured, it may also require some level of federal approval before it can be fully implemented. To the extent possible, the proposed rule will be structured so as to allow incentive funding to be used to deploy cleaner technologies. Emission reductions may also be achieved if new regulations are developed and implemented at the federal or international level.

The proposed rule for commercial marine ports will continue to be developed through a public process that includes a working group, meetings with individual stakeholders, facility tours, community forums, and reports to the South Coast AQMD Governing Board Mobile Source Committee. The proposed rule is anticipated to be brought to the Governing Board for its consideration in 2024. Incentive programs and/or

other voluntary programs will use their own public process specific to each program. During rule development, staff will consider technical feasibility, identify industry-specific affordability issues, cost-effectiveness and incremental cost-effectiveness, and may consider alternative compliance mechanisms.

Emission Reductions

Potential emission reductions will be determined as the proposed rule is developed and as programs are implemented. Emission reductions from any proposed rule or other program applicable to marine ports might not be creditable into the SIP at time of adoption. If so, the emission reductions that do occur will ultimately be SIP-creditable at a later date (e.g., through retrospective analysis after rule implementation), or quantified through other measures (e.g., incentive programs) or inventory analysis, so long as they are quantifiable, permanent, surplus, enforceable, and real.

Rule Compliance and Test Methods

Compliance with this control measure will depend on the type of control strategy implemented. Compliance will be verified through actual emissions reported, and enforced through submittal and review of records, reports, and emission inventories. Enforcement provisions will be discussed as part of the public process to develop enforceable mechanisms to ensure that the emission reductions remain permanent. If other enforceable mechanisms are established outside of the South Coast AQMD public process, or the State or federal government implement regulatory actions, that achieve equivalent emission reductions, compliance will be enforced through the provisions of those actions.

Approved emission quantification protocols by federal, State or local agencies will be used to track and report emission reductions for SIP purposes.

Cost Effectiveness

The cost-effectiveness of this measure will be based on the strategies identified through the public process.

Implementing Agency

There are many potential implementing agencies for this measure. The proposed rule would be implemented by South Coast AQMD. Voluntary programs (e.g., vessel speed reduction) may be implemented by the Ports of Long Beach and Los Angeles. Incentive programs may be implemented either by the agency issuing the funding (e.g., California Energy Commission, Federal Maritime Administration, etc.) or co-implemented by the Ports of Long Beach and Los Angeles if they receive the funding. Regulations adopted at the federal or international level would be implemented by the applicable federal agency. For example, the Emission Control Area under the IMO's MARPOL Annex VI is enforced by both the U.S. Coast Guard and the U.S. EPA.

References

CARB (2022). 2022 State Strategy for the State Implementation Plan, September 2022

IMO (2018). Adoption of the Initial IMO Strategy on Reduction of GHG Emissions from Ships and Existing IMO Activity Related to Reducing GHG Emissions in the Shipping Sector, April 2018

San Pedro Bay Ports (2010). San Pedro Bay Ports Clean Air Action Plan, 2010 Update, October 2010

San Pedro Bay Ports (2017). San Pedro Bay Ports Clean Air Action Plan, 2017 Update, November 2017

South Coast AQMD (2007). Air Quality Management Plan, Appendix IV-A, June 2007

South Coast AQMD (2012). Air Quality Management Plan, Appendix IV-A, December 2012

South Coast AQMD (2017). Air Quality Management Plan, Appendix IV-A, March 2017

South Coast AQMD (2022). Air Quality Management Plan, Appendix IV-A, December 2022

,

MOB-02: EMISSION REDUCTIONS AT NEW AND EXISTING RAIL YARDS
[PM2.5, NOx]

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	NEW AND EXISTING RAIL YARDS	
CONTROL METHODS:	INDIRECT SOURCE RULE, MARKET INCENTIVES, VOLUNTARY PROGRAMS	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
POLLUTANT INVENTORY	0.37	TBD
POLLUTANT REDUCTION	TBD	TBD
POLLUTANT REMAINING	TBD	TBD
ANNUAL AVERAGE [NOx]:	2018	2030
POLLUTANT INVENTORY	15.57	17.97
POLLUTANT REDUCTION	TBD	TBD
POLLUTANT REMAINING	TBD	TBD
CONTROL COST:	TBD	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD	

Description of Source Category

There are nine major rail yards conducting intermodal operations within the jurisdiction of South Coast AQMD, with additional freight rail yards supporting the movement of goods and commodities and performing critical functions such as classification of rail cars, locomotive fueling, equipment repair and maintenance, and so on. There are a variety of mobile emission sources related to freight rail yard

operations including interstate line-haul locomotives, regional and local switch locomotives, on-road heavy-duty drayage trucks, cargo-handling equipment (CHE), and transportation refrigeration units (TRUs). In addition, the South California Regional Rail Authority (SCRRA or Metrolink) and Amtrak provide commuter rail transportation within the South Coast Air Basin (Basin). SCRRA maintains their passenger locomotives at two locations in the Basin. This measure seeks to reduce NO_x and particulate matter emissions related to the operation of rail yards. Through the public process, South Coast AQMD will assess and identify potential actions that could result in further emission reductions from rail yards located within the South Coast AQMD jurisdiction.

Background

Rail yard operations generate significant levels of nitrogen oxides (NO_x) and particulate matter (PM) emissions that contribute to the region's challenges to attain federal National Air Ambient Air Quality Standard (NAAQS). Moreover, environmental justice communities are located adjacent to many of these existing rail yards. Due to high rail and vehicle traffic in the area, nearby communities are subject to high levels of Nitrogen Dioxide (NO₂) and diesel particulate emissions. During periods of routine locomotive maintenance, there have been concerns raised regarding excessive emissions from idling locomotives or during periods of routine locomotive maintenance. At the same time, due to projected economic and population growth, it is anticipated that locomotive activities will increase, and construction of new intermodal rail yards could potentially facilitate this projected growth, thereby resulting in further increased NO_x and PM emissions.

Regulatory History

U.S. EPA Emission Standards for New Locomotives

To reduce locomotive emissions, the U.S. EPA in 2008 established a series of increasingly strict emission standards for new locomotives, including remanufactured locomotive engines. The emission standards are implemented by "Tier" with Tier 0 as the least stringent and Tier 4 being the most stringent. For Tiers 0, 1, and 2, the remanufacture standards are more stringent than the new manufacture standards for those engines for some pollutants. Additionally, in 2023, the U.S. EPA removed from its rule certain provisions which previously preempted the State control of non-new locomotives for a period of 133 percent of the useful life of a new locomotive or engine.

CARB Regulation for In-Use Locomotives

In April 2023, CARB adopted the In-Use Locomotive Regulation that will achieve emission reductions from locomotives operating in California. The final regulation includes a requirement for railroads to establish a spending account in 2026 and to pay into the account on an annual basis depending on the tier of locomotive used in the state. Lower tiers would pay more into the account than higher tiers. Funds from this account could be used to purchase Tier 4 and cleaner locomotives through 2030, and zero emission locomotives thereafter, or for the development of zero emission locomotive technologies including the supporting infrastructure. The regulation also would prohibit locomotives older than 23 years from

operating in the state starting in 2030, and require new locomotives to be zero emissions if they are built in or after 2030 for switch, industrial, and passenger, and 2035 for line haul. The regulation provides flexibility for achieving compliance, allowing for alternatives to meet milestone deadlines and granting extensions in cases such as technological limitations or emergency circumstances. Finally, the proposal adopts the U.S. EPA's existing idling limits into state law.

U.S. EPA Emission Standards for New Trucks

To reduce emissions from on-road, heavy-duty diesel trucks, the U.S. EPA established a series of cleaner emission standards for new engines, starting in 1988. Currently, all new heavy-duty trucks of 2010 or later model years (MY) have to meet the emission standards including 0.20 g/bhp-hr for NO_x and 0.01 g/bhp-hr for PM.

On December 20, 2022, U.S. EPA adopted a regulation to reduce NO_x emissions from heavy-duty vehicles effective March 27, 2023. The rule requires control equipment on trucks to last longer, and to control emissions better in low load duty cycles (such as drayage activity). Starting with MY 2027, the adopted regulation will lower the 2010 NO_x emission standard by 82.5 percent. The adopted regulation also increases the useful life of regulated heavy-duty vehicles by at least 50 percent. However, for drayage trucks, this federal regulation is no more stringent than CARB's recently adopted Advanced Clean Fleets regulation for drayage trucks (see below).

U.S. EPA proposed the Heavy Duty Greenhouse Gas (HD GHG) Phase 3 regulation on April 12, 2023. This proposed update would provide new GHG standards for heavy-duty highway vehicles starting MY 2028 through MY 2032 and revise certain standards established under GHG Phase 2. This document proposes eliminating the last MY of the HD GHG Phase 2 advanced technology incentive program for certain types of electric highway heavy-duty vehicles. U.S. EPA is proposing to add warranty requirements for batteries and other components of zero emission vehicles and to require customer-facing battery state-of-health monitors for plug-in hybrid and battery electric vehicles.

CARB Regulations for Drayage Trucks

In December 2007, CARB adopted regulation that applies to heavy-duty diesel trucks operating at California ports and intermodal rail yards. This regulation eventually required that all drayage trucks meet the 2007 on-road emission standards by 2014. From January 1, 2023, the Drayage Truck Regulation was sunset, and drayage trucks are now subject to the Truck and Bus Regulation and must have a MY 2010 or newer engine.

In April 2023, CARB adopted the Advanced Clean Fleets Regulation which will apply a phase-in approach for ZE vehicle implementation for drayage, high priority, federal, state and local agency fleets. For medium- and heavy-duty vehicles, the regulation imposes a manufacture sales mandate which states manufacturers are only allowed to sell ZE medium- and heavy-duty vehicles for purchase in California, starting with MY 2036 vehicles. Drayage trucks will be required to start transitioning to ZE technology beginning in 2024 with full 100 percent ZE implementation by 2035.

Additionally, CARB also adopted the Heavy-Duty Inspection and Maintenance regulation, which began implementation in January 2023 and ensures that emissions control systems on in-use heavy-duty vehicles driven in California, including drayage trucks, are operating as designed and are repaired in a timely manner if they malfunction.

CARB Cargo Handling Equipment Regulation

On December 8, 2005, CARB approved the Regulation for Mobile Cargo-Handling Equipment (CHE) at Ports and Intermodal Rail Yards (Title 13, CCR, Section 2479), which is designed to use Best Available Control Technology (BACT) to reduce diesel PM and NOx emissions from mobile cargo-handling equipment at ports and intermodal rail yards. The regulation became effective December 31, 2006. Since January 1, 2007, the regulation imposes emission performance standards on new and in-use terminal equipment that vary by equipment type. The CHE regulation was amended in 2011 to provide added compliance flexibility.

South Coast AQMD Regulation XXXV – Railroads and Railroad Operations

South Coast AQMD adopted Regulation XXXV – Railroads and Railroad Operations, which consists of three rules that address emissions from locomotives and rail yards. Rule 3501 – Recordkeeping for Locomotive Idling, requires recordkeeping of idling events in order to identify opportunities for reducing idling emissions and to assist in quantifying idling emissions. Rule 3502 – Minimization of Emissions from Locomotive Idling, requires railroads to minimize unnecessary locomotive idling. Rule 3503 – Emissions Inventory and Health Risk Assessment for Railyards, requires operators of railroads and rail yards to develop emissions inventories, prepare health risk assessments and notify the public of health risks. A federal District Court decision prevents these rules from being implemented until they become federally enforceable through inclusion in the SIP. Since the District rules have not become part of California's U.S. EPA-approved SIP at the time of the ruling, the court stated the Regulation XXXV rules do not have the force and effect of federal law and are found to be preempted by the Interstate Commerce Commission Termination Act of 1995.

MOUs

In 1998, the railroads and California Air Resources Board (CARB) entered into a Memorandum of Understanding (MOU) to accelerate the introduction of Tier 2 locomotives into the Basin. The MOU includes provisions for a fleet average in the Basin, equivalent to the U.S. EPA's Tier 2 locomotive standard by 2010. The MOU addressed NOx emissions from locomotives. Under the MOU, NOx levels from locomotives are reduced by 57 percent. However, little progress in emission reductions occurred in the most recent decade. As of 2020, only 5.9 percent of locomotive activities operated by Union Pacific (UP) within the South Coast Air Basin was with the cleanest Tier 4 locomotives, and the corresponding figure was 7.5 percent by Burlington Northern Santa Fe Corp (BNSF). In contrast, about 78 percent of locomotive activities operated by UP was with Tier 2 or older locomotives, and the corresponding figure was 66 percent by BNSF.

On June 30, 2005, UP and BNSF entered into a Statewide Rail Yard Agreement to Reduce Diesel PM at California Rail Yards with the CARB. The railroads committed to implementing certain actions from rail operations throughout the State. In addition, the railroads prepared equipment inventories and conducted dispersion modeling for diesel PM at a number of rail yards.

Proposed Method of Control

This measure seeks to reduce emissions related to on-road heavy-duty drayage trucks, off-road equipment including cargo handling equipment and transportation refrigeration units, and both line-haul and switch locomotives, that operate in and out of rail yards.

In May 2018, South Coast AQMD directed staff to pursue both regulatory and non-regulatory approaches to reduce rail yard related emissions. Following the initial rule development for existing rail yards, staff began in July 2021 to focus on developing a new indirect source rule (ISR) in response to the announcement of plans to construct two new intermodal rail yards: the Southern California International Gateway (SCIG) proposed by the Port of Los Angeles, and the Colton Intermodal Facility as a proposed component of California High Speed Rail (HSR) – Los Angeles to Anaheim section. While no further updates have been provided on SCIG to date, the Colton component was subsequently removed from consideration by the HSR Authority in mid-2023. Given this development, between August and November 2023, staff efforts were temporarily pivoted to explore a potential MOU to reduce emissions associated with all rail equipment owned/operated by Class I railroads that are deployed solely within the South Coast Air Basin. However, the parties were unable to reach a consensus, and the MOU effort was discontinued.

In the same year, CARB adopted its In-Use Locomotive regulation which is projected to accelerate the turnover to zero emission for locomotives deployed to California, starting in 2030 for switch locomotives (used for yard/localized jobs or passenger transportation) and 2035 for line-haul (used for both interstate goods movement and regional/local switching operations). Additionally, CARB also adopted the Advanced Clean Fleets regulation which mandates the transition of drayage truck fleet to zero emission by 2035.

This measure will include development of a proposed rule applicable to rail yard sources, as well as pursuit of incentive funding, technology demonstration, or other measures that can also achieve and/or facilitate emission reductions in addition to the proposed rule. The proposed rule will focus on localized realization of emission reduction benefits consistent with recently adopted statewide regulations affecting rail yard sources. The rule design will take into account differences in rail yard operations and equipment deployment patterns to ensure the proposed rule would act as a strengthening mechanism to assist with local implementation of state regulations. Depending upon how the proposed rule is ultimately structured, it may also require some level of federal approval before it can be fully implemented. To the extent possible, the proposed rule will be structured so as to allow incentive funding to be used to deploy cleaner technologies. Emission reductions may also be achieved if new regulations are developed and implemented at the federal level.

The proposed rule will continue to be developed through a public process that includes a working group, meetings with individual stakeholders, facility tours, community forums, and reports to the South Coast AQMD Governing Board Mobile Source Committee.

Emission Reductions

Potential emission reductions will be determined as programs are implemented. Emission reductions from any program applicable to rail yards might not be creditable into the SIP at time of adoption. If so, the emission reductions that do occur will ultimately be SIP-creditable at a later date (e.g., through retrospective analysis after rule implementation), or quantified through other measures (e.g., incentive programs) or inventory analysis, so long as they are quantifiable, permanent, surplus, enforceable, and real.

Rule Compliance and Test Methods

Compliance with this control measure will depend on the type of control strategy implemented. Compliance will be verified through actual emissions reported, and enforced through submittal and review of records, reports, and emission inventories. Enforcement provisions will be discussed as part of the public process to develop enforceable mechanisms to ensure that the emission reductions remain permanent. If other enforceable mechanisms are established outside of the South Coast AQMD public process, or the State or federal government implement regulatory actions, that achieve equivalent emission reductions, compliance will be enforced through the provisions of those actions.

Cost Effectiveness

The cost-effectiveness of this measure will be based on the strategies identified through the public process.

Implementing Agency

South Coast AQMD has the authority to regulate emissions from indirect sources, including rail yards.

References

California Air Resources Board (1998). Memorandum of Mutual Understanding and Agreements: South Coast Locomotive Fleet Average Emissions Program. July 1998.

California Air Resources Board (2005). ARB/Railroad Statewide Agreement: Particulate Emissions Reduction Program at California Rail Yards. June 2005.

California Air Resources Board (2011). Regulation for Mobile Cargo Handling Equipment at Ports and Intermodal Rail Yards. September 2012.

California Air Resources Board (2022). Heavy-Duty Inspection and Maintenance Regulation, August 2022.

California Air Resources Board (2023). In-Use Locomotive Regulation, September 2023.

California Air Resources Board (2023). Advanced Clean Fleets Regulation, August 2023.

South Coast AQMD (2006). Regulation 35 – Railroads and Railroad Operations.

U.S. EPA (2008). Control of Emissions of Air Pollution from Locomotive Engines and Marine Compression-Ignition Engines Less Than 30 Liters per Cylinder; Republication, June 30, 2008 (73FR37096).

U.S. EPA (2022). Final Rule: Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards. December 2022.

U.S. EPA (2023). Proposed Rule: Greenhouse Gas Emissions Standards for Heavy-Duty Vehicles – Phase 3, April 2023.

U.S. EPA (2023). Final Rule: Locomotives and Locomotive Engines; Preemption of State and Local Regulations, November 2023.

MOB-03: EMISSION REDUCTIONS AT WAREHOUSE DISTRIBUTION CENTERS [PM2.5, NOx]

CONTROL MEASURE SUMMARY ⁴⁶		
SOURCE CATEGORY:	MOBILE SOURCES (ON-ROAD VEHICLES, OFF-ROAD VEHICLES)	
CONTROL METHODS:	Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
POLLUTANT INVENTORY	TBD	TBD
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
ANNUAL AVERAGE [NOx]:	2018	2030
POLLUTANT INVENTORY	42	TBD
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
CONTROL COST:	\$12.6 MILLION – \$979 MILLION (DEPENDENT ON THE MENU-BASED STRATEGY)	
INCENTIVE COST:	INCENTIVES ARE NOT DIRECTLY RELATED	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD	

Description of Source Category

Mobile Sources: (Includes Cargo Handling Equipment)

- On-Road Vehicles; and
- Off-Road Vehicles.

⁴⁶ <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-May7-027.pdf?sfvrsn=10>

Background

A large portion of the Nitrogen Oxides (NOx) emission inventory in the South Coast Air Basin (Basin) comes from the goods movement industry. More than half of the emissions from that sector result from heavy-duty diesel trucks. In addition, about 37% of the PM2.5 emissions in the Basin comes from mobile sources. Regulation of mobile sources is under the purview of the U.S. Environmental Protection Agency (U.S. EPA) and California Air Resources Board (CARB), but the South Coast Air Quality Management District (South Coast AQMD) has indirect source authority to be able to regulate the warehouses that attract diesel trucks and operate other mobile source vehicles (such as yard hostlers, forklifts, etc.). Warehouses are considered a point source of emissions in local disadvantaged communities.

There is a definite air quality need to reduce NOx and PM2.5 emissions from warehouse operations to achieve the following:

- Assist in meeting attainment goals;
- Assist related regulations in gaining emission reductions;
- Assist in the shortfall of incentive funds;
- Increase the use of zero emission vehicles;
- Assist in state actions on cleaner technology; and
- Reduce pollution burden in local communities.

Regulatory History

- Truck and Bus Regulation;
- Advanced Clean Trucks (ACT) Regulation;
- Low NOx Omnibus;
- Heavy-Duty Inspection and Maintenance Program; and
- Advanced Clean Fleet Regulation.

Proposed Method of Control

Rule 2305 requires annual compliance by applicable warehouse operators to implement emission reducing strategies based on the volume of truck traffic to each individual warehouse. Based on the volume of truck traffic, each warehouse operator would earn/acquire points through a variety of flexible options. The Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program is a menu-based point system that would award WAIRE Points for completing items on a prescribed menu. Warehouse operators can propose a site-specific strategy evaluated similar to the actions/investments on the WAIRE Menu, and upon approval could earn the warehouse operator WAIRE Points. There is a mitigation fee option, where the funds paid to the mitigation fee program would fund incentives for cleaner technologies back in the communities of the warehouse operator that paid the mitigation fee. During rule development, staff considered technical feasibility, identified industry-specific affordability issues, cost-effectiveness and incremental cost-effectiveness, and considered alternative compliance mechanisms.

Emission Reductions

The WAIRE Program provides a suite of options for warehouse operators to comply. Rule 2305 requires warehouse operators to annually earn WAIRE Points by completing any combination of: 1) implementing actions from the WAIRE Menu, 2) developing and implementing an approved Custom WAIRE Plan, or 3) paying a mitigation fee. Revenues from the mitigation fees will be used to incentivize the installation of zero emission vehicle charging/fueling infrastructure or the turnover of existing diesel fleet vehicles with a low NOx or zero emissions truck. The staff report for Rule 2305 analyzed 19 different scenarios for compliance by warehouse operators to show the range of potential outcomes and emission reduction benefits from the rule.

Actions on the WAIRE Menu promote transportation electrification and fleet turnover with low NOx and zero emissions trucks. Most the actions result in NOx and PM2.5 reductions from cleaner trucks or offsetting reliance on electricity from local natural gas-fired power plants through solar panel installations or by reducing exposure at the local communities sited near warehouses. For the truck usage analysis of emission reductions, a retrospective analysis was conducted based on the surplus reductions observed in the EMFAC model.

TABLE MOB-03-A
ESTIMATED BASELINE TRUCK EMISSION (TONS PER DAY) ASSOCIATED WITH RULE 2305
WAREHOUSES REQUIRED TO EARN WAIRE POINTS

	2019		2023		2031	
	NOx	Diesel PM	NOx	Diesel PM	NOx	Diesel PM
EMFAC 2017 Baseline	41.67	0.67	20.19	0.14	20.18	0.14
Reductions from CARB ACT, Low NOx Omnibus and Heavy-Duty I/M Regulations	0	0	-0.005	< -0.01	-3.37	-0.03
Total	41.67	0.67	20.19	0.14	16.81	0.12

Rule Compliance and Test Methods

Rule 2305 has several reporting requirements to ascertain responsible entities, establish baseline operation numbers, and tracking annual progress. Warehouse operators that are required to earn WAIRE Points must submit an Annual WAIRE Report (AWR) which would then be reviewed and/or audited

through both a desktop and field audit to determine compliance with reporting requirements and WAIRE Program requirements.⁴⁷

Cost Effectiveness

The total costs of implementing Rule 2305 ranges from \$12.6 million to \$979 million depending on the WAIRE Menu actions/investments implemented by the warehouse operator, and in some scenarios results in an overall savings. Potential economic impacts have been thoroughly analyzed in the socioeconomic impact assessment for Rule 2305. These analyses concluded that the public health benefits of the rule are expected to outweigh the potential costs by a ratio of about 3:1, for most compliance scenarios that were analyzed. Further, the cost-effectiveness of Rule 2305 was found to be similar to the cost-effectiveness of several mobile source regulations adopted by CARB in recent years.

Implementing Agency

South Coast AQMD has the indirect source authority to implement Rule 2305 which complements the mobile source emission standards and regulations that U.S. EPA and CARB can enact.

References

South Coast AQMD May 7, 2021 Governing Board Package. <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-May7-027.pdf?sfvrsn=10>

⁴⁷<http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-May7-027.pdf?sfvrsn=10>.

MOB-04: EMISSION REDUCTIONS AT COMMERCIAL AIRPORTS
[ALL POLLUTANTS]

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	COMMERCIAL AIRPORTS	
CONTROL METHODS:	MOBILE SOURCE EMISSION REDUCTION EFFORTS INCLUDING DEPLOYMENT OF CLEANER TECHNOLOGIES, INCREASED EFFICIENCIES, OR FURTHER AIR QUALITY IMPROVEMENT PROJECT OPTION	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE:	2018	2030
POLLUTANT INVENTORY	TBD	TBD
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
CONTROL COST:	N/A	
INCENTIVE COST:	N/A	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD	

Description of Source Category

There are five major commercial airports located in the South Coast Air Basin (Basin): Los Angeles International Airport (LAX), John Wayne Orange County Airport (SNA), Hollywood Burbank Airport (BUR), Ontario International Airport (ONT), and Long Beach Airport (LGB). Due to projected increases in airline passenger transportation and expansion of operations at commercial airports, emissions from airport operations may increase unless the increased emissions are mitigated. For this reason, the Facility-Based Mobile Source Measure (FBMSM) for Commercial Airports, which controls non-aircraft mobile sources at commercial airports, was adopted by the South Coast Air Quality Management District (South Coast AQMD) on December 6, 2019. The measure consists of Memoranda of Understanding (MOUs) between the South Coast AQMD and the aforementioned airports and the South Coast AQMD's enforceable commitment to achieve 0.52 and 0.37 ton per day NO_x reductions in 2023 and 2031, respectively. Each airport developed their own Air Quality Improvement Plans/Measures during the development of the FBMSM for Commercial Airports and used them as the basis for the Memorandum of Understandings (MOUs). The FBMSM for Commercial Airports was intended to assist with the implementation of the

“Further Deployment of Clean Technologies” measures for mobile sources in the 2016 State SIP Strategy.⁴⁸ MOB-04 seeks to continue tracking implementation of the MOUs to assist with attainment of the 2012 annual PM2.5 National Ambient Air Quality Standard (NAAQS).

Background

There are a variety of emission sources related to commercial airport operations. In addition to aircraft, ground support equipment (GSE) such as baggage handling equipment, food service trucks, fuel trucks, and aircraft tugs contribute to airport emissions. Emissions associated with passenger transportation to and from the airport, delivery of goods and fuel for aircraft transport, and stationary equipment also contribute.

Historically, airport authorities have mitigated airport-related emissions and airport ground support equipment and on-road vehicles are regulated by California Air Resources Board (CARB). However, aircraft emissions are primarily regulated by the federal government or by the International Civil Aviation Organization (ICAO). ICAO establishes new aircraft engine emission standards internationally, while the U.S. Environmental Protection Agency (U.S. EPA) establishes aircraft emission standards nationally.

Regulatory History

Emission standards for Aircraft

In 1973, the U.S. EPA published emissions standards and test procedures to regulate gaseous emissions, smoke, and fuel venting from aircraft engines. In 1997, the standards were revised to be more consistent with those of the ICAO Committee of Aviation Environmental Protection (CAEP) for turbo engines used in commercial aircraft. These standards (CAEP/2) included new CO, HC, and NO_x emissions standards of 118 grams per kilonewtons (g/kN), 19.6 g/kN, and 40 g/kN, respectively. In 2005, the standards were harmonized with ICAO CAEP/4 requirements which tightened the CAEP/2 NO_x standards by 32 percent for newly-certified commercial aircraft engines.

On June 1, 2012, the U.S. EPA Administrator signed a final rule to revise the standards to be consistent with the current ICAO CAEP/6 and CAEP/8 requirements to further reduce NO_x emissions. The first set of standards require that all new engines meet the ICAO CAEP/6 standards. The CAEP/6 standards represent approximately a 12 percent emission reduction from the ICAO Tier 4 levels. The second set of standards, Tier 8, took effect in 2014 and represent approximately a 15 percent reduction from Tier 6 levels.

South Coast AQMD’s Fleet Rules

⁴⁸ 2016 State SIP Strategy. <https://ww2.arb.ca.gov/resources/documents/2016-state-strategy-state-implementation-plan-federal-ozone-and-pm25-standards>

South Coast AQMD's fleet rules apply to several vehicle categories operating at airports. Rule 1191, Clean On-Road Light- and Medium-Duty Public Fleet Vehicles, applies to all state and local government agencies located in the South Coast AQMD's jurisdiction, including state, regional, county, and city government departments and agencies, and any special districts such as water, air, sanitation, transit, and school districts, with 15 or more non-exempt light-duty vehicles. This regulation requires that these entities acquire low emission gasoline or alternative fuel vehicles when procuring new vehicles. Rule 1196, Clean On-Road Heavy-Duty Public Fleet Vehicles, is a similar regulation that applies to on-road heavy-duty vehicles with a gross vehicle weight of at least 14,000 pounds. It requires all applicable government agencies and special districts with fleets of 15 or more vehicles (including commercial airports), to acquire a gasoline, dual-fuel or alternative fueled engine or vehicle when purchasing or leasing a new vehicle. Airports and operators must also comply with Rule 1194, Commercial Airport Ground Access, which requires all public fleets and those under contract or exclusive franchise to a public entity providing passenger transportation services out of commercial airports to acquire low emission or alternative-fueled vehicles. This rule applies to passenger cars, light-duty trucks, and medium- and heavy-duty transit vehicle fleets of 15 or more vehicles. Passenger shuttle buses and taxi cabs under a contract or exclusive franchise serving airports must comply with this rule as well.

CARB GSE MOU

In 2002, CARB executed an MOU for GSE with commercial airlines and cargo operators in the Basin. GSE is utilized for various functions at airports such as refueling aircraft, transporting cargo and luggage, and providing maintenance. The 2002 MOU has the following objectives for airlines to meet; meeting a 2.65 g/bhp-hr hydrocarbon plus NO_x emission rate performance target, converting at least 30 percent of the aggregate GSE fleet to electric, acquiring at least 45 percent of new GSE purchases be electric, and reducing diesel GSE emissions by installing particle filters. The date to achieve these objectives was December 31, 2010. However, the MOU was terminated in 2006 because CARB's statewide regulations addressed many aspects of the GSE MOU.

CARB In-Use Off-Road Diesel-Fueled Fleets Regulation

CARB requires emission reductions from existing off-road diesel-fueled vehicles through its statewide In-Use Off-Road Diesel-Fueled Fleets Regulation. The regulation applies to all off-road diesel vehicles with engines greater than 25 horsepower including diesel-powered GSE and other diesel off-road equipment and vehicles operated at airports. The regulation imposes limits on idling, restricts the addition of older vehicles to fleets, and requires fleet owners to retire, replace or repower older engines to achieve progressively lower fleet average emission rates, or comply with the Best Available Control Technology (BACT) requirements. This rule requires mandatory reporting of applicable equipment to CARB through the Diesel Off-road On-line Reporting System (DOORS).⁴⁹

CARB On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation

⁴⁹ Available at https://ssl.arb.ca.gov/ssldoors/doors_reporting/doors_login.html

CARB's regulation requires emission controls and replacements for existing diesel trucks and buses through its statewide On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation, commonly referred to as the Truck and Bus Regulation. Heavy-duty vehicles with a gross vehicle weight greater than 14,000 pounds are required to be retrofitted with diesel particulate filters based on truck model years and according to specified schedules. In addition, replacement of older heavy-duty vehicles is mandated based on a tiered schedule that began in 2015. By 2023, nearly all trucks and buses will be required to have model year 2010 engines or newer.

CARB Heavy-Duty Omnibus Regulation

CARB's Heavy-Duty Omnibus Regulation represents a comprehensive update to the California emission standards and other emission-related requirements for heavy-duty engines and vehicles. This regulation requires vehicles with a gross vehicle weight greater than 10,000 pounds to achieve more stringent NO_x emission standards beginning with model year 2024 engines. The regulation also modifies the test cycle used to determine compliance with the standards to better represent real-world emissions. Finally, the regulation ensures that emission controls are sufficiently durable to control emissions over the vehicle's useful life by lengthening the criteria pollutant emissions warranty beginning with model year 2027 engines.

CARB Advanced Clean Trucks

The purpose of CARB's Advanced Clean Trucks Regulation is to accelerate the widespread adoption of zero emission vehicles (ZEVs) in the medium- and heavy-duty truck sector and reduce the amount of harmful emissions generated from on-road mobile sources. This is accomplished through a zero emission sales requirement for manufacturers of vehicles with a gross vehicle weight greater than 8,500 pounds. The sales requirement takes effect in 2024 and reaches its most stringent level in 2030. The regulation also includes a reporting requirement for large entities regarding their use of trucks and buses.

CARB Heavy-Duty Inspection and Maintenance Regulation

CARB's Heavy-Duty Inspection and Maintenance regulation ensures that emissions control systems on heavy-duty vehicles driven in California are operating as designed and are repaired in a timely manner if they malfunction. Affected vehicles are required to undergo inspections every six months beginning in 2023. Depending on vehicle capability, owners are required to submit On-Board Diagnostic data or submit results from a smoke opacity test. The opacity test would also include a visual inspection of the emissions control system to ensure the components are installed according to the manufacturer's specifications. Finally, the regulation calls for expanding a roadside emissions monitoring network and increasing field inspections.

CARB Large Spark-Ignition (LSI) Engine Fleet Requirements Regulation

CARB's LSI regulation applies to off-road LSI engine forklifts, sweepers/scrubbers, industrial tow tractors, and airport ground support equipment operated within the State of California. Additionally, it applies

only to vehicles with engines of at least 25 horsepower and 1.0 liter displacement that are part of fleets of four vehicles or more. The regulation requires that applicable fleets achieve specific fleet average emission levels (FAELs) for hydrocarbons and NOx. These standards became more stringent over time until reaching the lowest regulated FAEL in 2013. The regulation also mandates reporting of applicable equipment to CARB through DOORS.

CARB Zero Emission Airport Shuttle Regulation

CARB's Zero Emission Airport Shuttle Regulation, adopted by the CARB Governing Board in June 2019, promotes the use of zero emission ground transportation to and from airports in California. The regulation requires that at least 33 percent, 66 percent, and 100 percent of airport shuttle fleets be zero emission vehicles by December 31, 2027, 2031 and 2035, respectively. It also requires fleet owners to report fleet information annually starting in 2022 and to have zero emission certificates for 2026 and later model year vehicles.

Proposed Method of Control

The measure for Commercial Airports, which is based on the airports' implementation of MOU measures, seeks to reduce emissions from non-aircraft airport sources including ground support equipment (GSE), airport shuttle buses, and heavy-duty trucks. The MOU measures establish performance targets for 2023 and 2031 for these sources. All airport MOUs include a GSE measure, with three airports also including measures for shuttle buses and/or heavy-duty trucks. In addition to the MOU measures, each airport is implementing Air Quality Improvement Plans/Measures (AQIPs/AQIM), which will lead to further reductions. The AQIPs/AQIM cover sources including construction, light-duty fleets, and passenger transportation.

The South Coast AQMD will continue working with the airports to facilitate implementation of the MOU measures to meet the targets in 2023 and 2031. The airports are required to submit progress reports on implementing their respective MOU measures by June 1st every year. The first annual progress report was submitted to the U.S. EPA on November 2, 2021. The progress was discussed at the Airport MOU Working Group, which is comprised of stakeholders from, but not limited to, the airline industry, airport authorities, local governments, and community representatives. Working group meetings will be continued to monitor the airports' progress through 2032. South Coast AQMD will encourage airports to accelerate implementation of the MOU measures ahead of 2031 so that emission reductions in 2030 can be quantified.

Emission Reductions

The measure for Commercial Airports contains an enforceable commitment to achieve 0.52 and 0.37 ton per day NOx reductions in 2023 and 2031, respectively. While there are no committed reductions in 2030 beyond the 2023 commitment, it is expected that continued implementation of the MOUs will result in further reductions. Staff will seek to quantify emission reductions in 2030.

Rule Compliance

Compliance with the MOUs will be verified in accordance with the process identified in the MOUs. The MOUs require that each airport submit detailed progress reports, emissions inventories, and calculations by June 1st each year followed by the South Coast AQMD's report to the U.S. EPA by November 1st.

Test Methods

Approved emission quantification protocols by federal, state, or local agencies will be used to track and report emission reductions for SIP purposes.

Cost Effectiveness

The cost-effectiveness of the MOUs has not been determined.

Implementing Agency

South Coast AQMD is responsible for tracking progress associated with implementation of the MOUs.

References

South Coast Air Quality Management District. Facility Based Mobile Source Measure for Commercial Airports (Adopted December 6, 2019).

MOB-05: ACCELERATED RETIREMENT OF LIGHT-DUTY AND MEDIUM-DUTY VEHICLES**[PM2.5, NOx]**

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	GASOLINE- AND DIESEL-POWERED LIGHT- AND MEDIUM-DUTY VEHICLES UP TO 8,500 LBS GROSS VEHICLE WEIGHT	
CONTROL METHODS:	INCENTIVE PROGRAM FOR VOLUNTARY EARLY RETIREMENT OF OLDER LIGHT- AND MEDIUM-DUTY VEHICLES	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
POLLUTANT INVENTORY	2.87	2.47
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
ANNUAL AVERAGE [NOx]:	2018	2030
POLLUTANT INVENTORY	75.62	24.37
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
CONTROL COST:	TBD	
INCENTIVE COST:	UP TO \$9,500 PER VEHICLE RETIRED. THE MAXIMUM FUNDING LIMIT WILL SOON BE INCREASED UP TO \$12,000 PER VEHICLE. ADDITIONAL FUNDING UP TO \$2,000 FOR ELECTRIC VEHICLE CHARGING EQUIPMENT	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD	

Description of Source Category

The purpose of this control measure is to implement a strategy to accelerate retirement of older gasoline- and diesel-powered vehicles with up to 8,500 lbs. gross vehicle weight rating (GVWR). These vehicles include passenger cars, sports utility vehicles, vans, and light-duty pick-up trucks.

Background

Significant strides have been made in reducing emissions from motor vehicles through California Air Resources Board (CARB)'s mobile source regulations. As a result, a "new" vehicle today is approximately 99 percent less polluting compared to a vehicle manufactured a couple of decades ago. Incentives have also played a key role in accelerating the adoption of these cleaner vehicles by consumers. However, light-

and medium-duty vehicles still account for over 15 percent of the NOx emissions from all sources in the South Coast Air Basin (Basin). Accelerated and wider use of advanced technologies such as battery electric, fuel cell, and plug-in hybrid electric vehicles that are capable of zero emission transportation is essential if clean air standards are to be achieved, especially for in-use vehicles.

Regulatory History

In January 2012, CARB adopted the Advanced Clean Cars (ACC) Program, including Low-Vehicle Emission (LEV) III criteria pollutant emission standards, LEV III GHG standards, and Zero Emission Vehicle (ZEV) regulation amendments to address model years 2015 through 2025. On August 25, 2022, CARB adopted the Advanced Clean Cars II (ACC II) standards as a continuation of the ACC Program to rapidly scale down emissions from light-duty passenger cars, pickup trucks and SUVs starting with the 2026 model year through 2035. The Zero Emission Vehicle Regulation was amended to increase the ZEV production requirements for manufacturers with all new passenger cars and light-duty trucks sold in California to be 100% ZEVs by 2035. The ACC II also includes increasingly stringent standards for conventionally fueled cars and trucks to ensure continued progress in the development of cleaner engines and fuel technologies for these vehicles.

On April 12, 2023, the United States Environmental Protection Agency (U.S. EPA) announced new, more ambitious standards to further reduce harmful air pollutant emissions from light- and medium-duty vehicles beginning with model year 2027. If adopted, these new proposed standards, which serve as a continuation of U.S. EPA's final standards for federal greenhouse gas emissions standards for passenger cars and light trucks for model years 2023 through 2026, would be phased in over model years 2027 through 2032. In addition to reducing vehicle emissions of greenhouse gases and criteria pollutants, the new proposed standards would leverage advances in clean car technology and provide greater benefits ranging from improving public health to saving drivers money through reduced fuel and maintenance costs.

On September 23, 2004, the California governor signed AB 923 (Firebaugh) which resulted in a significant increase in incentive funding for programs that achieve emission reductions from vehicular sources and off-road engines. The legislation identified and emphasized that in-use higher emitting vehicles are sources that need additional scrutiny and control in part because of their large contribution to the fleet's total emissions. To address this, the South Coast AQMD implemented, under the AB 923 program, the High Emitters Repair or Scrap (HEROS) pilot program to identify and retire high emitting on-road vehicles.

Subsequently, CARB adopted the Enhanced Fleet Modernization Program (EFMP) regulation in June 2009. The regulation implements the voluntary vehicle scrap and replacement voucher provisions of AB 118 (Nunez). The EFMP augments the State's existing voluntary accelerated vehicle retirement program, referred to as the Consumer Assistance Program (CAP) which is administered by the Bureau of Automotive Repair. The focus of the EFMP is to augment existing retirement programs and provide funding through vehicle replacement vouchers to retire the highest polluting vehicles in the areas with the greatest air quality problems.

In 2014, the State Legislature passed two bills (SB 459 – Pavley and AB 1365 – De Leon) that placed an emphasis on increasing the efficacy of the EFMP and encouraged opportunities for low and moderate-income residents to purchase cleaner, more fuel-efficient combustion vehicles and advanced technology vehicles such as all-battery electric and plug-in hybrid electric vehicles. CARB amended the EFMP regulation in 2014 to reflect these legislative directives. The amended EFMP provides up to \$4,500 to eligible low- and moderate-income residents for the replacement of older vehicles with newer or new vehicles. Under separate actions, CARB allocated Clean Car 4 All (CC4A, formerly EFMP Plus-Up) funding under the California Climate Investments to augment the EFMP for eligible low- and moderate-income residents living in disadvantaged communities (DAC) for the purchase or lease of cleaner, more fuel-efficient combustion vehicles and advanced technology vehicles. Eligible residents may receive additional funding assistance from the CC4A. The South Coast AQMD has been implementing the EFMP and CC4A under the Replace Your Ride Program (RYP) since July 2015 with qualified applicants receiving up to \$9,500 to replace their existing cars with newer, cleaner vehicles or other clean modes of transportation (e.g., transit passes or car-sharing). The maximum funding limit will soon be increased to \$12,000 for residents in Disadvantaged Communities (DAC). A new option was introduced in July of 2022 for applicants that choose an E-bike in lieu of a clean replacement vehicle. E-bike applicants receive a flat \$7,500 incentive regardless of DAC status of their residence. If the E-bike costs less than \$7,500, the remainder will be credited to the applicant for expenditure on public transit or car-sharing. To date, the program has incentivized over 20 E-bikes.

Since its inception, the RYP has replaced almost 10,000 vehicles, having achieved approximately 29.5 tons per year (tpy), 1.6 tpy, and 6.0 tpy of NO_x, PM_{2.5}, and VOC emission reductions, respectively.

Proposed Method of Control

This action is to accelerate replacement of older light- and medium-duty vehicles with newer, cleaner vehicles or other clean mode of transportation, including transit passes, through the Replace Your Ride Program. Qualified applicants currently receive up to \$9,500 as voucher per retired vehicle. The maximum voucher amount is expected to increase up to \$12,000 which includes additional incentives for residents in a DAC zip code. For plug-in hybrid and battery electric vehicles, an additional incentive of up to \$2,000 is also provided for the installation of electric vehicle charging equipment under this program.

Emission Reductions

Emission reductions are not estimated at this time as it will depend on the actual number of vehicles participating in the Replace Your Ride or other incentive programs.

Cost Effectiveness

Since the EFMP guidelines are developed based on funding appropriated by the State Legislature with the desire to provide sufficient funding for low- and moderate-income residents to access newer, cleaner, and

more fuel-efficient combustion vehicles and advanced technology vehicles, no cost-effectiveness threshold has been established.

Implementing Agency

South Coast AQMD is the implementing agency under the guidelines set forth by CARB for the EFMP and CC4A. Funding would be provided by CARB with South Coast AQMD administering the replacement voucher provisions of the EFMP regulation.

References

South Coast AQMD (2023). Announcements – Residents Can Soon Receive Up to \$12k for Upgrading to An Electric Vehicle. June 2023. <http://www.aqmd.gov/docs/default-source/news-archive/2023/ryr-june2-2023.pdf>

CARB (2015). AB118 Enhanced Fleet Modernization Program Regulation. April 2015. <https://ww2.arb.ca.gov/sites/default/files/2021-03/finalregulationorder2014-S2.pdf>

CARB (2021). EFMP Retire and Replace Program Statistics. June 2021. https://ww2.arb.ca.gov/sites/default/files/2021-09/EFMP%20Website%20Statistics%20Tables%20Cumulative%202021_Q2%2009-21-21.pdf

MOB-06: ACCELERATED RETIREMENT OF ON-ROAD HEAVY-DUTY VEHICLES [PM2.5, NOx]

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	ON-ROAD HEAVY-DUTY VEHICLES (GREATER THAN 8,500 LBS GVWR)	
CONTROL METHODS:	ACCELERATED REPLACEMENT OF EXISTING HEAVY-DUTY VEHICLES WITH ZERO OR LOW NOx EMISSION VEHICLES	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
POLLUTANT INVENTORY	2.57	1.15
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
ANNUAL AVERAGE [NOx]:	2018	2030
POLLUTANT INVENTORY	103.15	23.24
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
CONTROL COST:	TBD	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD	

Description of Source Category

The intent of this control measure is to seek additional emissions reductions from existing heavy-duty vehicles with gross vehicle weight rating (GVWR) greater than 8,500 lbs through an accelerated vehicle replacement program with zero or low NOx emission vehicles.

Background

Emissions from heavy-duty diesel mobile sources continue to represent a significant portion of the emissions inventory in the Basin, adversely affecting regional air quality and public health. The two primary pollutants resulting from diesel fuel combustion are particulate matter (PM) and Nitrogen Oxides (NOx). Diesel PM contains over 40 known cancer-causing substances and California identified diesel PM

as a toxic air contaminant based on its potential to cause cancer in 1998. In August 2021, South Coast AQMD released a report titled, “MATES V Multiple Air Toxic Exposure Study.” This report, the fifth in a series of such studies beginning in 1987, concluded that around 50 percent of the cancer risk associated with breathing ambient air can be attributed to diesel PM emissions. Diesel engines also emit significant quantities of NO_x, which is a precursor to ozone and secondary particulate matter formation. Additional control of diesel engine emissions is essential for the attainment of ozone and PM ambient air quality standards, as well as mitigating its toxic air quality impact.

Regulatory History

The regulation of heavy-duty diesel emission sources is the primary responsibility of California Air Resources Board (CARB) and the U.S. Environmental Protection Agency (U.S. EPA). In California, vehicles with a GVWR above 8,500 lbs and up to 14,000 lbs are classified as light heavy-duty vehicles; vehicles with GVWR between 14,001 to 33,000 lbs are classified as medium heavy-duty vehicles; and vehicles over 33,000 lbs are classified as heavy heavy-duty vehicles. US and California regulations do not require that medium heavy-duty and heavy heavy-duty diesel vehicles be chassis certified, instead engine certifications are required. Light heavy-duty vehicles may be certified using the heavy-duty engine or light-duty chassis certification procedures, depending on the application.

Emissions standards for new diesel engines powering heavy-duty vehicles were first established for the 1974 model year and have gradually increased in stringency over time. Current standards in effect are established by CARB and the U.S. EPA for 2010 and subsequent model-years, which includes a 0.2 g/bhp-hr NO_x emission standard (usually called “2010 engine” standard).

In August 2020, CARB approved the Low NO_x Heavy-Duty Vehicle and Engine Omnibus Regulation that sets new standards for heavy-duty on-road engines, which requires a further 90 percent reduction of NO_x emissions to be phased-in over 2024-2031. The regulation also introduces a number of other requirements such as a new Low Load Cycle (LLC) and extended emission durability periods. The mandatory low NO_x standards apply to diesel and Otto cycle engines with a GVWR greater than 10,000 lbs. The Omnibus standards are implemented in two main stages: (1) MY 2024-2026 at 0.05 g/bhp-hr over the Federal Test Procedure (FTP) and the Ramped Modal Cycle (RMC), and 0.20 g/bhp-hr over the Low Load Cycle (LLC); (2) MY 2027 and later at 0.02 g/bhp-hr over the FTP and the RMC test cycles, and 0.05 g/bhp-hr over the LLC test cycle. CARB has recently proposed amendments to the Omnibus Regulation, which includes higher sales limits for legacy engines (0.2 g/bhp-hr NO_x) from MY 2024 through MY 2026 to allow for smoother transition to the new standards by manufacturers. Public comments are due by September 18, 2023.

In December 2008, CARB adopted the Truck and Bus Regulation which applies to a significant number of heavy-duty vehicles with the gross vehicle weight rating of 14,001 lbs and greater. The Regulation requires replacement of existing vehicles with 2010 engine standard-compliant vehicles based on a compliance schedule which starts from January 1, 2015. By January 1, 2023, all trucks and buses must have 2010 standard compliant engines with a few exceptions.

In June 2020, CARB adopted the Advanced Clean Truck (ACT) Regulation that accelerates a large-scale transition of heavy-duty vehicles from Class 2b to Class 8 (above 8,500 lbs) to zero emission technology. The regulation has two components: a manufacturer sales requirement and a reporting requirement. Manufacturers who certify Class 2b-8 chassis or complete vehicles with combustion engines would be required to sell zero emission trucks as an increasing percentage of their annual California sales starting in 2024. By 2035, zero emission truck/chassis sales would need to be 55 percent of Class 2b-3 truck sales, 75 percent of class 4-8 straight truck sales, and 40 percent of truck tractor sales. Large employers including retailers, manufacturers, brokers and others are required to report information about shipments and shuttle services. Fleet owners, with 50 or more trucks, are also required to report about their existing fleet operations.

On December 9, 2021, CARB Board approved the proposal for the Heavy-Duty Inspection and Maintenance Regulation (HD I/M). This new regulation requires owners of non-gasoline heavy-duty vehicles with gross vehicle weight ratings over 14,000 pounds to periodically demonstrate that their vehicles' emission control systems are properly functioning in order to legally operate within the state. This regulation is designed to achieve criteria emission reductions by ensuring that malfunctioning emissions control systems are timely repaired. This regulation would replace CARB's existing heavy-duty vehicle inspection programs. To enhance CARB's ability to enforce the HD I/M Regulation, CARB will deploy roadside vehicle emission monitoring and an automated license plate recognition camera network throughout California to identify potentially non-complaint vehicles. All non-gasoline heavy-duty vehicles operating in California would be required to have a valid HD I/M compliance certificate to operate legally in the state, and the HD I/M program compliance would be tied to DMV vehicle registration for in-state vehicles. The HD I/M Regulation is expected to provide the largest benefits in regions with the most heavy-duty truck traffic. Thus, it would reduce adverse health impacts and improve air quality, especially in disadvantaged communities disproportionately impacted by truck emissions.

On April 28, 2023, CARB Board has approved the Advanced Clean Fleets (ACF) regulation, with the goal of achieving a full transition to zero emission truck and bus fleets by 2045 everywhere feasible in California and significantly earlier transition for certain market segments such as last mile delivery and drayage applications. The regulation applies to owner-operators and other fleets performing drayage operations, public agencies, federal governments, and high-priority fleets that own, operate or direct vehicles with a GVWR greater than 8,500 lbs. High priority fleets include any entity with \$50 million or more in gross annual revenue, or any broker or fleet owners that in combination owns, operates, or dispatches 50 or more vehicles. High priority and federal fleets will be required to either purchase only zero emission vehicles (ZEVs) beginning in 2024 or elect to use the ZEV Milestones Option, which allows fleets to meet ZEV targets as a percentage of total fleet starting in 2025 with higher ZEV fleet percentages required in subsequent milestone dates. Public fleets will be required to purchase ZEVs when they make new purchases starting in 2024 (50 percent ZEVs starting 2024, and 100 percent ZEVs starting 2027) or may elect to meet ZEV targets using the ZEV Milestone Option. As for drayage trucks, starting January 1, 2024, only zero emission drayage trucks would be eligible to be added to the CARB drayage truck registry. By 2035, all drayage trucks would be required to be zero emission. The ACF also set requirements for all new heavy-duty vehicle sales to be ZEVs starting 2040.

At the federal level, On August 5, 2021, the U.S. EPA announced the Clean Trucks Plan to reduce greenhouse gas (GHG) and criteria pollutants emissions from heavy-duty trucks through a series of rulemakings over the next three years. The first rulemaking, which was finalized on December 20, 2022, applies to heavy-duty vehicles starting in model year 2027 with new certification standards for criteria pollutants, including 0.035 g/bhp-hr NOx over the Federal Test Procedure (FTP) and Supplemental Emissions Test (SET) cycles. This rule also requires lower NOx emissions over a much wider range of testing conditions both in the laboratory and during real world operations. In addition, the final rule also includes provisions for longer useful life and significantly increased warranty periods, which will ensure continued emissions control throughout the use of vehicles. On April 12, 2023, the U.S. EPA announced proposed Phase 3 greenhouse gas standards for heavy-duty vehicles from model years 2027 through 2032, building on the Phase 2 standards. The proposed rule is projected to achieve significant reductions not only in carbon emissions but also for criteria pollutants' emissions through the increased use of zero emission vehicles.

In 2000 and 2001, South Coast AQMD adopted a series of Clean Fleet Vehicle Rules which require public fleets and certain private fleets under contract or exclusive franchise to a public agency, to purchase alternative fuel powered vehicles at the time the fleet is expanding or replacing existing vehicles in its fleet. Rules 1186.1, 1192, 1193, 1194, 1195, and 1196 affect street sweepers, transit buses, waste collection vehicles, heavy-duty vehicles operating at commercial airports, school buses and heavy-duty vehicles operated by public entities, respectively. The Clean Fleet Vehicle Rules have been successfully implemented since their adoption with a significant number of alternative fuel vehicles now in service in a majority of public fleets and certain private fleets under exclusive franchise to a public entity such as refuse collection fleets and private school bus providers.

Proposed Method of Control

The objective of this control measure is to accelerate the retirement of old heavy-duty vehicles with low NOx or zero emission vehicles. One of the options being considered is a plus-up program to leverage existing incentive programs such as Carl Moyer and Prop 1B or other grant funding opportunities by providing supplemental funding to help truck owners and fleets with the purchase of cleaner engine vehicles, including zero emission trucks. This type of program would be especially helpful for individual operators and owners (IOOs) with limited financial resources to purchase or lease zero emission trucks which are still relatively costly compared to conventional vehicles.

Emission Reductions

Emission reductions are not estimated at this time and will depend on the actual number of vehicles participating in the incentive programs.

Cost Effectiveness

The cost-effectiveness of the proposed action is not estimated at this time. Cost-effectiveness limits in the Carl Moyer Guidelines might be referenced.

Implementing Agency

South Coast AQMD

References

South Coast AQMD (2021). MATES V Multiple Air Toxic Exposure Study. <http://www.aqmd.gov/home/air-quality/air-quality-studies/health-studies/mates-v>

DieselNet. Heavy-Duty Onroad Engines Emission Standards. <https://dieselnet.com/standards/us/hd.php>

CARB. On-Road Heavy-Duty Certification Program. <https://ww2.arb.ca.gov/our-work/programs/road-heavy-duty-certification-program/about>

CARB (2019). Truck and Bus Regulation Compliance Requirement Overview. <https://ww2.arb.ca.gov/our-work/programs/truck-bus-regulation/truck-and-bus-regulation-fact-sheets>

CARB (2020). Advanced Clean Trucks Fact Sheet. <https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-trucks-fact-sheet>

CARB (2020). Low NOx Heavy-Duty Omnibus Regulation Fact Sheet. https://ww2.arb.ca.gov/sites/default/files/classic/msprog/hdlownox/files/HD_NOx_Omnibus_Fact_Sheet.pdf

CARB (2021). Facts about the Proposed Heavy-Duty Inspection and Maintenance Regulation. <https://ww2.arb.ca.gov/sites/default/files/2021-10/HD%20IM%20FactSheet-final.pdf>

CARB (2021). Advanced Clean Fleets Fact Sheet. <https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-fleets-fact-sheet>

**MOB-07: ON-ROAD MOBILE SOURCE EMISSION REDUCTION CREDIT GENERATION
PROGRAM
[PM2.5, NOx]**

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	ON-ROAD HEAVY-DUTY VEHICLES (14,001 LBS AND GREATER GVWR)	
CONTROL METHODS:	ACCELERATED DEPLOYMENT OF LOW NOx AND ZERO EMISSION VEHICLES	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
POLLUTANT INVENTORY	2.19	0.89
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
ANNUAL AVERAGE [NOx]:	2018	2030
POLLUTANT INVENTORY	91.52	20.20
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
CONTROL COST:	TBD	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD	

Description of Source Category

This measure seeks to develop mechanisms to incentivize the early deployment of zero and low NOx emission heavy-duty trucks through the generation of mobile source emission reduction credits (MSERCs) which could be used as an alternative means of compliance with South Coast AQMD regulations, where applicable. These MSERCs will be used only by entities affected by the PM2.5 Plan control measures MOB-01 through MOB-04, EGM-01, and EGM-03; and cannot be used to offset emissions from stationary sources.

Background

MSERC generation programs have been developed and implemented by South Coast AQMD to provide an incentive for the early deployment of cleaner, advanced technologies that are not otherwise required to

comply with existing air regulations. Generation of such credits have been used as an alternative means of compliance with South Coast AQMD regulations that allow for such use. South Coast AQMD continues to work with affected stakeholders on the development and update of MSERC generation rules and the U.S. EPA to define an approach that can be approved into the SIP. This proposed measure provides a forum to advance such discussions with interested stakeholders and the U.S. EPA.

Regulatory History

In September 1995, South Coast AQMD adopted Rule 1612 – Credits for Clean On-Road Vehicles, which provides a quantification protocol for entities to generate MSERCs that could be used for compliance with other South Coast AQMD rules. Rule 1612 establishes a mechanism for the quantification of emission benefits from the implementation of projects that deploy on-road vehicles meeting the optional low NOx emission standards or are not otherwise required by a regulation or other enforceable mechanism. Mobile source emission reductions associated with said projects are converted to credits that could be used by the project proponent or sold to other entities to meet other South Coast AQMD rules as allowed by those regulations. MSERCs generated pursuant to Rule 1612 have been used to comply with Rule 2202 – On-Road Motor Vehicle Mitigation Options.

In March 2001, South Coast AQMD adopted Rule 1612.1 – Mobile Source Credit Generation Pilot Program, which sets forth credit generating mechanisms for mobile sources to generate MSERCs through the voluntary replacement of specific categories of diesel-fueled heavy-duty vehicles or yard hostlers with clean technologies. Although South Coast AQMD Rule 1612 permits the use of MSERCs for compliance with other South Coast AQMD regulations, the NOx MSERCs generated under this pilot program can only be used for compliance with South Coast AQMD's RECLAIM program. Rule 1612.1, which was approved by the U.S. EPA in 2002, provides local air quality benefits to community members who live in and around areas where participating vehicles operate. These benefits include reductions in NOx, diesel particulate matter (DPM), carbon monoxide (CO), and toxic air contaminant emissions associated with the use of heavy-duty diesel engines. The resolution adopted with the 2016 AQMP included a Governing Board's directive to transition the RECLAIM program to a command-and-control regulatory structure. As part of the transition, South Coast AQMD has been developing landing rules including Rule 1109.1 to control NOx emissions from petroleum refineries and related operations. With the RECLAIM Program scheduled for a phase out by as early as 2025 for NOx and 2026 for SOx, Rule 1612.1 may be amended to expand the use of MSERCs.

Proposed Method of Control

This measure seeks to amend Rule 1612.1 and/or 1612 to provide greater flexibility, such as expanding the eligibility of vehicle types and projects as well as providing more flexibility in the application and use of MSERCs, for accelerated deployment of zero and low NOx emission heavy-duty vehicles in the Basin and Coachella Valley. The focus of the amendment will be to encourage the deployment of commercially available zero and low NOx emission heavy-duty vehicles that do not receive or cannot receive public funding assistance. MSERCs must be real, surplus, quantifiable, permanent, and enforceable as defined

by the U.S. EPA. As such, any project considered for generation of emission reduction credits must go beyond regulatory requirements such as the provisions of the Truck and Bus Regulation, Advanced Clean Fleets Regulation, mandatory engine exhaust emission standards, or other relevant regulations.

The discussions of potential enforceable mechanisms will be through a public process. South Coast AQMD staff will establish a working group, hold a series of working group meetings, along with public workshops. The purpose of the public process is to allow South Coast AQMD staff to work with a variety of stakeholders, potentially affected industries, other agencies, and environmental and community groups to solicit input and comments. Through the public process, there will be discussions on the types of voluntary actions that could lead to additional emission reductions. To the extent that such actions can be quantified and are determined to be surplus (i.e., the emission reduction benefits are not the result of a regulation), the emission reductions will be recognized into the SIP.

Emission Reductions

Emission reductions are not estimated at this time and will depend on the actual number and types of vehicles participating in the program.

Cost Effectiveness

To Be Determined during rulemaking.

Implementing Agency

South Coast AQMD.

References

California Legislative Information (2017). Assembly Bill 617 – Nonvehicular air pollution: criteria air pollutants and toxic air contaminants.

https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201720180AB617

California Air Resource Board (2020). Advanced Clean Trucks Regulation.

<https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2019/act2019/fro2.pdf>

South Coast Air Quality Management District (2019). South Coast AQMD Rule 1612 – Clean On-Road Vehicles (Amended March 1, 2019). <http://www.aqmd.gov/docs/default-source/rule-book/reg-xvi/rule-1612.pdf?sfvrsn=11>

South Coast Air Quality Management District (2001). South Coast AQMD Rule 1612.1 – Mobile Source Credit Generation Pilot Program (Adopted March 16, 2001). <https://www.aqmd.gov/docs/default-source/rule-book/reg-xvi/rule-1612-1.pdf?sfvrsn=4>

United States Environmental Protection Agency. Menu of Control Measures. EPA (2002). Revisions to the California State Implementation Plan, South Coast Air Quality Management District.

<https://www.epa.gov/sips-ca/epa-approved-south-coast-air-South Coast AQMD-regulations-california-sip>

South Coast Air Quality Management District (2021). RECLAIM Transition.

<http://www.aqmd.gov/home/rules-compliance/reclaim-transition>.

MOB-08: SMALL OFF-ROAD ENGINE EQUIPMENT EXCHANGE PROGRAM
[PM2.5, NOx]

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	SMALL OFF-ROAD ENGINES (SORE) AND LARGER DIESEL-POWERED LAWN AND GARDEN EQUIPMENT	
CONTROL METHODS:	EXCHANGE EXISTING IN-USE SORE FOR ELECTRICAL EQUIPMENT, OR NEW LOW-EMITTING ENGINES	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
POLLUTANT INVENTORY	0.32	0.12
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
ANNUAL AVERAGE [NOx]:	2018	2030
POLLUTANT INVENTORY	8.27	5.88
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
CONTROL COST:	TBD	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD	

Description of Source Category

The purpose of this control measure is to promote the accelerated turn-over of in-use small off-road engines and other engines, such as those used in larger diesel-powered lawn and garden equipment, through expanded voluntary exchange programs.

Background

Small off-road engines (SORE) are spark-ignition engines rated at or below 25 horsepower (19 kilowatts) that are primarily used for lawn, garden, and other outdoor power equipment including trimmers, leaf blowers, lawn mowers, lawn tractors, as well as other commercial/industrial equipment. The SORE category does not include compression ignition engines or recreational vehicles. Although a small sector of the lawn and garden equipment operates on diesel such as riding lawn mowers, stump grinders, and other commercial turf equipment, most of the candidate equipment that are eligible for exchange programs under this measure are gasoline-powered.

Over half of the 15.4 million SORE population in California (61 percent) falls in the Residential Lawn and Garden equipment category, followed by Other Equipment types such as portable generators and pressure washers (20 percent), Federally Regulated Construction and Farming (11 percent), and Commercial Lawn and Garden equipment (8 percent). Although commercial lawn and garden equipment accounts for only 8 percent of the total SORE population, it is responsible for approximately 20 percent of smog-forming emissions from SORE during the summer in CA.

Since 2003, South Coast AQMD has sponsored a lawn mower exchange program for residential lawn mowers which is now known as the Electric Lawn Mower Rebate Program. The program is designed to incentivize residential users with a rebate of up to \$250 for the purchase of a new electric lawn mower when they turn in their old gas-powered lawn mowers to an approved scrapper. Since its inception, this program has replaced approximately 59,000 high polluting gasoline-powered lawn mowers with electric lawn mowers.

In addition to the Electric Lawn Mower Rebate Program, South Coast AQMD has also sponsored a commercial leaf blower buyback program which provided \$200 as an incentive to buy back an old two-stroke leaf blower. The payment was then applied toward the purchase of a new four-stroke gasoline-powered unit which are less polluting than the two-stroke units. Expanding the program to include other commercial lawn and garden equipment, South Coast AQMD launched the Commercial Electric Lawn and Garden Equipment Incentive and Exchange Program (Commercial L&G Equipment Program) in 2018, which aims to accelerate the replacement of old gasoline- or diesel-powered commercial lawn and garden equipment with zero emission, battery electric technology. This program provides a point-of-sale discount of up to 75 percent off the purchase price of a variety of new electric equipment including lawn mowers (ride-on, stand-on and walk-behind mowers), handheld trimmers, chainsaws, and pruners in addition to backpack and handheld leaf blowers. In exchange, participants are required to turn in their old commercial-grade equipment to an approved dismantler for scrapping. Eligible participants include commercial gardeners and landscapers, local governments, school districts and colleges, and non-profit organizations. Since its inception in 2018, the Commercial L&G Equipment Program has funded over 7,300 commercial lawn and garden equipment replacements with zero emission alternatives.

Regulatory History

In 1990, California Air Resources Board (CARB) became the first regulatory agency to adopt exhaust emissions standards for SORE engines. In 2003, CARB developed the first set of evaporative emissions standards for this category. As a result of the CARB regulations, SORE equipment today is 40-80 percent cleaner than they were when the program began.

On September 23, 2020, California adopted Executive Order N-79-20 to require the phasing out of gasoline-powered vehicles and equipment and transition to zero emission alternatives. Specifically, the order sets a goal to transition off-road vehicles and equipment operations to 100 percent zero emission by 2035, where feasible. As a strategy to meet this goal, the CARB Board approved amendments to the SORE Regulation on December 9, 2021, requiring most newly manufactured SORE equipment to be zero

emissions starting in 2024. However, these new requirements do not apply to in-use sources, which presents a need for programs and/or regulations to reduce emissions from existing SORE engines.

Proposed Method of Control

In order to increase the penetration of new low-emission and zero emission equipment, this measure seeks to expand the existing exchange programs such as Electric Lawn Mower Rebate Program and Commercial Lawn and Garden Equipment Exchange Program by increasing the number of outreach and exchange events and available funding. In addition, South Coast AQMD has recently started a new battery rebate program for commercial lawn and garden equipment that were previously funded by the Commercial Lawn and Garden Exchange Program. The battery rebate program will fund up to 75 percent of the rechargeable battery cost with a maximum limit of three batteries per equipment. South Coast AQMD will continue to seek additional funding opportunities and resources to expand the scope and types of equipment and engines that can be funded by these programs.

Emission Reductions

Emissions reductions are not estimated as they will depend on the number and types of engines/equipment participating in the existing and future programs to be developed under this measure.

Cost Effectiveness

The cost-effectiveness will also depend on the types of engines and/or equipment participating in the exchange programs.

Implementing Agency

South Coast AQMD.

References

South Coast AQMD (2021). MATES V Multiple Air Toxic Exposure Study. <http://www.aqmd.gov/home/air-quality/air-quality-studies/health-studies/mates-v>

DieselNet. Heavy-Duty Onroad Engines Emission Standards. <https://dieselnet.com/standards/us/hd.php>

CARB. On-Road Heavy-Duty Certification Program. <https://ww2.arb.ca.gov/our-work/programs/road-heavy-duty-certification-program/about>

CARB (2019). Truck and Bus Regulation Compliance Requirement Overview. <https://ww2.arb.ca.gov/our-work/programs/truck-bus-regulation/truck-and-bus-regulation-fact-sheets>

CARB (2020). Advanced Clean Trucks Fact Sheet. <https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-trucks-fact-sheet>

CARB (2020). Low NOx Heavy-Duty Omnibus Regulation Fact Sheet. https://ww2.arb.ca.gov/sites/default/files/classic/msprog/hdlownox/files/HD_NOx_Omnibus_Fact_Sheet.pdf

CARB (2021). Facts about the Proposed Heavy-Duty Inspection and Maintenance Regulation. <https://ww2.arb.ca.gov/sites/default/files/2021-10/HD%20IM%20FactSheet-final.pdf>

CARB (2021). Advanced Clean Fleets Fact Sheet. <https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-fleets-fact-sheet>

MOB-09: FURTHER EMISSION REDUCTIONS FROM PASSENGER LOCOMOTIVES
[PM2.5, NOx]

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	LOCOMOTIVE ENGINES (PASSENGER)	
CONTROL METHODS:	ACCELERATED REPLACEMENT OF EXISTING LOCOMOTIVE ENGINES	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
POLLUTANT INVENTORY	0.02	0.01
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
ANNUAL AVERAGE [NOx]:	2018	2030
POLLUTANT INVENTORY	0.96	0.81
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
CONTROL COST:	TBD	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD	

Description of Source Category

Diesel-electric locomotives generate emission of diesel PM and other pollutants, which have been shown to be harmful to human health, causing illness, and premature death. The purpose of this control measure is to promote earlier and cleaner replacement or upgrade of existing passenger locomotives with Tier 4 or cleaner locomotives.

Background

Generally, diesel-electric locomotives have a large diesel engine (main traction engine) for generating electric power, which in turn drives electric traction motors in each axle to propel the locomotive. Typically, passenger locomotives have engines with about 3,800 horsepower and these locomotives remain in commercial service for 25 to 40 years.

California's locomotive emission inventory is consisted of four categories: line-haul, switcher, short line, and passenger; with passenger contributing approximately 6 percent of the total statewide locomotive Nitrogen Oxides (NOx) emissions (CARB 2016 Technology Assessment: Freight Locomotives). Generally powered by medium speed diesel engines, passenger locomotives are designed for lighter load and higher speed compared to other categories. Unlike other categories, passenger locomotives typically have a main propulsion engine and onboard hotel power (a generator of about 600 horsepower) that provides electricity via cable for lights, air conditioning, and other comfort-related features to the connected passenger railcars.

Two passenger railroads, Metrolink and Amtrak, operate rail lines in the South Coast Air Basin (Basin) as well as the surrounding counties. Metrolink operates 62 stations across the South Coast's four-county region as well as Ventura, moving approximately 12 million passengers annually over a 538 track-mile network. Amtrak operates approximately 70 intercity trains and 100 commuter trains per day in California. Its contract commuter services include the Metrolink commuter service, which serves a five-county area in the Los Angeles Basin, with seven lines, 55 stations, and approximately 40,000 weekday passengers.

Both Amtrak and Metrolink operate commuter rail services for the Southern California Regional Rail Authority. Southern California Regional Rail Authority adopted a locomotive replacement plan for Metrolink which includes the procurement of Tier 4 locomotive engines. Specifically, the plan directed the replacement of Metrolink's fleet of Tier 0 to Tier 2 locomotive engines with Tier 4 locomotives in a 5-year span. Since 2013, the South Coast AQMD's Governing Board has awarded a total of \$110.8 million through the Carl Moyer Program over multiple funding cycles to fund the replacement of Metrolink's Tier 0 & Tier 2 locomotives with Tier 4 locomotives. Metrolink took delivery of its first Tier 4 locomotives in 2016 and has since replaced a total of 40 passenger locomotives with Tier 4 engines.

Regulatory History

Under the Clean Air Act, only the U.S. Environmental Protection Agency (U.S. EPA) has authority to establish emissions standards for new locomotives. By regulation, "new" locomotives include both newly manufactured as well as remanufactured or rebuilt locomotives. In 1998, and again in 2008, the U.S. EPA promulgated regulations for the control of emissions from locomotives. The regulations require locomotives to meet increasingly more stringent emission levels (Tier 0 thru Tier 4) when they are manufactured, and in some cases, additional emissions improvements when they are remanufactured at the end of their useful life.

For newly manufactured passenger locomotives, the cleanest emission standard (Tier 4) is required beginning in 2015 with emission levels that are over 90 percent cleaner than those from unregulated locomotive engines. For passenger locomotives manufactured before 2012 (i.e., meeting Tier 0, 1 or 2 emission standards), modest emissions improvements (referred to as "plus" standards) are required at the date of remanufacture which usually occurs seven to 10 years after the new locomotive is put into service. The U.S. EPA locomotive emission standards apply to 1973 and newer locomotives upon engine rebuild and new 2002 and later locomotives.

At the state level, on April 27, 2023, the California Air Resources Board (CARB) adopted the In-Use Locomotive Regulation to further reduce criteria pollutants, toxic air contaminants, and greenhouse gas emissions from diesel-powered locomotives. Notably, under the Regulation, beginning in 2024, locomotive operators will be required to fund their own trust account (Spending Account) based on the emissions created by their locomotive operations in California; the dirtier the locomotive, the more funds must be set aside. Funds from the Spending Account must be used to purchase the cleanest locomotives or upgrade existing locomotives to the cleanest tier. Additionally, only locomotives less than 23 years old will be able to operate in California starting in 2030, and all passenger locomotives with an original engine build date of 2030 or newer will be required to operate in a ZE configuration – i.e., qualify as either a ZE locomotive or ZE capable locomotive to operate in the state.

Proposed Method of Control

Through this measure, South Coast AQMD will continue to not only promote earlier replacement or upgrade of existing passenger trains with Tier 4 locomotives, but also support the development and adoption of zero or low NO_x emission technologies. Amtrak's fleet that travels in the Basin is almost exclusively Tier 0 locomotives. Metrolink currently operates 15 Tier 2 locomotives as standby units when Tier 4 locomotives are down due to maintenance and repairs. South Coast AQMD will continue to work with both railroads to upgrade Tier 0 to Tier 2 locomotives with Tier 4 and cleaner engines. Tier 4 locomotives are 65 percent to 85 percent cleaner compared to Tier 2 and Tier 0, respectively, and have higher horsepower to pull more passenger cars per locomotive.

In addition, South Coast AQMD is continuing to work collaboratively with other stakeholders to explore the feasibility of zero and low NO_x emission locomotive technologies such as battery electric or fuel cell engine-driven systems. For example, South Coast AQMD has been actively participating in the development and demonstration of zero emission battery-operated switcher locomotives in CARB-funded projects in the San Pedro Bay Ports since 2018.

There are other development and demonstration projects in the Basin. The San Bernardino County Transportation Authority is currently leading the way in the development of zero emission rail technology with a plan to debut the first of its kind battery and hydrogen-powered passenger train servicing San Bernardino and Redlands. Named ZEMU (zero emission multiple unit), the locomotive will be powered by a hybrid hydrogen fuel cell/battery technology to propel the train.

Emission Reductions

Emission reductions are not estimated for this control measure as it will depend on the actual type and number of locomotives participating in the program. For reference, the replacement of Metrolink's 40 Tier 0 and Tier 2 locomotives with Tier 4 locomotives has resulted in the reductions of 495 tons per year of NO_x, 33.9 tons per year of Reactive Organic Gases (ROG), and 13.8 tons per year of particulate matter (PM).

Cost Effectiveness

According to the previous estimates by Metrolink staff, replacing Tier 0 passenger locomotives with Tier 4 locomotives would cost approximately \$6.2 million per locomotive, and repowering Tier 2 locomotives would cost approximately \$2.4 million each. These estimates would likely increase in future projects and the cost would be even greater for zero and low NOx emission locomotives. The exact cost-effectiveness will depend on the number and types of locomotives participating in the program.

Implementing Agency

South Coast AQMD.

References

California Air Resources Board. (2016). Technology Assessment: Freight Locomotives.

https://ww2.arb.ca.gov/sites/default/files/2020-06/final_rail_tech_assessment_11282016%20-%20ADA%20200117.pdf.

California Air Resources Board. (2017). The Carl Moyer Program Guidelines – 2017 Revisions.

https://ww2.arb.ca.gov/sites/default/files/classic/msprog/moyer/guidelines/2017/2017_cmpgl.pdf.

Amtrak. (2019). Amtrak Fact Sheet Fiscal Year 2019. State of California.

https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/corporate/national_factsheets/Amtrak-Company-Profile-FY2020-041921.pdf.

Amtrak. (2020). FY 2020 Company Profile.

https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/corporate/national_factsheets/Amtrak-Company-Profile-FY2020-041921.pdf.

San Bernardino County Transportation Authority. (2021). Zero-Emission Rail Technology.

<https://www.gosbcta.com/wp-content/uploads/2019/09/ZEMU-technology-fact-sheet-021921.pdf>.

Metrolink. (2021). Metrolink Central Maintenance Facility Community Update: Locomotive Fleet Modernization Study Update.

<https://d2kbkoa27fdvtw.cloudfront.net/metrolink/270f597291c927654419dba66f2a51e40.pdf>.

Metrolink. (2021). Metrolink Central Maintenance Facility Update: Virtual Community Meeting Recap.

<https://metrolinktrains.com/globalassets/community/cmf/cmf-monthly-update-june-2021-1.pdf>.

California Air Resources Board. (2023). CARB Fact Sheet: Passenger Locomotive Operators.

<https://ww2.arb.ca.gov/resources/fact-sheets/carb-fact-sheet-passenger-locomotive-operators>.

MOB-10: OFF-ROAD MOBILE SOURCE EMISSION REDUCTION CREDIT GENERATION**[PM2.5, NOx]**

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	OFF-ROAD DIESEL-FUELED CONSTRUCTION, INDUSTRIAL EQUIPMENT, AIRPORT GROUND SUPPORT EQUIPMENT, AND DRILLING EQUIPMENT	
CONTROL METHODS:	ACCELERATED DEPLOYMENT OF TIER 4 EQUIPMENT AND LOW NOx AND ZERO EMISSION EQUIPMENT WHERE APPLICABLE	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
POLLUTANT INVENTORY	1.64	0.85
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
ANNUAL AVERAGE [NOx]:	2018	2030
POLLUTANT INVENTORY	37.28	12.90
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
CONTROL COST:	TBD	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD	

Description of Source Category

This measure seeks to develop mechanisms to incentivize the early deployment of Tier 4, zero, and low NOx off-road mobile combustion equipment, where applicable, through the generation of mobile source emission reduction credits (MSERCs). These MSERCs will be used only by entities affected by the PM2.5 Plan control measures MOB-01 through MOB-04, EGM-01, and EGM-03; and cannot be used to offset emissions from stationary sources. Furthermore, these MSERCs will be discounted to provide additional emission reductions to help meet air quality standards.

Background

Based on preliminary inventories, off-road equipment (construction, industrial, etc.) targeted in this measure would collectively account for approximately 8 percent of the total basin-wide NOx emissions in

2030. These off-road equipment categories are also a significant source of diesel Particulate Matter (PM) emissions which is a toxic air contaminant with over 40 known cancer-causing substances. Accelerated deployment of Tier 4 and cleaner technologies to reduce both NO_x and diesel PM emissions from off-road equipment will be critical in achieving our air quality goals and also to protect public health.

Mobile source emission reduction credit generation programs developed by South Coast AQMD provide an incentive to deploy cleaner, advanced technologies that are not otherwise required to comply with existing regulations. Generation of such credits may be considered surplus and have been used to comply with other South Coast AQMD regulations. South Coast AQMD continues to work with affected stakeholders on the development of MSERC generation rules and the U.S. Environmental Protection Agency (U.S. EPA) to define an approach that can be approved into the SIP. This proposed measure provides a forum to continue such discussions with interested stakeholders and the U.S. EPA.

Regulatory History

In September 1995, South Coast AQMD adopted Rule 1620 – Credits for Clean Off-Road Mobile Equipment, which provides a protocol for entities to generate mobile source emission reduction credits that could be used for compliance with other South Coast AQMD rules. Rule 1620 established a mechanism for the quantification of emission benefits as a result of implementation of projects that deployed cleaner off-road mobile equipment meeting the cleanest NO_x emission standards (currently Tier 4) or were not otherwise required by a regulation or other enforceable mechanism. Mobile source emission reductions associated with said projects are converted to credits that could be used by the project proponent or sold to other entities to meet other South Coast AQMD rules as allowed by those regulations.

In May 1996, South Coast AQMD adopted an emission reductions credit generation rule for lawn and garden equipment. Rule 1623 – Credits for Clean Lawn and Garden Equipment – focused on projects that replaced older gasoline powered lawn and garden equipment with new zero emission models. Similar to Rule 1620, emission reduction credits generated under Rule 1623 can be used for compliance with other South Coast AQMD rules if allowed by those rules.

Proposed Method of Control

This measure seeks to amend Rule 1620 to provide greater flexibility for entities to initiate projects to accelerate the deployment of zero and low NO_x emission off-road mobile equipment in the South Coast Air Basin (Basin) and Coachella Valley. The focus of the amendment will be to encourage the deployment of commercially available zero and low NO_x emission off-road mobile equipment that do not receive or cannot receive public funding assistance. Mobile source emission reduction credits must be real, surplus, quantifiable, permanent, and enforceable as defined by the U.S. EPA. As such, any project considered for generation of emission reduction credits must go beyond regulatory requirements.

For the purposes of this measure, a low NOx emission engine is one that is certified to be at least 90 percent cleaner than the current Tier 4 off-road emission standard (for the horsepower specification of the off-road engine), or meets the lowest optional NOx emission standard (for on-road heavy-duty engines if the on-road engine is used in an off-road application). If Tier 5 standard is adopted in the future, low NOx would be based 90 percent cleaner than the Tier 5 standard. Zero emission mobile equipment include, but are not limited to, commercially available battery-electric or fuel cell powered equipment.

The discussions of potential enforceable mechanisms will be through a public process. Through this process, South Coast AQMD staff will establish a working group, hold a series of working group meetings, along with public workshops. The purpose of the public process is to allow South Coast AQMD staff to work with a variety of stakeholders, potentially affected industries, other agencies, and environmental and community groups to solicit input and comments. It is envisioned that through the public process, there will be discussions on the types of voluntary actions that could lead to additional emission reductions. To the extent that such actions can be quantified and are determined to be surplus (i.e., the emission reduction benefits are not the result of a regulation), the emission reductions will be recognized into the SIP.

Emission Reductions

Emission reductions are not estimated at this time and will depend on the actual type and number of off-road vehicles/equipment participating in the program.

Cost Effectiveness

To be determined during rulemaking.

Implementing Agency

South Coast AQMD.

References

California Air Resources Board. (2021). Zero-Emission Off-Road Strategies. https://ww2.arb.ca.gov/sites/default/files/2020-11/ZEV_EO_Off-Road_Fact_Sheet_111820.pdf.

South Coast AQMD. (2019). Rule 1620 – Credits for Clean Off-Road Mobile Equipment (Amended March 1, 2019). <http://www.aqmd.gov/docs/default-source/rule-book/reg-xvi/rule-1620.pdf>.

South Coast AQMD. (2019). Rule 1623 – Credits for Clean Lawn and Garden Equipment (Amended March 1, 2019). <http://www.aqmd.gov/docs/default-source/rule-book/reg-xvi/rule-1623.pdf>

California Air Resources Board. (2023). Off-Road Diesel Regulation. <https://ww2.arb.ca.gov/our-work/programs/truckstop-resources/road-zone/road-diesel-regulation>.

MOB-11: EMISSION REDUCTIONS FROM INCENTIVE PROGRAMS
[PM2.5, NOx]

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	ON-ROAD AND OFF-ROAD MOBILE SOURCE VEHICLES AND EQUIPMENT	
CONTROL METHODS:	IMPLEMENTATION OF INCENTIVE PROGRAMS	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
POLLUTANT INVENTORY	5.80	3.06
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
ANNUAL AVERAGE [NOx]:	2018	2030
POLLUTANT INVENTORY	189.10	76.97
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
CONTROL COST:	TBD	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD	

Description of Source Category

This control measure seeks to apply the administrative mechanism, as initially proposed in the 2016 Air Quality Management Plan (AQMP), to quantify and take credit for the emissions reductions achieved through the implementation of incentive programs administered by South Coast AQMD for State Implementation Plan (SIP) purposes. The incentive program-funded source category includes, but is not limited to, all on-road vehicles with a Gross Vehicle Weight Rating (GVWR) over 8,500 lbs (excluding motor homes), commercial harbor craft, locomotives, and off-road equipment from the sectors of port operations, rail operations, agricultural, industrial, construction, airport ground support, and oil drilling.

Background

South Coast AQMD has a long history of successful implementation of incentive programs that help fund the accelerated deployment of cleaner engines and aftertreatment technologies in on-road heavy-duty vehicles and off-road mobile equipment which results in early and surplus emissions reductions. Such accelerated deployment also provides a signal for technology providers, engine and automobile manufacturers, and academic researchers to develop and commercialize the cleanest combustion engines and further the efforts to commercialize zero emission technologies into a wider market. Some of the major incentive programs that are administered by South Coast AQMD are discussed below.

Carl Moyer Memorial Air Quality Standards Attainment Program

The Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program) is a grant program that funds the incremental cost of cleaner-than-required engines, equipment, and other sources of air pollution. The Moyer Program was placed into State law in 1998 and the first set of Moyer Program Guidelines was adopted by California Air Resources Board (CARB) in 1999. The California Legislature has since periodically modified the Moyer Program to address evolving needs and to reflect advancing technologies as well as regulatory changes. For example, in 2004, Assembly Bill (AB) 923 and Senate Bill (SB) 1107 provided increased and continued funding while significantly expanding the Moyer Program to include light-duty vehicles and agricultural sources. Projects with Volatile Organic Compounds (VOCs) and Particulate Matter (PM) reductions were also included in 2004. This change allowed the Program to more comprehensively address air pollution challenges, including the air toxic risks from diesel engines. In 2013, AB 8 further extended funding from the AB 923 tire fees through 2023 and reauthorized the Moyer Program. Most recently, SB 513 has provided new opportunities for the Moyer Program to advance zero and low NOx emission technologies by substantially increasing cost-effectiveness limits and also including infrastructure projects for funding. It also allowed Moyer Program to leverage co-funding from other incentive programs without penalizing cost-effectiveness.

The Moyer Program helps to fund a variety of vehicles and equipment. Typical project types include replacement of old vehicles and equipment, engine repowers, and installation of retrofit devices. The Program also provides funding for installation of fueling/charging infrastructure for funded sources. Emission reduction technologies must be certified or verified by CARB and projects selected for funding must meet cost-effectiveness limits and achieve at least 15 percent reduction in NOx. In addition, projects reducing PM and/or VOC emissions are also eligible for funding provided they are cost-effective. For SIP purposes, emissions reductions funded through the Moyer Program must be permanent, surplus, quantifiable and enforceable.

The Moyer Program has been successful in reducing smog-forming and toxic emissions cost-effectively by providing incentives to obtain early or extra emissions reductions, especially from emission sources in minority and low-income communities and areas disproportionately impacted by air pollution. Since 1998, South Coast AQMD has awarded \$570 million through the Moyer Program and has funded close to 8,700

vehicles and equipment with approximately 9,500 tons per year of accumulated NOx and 270 tons per year of accumulated PM reductions.

Proposition 1B: Goods Movement Emission Reduction Program

In 2006, California voters approved a bond measure called Proposition 1B. Proposition 1B authorized the Legislature to appropriate \$1 billion in bond funding to the CARB to quickly reduce air pollution emissions and health risks from freight movement along California's priority trade corridors. The State Fiscal Year (FY) 2007-08 budget included implementing legislation, via SB 88, that created the Goods Movement Emission Reduction Program. AB 201 included a minor clarification. These bills are codified in the Health and Safety Code, sections 39625 et seq. SB 88 required CARB to adopt guidelines to ensure the Program achieve the statutory objectives.

The implementing statutes directed CARB to maximize the emission reduction benefits and achieve the earliest possible health risk reduction in communities heavily impacted by goods movement. This program supplements regulatory actions and other incentives to cut diesel emissions. By statute, the program can only fund emissions reductions "not otherwise required by law or regulation." Key pollutants targeted by the program include diesel PM and NOx that contribute to the formation of both PM2.5 and ozone. The projects funded under the program also provide co-benefits by reducing greenhouse gases and black carbon emissions that contribute to climate change.

Since 2009, South Coast AQMD has awarded \$494 million through Proposition 1B and funded over 7,500 projects including heavy-duty vehicles and equipment in the sectors of shore power, locomotives, cargo handling, and transport refrigeration units (TRUs), with approximately 7,650 tons per year of accumulated NOx and 230 tons per year of accumulated PM reductions.

Lower-Emission School Bus Program

The Lower Emission School Bus Program is a grant program that provides funding for replacing old, high-emitting public school buses with new cleaner buses, and also for installing retrofit control devices on in-use diesel buses to reduce toxic PM emissions. The primary goal of the Lower Emission School Bus Program is to reduce school children's exposure to both cancer-causing and smog-forming pollution. The program does not impose any regulatory requirements on schools and their participation in the program is voluntary.

Since 2001, South Coast AQMD has awarded \$372 million in total through the program and replaced/retrofitted over 5,300 school buses with approximately 890 tons per year of accumulated NOx and 65 tons per year of accumulated PM reductions achieved.

Community Air Protection Program

In 2017, Governor Brown signed AB 617 (C. Garcia, Chapter 136, Statutes of 2017) to develop a new "community-focused" strategy to reduce emissions of criteria pollutants and toxic air contaminants (TAC) in communities that are affected by a high cumulative exposure burden. AB 617 directed CARB, in

conjunction with local air districts to establish the Community Air Protection Program (CAPP). AB 617 also calls for CARB and air districts to actively engage with members of heavily impacted communities, follow their guidance, and address local sources of concern. AB 617 includes a variety of strategies to address air quality issues in impacted communities, including community-level monitoring, uniform emission reporting across the State, stronger regulation of pollution sources, and incentives for both mobile and stationary sources.

To support the AB 617 effort, the California Legislature has appropriated incentive funding to support early actions to address localized air pollution in the most impacted communities. Budget bills passed in 2017, 2018, 2019 and 2020 have provided funds, “to support local air districts’ implementation of Chapter 136 of the Statutes of 2017” [AB 134 (2017), SB 856 (2018), AB 74 (2019), SB 74 (2020)]. The funding has enabled actions such as: establishing steering committees, developing and implementing emission reduction programs including staffing, outreach, strategies, and enforcement, as well as deploying air monitoring, reporting emissions, and implementing new requirements regarding best available retrofit control technologies.

The Legislature directed that air districts spend the funds appropriated in AB 134 on mobile source projects pursuant to the Carl Moyer Program and the Proposition 1B Program. The Legislature expanded the scope of the CAPP incentives appropriated in SB 856 to include additional project types. The project types called for in SB 856 include:

- Mobile source projects. Eligibility continues through either the Moyer Program or the Proposition 1B Program, with a focus on zero emission equipment;
- Zero emission charging infrastructure projects. Eligibility continues with a focus on medium- and heavy-duty vehicle infrastructure;
- Stationary source projects. New eligibility for the replacement of equipment at locations of stationary sources of air pollution not subject to the Cap-and-Trade Program, which will result in direct reductions of TACs or criteria air pollutants; and
- Community-identified projects. New eligibility for programs developed by an air district consistent with the actions identified in the applicable Community Emissions Reduction Program pursuant to AB 617, provided there is community input through a public process.

The CAPP program is now underway and South Coast AQMD staff are working in local communities to reduce air pollution in these most impacted communities. Since the inception of the program, the South Coast AQMD has awarded \$219 million in total on mobile source projects through the Moyer Program and also allocated \$48 million for stationary and/or community-identified projects.

Other incentive programs administered by the South Coast AQMD are discussed below.

Air Quality Improvement Program (AQIP) funds clean vehicle and equipment projects, research of biofuels production and air quality impacts of alternative fuels, and workforce training, etc. Each year, the Legislature appropriates funding to CARB for these incentives to reduce emissions and support advanced technology demonstrations and deployments.

On-Road Voucher Incentive Program (VIP) provides vouchers for truck replacements. The voucher amount ranges from \$10,000 to \$60,000 depending on factors such as miles traveled per year, weight class of the old vehicle, emission standards of the replacement vehicle, and whether the replacement vehicle is new or used. Funding also depends on the future compliance date to replace or retrofit the vehicle. The VIP program is funded with the Carl Moyer funds at local air district discretion. This program is limited to owners/operators with fleets of 10 or fewer vehicles that have been operating at least 75 percent (mileage-based) in California during the previous twenty-four (24) months.

Funding Agricultural Replacement Measures for Emission Reductions Program (FARMER) provides funding for agricultural harvesting equipment, heavy-duty trucks, agricultural pump engines, tractors, and other equipment used in agricultural operations. The FARMER Program is supported in part by California Climate Investments, a statewide program that puts billions of Cap-and-Trade dollars to work. This program prioritizes funding to disadvantaged communities.

Proposed Method of Control

The proposed measure is based on the implementation of incentive programs administered by South Coast AQMD. The measure proposes to take credit for the emissions reductions achieved through existing and future projects that are funded by these incentive programs for SIP purposes. Examples of projects include heavy-duty vehicle/equipment replacements, installation of retrofit units, and engine repowers. The emissions reductions are provided in two parts. The first part of the measure is to calculate the actual emissions reductions associated with existing projects that were funded by 2021 with the remaining project life through 2030. The second part of this measure is based on potential reductions that are projected from the implementation of future projects to be funded through these incentive programs. These reductions are estimated based on the projected level of funding for the programs and average emissions reductions achieved by past projects, discounted by control factors for future years. For on-road vehicle sectors (HD trucks and school buses), the Calculator for Spending Incentives (CSI), which is an internally developed model to identify at a screening level the most cost-effective projects, is used to calculate NOx and PM emission reductions.

Emission Reductions

To be determined.

~~Emissions reductions from existing projects with remaining project life and future projects are reflected in the control measure summary tables below. Emissions reductions in 2030 associated with existing projects that were funded as of 2021 are provided in Table MOB-11-A. Projected emissions reductions from the future projects in 2030 are listed in Table MOB-11-B.~~

TABLE MOB-11-A**NOX AND PM EMISSION REDUCTIONS IN 2030 ASSOCIATED WITH EXISTING PROJECTS**

Project Sector	Project Type	Funding Source*	No. of Units	NOx (tons/day)	PM (tons/day)
Marine	Repower	CM	135	0.22	0.004
Locomotives	Replacement	CM	15	0.15	0.008
TOTAL			150	0.37	0.012

TABLE MOB-11-B**PROJECTED NOX AND PM EMISSION REDUCTIONS IN 2030 ASSOCIATED WITH FUTURE FUNDING**

Project Sector	Project Type	Funding Source*	No. of Units	NOx (tons/day)	PM (tons/day)
On-Road HD Trucks	Replacement	CM, Prop1B, CAPP, VIP, AQIP	4,728	0.88	0.008
School Buses	Replacement	LESBP	855	0.25	0.003
Agriculture	Replacement	FARMER, CAPP	100	0.08	0.015
Construction	Repower	CM, CAPP, AQIP	676	1.92	0.065
Construction	Replacement	CM, CAPP, AQIP	362	0.99	0.025
Other Off Road	Replacement	CAPP	426	0.78	0.016
Marine	Repower	CM, CAPP, AQIP	428	1.32	0.045
TRU	Replacement	CM, CAPP, AQIP	222	0.03	0.000
Locomotives	Replacement	CM, CAPP, AQIP	37	0.40	0.024
TOTAL			7,834	6.66	0.201

*CM: Carl Moyer Program; CAPP: Community Air Protection Program; VP: Voucher Incentive Program; AQIP: Air Quality Improvement Program; LESBP: Lower Emission School Bus Program; FARMER: Funding Agricultural Replacement Measures for Emission Reductions Program

Cost Effectiveness

The cost effectiveness will vary depending on the programs that are used to fund individual projects. Generally, the cost effectiveness limits will be mainly based on the latest Carl Moyer Program Guidelines, which is currently set at \$33,000 per weighted ton (NOx + ROG + 20 x PM) for conventional technology projects. The limit increases to \$109,000 per weighted ton for optional advanced technology, and \$300,000 per weighted ton for school buses. For on-road projects, higher limits could be applied at the discretion of air districts: up to \$200,000 per weighted ton for on-road optional advanced technology (0.02 g/bhp-hr of NOx or cleaner), and up to \$500,000 per weighted ton for on-road optional zero emission technology. To be determined.

Implementing Agency

South Coast AQMD.

References

CARB. Carl Moyer Memorial Air Quality Standards Attainment Program. <https://ww2.arb.ca.gov/our-work/programs/carl-moyer-memorial-air-quality-standards-attainment-program/about>

CARB. (2017). Carl Moyer Program Guidelines, 2017 Revisions. April 2017. https://ww2.arb.ca.gov/sites/default/files/classic/msprog/moyer/guidelines/2017/2017_cmpgl.pdf

CARB. (2021). Proposed Amendments to the Carl Moyer Memorial Air Quality Standards Attainment Program 2017 Guidelines. November 2021. <https://ww2.arb.ca.gov/resources/documents/proposed-updates-carl-moyer-memorial-air-quality-standards-attainment-program>

CARB. Proposition 1B: Goods Movement Emission Reduction Program. <https://ww2.arb.ca.gov/our-work/programs/proposition-1b-goods-movement-emission-reduction-program>

CARB. (2015). Proposition 1B: Goods Movement Emission Reduction Program – Final 2015 Guidelines for Implementation. June 2015. <https://ww2.arb.ca.gov/sites/default/files/2020-07/Final%20Prop.%201B%20June%202015%20Guidelines%20ADA%20Version%202020.pdf>

CARB. (2020). Community Air Protection Incentives 2019 Guidelines. Revised October 14, 2020. <https://ww2.arb.ca.gov/resources/documents/community-air-protection-incentives-guidelines>

CARB. Community Air Protection Program. <https://ww2.arb.ca.gov/capp/about>

CARB. (2017). On-Road Voucher Incentive Program Fact Sheet. https://www.arb.ca.gov/msprog/moyer/voucher/vip_factsheet_onroad_7_13_17.pdf?_ga=2.14435883-4.643713679.1636434848-833871300.1622306158

CARB. Low Carbon Transportation Investments and Air Quality Improvement Program. <https://ww2.arb.ca.gov/our-work/programs/low-carbon-transportation-investments-and-air-quality-improvement-program/about>

CARB. Lower-Emission School Bus Program. <https://ww2.arb.ca.gov/our-work/programs/lower-emission-school-bus-program/about>

CARB. FARMER Program. <https://ww2.arb.ca.gov/our-work/programs/farmer-program/about>

South Coast AQMD. (2021). FARMER Program. https://www.aqmd.gov/docs/default-source/aqmd-forms/moyer/farmer_pps.pdf

**MOB-12: PACIFIC RIM INITIATIVE FOR MARITIME EMISSION REDUCTIONS
[PM2.5, NOx]**

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	OCEAN-GOING VESSELS	
CONTROL METHODS:	COORDINATED PROGRAMS, E.G., PER-PORT-CALL INCENTIVES, AMONG PARTICIPATING PORT REGIONS ACROSS THE PACIFIC RIM TO ENCOURAGE DEPLOYMENT OF CLEANER SHIPS TO THE TRANSPACIFIC TRADE LANE	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
POLLUTANT INVENTORY	0.63	0.71
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
ANNUAL AVERAGE [NOx]:	2018	2030
POLLUTANT INVENTORY	32.21	32.57
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
CONTROL COST:	TBD	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD AND OTHER DOMESTIC AND INTERNATIONAL PARTNERING AUTHORITIES	

Description of Source Category

An ocean-going vessel (OGV) is a commercial, government, or military vessel, excluding articulated tug barges, meeting any of the following criteria: (1) a vessel greater than or equal to 400 feet in length overall; (2) a vessel greater than or equal to 10,000 gross tons under the convention measurement (international system); or (c) a vessel propelled by a marine compression ignition engine with a per-cylinder displacement of greater than or equal to 30 liters, i.e., Category 3 marine diesel engines. (See California Code of Regulations Section 93130.2.(b)(50).)

Background

The Port of Long Beach and the Port of Los Angeles (jointly referred to as “Ports”) are co-located at the San Pedro Bay, within the South Coast Air Basin. They are the two largest commercial marine ports in North America in terms of cargo container throughput. When combined, the twin ports would rank among the ten largest container ports in the world. In recent years, OGVs of various types make between 3,700-4,000 port calls each year to the San Pedro Bay Ports Complex, with container ships accounting for slightly over half of these calls (1,900-2,200 annual calls), followed by tanker ships (500-700 annual calls). Correspondingly, based on the most recent emissions inventory reports published by the Ports for calendar year 2021 activities, container ships accounted for 64 percent of total OGV emissions that are directly related to port operations, with 21 percent for tankers, and 16 percent for the remaining vessels.

Shipping emissions have been a major concern for the residents in the port adjacent communities and the surrounding regions, particularly from vessel maneuvering, berthing, and anchoring in and around the harbor area. Additionally, when ships transit to and from the ports, much of the associated emissions occur along the coast and impact the air quality in downwind areas. Since 2014, California Air Resource Board (CARB)’s OGV At Berth Regulation has significantly reduced Nitrogen Oxides (NO_x) and other pollutant emissions from auxiliary engines of container, passenger, and refrigerated cargo vessels. Further emission reductions are expected as the amended At Berth Regulation extends to more vessel types and further increases rule stringency. In the meantime, nearshore vessel speed reduction (VSR) programs have proven to be highly effective in reducing vessel fuel consumption, and correspondingly air pollutant emissions. In 2005, the Ports began incentivizing voluntary VSR by all OGVs down to 12 knots, initially within 20 nautical miles (nm) from Point Fermin and later expanded to 40 nm. In recent years, the Protecting Blue Whales and Blue Skies (BWBS) program also began incentivizing VSR by container ships and auto carriers down to 10 knots, which greatly supplements the annual voluntary VSR request issued jointly by the United States Coast Guard and the National Oceanic and Atmospheric Administration for large swaths of Southern California waters.⁵⁰

According to the CARB’s projections developed for the 2022 SIP, without additional control programs and regulations, transit emissions allocated to the South Coast Air Basin were expected to increase by more than 35 percent from 2018 to 2031, and most of the projected increase would come from the combustion of marine fuel in the vessel’s main (propulsion) engine. Despite the success of abovementioned regulations and programs, NO_x emissions from OGVs today and in the future are expected to make up about 40 percent of the entire air basin’s carrying capacity for the 2015 ozone standard of 70 ppb. In addition to ozone, reducing NO_x emissions from OGVs will also provide co-benefit of reducing secondary formation of PM_{2.5}.

A major factor is the slow turnover of the OGV fleet to cleaner engine tiers, due to long OGV service life ranging from at least 20 years for vessels serving transoceanic routes to 40 years for vessels serving regional and other shorter routes. As a result, even though the International Maritime Organization

⁵⁰ See <https://www.ourair.org/wp-content/uploads/2021-Attachment-A-VSR-Zone-Maps.pdf>, which shows the BWBS program area in Southern California and is overlaid with the 40-nm radius of the Ports VSR program area.

(IMO)'s cleanest Tier III NO_x engine standards are applicable to OGVs with keels laid in 2016 or later when operating in the North American Emission Control Area (ECA)—which encompasses the entire California OGV emissions inventory domain, only 3.5 percent of all port visits at the San Pedro Bay Complex were made by Tier III vessels in 2021. In the same year, 35 percent of port calls were made by Tier II vessels, indicating the majority (more than 60 percent) of port calls were made by Tier I or unregulated vessels. Compared to the older engine tiers, Tier III standards are on average 75 percent cleaner than Tier II and 80 percent cleaner than Tier I when measured by the average NO_x emission rates weighted by engine certification load points.⁵¹

Among the 1,900-2,200 annual calls by container ships at the San Pedro Bay Ports, an estimated two-thirds to three-quarters of these port calls were made by vessels serving the transpacific trade lane. This is not surprising given that the Ports of Long Beach and Los Angeles are the largest U.S. gateway for imports originating from Asia, accounting for about 50 percent of containerized import value from East and Southeast Asia according to international trade data published by the U.S. Department of Commerce.⁵² Figure MOB-12-A below plots the tier and age distributions of all vessels that were deployed to the transpacific routes between the Ports and at least one major Asian Pacific port between 2016 and 2019.⁵³ Consistent with the Ports' emissions inventory reports, it shows: 1) the majority of these vessels are subject to IMO Tier I emission limits or unregulated; 2) the unregulated vessels are slowly being replaced by Tier II vessels; and 3) many newly build ships were constructed on keels laid before 2016, thereby not subject to Tier III standards. In fact, the spikes in keels built (left panel of Figure MOB-12-1) are largely driven by the effective date of each IMO marine engine standard, whereas vessel ages (right panel of Figure MOB-12-1) show a smoother distribution reflecting a steadier trend of natural turnover coupled with market demand.

⁵¹ NO_x emissions vary by engine load, and the engine certification test cycles for OGV propulsion engine rely on a weighted average of NO_x emission rates at various engine loads: 100 percent (weighting factor: 0.15), 75 percent (weighting factor: 0.15), 50 percent (weighting factor: 0.5), and 25 percent (weighting factor: 0.2). However, a typical container ship calling the San Pedro Bay Ports are estimated to operate at about 10 percent (off-cycle) propulsion engine load if slowing down to 10 knots. NO_x emissions at such very low loads are expected to be much higher per unit of energy consumed (measured in g/kWh); meantime, due to less energy consumed when operating at slow speeds, it is generally expected that the increase in NO_x emission rates would be more than offset by fuel/energy consumption.

⁵² Data accessible at: <https://usatrade.census.gov>.

⁵³ Asian Pacific ports included in the analysis are Busan, Cai Mep-Vung Tau, Dalian-Yingkou, Fuzhou, Guangzhou (Nansha) , Haiphong, Hong Kong, Incheon, Kaohsiung, Keelung, Kobe-Osaka, Laem Chabang, Lianyungang, Nagoya-Yokkaichi, Naha, Ningbo-Zhoushan, Port Klang, Qingdao, Shanghai (including Yangshan), Shenzhen (including Chiwan, Dachan Bay, Mawan, Shekou and Yantian) , Shimizu, Singapore, Taipei, Tianjin, Tokyo-Yokohama-Kawasaki, Xiamen-Zhangzhou, and Yosu.

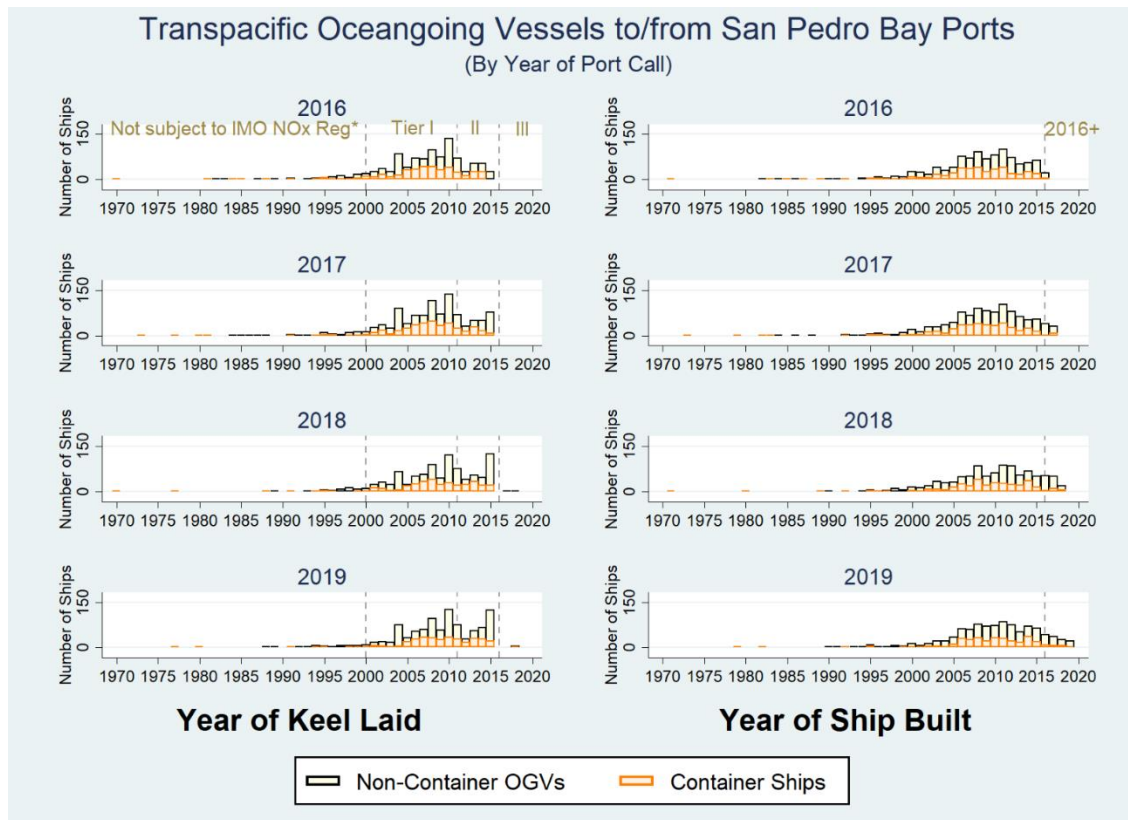


FIGURE MOB-12-A
TRANSPACIFIC OGVs CALLING SAN PEDRO BAY PORTS

In order to achieve emission reductions to attain health-protective federal and state air quality standards as expeditiously as possible, it is necessary to accelerate the deployment of newer vessels meeting IMO Tier III emission limits. But with the long service life of OGVs, a concurrent focus must be placed on retrofitting Tiers I and II OGVs to the extent practicable. However, given the lack of any in-use NO_x emission requirements (which typically fall under federal/international authority) and the high project cost and complexity in retrofitting OGVs with the most common Tier III technologies including exhaust gas recirculation (EGR) and selective catalytic reduction (SCR),⁵⁴ the most feasible pathway would be to incentivize NO_x retrofit with significantly more cost-effective technologies. One potential candidate would be water-in-fuel emulsion (WiF), which has more than a decade of research and development (R&D) history but has remained in the stage of technology demonstration due to the lack of regulation-driven market demand. While WiF cannot achieve Tier III standards, it may result in up to 40 percent NO_x reductions for nearshore operations, or when main engine is operated at less than 50 percent loads. In

⁵⁴ Any un-reacted ammonia emissions, or ammonia slip, from urea injection into the exhaust gas as part of NO_x control in SCR systems can contribute to secondary formation of PM, therefore potentially offsetting at least part of the PM benefits from NO_x reductions. However, staff is not aware of publicly available emission testing results indicating whether, or to what extent, ammonia slip could be an issue for marine engine SCR systems

comparison, the effectiveness of Tier III technologies, especially SCR, are expected to exponentially decrease when engine loads become too low to maintain the required exhaust gas temperature for SCR to function properly. Additionally, there are exhaust filtration technologies being developed and tested for primary PM control of marine engine exhaust gas.

At the same time, any effort to reduce marine engine emissions at California ports could potentially benefit the port and coastal communities located on the other side of the Pacific as well. Based on staff's compilation of multiple reports and studies using data between 2013 and 2018, shipping accounted for significant shares of emissions in many major port cities in Asia. In Hong Kong and the entire country of Japan, where land-based sources have been subjected to increasingly stringent emissions and energy efficiency requirements, shipping accounted for 41-49 percent of primary PM_{2.5} emissions alone, not counting secondarily formed particulates, and 37 percent of their NO_x emissions are also attributable to both domestic and international shipping. In Shanghai, Shenzhen, Qingdao, Tianjin, and Kaohsiung, shipping was also found to account for 9-24 percent of citywide NO_x emissions. Similar to Southern California, shipping's share of NO_x emissions is expected to increase further across our trading partners in East and Southeast Asia, due to limited scope and applicability of domestic programs and regulations in reducing OGV NO_x emissions when compared to emission reduction efforts for land-based sources, particularly power plants and freight moving trucks.

Figure MOB-12-2 shows that container ships accounted for approximately three-quarters of all OGV port calls made in 2016-2019 across the San Pedro Bay Ports, the San Francisco Bay Ports, and all large-scale East and Southeast Asian ports. In contrast, this fleet of container ships made up just over one-third of all OGVs deployed to this trade lane during the same period. Furthermore, container ships constituted nearly all of the "transpacific frequent callers," defined for analytical purposes as those OGVs making a combination of 5 or more calls at the San Pedro Bay ports in a given year and also 5 or more calls in the same year at one or more ports on the other side of the Pacific Rim. On average, a frequent caller container ship made about 50 calls per year across the Pacific Rim ports. In contrast, a non-container OGV made only an average of 7 port calls per year in the same trade lane. In 2019, out of the approximately 120 frequently calling container ships deployed to the transpacific trade lane, more than half of them had visited major Asian ports including the ports of Busan, Shanghai, Ningbo-Zhoushan, Shenzhen, and Hong Kong, and more than a third of them had also called the ports of Tokyo Bay Ports (Keihin Port) and Kaohsiung. This port call pattern implies that many of the Pacific Rim port regions, including Southern California, share the common interest in investing in greener containerized goods movement.

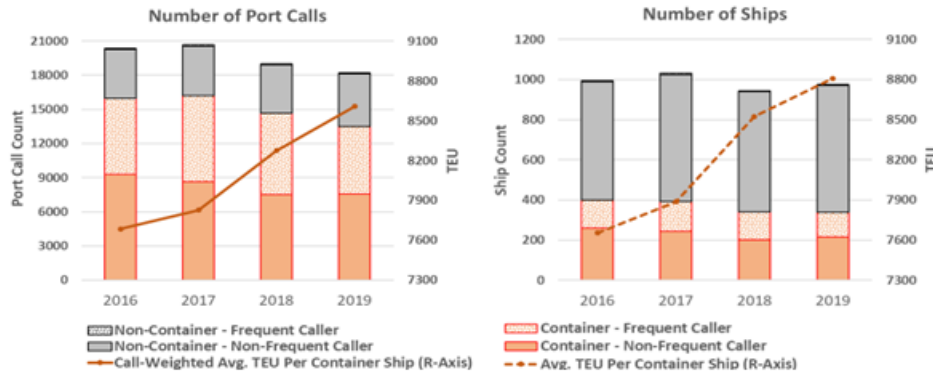


FIGURE MOB-12-2
PORT CALL PATTERN OF TRANSPACIFIC OGVs

With the common need and shared opportunity to reduce shipping emissions and to protect the health of port community residents across the Pacific, this control measure proposes to establish partnerships with other Pacific Rim ports and port regions in developing and implementing the Pacific Rim Initiative for Maritime Emission Reductions (PRIMER). PRIMER is envisioned as a multi-regional framework where all partnering regions can coordinate individual incentives and program requirements in order to maximize the effectiveness of all programs. There are several potential advantages of PRIMER:

Targeted approach. PRIMER partners will be encouraged to continue their existing or adopt new non-regulatory mechanisms to facilitate voluntary adoption of cleaner marine technologies by OGV owners and operators. The mechanism can be either monetary or non-monetary incentives that will be awarded based on each port visit, and the program participating requirements will be coordinated to the maximal extent feasible to ensure a participating OGV can take full advantage of the incentive offered by any PRIMER partner. Such per-port-call incentive will be most attractive to the OGVs frequently calling the partnering Pacific Rim ports, with minimal impact on the other OGVs whose owners/operators do not find a business case in undertaking the clean technology investment to qualify for the incentives.

Suitable for both new and in-service OGVs. Unlike the engine emission standards that are generally applicable to newbuilds only, the non-regulatory incentives can encourage retrofit investments among the in-service OGVs deployed to the transpacific shipping routes while also motivating the deployment of cleaner new OGVs to these routes.

Cost-effective for incentive providers. Investing in cleaner marine technology is no small feat, especially for the vessel-based emission abatement technologies. The required upfront capital investment tends to be very high while the payback period sought by the industry is short. The short payback period is further complicated by the industry's need to maintain enough flexibility in vessel deployment, which is the case for both liner and tramp services alike. By coordinating clean shipping

incentives with other Pacific Rim ports on a targeted group of frequently calling OGVs, each PRIMER partner will be able to reduce the level of incentive needed by each individual port to effectively attract visits by cleaner OGVs, and the collective efforts will also shorten the payback period for the ship owner/operator who has made the technology investment.

Minimized free riding. Most emission abatement technologies, specifically for NOx reductions, are auxiliary devices that can be switched on and off. While this means that reporting requirements by participating OGV operators will be necessary for the PRIMER partnering port regions to verify emission reductions realized at each port visit, it also means that concerns of potential free riding by non-partnering ports will be possibly minimized if there is no incentive for those OGVs equipped with emission abatement technology to switch to lower-emitting operating mode.

Additionally, PRIMER can also serve as a platform for information exchange and experience sharing among partnering ports. In light of the IMO decarbonization targets and the corresponding global efforts to identify low- and zero-carbon solutions, NOx/PM abatement technologies are expected to remain highly relevant in the deep-sea-going sector. This is because, without significant technology breakthrough, internal combustion engines fueled by low-carbon biofuel blends or zero-carbon alternatives such as ammonia, hydrogen, and methanol, are commonly acknowledged as the most feasible propulsion technologies to achieve decarbonization goals among those ships serving the transoceanic routes. However, the combustion process will inevitably produce NOx and PM, so the installation of pretreatment (e.g., WiF and EGR) or aftertreatment (e.g., SCR, filtration) system may be still necessary pursuant to the IMO Tier III requirements for any dual- or multi-fuel vessels. Given that NOx/PM control will likely remain highly relevant in the future, incentivizing investments in optimizing NOx/PM abatement nearshore will not only help address the disproportionate air quality impacts on port regions from the in-service fleet, but also from the future low- and zero-carbon OGVs.

Finally, PRIMER can complement and work in conjunction with the Clydebank Declaration for Green Shipping Corridors, which is a multi-nation initiative announced at the 26th United Nations Climate Change Conference of the Parties (COP 26) at the end 2021. The Clydebank Declaration aims to promote zero-carbon emission maritime routes between 2 or more ports, with the goal of establishing at least 6 such routes/corridors by 2025. The U.S., being one of the signatories, is anticipated to either work towards decarbonizing one or more domestic shipping routes, or work with other current and prospective signatories in establishing international green shipping corridors. Given the outsized importance and cargo throughput of the San Pedro Ports among all U.S. ports, it would be of utmost priority for the U.S. to work with our Asian Pacific trade partners to explore such partnerships to achieve both climate and air quality objectives. As of July 2023, six Green Shipping Corridor have been announced between POLA and/or POLB with Asia Pacific port partners. While these agreements are focused on GHG reductions through alternative fuel bunkering and/or operational changes such as digitalization, PRIMER will focus on nearshore NOx reductions, with co-benefits for PM2.5 and potentially GHG.

Regulatory History

International Maritime Organization (IMO) Emissions and Fuel Standards

The IMO's International Convention for the Prevention of Pollution from Ships (MARPOL) Annex VI, which came into force in May 2005, set new international NO_x emission limits in Regulation 13 on marine diesel engines installed on new vessels retroactive to the year 2000. The NO_x limits are applicable to diesel engines of over 130 kW output power (other than those used solely for emergency purposes) irrespective of the tonnage of the ship where such engines are installed. In October 2008, the IMO adopted an amendment which places a global limit on marine fuel sulfur content of 0.1 percent by 2015 for specific areas known as Emission Control Areas (ECA). The North American and U.S. Caribbean Sea ECA extends 200 nautical miles from the U.S. coast. The Basin off-coast waters are included in the ECA and ships calling at the Ports have to meet this new fuel standard or use SO_x scrubber as an alternative compliance method. In addition, the 2008 IMO amendment required new ships built after January 1, 2016 that enter the North American and U.S. Caribbean Sea ECA to meet Tier III NO_x emission limits which are 80 percent lower than the Tier I emission limits and 75 percent lower than the Tier II limits.

IMO GHG Strategy

In October 2018, IMO adopted an initial strategy to reduce GHG emissions from the global ship fleet. Compared to the 2008 levels, the strategy set a reduction target of 40 percent by 2030 for carbon intensity and a reduction target of at least 50 percent by 2050 for total annual GHG emissions from international shipping. This strategy was further revised in 2023, including an amended 2050 target of net-zero GHG emissions, and new IMO standards are expected to be developed to implement the 2023 strategy. This level of GHG reductions will require the use of low or zero carbon fuels, with the latest target set at 5-10% of all energy used by international shipping by 2030; however, the effect on NO_x and PM from this fuel switch may vary widely depending on which fuels are used and what controls are added to ship engines. Several programs have been adopted in recent years as short-term measures to attain the decarbonization targets, including the energy efficiency design index (EEDI) for newbuilt ships, the efficiency existing ship index (EEXI) for in-service ships, and the carbon intensity indicator (CII). Collectively, by reducing fuel consumption, these measures may indirectly lower NO_x and PM emissions albeit to a limited extent.

U.S. EPA Marine Vessel Regulations

In 2010, the U.S. Environmental Protection Agency (U.S. EPA) adopted standards that apply to Category 3 (C3) engines (>30 liters per cylinder displacement) installed on U.S. vessels and to marine diesel fuels produced and distributed in the United States. That rule added two new tiers of engine standards for C3 engines consistent with the IMO standards described above. It also includes a regulatory program to implement IMO MARPOL Annex VI in the United States, including engine and fuel sulfur limits, and extends the ECA engine and fuel requirements to U.S. internal waters (i.e., rivers, lakes, etc.). U.S. is a member of IMO and provided input to the fuel sulfur and NO_x emission standards adopted by IMO and works within

international organizations to establish global engine and fuel standards. The U.S. delegation to the IMO is generally led by the State Department, with Coast Guard, the U.S. EPA, and other relevant agencies provide any necessary support and technical advice.

CARB Marine Fuel Rule

Beginning in 2009, CARB began implementing the State's fuel sulfur regulation, applicable to both domestic and foreign flagged vessels, in waters out to 24 nm of the California baseline (i.e., Regulated California Waters or RCW). The rule initially limited sulfur content in marine gas oil (MGO) to 1.5 percent sulfur by weight and in marine diesel fuel (MDO) to 0.5 percent sulfur by weight. Beginning in January 1, 2012, all OGVs when operating in the RCW must switch to either type of distillate grade fuel with at maximum 0.1 percent sulfur content in weight, and unlike the IMO sulfur oxides (SOx) ECA requirements, the use of SOx scrubber is not permitted as an alternative compliance method.

CARB OGV At Berth Regulation

Adopted in 2007, the original At Berth regulation was designed to reduce NOx and PM emissions from the operation of auxiliary engines on container vessels, passenger vessels, and refrigerated cargo vessels while these vessels are docked at berth at a California port. As such, starting from 2014, 50 percent of a regulated fleet's visits to the Ports were required to plug into shore power (also known as alternative maritime power (AMP) or cold ironing), or use other compliance options to achieve equivalent emission reductions. The percentage of fleet-based requirement would increase to 80 percent in 2020. In 2020, several amendments were adopted which, from 2023, would require rule compliance at each and every vessel visit by container vessels, passenger vessels, and refrigerated cargo vessels; from 2025, by roll-on and roll-off vessels, as well as tanker vessels visiting the ports of Los Angeles and Long Beach; and from 2027, all remaining tanker vessels.

MOUs

Several years ago, the ports, shipping interests, and regulatory agencies entered into a MOU seeking voluntary reductions in vessel speed to reduce NOx emissions.

Proposed Method of Control

This measure seeks to supplement the implementation of the 2022 State SIP (State Implementation Plan) Strategy "Federal Action: Cleaner Fuel and Vessel Requirements for Ocean-Going Vessels." It is not expected for this measure to achieve the full emission reductions associated with this specific SIP measure, but rather, this measure seeks to recognize OGV emission reductions that are the result of voluntary actions and may be considered surplus to the emission reduction commitments of the State SIP Strategy. Vessel owner/operator would register their vessels with verified emission reductions from the IMO Tier II emission limits and would be eligible for port-specific incentives for every port call made by a registered vessel at a port covered by program(s) administered by one of the PRIMER partners.

Emission Reductions

The amount of emission reductions that can be achieved from this control measure will be dependent on the type of OGVs and number of port calls affected by the measure and the actions or strategies identified through the public process. Any emission reductions that can be quantified and considered surplus to the region's overall emission reduction targets will be attributed towards the emission reduction commitment associated with the 2022 SIP Measure "Federal Action: Cleaner Fuel and Vessel Requirements for Ocean-Going Vessels" and could be recognized in the SIP as part of the Rate-of-Progress reporting or in future AQMP revisions as long as the reductions meet the U.S. EPA determination that such reductions are approvable as part of the SIP.

Rule Compliance and Test Methods

The proposed measure is an incentive program, and therefore, rule compliance is not applicable. However, program participation would require pre-registration by vessel owner/operator, and emission reductions will be verified through submittal and review of records, reports, and emission inventories. Approved emission quantification protocols by federal, State or local agencies will be used to track and report emission reductions for SIP purposes.

Cost Effectiveness

The cost-effectiveness of this measure will be based on cost of commercialized technologies, frequency of ports calls, the number of PRIMER partnering ports and the collective incentive amounts.

Implementing Agency

South Coast AQMD, along with other domestic and international partners, will collectively be the implementing agencies for port-specific incentive programs designed to encourage frequently calling OGVs to adopt cleaner and low NO_x marine engine technologies.

References

California Air Resource Board. (2018). *CEPAM: 2016 SIP - Standard Emission Tool*.

<https://www.arb.ca.gov/app/emsinv/fcemssumcat/fcemssumcat2016.php>

Chatani, S., Shimadera, H., Itahashi, S., Yamaji, K. (2020). Comprehensive analyses of source sensitivities and apportionments of PM_{2.5} and ozone over Japan via multiple numerical techniques. *Atmospheric Chemistry and Physics*, 20, 10311–10329. <https://doi.org/10.5194/acp-20-10311-2020>

Chen, D., Zhao, Y., Nelson, P., Li, Y., Wang, X., Zhou, Y., Lang, J., Guo X. (2016). Estimating ship emissions based on AIS data for port of Tianjin, China. *Atmospheric Environment*, 145, 10-18.

<http://dx.doi.org/10.1016/j.atmosenv.2016.08.086>

Chen, D., Wang, X., Nelson, P., Li, Y., Zhao, N., Zhao, Y., Lang, J., Zhou, Y., Guo, X. (2017). Ship emission inventory and its impact on the PM2.5 air pollution in Qingdao Port, North China. *Atmospheric Environment*, 166, 351-361. <http://dx.doi.org/10.1016/j.atmosenv.2017.07.021>

Chen, D., Tian, X., Lang, J., Zhou, Y., Guo, X., Wang, W., Liu, B. (2019). The impact of ship emissions on PM2.5 and the deposition of ROG

and sulfur in Yangtze River Delta, China. *Science of the Total Environment*, 649, 1609-1619. <https://doi.org/10.1016/j.scitotenv.2018.08.313>

Eco-Mo Foundation. (2020). *Transport and Environment in Japan 2020*. <http://www.ecomo.or.jp/english/pdf/tej2020.pdf>

Feng, J., Zhang, Y., Li, S., Mao, J., Patton, A.P., Zhou, Y., Ma, W., Liu, C., Kan, H., Huang, C., An, J., Li, L., Shen, Y., Fu, Q., Wang, X., Liu, J., Wang, S., Ding, D., Cheng, J., Ge, W., Zhu, H., Walker, K. (2019). The influence of spatiality on shipping emissions, air quality and potential human exposure in the Yangtze River Delta/Shanghai, China. *Atmospheric Chemistry and Physics*, 19, 6167-6183. <https://doi.org/10.5194/acp-19-6167-2019>

Fu, Q. (2015). *Status and control strategies on shipping emission in Shanghai port*. Presentation at the 4th Pacific Ports Clean Air Collaborative Conference, October 27. Shanghai. <http://www.ppcac.org/images/fupres2015.pdf>

Journal of Commerce (JOC). (2020). *JOC Global Port Rankings: Asian ports grew fastest in 2019*. August 18. https://www.joc.com/port-news/joc-global-port-rankings-asian-ports-grew-fastest-2019_20200818.html

Liang, Y., et al. (2016). *Estimation of vessels air pollution emissions in Shenzhen port*. <https://ste.cnki.net/kcms/detail/detail.aspx?filename=YNHK201602006&dbcode=CEIJ&dbname=CEITLK CJFDLAST2016&v=>

Liu, H., Fu, M., Jin, X., Shang, Y., Shindell, D. (2016). Health and climate impacts of ocean-going vessels in East Asia. *Nature Climate Change*, 6, 1037-1041. <https://doi.org/10.1038/nclimate3083>

Hong Kong Environmental Protection Department. (2020). *Hong Kong Air Pollutant Emission Inventory*. https://www.epd.gov.hk/epd/english/environmentinhk/air/data/emission_inve.html

Ministry of Environment of Japan. (2019). “平成30年度PM2.5 インベントリ及び発生源プロフィール策定委託業務” (2018 PM2.5 inventory and source profile formulation consignment work, in Japanese).

Ng, S.K.W., Lin, C., Chan, J.W.M., Yip, A.C.K., Lau, A.K.H., Fung, J.C.H.. (2012). *Study on Marine Vessels Emission Inventory – Final Report submitted to the Environmental Protection Department of HKSAR*. https://www.epd.gov.hk/epd/sites/default/files/epd/english/environmentinhk/air/study/rpts/files/EPD_MVEIS_Final_Report_v7_approved_120528.pdf

Starcrest Consulting Group (Starcrest). (2017). *San Pedro Bay Ports Clean Air Action Plan 2017 – Bay Wide Ocean-Going Vessel International Maritime Organization Tier Forecast 2015-2050*.

https://kentico.portoflosangeles.org/getmedia/a23bdf8e-7df2-42f5-873f-803c36be8a57/CAAP_Vessel_Tier_Forecasts_2015-2050-Final

Starcrest. (2021a). *Port of Los Angeles Inventory of Air Emissions – 2020*.

https://kentico.portoflosangeles.org/getmedia/7cb78c76-3c7b-4b8f-8040-b662f4a992b1/2020_Air_Emissions_Inventory

Starcrest. (2021b). *Port of Long Beach Air Emissions Inventory – 2020*.

<https://polb.com/download/14/emissions-inventory/12958/2020-air-emissions-inventory.pdf>

Shon, Z.-H. (2015). Emissions of Ozone Precursors from a Biogenic Source and Port-related Sources in the Largest Port City of Busan, Korea. *Asian Journal of Atmospheric Environment*, 9(1), 39-47.

<https://doi.org/10.5572/ajae.2015.9.1.039>

Song, S.-K., Shon, Z.-H., Kim, Y.-K., Kang, Y.-H., Oh, I.-B., Jung, C.-H.. (2010). Influence of Ship Emissions on Ozone Concentrations around Coastal Areas during Summer Season. *Atmospheric Environment*, 44(5), 713-723. <https://doi.org/10.1016/j.atmosenv.2009.11.010>

South Coast Air Quality Management District. (2017). *Final 2016 Air Quality Management Plan*.

<https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf>

Taiwan Environmental Protection Administration. (2017). *Taiwan Emission Data System*.

https://air.epa.gov.tw/EnvTopics/AirQuality_6.aspx

Tian, J. (2019, January 21). 我国三大船舶排放控制区的大气污染物排放量下降明显 (Air Pollutants Have Substantially Reduced in China's Three Domestic Emission Control Areas, in Chinese). *Xinhua News Agency*. http://www.xinhuanet.com/politics/2019-01/21/c_1124018769.htm

United Kingdom Department of Transport. (2022). *COP 26: Clydebank Declaration for green shipping corridors*. <https://www.gov.uk/government/publications/cop-26-clydebank-declaration-for-green-shipping-corridors/cop-26-clydebank-declaration-for-green-shipping-corridors>

United Nations Conference on Trade and Development (UNCTAD). (2019). *Review of Maritime Transport 2019*. <https://unctad.org/webflyer/review-maritime-transport-2019>

UNCTAD. (2020). *Review of Maritime Transport 2020*. <https://unctad.org/webflyer/review-maritime-transport-2020>

United States Census Bureau. *USA Trade® Online*. <https://usatrade.census.gov/>

**MOB-13: RULE 2202 – ON-ROAD MOTOR VEHICLE MITIGATION OPTIONS
[PM2.5, NOx]**

CONTROL MEASURE SUMMARY		
SOURCE CATEGORY:	MOBILE SOURCES	
CONTROL METHODS:	STREAMLINE VARIOUS RIDESHARE STRATEGIES AND TELECOMMUTING OPTIONS	
EMISSIONS (TONS/DAY):		
ANNUAL AVERAGE [PM2.5]:	2018	2030
POLLUTANT INVENTORY	2.4	2.1
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
ANNUAL AVERAGE [NOx]:	2018	2030
POLLUTANT INVENTORY	55.5	18.9
POLLUTANT REDUCTION	-	TBD
POLLUTANT REMAINING	-	TBD
CONTROL COST:	TBD	
INCENTIVE COST:	TBD	
IMPLEMENTING AGENCY:	SOUTH COAST AQMD/LOCAL OR REGIONAL AGENCIES	

Description of Source Category

Rule 2202 has been designed to reduce emissions from motor vehicles used by employees for commute trips. Rule 2202 applies to larger employers in the region with more than 250 employees and requires that these employers mitigate emissions from employee commute trips into the worksite. Rule 2202 is designed to reduce emissions of Volatile Organic Compounds (VOCs), Oxides of Nitrogen (NOx), and Carbon Monoxide (CO), by an equal or greater amount to that achievable through a trip reduction program. Rule 2202 will also reduce PM2.5 emissions as a co-benefit. Rule 2202 provides employers with a menu of options to select from to implement a combination of emission reduction strategies to meet

an emission reduction target (ERT) for their worksite. The types of vehicles included in Rule 2202 emission calculations are passenger vehicles and light-duty vehicles (LT1 and LT2).

Background

There are three main compliance options for Rule 2202:

Air Quality Investment Program (AQIP)

Employers may participate in the AQIP by submitting an air quality investment, to be placed in a restricted fund as set forth in Rule 311 - Air Quality Investment Program Fees. These funds are then used for air quality improvement projects that will achieve the emission reduction targets for a given compliance period. Some examples of projects that have been funded using AQIP funds are the replacement of older, high-polluting diesel-powered street sweepers with lower-emission compressed natural gas (CNG) sweepers, replacement or repower of older, high-polluting heavy-duty diesel engines with cleaner engine/vehicle technologies, various port-related clean air projects, and the replacement of gasoline-powered lawn and garden equipment with zero emissions, battery-electric powered equipment.

Emission Reduction Strategies (ERS)

Emission Reduction Credits (ERCs) may be used to meet an employer's emission reduction target. These credits are purchased by the regulated employer from a third-party credit vendor/broker. The credits are then transferred to South Coast AQMD and retired. ERCs that were approved for transfer into the program before June 6, 2014 and were issued in accordance with Regulation XIII may be used to meet an employer's emission reduction target. These ERCs have been primarily generated through facility shutdowns and equipment replacement projects. Mobile source emission reduction credits (MSERCs) issued in accordance with the provisions of Regulation XVI - Mobile Source Offset Programs may also be used. These credits have been primarily generated through old vehicle scrapping services.

Employee Commute Reduction Program (ECRP)

As an alternative to meeting an ERT, Rule 2202 also allows employers the option to implement an ECRP. The implementation of an ECRP is expected to lead to achievement and maintenance of the employer's designated Average Vehicle Ridership (AVR) target, determined by the worksite's AVR Performance Zone pursuant to Rule 2202(l)(3), through the reduction of work-related vehicle trips. As part of the ECRP, employers must choose 15 commute reduction strategies to implement at their worksite from a larger menu of strategies. These strategies can be developed and implemented to meet the individual needs of employers in achieving the designated AVR target.

Regulatory History

Rule 2202 was adopted in 1995 as a replacement to Rules 1501 – Work Trip Reduction Plans and 1501.1 - Alternatives to Work Trip Reduction Plans, to achieve an equal or greater amount of emission reductions.

In 1987, Regulation XV was adopted which required trip reduction plans for employers with 100 or more employees. Rule 1501 was amended in 1993 and Rule 1501.1 was adopted in 1995 to comply with federal and state requirements for “extreme” nonattainment areas. In 1995, Rule 2202 was adopted to respond to state legislation prohibiting mandatory trip reduction plans. Subsequently, Rule 2202 provided worksites of 100 or more employees a menu of emission reduction options to meet an emission reduction target for their worksite. The passage of SB 836 in 1996 directed South Coast AQMD to raise the employee threshold level from 100 to 250 employees, while SB 432 permanently exempted worksites with fewer than 250 employees from complying with the rule. Rule 2202 continues to allow affected employers the option of implementing a traditional trip reduction program to comply with the rule.

Proposed Method of Control

Telecommuting

Rule 2202 currently provides credit for telecommuting under the ECRP compliance option by including telecommuting as one of the optional direct strategies specified in the rule. As defined, telecommuting is characterized as working at home, off-site, or from a telecommuting center for a full workday that eliminates the trip into the worksite or reduces travel distance to the worksite by greater than 50 percent.

During the COVID-19 pandemic in 2020 and 2021, many Rule 2202 regulated employers incorporated telecommuting practices which have shown to be a very effective way of reducing emissions caused by employee commute trips into the worksite. Many employers have reported extremely high AVR scores, primarily due to the increased amount of telecommuting, over the 2020/2021 reporting period.

While Rule 2202 does currently provide credit for telecommuting, future rule amendments may include a larger focus on telecommuting strategies and provide additional incentives for regulated employers to adopt telecommuting policies. Based on reported information from regulated employers, telecommuting has shown to be an extremely effective measure for reducing emissions from employee-related commute trips. Other future rule amendments may include enhancements on current basic support and direct strategies, as well as streamlined compliance and reporting options. Options for inclusion of Rule 2202 for State Implementation Plan (SIP) creditability will also be explored.

Emission Reductions

The following emission reductions were achieved by Rule 2202 activities for year 2018:

TABLE MOB-13-A
RULE 2202 EMISSION REDUCTIONS FOR 2018

Program Type	VOC tons/day	NOx tons/day	CO tons/day
Employee Commute Reduction Program (including Offset)	0.47	0.35	3.97
Air Quality Investment Program	0.55	0.15	3.16
Emission Reduction Strategies	0.96	0.55	6.14
Total Achieved	1.98	1.05	13.27
Target	1.46	0.93	10.39

Rule Compliance and Test Methods

To be determined.

Cost Effectiveness

To be determined.

Implementing Agency

South Coast AQMD.

References

South Coast Air Quality Management District. (2014). Rule 2202 – On-Road Motor Vehicle Mitigation Options (Amended June 6, 2014). <http://www.aqmd.gov/docs/default-source/rule-book/reg-xxii/rule-2202.pdf>

South Coast Air Quality Management District. (2016). Employee Commute Reduction Program Guidelines. [http://www.aqmd.gov/docs/default-source/rule-book/support-documents/rule-2202/rule-2202-employee-commute-reduction-program-guidelines-\(ecrp\).pdf](http://www.aqmd.gov/docs/default-source/rule-book/support-documents/rule-2202/rule-2202-employee-commute-reduction-program-guidelines-(ecrp).pdf)

South Coast Air Quality Management District. (2014). Rule 2202 – On-Road Motor Vehicle Mitigation Options Implementation Guidelines. <http://www.aqmd.gov/docs/default-source/rule-book/support-documents/rule-2202/rule-2202-implementation-guidelines.pdf>

South Coast Air Quality Management District. (2019). Rule 2202 – On-Road Motor Vehicle Mitigation Options Emission Factor and Emission Reduction Target Methodology. http://www.aqmd.gov/docs/default-source/transportation/supplemental-documents/r2202_ef_methodology_emfac2017_2019.pdf

South Coast Air Quality Management District. (2005). Employee Commute Reduction Program AVR Survey Support Guide. <http://www.aqmd.gov/docs/default-source/transportation/supplemental-documents/avr-survey-support-guide.pdf>

South Coast Air Quality Management District. (2014). Board Letter to Amend Rule 2202 - On-Road Motor Vehicle Mitigation Options, Rule 2202 Implementation Guidelines, Rule 301 Permitting and Associated Fees, and Rule 311 Air Quality Investment Program Fees. <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2014/brdpgk-2014-jun6.pdf>



APPENDIX IV-B

SCAG's Regional Transportation Strategy and Control Measures



SCAG MISSION STATEMENT

Under the guidance of the Regional Council and in collaboration with our partners, our mission is to foster innovative regional solutions that improve the lives of Southern Californians through inclusive collaboration, visionary planning, regional advocacy, information sharing, and promoting best practices.

SCAG REGIONAL COUNCIL

OFFICERS

President

Hon. Art Brown, City of Buena Park

First Vice President

Hon. Curt Hagman, County of San Bernardino

Second Vice President

Hon. Cindy Allen, City of Long Beach

Immediate Past President

Hon. Jan C. Harnik, Riverside County Transportation Commission

MEMBERS

Imperial County

Hon. Maria Nava-Froelich

Hon. Luis Plancarte

Hon. Gil Rebollar

Los Angeles County

Hon. Cindy Allen

Hon. Adele Andrade-Stadler

Hon. Konstantine Anthony

Hon. Kathryn Barger

Hon. Karen Bass

Hon. Bob Blumenfield

Hon. Gary Boyer

Hon. Drew Boyles

Hon. Margaret Clark

Hon. Kevin de Leon

Hon. Keith Eich

Hon. Margaret E. Finlay

Hon. Claudia M. Frometa

Hon. James Gazeley

Hon. Marqueece Harris-Dawson

Hon. Mark E. Henderson

Hon. Eunisses Hernandez

Hon. Heather Hutt

Hon. Paul Krekorian

Hon. John Lee

Hon. Ken Mann

Hon. Tim McOsker

Hon. Lauren Meister

Hon. Imelda Padilla

Hon. Traci Park

Hon. Curren Price

Hon. Nithya Raman

Hon. Monica Rodriguez

Hon. Celeste Rodriguez

Hon. Ali Saleh

Hon. Tim Sandoval

Hon. Andrew Sarega

Hon. Suely Saro

Hon. David J. Shapiro

Hon. José Luis Solache

Hon. Hilda Solis

Hon. Hugo Soto-Martinez

Hon. Steve Tye

Hon. Jeff Wood

Hon. Katy Yaroslavsky

Hon. Frank Yokoyama

Orange County

Hon. Ashleigh Aitken

Hon. Valerie Amezcua

Hon. Art Brown

Hon. Wendy Bucknum

Hon. Jon Dumitru

Hon. John Gabbard

Hon. Brian Goodell

Hon. Marshall R. Goodman

Hon. Joe Kalmick

Hon. Trish Kelley

Hon. Tammy Kim

Hon. Lauren Kleiman

Hon. Casey McKeon

Hon. Marty Simonoff

Hon. Donald Wagner

Riverside County

Hon. Jan C. Harnik

Hon. Kathleen Kelly

Hon. Linda Krupa

Hon. Patricia Lock Dawson

Hon. Clint Lorimore

Hon. Steve Manos

Hon. Marisela Nava

Hon. Oscar Ortiz

Hon. Zak Schwank

Hon. Karen Spiegel

San Bernardino County

Hon. Damon L. Alexander

Hon. Liz Becerra

Hon. Rick Denison

Hon. Curt Hagman

Hon. Ray Marquez

Hon. Larry McCallon

Hon. L. Dennis Michael

Hon. Frank J. Navarro

Hon. Deborah Robertson

Hon. Alan Wapner

Ventura County

Hon. Jenny Crosswhite

Hon. Laura Hernandez

Hon. Mike Judge

Hon. Vianey Lopez

Hon. Rocky Rhodes

Tribal Government

Representative

Hon. Andrew Masiel

Business Representative

Ms. Lucy Dunn

Executive Summary

This Appendix IV-B (Appendix or Appendix IV-B throughout) describes the Southern California Association of Government's (SCAG) Regional Transportation Plan/Sustainable Communities Strategy and Transportation Control Measures (TCMs) to address the 2012 annual PM2.5 standards in the South Coast Air Basin as part of South Coast Air Quality Management District's (South Coast AQMD) Draft 2024 PM2.5 State Implementation Plan (SIP). This Appendix IV-B is based on SCAG's Final 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy (2020 RTP/SCS, also known as Connect SoCal) and 2023 Federal Transportation Improvement Program (FTIP), as amended. The RTP/SCS and FTIP were developed in consultation with federal, state and local transportation and air quality planning agencies and other stakeholders. The four County Transportation Commissions (CTCs) in the South Coast Air Basin, namely Los Angeles County Metropolitan Transportation Authority, Riverside County Transportation Commission, Orange County Transportation Authority and the San Bernardino County Transportation Authority, were actively involved in the development of the regional transportation measures of this Appendix. While SCAG will soon adopt the 2024 RTP/SCS, this PM2.5 Plan is based on the 2020 RTP/SCS as it was the latest approved RTP/SCS at the time of plan development.

This Appendix consists of the following three Sections.

Section I. Introduction

As required by federal and state laws, SCAG is responsible for ensuring that the regional transportation plan, program, and project are supportive of the goals and objectives of applicable Air Quality Management Plans and State Implementation Plans (AQMPs/SIPs). SCAG is also required to develop demographic projections and regional transportation strategy and control measures for the South Coast AQMD's AQMP/SIP.

As the Metropolitan Planning Organization (MPO) for the six county region comprising SCAG's jurisdiction, SCAG is obligated to develop an RTP/SCS every four years. The RTP/SCS is a long-range regional transportation plan that provides for the development and integrated management and operation of transportation systems and facilities that will function as an intermodal transportation network for the SCAG region. The RTP/SCS also outlines certain land use growth strategies that provide for more integrated land use and transportation planning, and enhance transportation investments. The RTP/SCS is required by federal laws to demonstrate transportation conformity and also to achieve regional greenhouse gas (GHG) reduction targets set by the California Air Resources Board (CARB) pursuant to SB 375. Pursuant to the California Health and Safety Code, the RTP/SCS constitutes the Regional Transportation Plan/Sustainable Communities and Transportation Control Measures of the South Coast AQMD's AQMPs/SIPs.

In addition, SCAG develops the biennial FTIP. The FTIP is a list of multimodal capital improvement projects to be implemented over a six year period. The FTIP implements the programs and projects in the RTP/SCS.

Section II. Regional Transportation Plan/Sustainable Communities Strategy and Transportation Control Measures (TCMs)

The SCAG region faces many critical challenges including demographics, transportation system preservation, transportation funding, goods movement, housing, air quality, climate change, and public health. Under the guidance of the goals and objectives adopted by SCAG's Regional Council, SCAG's governing board, the Connect SoCal was developed to provide a blueprint to integrate land use and transportation strategies to help achieve a coordinated and balanced regional transportation system. Connect SoCal represents the culmination of more than three years of work involving dozens of public agencies, 197 local jurisdictions in the SCAG region, hundreds of local, county, regional and state officials, the business community, environmental groups, as well as various nonprofit organizations. Connect SoCal was adopted by SCAG's governing board, the Regional Council, on May 7, 2020 for transportation conformity purposes only and on September 3, 2020 for all purposes.

To realize a sustainable and connected region, Connect SoCal includes a Core Vision that centers on maintaining and better managing the transportation network for moving people and goods, while expanding mobility choices by locating housing, jobs and transit closer together and increasing investment in transit and complete streets; five Key Connections that augment the Core Vision to address trends and emerging challenges while closing the gap between what can be accomplished through intensification of core planning strategies alone and what must be done to meet increasingly aggressive greenhouse gas reduction goals; as well as action-oriented transportation strategies and Sustainable Communities Strategy.

Core Vision

- Sustainable Development
- System Preservation and Resilience
- Demand & System Management
- Transit Backbone
- Complete Streets
- Goods Movement

Key Connections

- Smart Cities and Job Centers

- Housing Supportive Infrastructure
- Go Zones
- Accelerated Electrification
- Shared Mobility and Mobility as a Service

Transportation Strategies

- Preserve and Optimize Our Current System
 - Congestion Management
 - Congestion Pricing
 - Transportation Demand Management (TDM)
 - Transportation System Management (TSM)
- Completing Our Transportation System
 - Transit
 - Passenger Rail
 - Active Transportation
 - Transportation Safety
 - Highway and Arterial Network
 - Regional Express Lane Network
 - Goods Movement
 - Aviation
 - Technological Innovations and Emerging Technology

Sustainable Communities Strategy

- Focus Growth Near Destinations & Mobility Options
- Promote Diverse Housing Choices

- Leverage Technology Innovations
- Support Implementation of Sustainability Policies
- Promote a Green Region

Transportation Control Measures (TCMs)

Connect SoCal includes, as a subset of transportation strategies, SIP-committed transportation programs and projects that reduce vehicle use or change traffic flow or congestion conditions for the purposes of reducing emissions from transportation sources and improving air quality, better known as Transportation Control Measures or “TCMs.” In the South Coast Air Basin, TCMs include the following three main categories of transportation improvement projects and programs that have funding programmed for right-of-way and/or construction in the first two years of the 2023 FTIP:

1. Transit and non-motorized modes;
2. High Occupancy Vehicle (HOV) Lanes and their pricing alternatives; and
3. Information-based strategies (e.g., traffic signal synchronization).

Attachment A of Appendix IV-B is a list of transportation control measure projects that are from SCAG's 2023 FTIP and specifically identified and committed to in the 2024 PM2.5 SIP. Per the federal Clean Air Act (CAA), these committed TCMs are required to receive funding priority and be implemented in a timely manner. In the event that a committed TCM cannot be delivered or will be significantly delayed, there must be a substitution for the TCM. It is important to note that as the SCAG's FTIP is updated every two years, new committed TCMs are automatically added to the applicable SIP from the previous FTIP.

Plan Emissions Reduction Benefits

If the future vehicle fleet mix and emission factors are held constant as those in the Connect SoCal base year 2016, Connect SoCal is estimated to yield a reduction in NOx emissions by about 1-5.2.0 tons per day (tpd) in 2025, 45.1 tpd in 2035, and 6.98 tpd in 2045 compared with their respective Baselines without Connect SoCal. However, if accounting for mandated future improvement in vehicle fleet mix and emission factors, the estimated NOx emission reduction from Connect SoCal is reduced by 60-65 to 73-94 percent, because the vehicles as a whole are becoming much cleaner and reduction of every vehicle mile traveled from Connect SoCal yields less reduction in NOx emissions.

Plan Investment

The total expenditure for the various strategies in Connect SoCal is forecasted to be \$638.9 billion for the entire six-county SCAG region. Connect SoCal has identified the same amount of total revenues from both existing and several new funding sources that are reasonably expected to be available.

Cost-Benefit Analysis

Implementation of Connect SoCal will secure a safe, efficient, sustainable and prosperous future for the SCAG region. To demonstrate how effective Connect SoCal would be toward achieving our regional goals, SCAG conducted a Connect SoCal vs. Connect SoCal Baseline cost-benefit analysis utilizing the Cal-B/C Model to calculate regional network benefits – essentially comparing how the region would perform with and without implementation of the Connect SoCal.

Compared with the alternative without the Plan, Connect SoCal would result in significant benefits to our region, not only with respect to mobility and accessibility, but also in the areas of air quality, economic growth and job creation, sustainability and environmental justice. Altogether, the transportation investments in Connect SoCal will provide a return of two dollars for every dollar invested compared with the Baseline alternative.

Section III. TCM Best Available Control Measure (BACM) and Most Stringent Measure (MSM) Analysis

The South Coast Air Basin has been reclassified as a Serious nonattainment area under the 2012 PM_{2.5} NAAQS effective December 9, 2020. In addition, the South Coast AQMD's 2016 AQMP included a 2012 PM_{2.5} Serious Area SIP that demonstrated attainment by 2025. However, due to significant concerns raised by the United States Environmental Protection Agency (U.S. EPA) regarding the PM_{2.5} SIP in response to a lawsuit filed against U.S. EPA for failure to act on the SIP, the South Coast AQMD withdrew the SIP to prevent U.S. EPA disapproval and initiated the development of a new SIP. Further, the new SIP needs and will include a request to extend the attainment date to 2030 consistent with CAA Section 188(e) to allow more time for implementation. As a result, the South Coast Air Basin is required to implement BACMs and MSMs including TCMs for the control of direct PM_{2.5} and PM_{2.5} precursors from on-road mobile sources. This section serves as the TCM BACM and MSM component for the South Coast 2012 PM_{2.5} standard SIP.

Following the applicable U.S. EPA guidance and updating the previous TCM BACM analysis in the South Coast AQMD's 2016 AQMP that has received EPA approval, the TCM BACM and MSM analysis consists of a review of the on-going implementation of TCMs in the South Coast Air Basin, a review of TCM measures implemented in other Moderate and Serious PM_{2.5} nonattainment areas as well as Serious PM₁₀ nonattainment areas throughout the country, and a review of TCMs not implemented in the SCAG region. The analysis demonstrates that the TCM projects being implemented in the South Coast Air Basin are both the best available and the most stringent TCMs.

Section I. Introduction

Federal and State Requirements

The transportation conformity requirements of the federal CAA establish a need to integrate air quality planning and regional transportation planning. This integration presents the challenge of balancing the real need for improved mobility and accessibility with the equally important goal of cleaner air. As the federally-designated MPO for the six-county Southern California region, SCAG is required by law to ensure that transportation activities “conform” to, and are supportive of, the goals of regional and state air quality plans to attain the National Ambient Air Quality Standards (NAAQS). In other words, transportation plans, programs, and projects are required to not create new violations, worsen the existing violations, or delay timely attainment of relevant NAAQS.

In addition, SCAG is a co-producer, with the South Coast AQMD and CARB, of the AQMP/SIP for the South Coast Air Basin. SCAG has the responsibility of providing the demographic projections and integrated regional land use, housing, employment, and transportation programs, measures, and strategies, as well as analyzing and providing travel activity data related to its planning responsibilities (California Health and Safety Code §40460).

Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS)

The SCAG Region is the largest metropolitan planning area in the United States, encompassing 38,000 square miles. The region is divided into 15 subregions and is one of the largest concentrations of population, employment, income, business, industry and finance in the world. The six-county SCAG Region is home to about 19 million people, nearly half of the population of the State of California.

Federal and State regulations require SCAG, as the MPO and Regional Transportation Planning Agency, to develop an RTP/SCS every four years in order for our region's transportation projects to qualify for federal and state funding and approval. The RTP/SCS is updated to reflect changes in trends, progress made on projects, and to adjust the growth forecast for population and employment changes. The long-range RTP/SCS integrates land use and transportation strategies that will achieve CARB greenhouse gas emissions reduction targets and provides a vision for transportation investments throughout the region. Using growth forecasts and economic trends that project out over a period of more than 20 years, the RTP/SCS considers the role of transportation in the broader context of land use, economic, environmental, and quality-of-life goals for the future, identifying regional transportation strategies and Sustainable Communities Strategy to address our mobility needs, air quality and climate change challenges.

The RTP/SCS is developed through a collaborative process, guided by SCAG's governing board, the Regional Council, and its Policy Committees and Sub-committees, the Transportation Working Group, numerous technical advisory committees/working groups/task force, CTCs, subregions, local governments, state and

federal agencies, environmental and business communities, tribal governments, non-profit groups, as well as the general public.

Adopted by SCAG's Regional Council and approved by federal agencies, 2020 RTP/SCS or Connect SoCal is the currently conforming RTP/SCS for the SCAG region which includes the entire South Coast Air Basin.

The next 2024 RTP/SCS (Connect SoCal 2024) is currently under development. The Draft 2024 RTP/SCS was released for public review on November 2, 2023, and the Final 2024 RTP/SCS is scheduled to be adopted by SCAG's Regional Council in April 2024.

Federal Transportation Improvement Program (FTIP)

SCAG is also responsible for developing a biennial short-term (six year planning horizon) FTIP. SCAG develops the FTIP in partnership with the CTCs of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura, and California Department of Transportation (Caltrans) Districts 7, 8, 11, and 12. The FTIP is a multimodal list of capital improvement projects to be implemented over a six-year period. The FTIP identifies specific funding sources and fund amounts for each project. It is prioritized to implement the region's overall strategy for providing mobility and improving both the efficiency and safety of the transportation system, while supporting efforts to attain federal and state air quality standards for the region by reducing transportation related air pollution. The FTIP must include all federally funded transportation projects in the region, as well as all regionally significant transportation projects for which approval from federal funding agencies is required, regardless of funding source. The FTIP is developed to incrementally implement the programs and projects in the RTP/SCS. TCMs that are committed to in the applicable SIP are derived from the first two years of the prevailing FTIP.

Adopted by SCAG's Regional Council and approved by federal agencies, 2023 FTIP is the currently conforming FTIP for the SCAG region which includes the entire South Coast Air Basin.

Section II. Regional Transportation Plan/Sustainable Communities Strategy and Transportation Control Measures (TCMs)

Introduction

Connect SoCal is a long-range regional plan that provides a blueprint to integrate land use and transportation strategies to help achieve greater mobility and sustainable growth. Transportation projects in the SCAG region must be included in Connect SoCal in order to receive federal funding and approval. Connect SoCal is comprised of an Introduction, six Chapters and 20 Technical Reports listed below:

- Chapter 0: Making Connections
- Chapter 1: About the Plan
- Chapter 2: SoCal Today
- Chapter 3: A Path to Greater Access, Mobility & Sustainability
- Chapter 4: Paying Our Way Forward
- Chapter 5: Measuring Our Progress
- Chapter 6 Looking Ahead
- Active Transportation Technical Report
- Aviation and Airport Ground Access Technical Report
- Congestion Management Technical Report
- Demographics and Growth Forecast Technical Report
- Economic and Job Creation Analysis Technical Report
- Emerging Technology Technical Report
- Environmental Justice Technical Report
- Goods Movement Technical Report
- Highways and Arterials Technical Report

- Natural and Farm Lands Technical Report
- Passenger Rail Technical Report
- Performance Measures Technical Report
- Project List Technical Report
- Public Health Technical Report
- Public Participation and Consultation Technical Report
- Sustainable Communities Strategy (SCS) Technical Report
- Transit Technical Report
- Transportation Conformity Analysis Technical Report
- Transportation Finance Technical Report
- Transportation Safety and Security Technical Report

Connect SoCal represents the culmination of more than three years of work involving dozens of public agencies, 197 local jurisdictions in the SCAG region, hundreds of local, county, regional and state officials, the business community, environmental groups, as well as various nonprofit organizations, and was founded on a broad-based public outreach effort. The implementation of a comprehensive and coordinated public participation effort undertaken by SCAG is documented in the Public Participation and Consultation Technical Report.¹

Connect SoCal was adopted by the SCAG Regional Council on May 7, 2020, for transportation conformity purposes only and on September 3, 2020 for all purposes. Connect SoCal constitutes the transportation control strategy portion of the Final 2022 South Coast AQMP. A full list of the Connect SoCal projects can be found in the Project List Technical Report.²

Key Challenges in the Region

Our region is facing many formidable challenges related to affordable housing, natural and farmland conservation, transportation safety and security, public health, transportation system preservation and resilience, transportation access and mobility, funding the transportation system, and planning for

¹ https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocal_public-participation-consultation.pdf?1606001825

² https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocal_project-list_1.pdf?1606001744

disruption. For example, the region experiences significant travel delays (the time an average motorist spends stuck in traffic is 100 hours per year) and approximately 15 percent of the region's bridges are in poor condition. The SCAG region lost 21 percent of its farmland between 1984 (the year the farmland tracking began) and 2016. There are approximately 1,500 traffic fatalities annually. The annual cost of treating chronic disease (such as heart disease, strokes, chronic lower respiratory disease & diabetes) is \$16.7 billion. Climate change adversely impacts traditionally underserved communities and 77 percent of residents in a flood hazard zones are minority.

Another regional challenge is the region's inability to meet federal air quality standards. Although air quality has improved significantly over the past decades, the SCAG region still experiences the worst air quality in the country. Almost the entire SCAG region fails to meet the health-based federal air quality standards for one or more transportation-related air pollutants. In addition to public health impacts from unhealthy air quality, the challenge of meeting health based federal air quality standards has serious implications for the RTP/SCS, the FTIP and transportation projects in the SCAG region.

A particularly pressing challenge is for the South Coast Region to meet the 2023 statutory deadline of attaining the 1997 ozone standard. Pursuant to the federal CAA, a Contingency Measure Plan was developed jointly by the South Coast AQMD and the CARB and subsequently submitted to the U.S. EPA. The Contingency Measure Plan³ highlights the critical need for federal regulatory actions and/or funding to address emission sources under federal jurisdiction including aircraft, ships, trains and out-of-state trucks in order to meet the air quality standard. This is in addition to regulatory actions, programs and incentive funding South Coast AQMD and CARB have developed to achieve emission reductions.

If the U.S. EPA disapproves the Contingency Measure Plan, a federal sanctions clock will be triggered which will lead to federal highway sanctions if the underlying deficiency cannot be resolved within 24 months. Highway sanctions restrict federal funding to transportation projects that expand highway capacity, nonexempt project development activities and any other projects that do not explicitly meet exemption criteria. If imposed, highway sanctions have the potential to impact billions of dollars of federal funding and tens of billions of dollars of important transportation projects in the SCAG region.

Transportation, especially the goods movement sectors, contributes to the overwhelming majority of air pollutant emissions causing ozone pollution. A comprehensive and coordinated regional solution including aggressive regulations, advancements in clean technologies, innovative solutions, and integrated land use and transportation planning from all levels of government and all stakeholders will be required to achieve the needed emission reductions from the goods movement sectors.

³ South Coast AQMD, 2019, Contingency Measure Plan: Planning for Attainment of the 1997 80 ppb 8-Hour Ozone Standard in the South Coast Air Basin for the 1997 8-Hour Ozone NAAQS in the South Coast Air Basin, <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/1997-ozone-contingency-measure-plan/1997-8-hour-ozone-draft-contingency-measure-plan---120619.pdf?sfvrsn=10>

Finally, the emission of air pollutants come from a wide range of sources and may be transported downwind. Therefore, a mitigation strategy should be in place to assist impacted communities, even if the emissions are not being locally produced.

Regional Goals and Guiding Principles

The development of projects, programs, and strategies are guided by the following goals and guiding principles that help carry out Connect SoCal's vision for improved economy, mobility, environment and healthy/complete communities. The plan explicitly lays out goals related to housing, transportation technologies, equity and resilience in order to adequately reflect the increasing importance of these topics in the region, and where possible the goals have been developed to link to potential performance measures and targets. The plan's guiding policies take these goals and focus them, creating a specific direction for plan investments.

Connect SoCal Goals

1. Encourage regional economic prosperity and global competitiveness
2. Improve mobility, accessibility, reliability, and travel safety for people and goods
3. Enhance the preservation, security, and resilience of the regional transportation system
4. Increase person and goods movement and travel choices within the transportation system
5. Reduce greenhouse gas emissions and improve air quality
6. Support healthy and equitable communities
7. Adapt to a changing climate and support an integrated regional development pattern and transportation network
8. Leverage new transportation technologies and data-driven solutions that result in more efficient travel
9. Encourage development of diverse housing types in areas that are supported by multiple transportation options
10. Promote conservation of natural and agricultural lands and restoration of habitats

Connect SoCal Guiding Principles

1. Base transportation investments on adopted regional performance indicators and MAP-21/FAST Act⁴ regional targets
2. Place high priority for transportation funding in the region on projects and programs that improve mobility, accessibility, reliability and safety, and that preserve the existing transportation system
3. Assure that land use and growth strategies recognize local input, promote sustainable transportation options, and support equitable and adaptable communities
4. Encourage RTP/SCS investments and strategies that collectively result in reduced non-recurrent congestion and demand for single occupancy vehicle use, by leveraging new transportation technologies and expanding travel choices
5. Encourage transportation investments that will result in improved air quality and public health, and reduced greenhouse gas emissions
6. Monitor progress on all aspects of the Plan, including the timely implementation of projects, programs, and strategies
7. Regionally, transportation investments should reflect best-known science regarding climate change vulnerability, in order to design for long term resilience

Plan Strategies and Transportation Control Measures

To realize a more sustainable and connected region, Connect SoCal includes a Core Vision that centers on maintaining and better managing the transportation network for moving people and goods, while expanding mobility choices by locating housing, jobs and transit closer together and increasing investment in transit and complete streets; five Key Connections that augment the Core Vision to address trends and emerging challenges while closing the gap between what can be accomplished through intensification of core planning strategies alone and what must be done to meet increasingly aggressive greenhouse gas reduction goals; as well as action-oriented transportation strategies and Sustainable Communities Strategy.

⁴ MAP-21 (The Moving Ahead for Progress in the 21st Century Act) was a two-year federal transportation authorization bill signed into law in 2012. Replacing MAP-21 in 2015, FAST Act (The Fixing America's Surface Transportation Act) authorizes \$305 billion over fiscal years 2016 through 2020 for highway, highway and motor vehicle safety, public transportation, motor carrier safety, hazardous materials safety, rail, and research, technology, and statistics programs

Core Vision

Rooted in the 2008 and 2012 RTP/SCS plans, Connect SoCal's "Core Vision" centers on maintaining and better managing the transportation network we have for moving people and goods, while expanding mobility choices by locating housing, jobs and transit closer together and increasing investment in transit and complete streets. The Core Vision includes:

- **Sustainable Development:** Through our continuing efforts to better align transportation investments and land use decisions, we strive to improve mobility and reduce greenhouse gases by bringing housing, jobs and transit closer together.
- **System Preservation and Resilience:** "Fix it First" has been a guiding principle for prioritizing transportation funding in the RTP for the last decade. The cost of rebuilding roadways is eight times more than preventative maintenance. Preservation of the transportation system can extend the pavement life in a cost-effective manner and can also improve safety.
- **Demand & System Management:** Better managing the existing transportation system through demand management strategies and Intelligent Transportation Systems (ITS) yields significant mobility benefits in a cost-effective manner.
- **Transit Backbone:** Expanding the transit network and fostering development in transit-oriented communities is central to the region's plan for meeting mobility and sustainability goals while continuing to grow the regional economy.
- **Complete Streets:** Creating "complete streets" that are safe and inviting to all roadway users is critical to increasing mobility choices, reducing traffic fatalities and serious injuries and meeting greenhouse gas reduction targets.
- **Goods Movement:** The efficient movement of goods is critical to a strong economy and improves quality of life in the SCAG region by providing jobs and access to markets through trade. However, increased volumes of goods moving across the transportation system contribute to greater congestion, safety concerns and harmful emissions. It is critical to integrate land use decisions and technological advancements to minimize environmental and health impacts while fostering continued growth in trade and commerce.

Key Connections

Key Connections augment the Core Vision of the plan to address trends and emerging challenges while "closing the gap" between what can be accomplished through intensification of core planning strategies alone, and what must be done to meet increasingly aggressive greenhouse gas reduction goals. These Key Connections lie at the intersection of land use, transportation and innovation, aiming to coalesce policy

discussions and advance promising strategies for leveraging new technologies and partnerships to accelerate progress on regional planning goals. The Key Connections include:

- **Smart Cities and Job Centers:** Smart Cities connect people, vehicles and infrastructure, allowing them to communicate in “real-time” through regional telecommunications networks. The Smart Cities and Job Centers strategy aims to catalyze investments across sectors to make “virtual access” a cost-effective and reliable option for all types of trips, expanding the air quality, congestion and VMT reduction benefits the region already realizes through teleworking. While Smart Cities strategies can be deployed universally, virtual access is particularly beneficial in rural communities where destinations are far apart. Connect SoCal specifically envisions intensified deployment in sub-regional job centers to encourage more growth of both jobs and housing in areas with already high employment density. The Smart Cities and Job Centers strategy enables this by using integrated information and communication technologies to improve the efficiency and performance of the transportation system. It incorporates transit demand management (TDM) measures that encourage carpooling and transit, and parking strategies that reduce the cost to build new employment facilities within job centers. Also, this strategy builds upon promising trends in “co-working”⁵ to promote alternatives for long-distance commuters who prefer not to telecommute. Strengthening these locally significant employment centers allows the region to capitalize on the economic and mobility benefits of compact development, where housing and jobs are closer together.
- **Housing Supportive Infrastructure:** The extraordinary cost of producing housing is a significant barrier to growth throughout Southern California, but also specifically, to achieving the level of infill and transit-oriented development anticipated in Connect SoCal. The Regional Housing Supportive Infrastructure strategy will help make it quicker for local jurisdictions to produce critically-needed housing. The costs of building parking, and sewer/water infrastructure through Development Fees can range from 10 percent to nearly 25 percent of construction costs. By implementing tax-increment finance districts, jurisdictions can plan and implement housing supportive infrastructure. With the increase in use of ridesourcing, right-sizing parking strategies, enabled by technology, can reduce the overall cost of housing construction in Connect SoCal's Priority Growth Areas.
- **Go Zones:** Go Zones are geographic areas where a suite of mobility service options is provided together with incentives to reduce dependency on personal automobiles. This expanded mobility ecosystem can include increased transit, bike share, enhanced active transportation infrastructure and incentives—such as a fee on solo driving during peak traffic periods. Incentives would encourage the use of shared modes or shift less time sensitive trips to off-peak times. Revenues collected from the fee would be used to fund local transportation improvements and support sustainability goals by contributing to reductions in GHG emissions. Go Zones can be designed with policies and discounts that address equity concerns and promote mobility options for commuters of various income levels.

⁵ Co-working refers to the shared use of an office space by employees of several different firms as an alternative to a home office or traditional fixed workplace location

- **Accelerated Electrification:** The Accelerated Electrification strategy offers a holistic and coordinated approach to de-carbonizing or electrifying passenger vehicles, transit and goods movement vehicles. Through greater coordination and deeper collaboration, this strategy aims to go beyond benefits achieved through state mandates alone. In the light-duty sector, Connect SoCal plans for greater incentives to increase sales of electric vehicles and strategies to increase the availability of charging infrastructure. Electric vehicles (EVs) currently make up only seven percent of new car sales, but the growth is healthy: in 2013 EVs made up just 2.4 percent of all new car sales statewide. For transit, in 2018 the California Air Resources Board voted to mandate purchases of electric buses. We can facilitate that process by working with transit agencies to ensure adequate charging stations and electricity rates. In the goods movement sector, the goal is to achieve a zero-emissions system as soon as possible while fostering early adoption of near-zero-emissions technologies in the near-term.
- **Shared Mobility and Mobility as a Service:** The future of transportation, like so many aspects of living in our region, will be shaped by technology and the ability to customize our choices. The rise of shared mobility and mobility as a service will allow residents to choose how to travel, depending on the time, distance or goal of their trip. “Shared mobility” refers to a broad range of transportation options, such as rental e-scooters and e-bikes, ridesourcing services like Uber and Lyft that some transit operators are partnering to provide first/last mile services or replace low performing bus routes, and on-demand app-based transit connections provided by vans and shuttles. “Mobility as a service,” or MaaS, allows travelers to research and compare different transportation options from one screen and plan their trip accordingly. MaaS will also allow the traveler to book and pay for different segments of a multimodal trip with one click. This will make it increasingly critical that dense urban areas manage their curb space smartly, in order to ensure safe access for low-speed modes, ridesourcing providers, parking and local deliveries.

Transportation Strategies

The transportation strategies described in Connect SoCal are divided into two broad categories: Preserving and optimizing the region’s current and future system and capital improvements by mode for completing the region’s transportation system. In all, Connect SoCal includes \$638.9 billion in transportation system investments through 2045.

Preserve and Optimize Our Current System

A top priority for Connect SoCal is to maintain and preserve the transportation infrastructure through a “Fix it First” principle. Funding provided by Senate Bill 1 (SB 1) offers an opportunity to strategically reinvest in the transportation network to realize an improvement in the conditions of the existing system. Connect SoCal allocates approximately \$68 billion over the plan period to ensure a well maintained and resilient system for generations to come. Connect SoCal also seeks to optimize the existing transportation system to meet increased demand levels through the use of innovative strategies that leverage the existing transportation infrastructure. Key preservation and optimization strategies are:

Congestion Management Process. The Congestion Management Process (CMP) aims to provide effective management of the regional transportation system through monitoring and maintenance, demand reduction, analysis of local land use decisions, operational management strategies and strategic capacity enhancements. The CMP requires that roadway projects that significantly increase the capacity for single-occupancy Vehicles (SOVs) be addressed through a CMP. The CMP should provide an appropriate analysis of reasonable, multimodal travel demand reduction and operational management strategies for the corridor. If alternative strategies are neither practical nor feasible, appropriate management strategies must be considered for roadway capacity improvement projects that would increase SOV capacity.

Congestion Pricing. SCAG's planning efforts have focused on integrating pricing strategies to optimize operation, improve travel time reliability and offer travelers greater choices. Connect SoCal has identified three promising congestion pricing strategies: 1) Develop a network of express lanes to accommodate growing inter-county travel; 2) Establish a mileage-based user fees to generate a funding source for aging infrastructure and construction of other travel options; and 3) Develop Cordon/Area Pricing which involves charging a variable or fixed fee to drive into or within a highly congested area.

Transportation Demand Management. Transportation Demand Management (TDM) is a set of strategies that aims to reduce the demand for roadway travel, particularly from single-occupancy Vehicles (SOVs). Connect SoCal allocates \$7.3 billion through 2045 to implement TDM strategies throughout the region, including ridesharing and providing first/last mile services to and from transit, supporting telecommuting and alternative work schedules, as well as use of other modes such as transit, rail, bicycling, and walking, or other micro-mobility modes.

Transportation Systems Management. Transportation Systems Management (TSM) employs a series of techniques designed to maximize the capacity and efficiency of the existing transportation system. Examples of TSM strategies include Corridor System Management Plans (CSMPs) and system management initiatives (e.g., variable speed limits, signal synchronization, ramp metering, etc.), High Occupancy Toll (HOT) lanes, collision avoidance systems, universal transit fare cards and improved data collection.

Complete Our Transportation System

Strategies for improving and expanding the many modes of transportation that make up the regional network must be integrated closely with our strategies for how we use land. The success of transit, passenger rail, walking, bicycling and other forms of active transportation, our highways and arterials, the efficient movement of goods and our regional airport system all depend on a close relationship with how our region uses land and how we grow. This is particularly true when it comes to improving and building a transit system that can best serve people in communities throughout our region.

Transit. Since 1991, the region has spent more than \$77 billion on transit (in 2016 dollars). This trend is expected to continue, as the combined costs for transit capital projects and operations and maintenance (O&M) total nearly half of the investments in Connect SoCal. Connect SoCal includes significant investment across all transit modes, with \$66.8 billion toward transit capital projects, \$53.3 billion toward passenger rail, \$173.9 billion for transit O&M, and \$22.6 billion for passenger rail O&M from 2020 through 2045.

Passenger Rail. Connect SoCal vision for passenger rail in the SCAG region consists of four main elements: grow ridership, provide more frequent and new services, improve connectivity, and secure funding for Metrolink (commuter rail), Amtrak (intercity rail), and California High-Speed Rail and Southern California to Las Vegas (interregional rail).

Transportation Safety. Connect SoCal prioritizes the safety and mobility of the region's residents, including drivers and passengers, transit riders, pedestrians, and bicyclists. SCAG's Safety strategies are largely grounded in the State's Strategic Highway Safety Plan that helps member agencies interested in pursuing safety initiatives and strategies at the local level. SCAG outlines detailed strategies and actions that local jurisdictions and county transportation commissions can undertake to enhance safety in our region in the transportation safety and security report.

Active Transportation. Connect SoCal is expected to increase the number of people making active transportation trips by more than two million, increasing the mode share from 7.8 percent in 2016 to 10.4 percent in 2045. In order to achieve these outcomes, planned future investments are nearly doubled from \$12.9 billion in the 2016 RTP/SCS to \$22.5 billion in Connect SoCal. The active transportation investments in Connect SoCal are allocated across a range of active transportation strategies that address planning, policy making and implementation for both short and regional trips. Additionally, they are designed to improve environmental justice outcomes and enhance the safety and comfort of people walking and bicycling.

Highway and Arterial Network. Connect SoCal includes capital improvements that will address the choke points and gaps in the system, to ensure the system is operating optimally and provides adequate and equitable access to opportunities. Connect SoCal emphasizes working with partner implementing agencies to prioritize projects that preserve and optimize the existing highway and arterial network. Projects include interchange improvements, auxiliary lanes, general purpose lanes, carpool lanes, toll lanes and Express/HOT lanes.

Regional Express Lane Network. The regional express lane network integrates congestion pricing to optimize existing capacity on freeways and offer users greater travel time reliability and choices. The regional express lane network included in Connect SoCal builds on the successful implementation of the I-10 and I-110 Express Lanes in Los Angeles County and the recent extension of the SR-91 Express Lanes between Orange and Riverside Counties. Additional efforts underway include planned express lanes on the I-105 in Los Angeles County, the I-15 in Riverside County, the I-15 and the I-10 in San Bernardino County and the I-405 in Orange County and Los Angeles County.

Goods Movement. SCAG has developed key strategies to realize a regional vision that maintains regional economic competitiveness, promotes job creation and retention, increased freight mobility and safety, and mitigating environmental impacts. The key strategies include:

- Infrastructure investments to improve freight mobility

- Last mile freight
- Workforce development
- Truck bottleneck relief strategies
- Goods movement warehouse distribution
- Goods movement environmental strategies

Specific details of these goods movement strategies can be found in the Goods Movement Technical Report.⁶

Aviation. Connect SoCal focuses on air passenger and cargo activity from the perspective of how the traffic coming and going from the airports affects the region's roads, highways, and transit systems, and how to improve ground transportation access to the airport. Strategies include working with airports and transportation agencies on airport ground access projects, effective analysis and planning, and facilitating ongoing communication and collaboration between airports, transportation agencies and government.

Technological Innovations and Emerging Technologies. Emerging technologies in transportation and mobility are primarily developed and advanced by the private sector but can be accelerated and promoted by government regulation and incentives, and it is important that public agencies monitor the development of such innovations. Emerging technology in transportation and mobility are themes threaded throughout Connect SoCal. SCAG has completed wide-ranging analysis of recent and emerging technologies principally associated with light-duty vehicles that could potentially impact travel behavior and location choices in the region over the next 25 years.

SCAG recognizes that many new technologies provide consumer solutions and have made inroads in public acceptance due to advancements in smartphones, mobile banking, navigational apps and social networking. Improvements in regional mobility will therefore be derived from how technology is used rather than from any individual technological development. Moreover, strategies to use the benefits of emerging technologies to advance Connect SoCal goals should be viewed through the lens of improving health, safety, equity and mobility outcomes.

Sustainable Communities Strategy

As part of the state's mandate to reduce per-capita GHG emissions from automobiles and light trucks, Connect SoCal presents strategies and tools that are consistent with local jurisdictions' land use policies and incorporate best practices for achieving the state-mandated reductions in GHG emissions at the regional level through reduced per-capita vehicle miles traveled (VMT). The following strategies are

⁶ https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocal_goods-movement.pdf?1606001690

intended to be supportive of implementing the regional Sustainable Communities Strategy (SCS). Several are directly tied to supporting related GHG reductions while others support the broader goals of Connect SoCal:

Focus New Growth Near Destinations and Mobility Options

- Emphasize land use patterns that facilitate multimodal access to work, educational and other destinations
- Focus on a regional jobs/housing balance to reduce commute times and distances and expand job opportunities near transit and along center-focused main streets
- Plan for growth near transit investments and support implementation of first/last mile strategies
- Promote the redevelopment of underperforming retail developments and other outmoded nonresidential uses
- Prioritize infill and redevelopment of underutilized land to accommodate new growth, increase amenities and connectivity in existing neighborhoods
- Encourage design and transportation options that reduce the reliance on and number of solo car trips (this could include mixed uses or locating and orienting close to existing destinations)
- Identify ways to “right size” parking requirements and promote alternative parking strategies (e.g. shared parking or smart parking)

Promote Diverse Housing Choices

- Preserve and rehabilitate affordable housing and prevent displacement
- Identify opportunities for new workforce and affordable housing development
- Create incentives and reduce regulatory barriers for building context-sensitive accessory dwelling units to increase housing supply
- Provide support to local jurisdictions to streamline and lessen barriers to housing development that supports reduction of greenhouse gas emissions

Leverage Technology Innovations

- Promote low emission technologies such as neighborhood electric vehicles, car sharing, bike sharing and scooters by providing supportive and safe infrastructure such as dedicated lanes, charging and parking/drop-off space

- Improve access to services through technology such as telework and telemedicine as well as commuter incentives such as a “mobility wallet”, an app-based system for storing transit and other multi-modal payments
- Identify ways to incorporate “micro-power grids” in communities, for example solar energy, hydrogen fuel cell power storage and power generation

Support Implementation of Sustainability Policies

- Pursue funding opportunities to support local sustainable development implementation projects that reduce greenhouse gas emissions
- Support statewide legislation that reduces barriers to new construction and that incentivizes development near transit corridors and stations
- Support cities in the establishment of Enhanced Infrastructure Financing Districts (EIFDs), Community Revitalization and Investment Authorities (CRIAs), or other tax increment or value capture tools to finance sustainable infrastructure and development projects
- Work with local jurisdictions/communities to identify opportunities and assess barriers to implement sustainability strategies
- Enhance partnerships with other planning organizations to promote resources and best practices in the SCAG region
- Continue to support long range planning efforts by local jurisdictions
- Provide educational opportunities to local decisions makers and staff on new tools, best practices and policies related to implementing the Sustainable Communities Strategy

Promote a Green Region

- Support development of local climate adaptation and hazard mitigation plans, as well as project implementation that improves community resiliency to climate change and natural hazards
- Support local policies for renewable energy production, reduction of urban heat islands and carbon sequestration
- Integrate local food production into the regional landscape
- Promote more resource efficient development focused on conservation, recycling and reclamation
- Preserve, enhance and restore regional wildlife connectivity

- Reduce consumption of resource areas, including agricultural land
- Identify ways to improve access to public park space

Transportation Control Measures (TCMs)

Connect SoCal includes, as a subset of transportation strategies, SIP-committed transportation programs and projects that reduce vehicle use or change traffic flow or congestion conditions for the purposes of reducing emissions from transportation sources and improving air quality, better known as Transportation Control Measures or “TCMs.” TCMs are either one of the types listed in CAA section 108, or any other measures for the purpose of reducing emissions or concentrations of air pollutants from transportation sources by reducing vehicle use or changing traffic flow or congestion conditions. Pursuant to U.S. EPA’s Transportation Conformity Regulations, vehicle technology-based, fuel-based, and maintenance-based measures which control the emissions from vehicles under fixed traffic conditions are not TCMs. In the South Coast Air Basin, TCMs include the following three main categories of transportation improvement projects and programs that have funding programmed for right-of-way and/or construction in the first two years of the 2023 FTIP:

1. Transit and non-motorized modes;
2. High Occupancy Vehicle (HOV) Lanes their pricing alternatives; and
3. Information-based Transportation Strategies.

Connect SoCal includes TCM type projects throughout the entire planning horizon (i.e., 2045) and are all part of the regional transportation strategy for the 2024 PM2.5 SIP. Those TCM type projects which have funding programmed for right of way or construction in the first two years of the prevailing FTIP are considered “committed” for air quality planning purposes in the applicable SIP. Per U.S. EPA’s Transportation Conformity Regulations, these committed TCMs are required to receive funding priority and be implemented in a timely manner. In the event that a committed TCM cannot be delivered or will be significantly delayed, the TCM must be substituted for. It is important to note that as the SCAG’s FTIP is updated every two years, new committed TCMs are automatically added to the applicable SIP from the previous FTIP. As a result of the TCM “rollover process,” thousands of committed TCM projects have been implemented over the last two decades. The “rollover” of TCMs updates the AQMPs/SIPs to include new projects in addition to ongoing projects from previous FTIPs. As the FTIP gets adopted every two years, new TCMs emerge and completed TCMs get removed.

Plan Emissions Reduction Benefits

Based on the travel activity projections generated from SCAG’s Regional Travel Demand Model, an estimate of emissions associated with on-road mobile sources can be generated using CARB’s Emission Factor Model (EMFAC). Through this process, future emissions from on-road mobile sources can be

compared for the regional transportation system assuming implementation of the Connect SoCal versus the baseline (without Connect SoCal implementation). It is generally understood that potential future improvements in air quality deriving from Connect SoCal will likely be much smaller, since motor vehicle emissions have and will continue to be substantially reduced through technology (i.e., emission standards for new engines and in-use standards for existing fleets).

Under two different assumptions on future vehicle technology, Tables IV-B-1 and IV-B-2 compare VOC (ROG), ~~and~~ NOx, and PM2.5 emissions between implementation of Connect SoCal and the Connect SoCal Baseline⁷ for the following years: 2025, 2035, and 2045. Specifically, the emission reduction benefits shown in Table IV-B-1 are based on the assumption that the EMFAC2021~~17~~ vehicle fleet mix and emission factors in the future years remain the same as in 2016 (the Connect SoCal base year); while the emission reduction benefits shown in Table IV-B-2 factor in the future improvements in the fleet mix and emission factors as reflected in the EMFAC2021~~17~~. Note that the Connect SoCal emission reductions in Tables IV-B-1 and IV-B-2 are not double-counted toward the emission reductions presented in the main report of the 2024 PM2.5 SIP because Connect SoCal is considered in the SIP air quality modeling baseline.

As shown in Table IV-B-1, if the future vehicle fleet mix and emission factors are held constant as those in the Connect SoCal base year 2016, Connect SoCal is estimated to yield a reduction in NOx emissions by about ~~1.5~~ 2.0 tons per day (tpd) in 2025, ~~45.1~~ tpd in 2035, and ~~6.98~~ tpd in 2045 compared with their respective Baselines without Connect SoCal. However, if accounting for mandated future improvement in vehicle fleet mix and emission factors, the estimated NOx reduction from Connect SoCal is reduced substantially by more than half ~~65 percent in 2025 to more than 94 percent in 2045~~, as shown in Table IV-B-2, because the vehicles as a whole are becoming much cleaner and reduction of every vehicle mile traveled from Connect SoCal yields less NOx reduction.

⁷ Connect SoCal Baseline is defined as the future transportation system that will result from current programs without Connect SoCal's land use and transportation strategies. For Connect SoCal, the Baseline is based upon the adopted 2019 FTIP

TABLE IV-B-1
REGIONAL TRANSPORTATION EMISSIONS (ANNUAL AVERAGE) (TONS PER DAY)
ASSUMING CONSTANT 2016 VEHICLE FLEET MIX AND EMISSION FACTORS

	VOC (ROG)			NO _x			PM _{2.5}		
	2025	2035	2045	2025	2035	2045	2025	2035	2045
Connect SoCal	97.2 ^{107.5}	99.9 ^{105.3}	103.4 ^{105.6}	227.2 ^{232.9}	248.9 ^{224.9}	280.5 ^{225.3}	6.2	6.1	6.2
Connect SoCal Baseline	99.0 ^{109.5}	104.2 ^{110.0}	110.0 ^{106.6}	228.8 ^{235.0}	253.0 ^{230.0}	287.3 ^{232.2}	6.3	6.2	6.4
Connect SoCal Reduction	1.8 ^{-2.0}	4.4 ^{-4.7}	6.5 ^{-1.0}	1.5 ^{-2.0}	4.1 ^{-5.1}	6.8 ^{-6.9}	-0.1	-0.2	-0.2

Note: Calculated with EMFAC2017 Emission Model

Note: Calculated with EMFAC2021 Emission Model; PM_{2.5} emissions do not include fugitive dust.

TABLE IV-B-2
REGIONAL TRANSPORTATION EMISSIONS (ANNUAL AVERAGE) (TONS PER DAY)
BASED ON VEHICLE FLEET MIXES AND EMISSION FACTORS AS REFLECTED IN
EMFAC2017EMFAC2021

	VOC (ROG)			NO _x			PM _{2.5}		
	2025	2035	2045	2025	2035	2045	2025	2035	2045
Connect SoCal	51.1 ^{59.3}	36.5 ^{42.2}	31.8 ^{36.3}	80.7 ^{75.2}	66.6 ^{44.2}	71.5 ^{37.4}	3.9	3.6	3.7
Connect SoCal Baseline	52.0 ^{60.3}	38.1 ^{44.0}	33.8 ^{36.4}	81.4 ^{75.9}	67.7 ^{45.2}	73.4 ^{37.8}	3.6	3.8	3.7
Connect SoCal Reduction	0.9 ^{-1.0}	1.6 ^{-1.8}	2.0 ^{-0.1}	0.6 ^{-0.7}	1.1 ^{-1.0}	2.0 ^{-0.4}	-0.1	-0.1	0.0

Note: Calculated with EMFAC2017 Emission Model

Note: Calculated with EMFAC2021 Emission Model; PM_{2.5} emissions do not include fugitive dust.

TCM Emissions Reduction Benefits

To estimate the emission benefits of TCMs, the socio-economic data variables of Connect SoCal were held constant while the transportation network was modified to account for the TCMs in Connect SoCal (both TCM-type projects and committed TCMs). In other words, the TCM emissions reduction benefits are the difference between Connect SoCal with TCMs and Connect SoCal without TCMs. It should be noted that this analysis is done for illustrative purposes, as the regional transportation strategy is appropriately viewed on a systems-level basis, and not by its components since each of the individual transportation improvements and strategies affect each other and the system. Further, it should be noted that the TCM emission reductions in Tables IV-B-3 and IV-B-4 are not double-counted toward the emission reductions

presented in the main report of the 2024 PM_{2.5} SIP because the TCMs are part of Connect SoCal which is considered in the SIP air quality modeling baseline.

Under the same two different assumptions on future vehicle technology, Tables IV-B-3 and IV-B-4 show the results of the TCM modeling analysis for years 2021 and 2035 (which covers the 2012 PM_{2.5} Serious attainment year of 2025 and the extended attainment year of 2030). Specifically, the emission reduction benefits shown in Table IV-B-3 are based on the assumption that the EMFAC2021~~17~~ vehicle fleet mix and emission factors in the future years remain the same as in 2016 (the Connect SoCal base year); while the emission reduction benefits shown in Table IV-B-4 factor in the future improvement in the fleet mix and emission factors as reflected in the EMFAC2021~~17~~.

As shown in Tables IV-B-3 and IV-B-4 and compared to previous AQMPs/SIPs, potential future improvements in air quality deriving from TCMs are consistently diminishing for two reasons. On one hand, motor vehicle emissions have and will continue to be substantially reduced through technology. On the other hand, most of the TCM projects in the South Coast Air Basin have been adopted into the SIP and have already been implemented. Thus, the emission reductions associated with these projects are now included in the Connect SoCal baseline emissions and no longer show up in the TCM benefit values.

TABLE IV-B-3
TCM EMISSIONS (ANNUAL AVERAGE) (TONS PER DAY)
ASSUMING CONSTANT 2016 VEHICLE FLEET MIX AND EMISSION FACTORS

	VOC (ROG)		NO _x		PM _{2.5}	
	2021	2035	2021	2035	<u>2021</u>	<u>2035</u>
Connect SoCal	96.6 <u>109.2</u>	99.9 <u>105.3</u>	215.8 <u>225.6</u>	268.0 <u>224.9</u>	<u>6.0</u>	<u>6.1</u>
Connect SoCal without TCM	97.1 <u>109.9</u>	101.1 <u>106.6</u>	216.2 <u>231.9</u>	269.3 <u>226.3</u>	<u>6.2</u>	<u>6.1</u>
TCM Reduction	0.5 <u>-0.7</u>	1.2 <u>-1.3</u>	0.4 <u>-6.3</u>	1.3 <u>-1.4</u>	<u>-0.2</u>	<u>-0.1</u>

Note: Calculated with EMFAC2017 Emission Model

Note: Calculated with EMFAC2021 Emission Model; PM_{2.5} emissions do not include fugitive dust.

TABLE IV-B-4
TCM EMISSIONS (ANNUAL AVERAGE) (TONS PER DAY)
BASED ON VEHICLE FLEET MIXES AND EMISSION FACTORS AS REFLECTED IN ~~EMFAC2017~~
EMFAC2021

	VOC (ROG)		NOx		PM2.5	
	2021	2035	2021	2035	2021	2035
Connect SoCal	63.9 <u>75.1</u>	36.5 <u>42.2</u>	119.7 <u>116.0</u>	66.6 <u>44.2</u>	<u>4.3</u>	<u>3.6</u>
Connect SoCal without TCM	64.2 <u>75.4</u>	36.9 <u>42.7</u>	120.0 <u>117.8</u>	66.9 <u>44.5</u>	<u>4.3</u>	<u>3.7</u>
TCM Reduction	0.3 <u>-0.3</u>	0.4 <u>-0.4</u>	0.3 <u>-1.8</u>	0.3 <u>-0.3</u>	<u>0.0</u>	<u>0.0</u>

Note: Calculated with EMFAC2017 Emission Model

Note: Calculated with EMFAC2021 Emission Model; PM2.5 emissions do not include fugitive dust.

Plan Investment

To accomplish the ambitious goals of Connect SoCal through 2045, SCAG forecasts expenditures of \$638.9 billion. Forecasted revenues comprise both existing and several new funding sources that are reasonably expected to be available for Connect SoCal through its horizon year of 2045, which together total \$638.9 billion. Reasonably available revenues include adjustments to federal gas tax rates, and replacement of gas taxes with more direct mileage-based user fees (or equivalent fuel tax adjustment). These and other categories of funding sources were identified as reasonably available on the basis of their potential for revenue generation, historical precedence and the likelihood of their implementation within the time frame of Connect SoCal. In accordance with federal guidelines, the Connect SoCal includes strategies for ensuring the availability of these sources.

Cost-Benefit Analysis

Implementation of Connect SoCal will secure a safe, efficient, sustainable and prosperous future for the SCAG region. To demonstrate how effective Connect SoCal would be toward achieving our regional goals, SCAG conducted a Connect SoCal vs. Connect SoCal Baseline cost-benefit analysis – essentially comparing how the region would perform with and without implementation of the Connect SoCal.

The cost-benefit analysis utilizes the Cal-B/C Model to calculate regional network benefits. It calculates and aggregates scenario benefits after travel impacts are evaluated using a regional travel demand model. SCAG's regional travel demand model data for Connect SoCal was summarized in one mile per hour (1-mph) speed bins to facilitate analysis. The benefit/cost ratio compares the incremental benefits with the incremental costs of multimodal transportation investments. The benefits are divided into the following four categories:

- Travel time savings resulting from reduced travel delay

- Air quality improvements
- Safety improvements
- Reductions in vehicle operating costs

For these categories, the economic values and parameters found in Cal-B/C Model are utilized in conjunction with SCAG's regional travel demand model outputs to estimate the benefits of Connect SoCal compared with the Baseline alternative. Most of these benefits are a function of changes in VMT and Vehicle Hours Traveled (VHT). Not all impacts are linear, as reductions in congestion may potentially either increase or decrease vehicle operating costs and emissions. Delay savings are reflected directly in the VHT statistics.

To estimate the benefit/cost ratio, the benefits in each category are converted into dollars and added together. These are then divided by the total incremental costs of the Connect SoCal transportation system investments to generate a ratio.

The results of the benefit/cost analysis indicate that the investments contained in Connect SoCal provide a return of \$2.06 for every dollar invested. For this analysis, all benefits and costs are expressed in 2016 dollars. Benefits are estimated over the 25-year Connect SoCal planning period from 2020 to 2045. The user benefits are estimated using the Cal-B/C benefit/cost framework and incorporate SCAG Regional Travel Demand Model outputs. The costs include the incremental capital expenditures over the entire Connect SoCal planning period. Further information on the economic values represented in the Cal-B/C Model can be found at the following:

<https://dot.ca.gov/programs/transportation-planning/economics-data-management/transportation-economics>

Compared with the alternative without the Plan, Connect SoCal would result in significant benefits to our region, not only with respect to mobility and accessibility, but also in the areas of air quality, economic growth and job creation, sustainability and environmental justice. Some of the benefits of Connect SoCal implementation include:

- Increase the combined percentage of work trips made by carpooling, active transportation, and public transit by 3 percent, with a commensurate reduction in the number of commuters traveling by single-occupancy vehicle.
- Reduce VMT per capita by 5 percent and vehicle hours traveled per capita by 9 percent (for automobiles and light/medium-duty trucks) as a result of regional transit service.
- Increase transit use for work trips by 2 percent, as a result of improved transit service and more transit-oriented, mixed-use development.
- Reduce travel delay per capita by 26 percent.

- Create more than 264,500 new jobs annually due to enhanced economic competitiveness and improved overall regional economic performance. This more competitive economic environment would be the result of an improved regional transportation system and reduced levels of congestion.
- Reduce greenfield development by 29 percent. Conservation of open space and agricultural lands are achieved by focusing new residential and commercial development in higher density areas already equipped with the requisite urban infrastructure.
- Increase the share of new regional household growth occurring in High Quality Transit Areas (HQTAs) by 6 percent, and increase the share of new job growth in HQTAs by about 15 percent. With more people living and working in locations near convenient and efficient transit options, congestion levels will be reduced accordingly.

Connect SoCal prioritizes the attainment of all applicable federal and state performance requirements. The plan meets all federal and state performance requirements. The plan meets all federal provisions for transportation conformity as defined under the federal CAA and therefore demonstrates transportation conformity. Connect SoCal achieves per capita GHG emission reductions relative to 2005 levels of eight percent in 2020, and 19 percent in 2035, thereby meeting the GHG reduction targets established by the California Air Resources Board (ARB) for the SCAG region.

For more details of the cost-benefit analysis of Connect SoCal, please refer to 1) Chapter 5: Measuring Our Progress, 2) Economic and Job Creation Analysis Technical Report, and 3) Performance Measures Technical Report (<https://scag.ca.gov/read-plan-adopted-final-plan>).

Section III. TCM Best Available Control Measure (BACM)/Most Stringent Measure (MSM) Analysis

Introduction

The South Coast Air Basin has been reclassified as a Serious nonattainment area under the 2012 fine particulate matter (PM_{2.5}) NAAQS, effective December 9, 2020. Additionally, the South Coast AQMD's 2016 AQMP included a 2012 PM_{2.5} Serious Area SIP that demonstrated attainment by 2025. However, due to significant concerns raised by the US EPA regarding the PM_{2.5} SIP in response to a lawsuit filed against U.S. EPA for failure to act on the SIP, the South Coast AQMD withdrew the SIP to prevent U.S. EPA disapproval and initiated the development of a new SIP. Furthermore, the new SIP needs and will include a request to extend the attainment date to 2030, consistent with CAA Section 188(e), to allow more time for implementation. As a result, the South Coast Air Basin is required to implement BACM and MSM, including TCM, for the control of direct PM_{2.5} and PM_{2.5} precursors from on-road mobile sources. This section serves as the TCM BACM and MSM component for the South Coast 2012 PM_{2.5} standard SIP.

While there is not a formal federal guidance on TCM BACM or MSM, the U.S. EPA has provided general guidance on the process of identifying measures that constitute BACM and MSM for PM_{2.5} nonattainment areas based on Subpart 4, as described in its proposed rule for implementing the 2012 PM_{2.5} NAAQS. The rule was finalized and published in the Federal Register on August 24, 2016.⁸

The final rule establishes the following four-step PM_{2.5} BACM/BACT selection process mirroring the four-step PM₁₀ BACM/BACT selection process for PM₁₀ Serious nonattainment areas:

Step 1: Develop a comprehensive inventory of sources and source categories of directly emitted PM_{2.5} and PM_{2.5} precursors.

Step 2: Identify potential control measures.

Step 3: Determine whether an available control measure or technology is technologically feasible.

Step 4: Determine whether an available control technology or measure is economically feasible.

U.S. EPA's final PM_{2.5} rule clarifies that BACM is generally independent of attainment to reaffirm U.S. EPA's past interpretation of BACM as "those measures that best control sources' emissions without regard to whether such measures are needed for the purposes of attainment of the relevant NAAQS." In other words, "the test for BACM puts a 'greater emphasis on the merits of the measure or technology alone,' rather than on 'flexibility in considering other factors,' in contrast to the approach for determining RACM." BACM "should represent a more stringent and potentially more costly level of control" compared with RACM. U.S. EPA expects the BACM analysis, at least, to examine all measures analyzed in the RACM analysis. In addition, BACM should include control measures "not previously considered RACM for the area, as well as additional measures not previously evaluated in the RACM/RACT analysis." To identify new measures for consideration in a BACM analysis, U.S. EPA recommends evaluation of both existing and potential control measures from a wide range of sources such as other PM nonattainment areas throughout the country as well as summaries of control measures developed by regional planning organizations, state and local air quality consortia.

The final rule also establishes a four-step process for determining MSM, similar to the process for determining BACM but applying more stringent feasibility criteria with longer implementation timeline:

Step 1: Update emissions inventories;

Step 2: Identify potential MSM;

Step 3: Compare MSM to control measures already adopted in the SIP for the nonattainment area; and

⁸ 81 FR 58010, August 24, 2015 (<https://www.gpo.gov/fdsys/pkg/FR-2016-08-24/pdf/2016-18768.pdf>)

Step 4: Adopt and implement any MSM that are more stringent than any measures that are already approved into the SIP.

Significantly, the final rule clarifies that the MSM requirement may not result in more controls or more emissions reductions than those resulting from the implementation of BACM, because BACM represents the best level of control feasible. Nonetheless, the final rule further clarifies that any measures that were rejected during the BACM analysis are required to be reanalyzed to see if they are feasible given the extended attainment date or improved feasibility overtime.

Additional guidance on issues to be considered in a TCM BACM and MSM demonstration can be found in the proposed or final actions that U.S. EPA has recently promulgated over various Serious area PM_{2.5} SIPs, particularly those for the South Coast Air Basin and the San Joaquin Valley.

Effective March 14, 2019, U.S. EPA issued its final approval⁹ of the TCM BACM demonstration under the 2006 PM_{2.5} NAAQS Serious classification as part of its final approval of portions of the South Coast AQMD's 2016 AQMP, as detailed in the U.S. EPA's proposed action¹⁰ on October 3, 2018. In its evaluation and approval of the TCM BACM demonstration, U.S. EPA highlighted two primary justifications: (1) A standardized program has been adopted by SCAG to continuously select and fund cost effective TCMs; and (2) The significant increase in funding for TCMs is guaranteed within the SIP implementation timeframe and beyond by the local transportation sales tax measures in the four counties in the South Coast air basin. U.S. EPA also acknowledged that SCAG's four-step TCM BACM analysis approach below is consistent with EPA guidance:

- 1) A review of the on-going implementation of TCMs in the South Coast;
- 2) A review of TCMs implemented in other moderate and serious PM_{2.5} and serious PM₁₀ nonattainment areas throughout the country;
- 3) A review of TCM measures that are not implemented in the SCAG region and the justifications for not implementing them; and
- 4) TCM BACM conclusions.

It is important to note that, as stated in the 2016 AQMP Appendix IV-C, SCAG's TCM BACM demonstration in the 2016 AQMP was prepared to address both the 2006 PM_{2.5} and the 2012 PM_{2.5} NAAQS Serious classification.

On March 27, 2020, U.S. EPA proposed to approve the TCM BACM and MSM demonstration in the San Joaquin Valley's Serious Area PM_{2.5} SIP to address the 2006 PM_{2.5} standards.¹¹ In the proposed rule, due

⁹ 84 FR 3305, February 12, 2019 (<https://www.govinfo.gov/content/pkg/FR-2019-02-12/pdf/2019-01922.pdf>)

¹⁰ 83 FR 49872, October 3, 2018 (<https://www.govinfo.gov/content/pkg/FR-2018-10-03/pdf/2018-21560.pdf>)

¹¹ 85 FR 17382, May 12, 2020 (<https://www.govinfo.gov/content/pkg/FR-2020-05-12/pdf/2020-09731.pdf>)

to “substantial overlap in the source categories and controls evaluated for BACM and those evaluated for MSM,” U.S. EPA presented their evaluation of the TCM BACM and TCM MSM together.

The U.S. EPA’s evaluation of TCMs in the PM_{2.5} SIP cited that: (1) The current efforts of the eight MPOs to implement cost-effective TCMs following the Congestion Mitigation and Air Quality (CMAQ) cost effectiveness policy adopted by the MPOs and in the development of each RTP in the San Joaquin Valley; (2) The adopted policy provides a standardized process for distributing 20 percent of the CMAQ funds to projects that meet a minimum cost-effectiveness threshold, beginning in fiscal year 2011; and (3) The MPOs reevaluated the minimum cost-effectiveness standard during the development of their 2018 RTPs and 2019 FTIPs and concluded that they were implementing all reasonable TCMs. The U.S. EPA’s review concluded that “these TCMs implement BACM and MSM for transportation sources” in the San Joaquin Valley, because the evaluation process followed by the Air District to identify potential TCM BACM and MSM are generally consistent with the PM_{2.5} SIP Requirements Rule; District’s evaluation of potential TCM is appropriate; The District have provided reasoned justifications for their rejection of potential measures based on technological or economic infeasibility. However, it is important to note that the TCM BACM and MSM demonstration is not included in EPA’s final approval, effective August 21, 2020, of the San Joaquin Valley’s Serious Area PM_{2.5} Plan to address the 2006 PM_{2.5} standards.¹²

On July 14, 2023, U.S. EPA published in the Federal Register its proposed approval of portions of the San Joaquin Valley’s Serious Area PM_{2.5} Plan to address the 1997 PM_{2.5} standards including the TCM BACM demonstration.¹³ The U.S. EPA’s review of TCM in the 1997 PM_{2.5} SIP notes that: (1) The current efforts of the eight MPOs to implement cost-effective TCMs following the Congestion Mitigation and Air Quality (CMAQ) cost effectiveness policy adopted by the MPOs and in the development of each RTP in the San Joaquin Valley; (2) The adopted policy provides a standardized process for distributing 20 percent of the CMAQ funds to projects that meet a minimum cost effectiveness threshold beginning in fiscal year 2011; and (3) The MPOs reevaluated the minimum cost effectiveness standard during the development of their 2018 RTPs and 2019 FTIPs and concluded that they were implementing all reasonable TCMs. The U.S. EPA’s review concluded that “these TCMs implement BACM for transportation sources,” because the evaluation process followed by the District to identify potential TCM BACM are generally consistent with the PM_{2.5} SIP Requirements Rule; District’s evaluation of potential TCM is appropriate; The District have provided reasoned justifications for their rejection of potential measures based on technological or economic infeasibility; And all reasonable TCMs are being implemented and additional TCMs are being considered by the MPOs as part of the CMAQ cost effectiveness policy. U.S. EPA also acknowledged strategies adopted by the MPOs to meet their SB375 greenhouse gas reduction targets.

Based on the applicable U.S. EPA guidance outlined above and primarily following the approach of the approved TCM BACM demonstration in the South Coast AQMD’s 2016 AQMP, the following five-step approach is used to determine BACM and MSM for TCMs in the South Coast Air Basin:

¹² 85 FR 44192, July 22, 2020 (<https://www.govinfo.gov/content/pkg/FR-2020-07-22/pdf/2020-14471.pdf>)

¹³ 88 FR 45276, July 14, 2023 (<https://www.govinfo.gov/content/pkg/FR-2023-07-14/pdf/2023-14687.pdf>)

- 1) A review of emission reductions from implementation of TCMs in the South Coast;
- 2) A review of the on-going implementation of TCMs in the South Coast;
- 3) A review of TCMs implemented in other moderate and serious PM_{2.5} and serious PM₁₀ nonattainment areas throughout the country;
- 4) A review of TCM measures that are not implemented in the SCAG region and the justifications for not implementing them; and
- 5) TCM BACM and MSM conclusions.

Review of Emission Reduction from Implementation of TCMs in the South Coast

Although it is for illustrative purposes, the implementation of all TCMs in the South Coast is roughly estimated to yield a reduction of only about 0.3-0.4 tpd of VOC or NO_x emissions annually from 2021 through 2035. The analysis and the reasons behind such a moderate and decreasing TCM impact is detailed under the subsection “TCM Emissions Reduction Benefits” under the previous Section II. Regional Transportation Plan/Sustainable Communities Strategy and Transportation Control Measures (TCMs).

Given the nature of TCMs as either one of the types listed in CAA section 108, or any other measures to reduce vehicle use or change traffic flow or congestion conditions, the potential effect of TCMs is likely to be further reduced overtime in California, particularly in the South Coast region. This is primarily thanks to the increasingly stringent regulatory requirements and higher incentives offered by both the ARB and the South Coast AQMD to accelerate zero-emission transformation of personal transportation in the near future and goods movement over the longer term.

Review of On-Going Implementation of TCMs in the South Coast Air Basin

In the South Coast Air Basin, TCM projects and programs are defined in the following three main categories per the applicable SIPs as documented in the SCAG’s Final 2023 FTIP Guidelines:

- Transit, Intermodal Transfer Facilities, and Non-motorized Transportation Mode Facilities
- High Occupancy Vehicle (HOV) Lanes, High Occupancy Toll (HOT) Lanes, and their pricing alternatives
- Information-based Transportation Strategies

TCM Selection and TCM Rollover Process – TCMs in the South Coast Air Basin are developed¹⁴ through a continuous and exhaustive process that replaced a typical process that developed TCMs each time a SIP was produced. Projects identified as TCMs in the RTP/SCS are tracked as they get programmed in the FTIP. Only projects that have money programmed for right-of-way and/or construction in the first two years of the FTIP are considered TCMs subject to the Clean Air Act timely implementation requirements. Approximately every two years, as the FTIP is updated, additional TCMs will be added to the South Coast AQMPs/SIPs based on the new FTIP and the FTIP Guidelines. The “rollover” of TCMs automatically updates the AQMPs/SIPs to include new projects in addition to ongoing projects from previous FTIPs. The “rollover” is monitored for adherence to the schedule established in the FTIP at the time a project is identified as a committed TCM. The identification of TCMs from the FTIP is agreed upon by both SCAG and the appropriate CTCs. As the FTIP gets adopted every two years, new TCMs emerge and completed TCMs get removed. This rollover process was included in the 1994 SIP and approved by the US EPA. The rollover process has been refined in the FTIP Guidelines adopted with every FTIP. The rollover process has worked remarkably well, and has resulted in hundreds of TCMs being implemented/constructed. Thus, the rollover process produces much more than RACM would produce and meets both BACM and MSM. This rollover process ensures that RTP/SCS projects that are potential TCMs will, through the rollover process, eventually become committed TCMs.

To illustrate the extraordinary past and future impact of the TCM rollover process, Table IV-B-4 summarizes the magnitude of major TCM infrastructure in the following four years:

- 2020: first year of the 2020 RTP/SCS
- 2025: statutory attainment year of 2012 PM_{2.5} standards serious nonattainment area
- 2030: extended attainment year of 2012 PM_{2.5} standards Serious nonattainment area
- 2045: planning horizon year of 2020 RTP/SCS

It shows that over the 25-year planning period, high occupancy lane miles will increase by 65 percent, transit bus operations will increase by more than 19,000 miles, express bus operations will increase by

¹⁴ Rollover History: In the 1979 SIP, there were six TCMs adopted, most of which relied on Federal funding allocated or being allocated. However, in 1980, with the change in federal administration, all the federal funds were removed. So in the then new 1982 SIP, the 1979 measures were withdrawn, and new measures were adopted and subsequently approved by U.S. EPA. However, a lawsuit challenged the 1982 SIP and a court agreed and threw out the 1982 SIP, including the TCMs. The result was the 1979 TCMs were still operative, and until 1994 those TCMs had to be reported on for timely implementation. New AQMPs were developed and adopted, but lawsuits resulted in U.S. EPA having to do a Federal Implementation Plan (FIP). While the FIP was under development, the 1990 CAA amendments were passed. A lawsuit challenged the FIP process as being superseded by the new CAA amendments. However, a judge denied the challenge. Congress subsequently removed that FIP

As the 1993 SIP was being developed, all the parties desired a process that would be comprehensive and fully funded. Thus, the rollover process, with its guaranteed funding in the first two years of the TIP, was agreed upon and included in the SIP that was approved by U.S. EPA in 1994

about 9,000 miles, and both transit rail miles and bike lane miles will increase by about 180 percent respectively.

TABLE IV-B-5
MAGNITUDE OF MAJOR TCM INFRASTRUCTURE IN SCAG REGION 2020–2045

TCM Infrastructure Indicator	First Year (2020)	Attainment Year (2025)	Extended Attainment Year (2030)	Horizon Year (2045)	2020–2045 Increase	
					#	%
HOV and HOT Lanes (lane miles)	1,137	1,324	1,589	1,879	742	65%
Regular Transit Bus (operation miles ¹⁵)	451,464	467,478	466,010	470,896	19,437	4%
Express Bus (operation miles)	74,541	78,433	81,373	83,169	8,628	12%
Transit Rail (operation miles)	43,717	57,499	74,235	121,927	78,210	179%
Bikeway (Class 1-4) (miles)	5,069 ¹⁶	n/a	n/a	14,187	9,118	180%

TCM Funding – Funding for TCMs traditionally depended mostly on federal & state sources. But with gas tax revenues declining and both federal and state budgets constrained, local agencies in California asked the state legislature for permission to go to the voters in each county for a ½ percent sales tax for transportation. This required a two-thirds voter approval in each county, and all four counties in the South Coast Air Basin won approval. Extensions were subsequently approved in three counties: Orange County’s Measure M sunsets in 2041, Riverside’s Measure A sunsets in 2039 and San Bernardino County’s Measure I sunsets in 2040; Los Angeles County has approved a permanent two percent sales tax (a combination of four ½ percent sales taxes - Proposition A, Proposition C, Measure R, and Measure M) as Measure M increases to one percent as Measure M sunsets in 2039.

As a result of these remarkable local sales tax measures, the mix of revenues in the current six-year 2023 FTIP is \$21.8 billion local (60 percent), \$8.5 billion state (24 percent), and \$5.6 billion federal (16 percent) (see Figure 1); while in the last adopted 25-year 2020 RTP/SCS, the mix is \$297.2 billion local (60.3 percent) (of which 69 percent is local sales tax), \$154.8 billion state (31.4 percent), and \$41.1 billion federal (8.3 percent). Note that the funding from the federal CMAQ program accounted for only about 13 percent of all federal transportation funding according to SCAG Revenue Model 2020 and will decline over the life of

¹⁵ A transit route’s operations miles or service miles is calculated by the number of transit services during a day times the route length

¹⁶ Existing

the 2020 RTP/SCS due to the region achieving attainment or reducing the severity level of applicable air pollutants.

These local revenues fund mostly capital expenditures for TCM projects. For example, in the current 2023 FTIP, transit projects receive \$8.8 billion, ITS/TDM/non-motorized about \$2.7 billion, and HOV projects \$459 million. In the 2020 RTP/SCS, transit projects receive \$66.8 billion, passenger rail \$53.3 billion, active transportation \$17.7 billion, HOV/HOT lanes \$13.4 billion, and TDM \$7.3 billion. Major transit and passenger rail projects include the Metro Rail Regional Connector, the Crenshaw/LAX Line, the OC Street Car, the Arow/Redlands Rail, Metrolink's Southern California Optimized Rail Expansion (SCORE), and the Link Union Station (LinkUS). Major HOV/HOT lanes projects include HOV to HOT lane conversion and new HOT lane on I-405 in Orange County, new Express Lanes on I-10 in San Bernardino County, new HOV lane on US-101 in Ventura County, and new Express Lanes on I-15 in Riverside County.

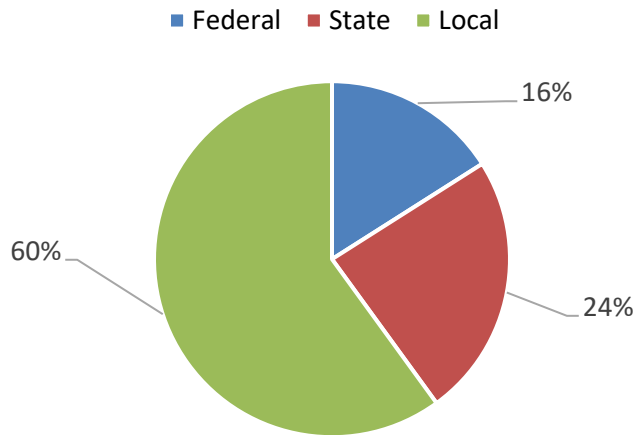


FIGURE IV-B-1
SUMMARY OF 2023 FTIP BY FUNDING SOURCE

Extraordinary efforts were undertaken to pass local sales taxes for transportation in each county (even after some did not reach the two-thirds necessary for approval, all subsequently met the approval threshold) and were successful. The effort to organize and pass these local sales taxes goes well beyond what could have been expected and provides substantial funding for TCMs which could not have been built without these local efforts. These efforts are certainly BACM and MSM, not just in revenue raised but without which, few of the major TCMs in transit rail, HOV, etc. could have been financed and constructed.

In summary, SCAG's robust and continuous TCM selection process and extraordinary local funding commitments clearly satisfy the latest criteria that U.S. EPA used to evaluate the TCM BACM and MSM demonstrations for the San Joaquin Valley and the South Coast PM_{2.5} Serious nonattainment areas:

- Adoption and enhancement of programs that reduce trips, travel and/or congestion – SCAG’s rollover process ensures steady TCM infrastructure improvements through 2045 that will provide these reductions.
- Adoption of a standardized program to select cost-effective control measures – SCAG’s FTIP Guidelines emphasize requirements for County assessments of control measure cost-effectiveness in TCM development and selection.
- TCM funding commitments – SCAG’s multiple and long-term local sales tax commitments ensure substantial amount of guaranteed fund to implement TCM projects.

It is important to note that, as summarized in the previous Section II. Regional Transportation Plan/Sustainable Communities Strategy and Transportation Control Measures (TCMs), SCAG’s 2020 RTP/SCS also includes an ambitious SCS to achieve the mandated 2035 regional GHG emissions reduction target set by ARB through reduced per-capita vehicle miles traveled (VMT) from automobiles and light trucks.

Finally, it is important to note that SCAG updates and adopts a Public Participation Plan every RTP/SCS cycle to guide the development of RTP/SCS and FTIP. The adopted Public Participation Plan ensures extensive interagency consultation, public outreach, open houses, web access, opportunity for comment and public participation in TCM development and selection.¹⁷

Review of TCMs Implemented in Other Moderate and Serious PM_{2.5} and Serious PM₁₀ Nonattainment Areas

SCAG performed a comprehensive review of available TCMs in California, as well as in other states. The review encompassed SIPs for all the other Moderate and Serious PM_{2.5} nonattainment areas and all Serious PM₁₀ nonattainment areas. A list of the SIPs reviewed is presented in Table IV-B-6.

We also reexamined the RACMs identified in Section III. RACM Analysis of SCAG’s Final 2022 AQMP Appendix IV-C. In addition, SCAG’s review considered TCMs discussed and reviewed at numerous TCWG meetings as part of the 2020 RTP/SCS, 2023 FTIP, and 2022 AQMP development. Finally, SCAG considered information from the following sources:

- CAA Section 108(f)(1)(A);
- RTP and FTIP Amendments;
- Interagency Consultation (TCWG); and
- Transportation Committee, Energy and Environment Committee, and Transportation Working Group meeting materials and input

¹⁷ <http://www.scag.ca.gov/participate/Pages/PublicParticipationPlan.aspx>

TABLE IV-B-6
OTHER MODERATE AND SERIOUS PM_{2.5} AND SERIOUS PM₁₀ NONATTAINMENT AREA SIPS
REVIEWED

Nonattainment Area	Standard and Area Designation				TCMs Included in SIP
	PM _{2.5}			PM ₁₀	
	1997	2006	2012	1987	
Allegheny County, PA			Moderate		No
Coachella Valley, CA				Serious	No
East Kern Co, CA				Serious	No
Fairbanks, AK		Serious			No
Imperial County, CA		Moderate	Moderate		No
Klamath Falls, OR		Moderate			No
Libby, MT	Moderate				No
Liberty-Clairton, PA	Moderate	Moderate			No
Owens Valley, CA				Serious	No
Phoenix, AZ				Serious	No
Plumas County, CA			Serious		No
Provo, UT		Serious			No
Sacramento, CA		Moderate			No
Salt Lake City, UT		Serious			No
San Francisco Bay Area, CA		Moderate			No
San Joaquin Valley, CA	Serious	Serious	Serious		Yes, TCMs include: Improved Transit, High Occupancy Vehicle Lanes, Traffic Flow Improvements, Park and Ride Lots, Ridesharing/Trip Reduction Programs, and Bicycle/Pedestrian Facilities
West Central Pinal, AZ		Moderate			No
West Pinal, AZ				Serious	No

Source: U.S. EPA, <https://www.epa.gov/green-book>

The review found that (1) Most of those areas did not include TCMs in their respective PM SIPs; (2) No new TCMs were identified for consideration from control programs outside of the SCAG region or in public meetings within the SCAG region since South Coast's 2016 AQMP; and (3) The South Coast region has a much more robust process and commits much greater level of funding for TCMs.

Review of Candidate Measures Not Implemented in the South Coast Air Basin

As part of the TCM RACM analysis in the Final 2022 AQMP Appendix IV-C, SCAG identified 24 candidate RACM measures that were not implemented within the SCAG region. These measures are candidates for BACM and MSM and thus have been re-examined for potential implementation given the more stringent evaluation criteria and longer implementation timeline for BACM and MSM. However, the re-evaluation reaffirms that these 24 measures do not constitute BACM or MSM for the reasons listed below:

- No Authority – SCAG lacks the authority to implement the twelve (12) measures in this category. Lack of authority satisfies the technical infeasibility test for selecting BACM and MSM measures.
- No or Non-quantifiable Emission Reduction Benefits – SCAG's BACM and MSM analysis determined that no or non-quantifiable emission benefits would result from the seven (7) measures in this category. Since the key determinant of a TCM is the quantified emission benefit, these measures which cannot constitute BACM or MSM.
- Not Feasible – Infeasibility justification for this category was cited for three (3) separate measures. Since these three measures are not feasible, they cannot constitute BACM or MSM.
- Not Cost-Effective – Not cost-effective justification for this category was cited for two (2) separate measures. Measures that are not cost-effective cannot constitute BACM or MSM.

A list of these 24 measures and the justifications for not implementing them as BACM or MSM are presented in Table IV-B-7.

Conclusion

This analysis clearly demonstrates that the TCM projects being implemented in the South Coast Air Basin constitute BACM and MSM.

- Thanks to increasingly stringent regulatory requirements and increased incentives offered to accelerate zero-emission transformation of personal transportation and goods movement, the emission reduction benefit from implementation of TCM is rather moderate and is expected to diminish overtime.
- The South Coast region has been implementing a much more robust TCM selection process, has committed a much greater level of funding for TCMs particularly from local sources, has substantially

increased and will continue to dramatically increase the TCM infrastructure than other PM2.5 nonattainment areas.

- No new TCMs were identified for consideration from TCM programs outside of the South Coast region.
- The re-evaluation of the exclusion justifications for the 24 measures presented in the last TCM RACM analysis re-confirmed that they cannot be implemented as BACM or MSM because there is no authority to implement, there is no or non-quantifiable emission reduction benefits, it is not feasible, or it is not cost-effective.

TABLE IV-B-7
CANDIDATE TCMS NOT IMPLEMENTED IN SCAG BACM AND MSM ANALYSIS

Section 108(f) Type	Section 108(f) Description	Measure No.	Measure Title	Description	Has It Been Implemented	Reasoned Justification for Not Implementing Measure	BACM/MSM Exclusion Category
1	Improved Transit	1.7	Free transit during special events	Require free transit during selected special events to reduce event-related congestion and associated emission increases.	No (<i>The Mobile Source Air Pollution Reduction Review Committee has been co-funding free event center shuttle service demonstration projects</i>)	The Legislature significantly reduced authority of South Coast AQMD to implement indirect source control measures through revisions to the Health & Safety Code (HSC 40717.8). Transit agencies should decide individually whether this measure is economically feasible for them.	No Authority
1	Improved Transit	1.15	Maglev	Construct regional low-speed magnetic levitation transit	No	The region is already being serviced by light rail; Not Cost-effective.	Not Cost-Effective
3	Employer Transportation Management Plans (TMPs)	3.7	Merchant transportation incentives	Implement "non-work" related trip reduction ordinances requiring merchants to offer customers mode shift travel incentives such as free bus passes and requiring owners/managers/developers of large retail establishments to provide facilities for non-motorized modes.	No	Requires State legislation.	No Authority

Section 108(f) Type	Section 108(f) Description	Measure No.	Measure Title	Description	Has It Been Implemented	Reasoned Justification for Not Implementing Measure	BACM/MSM Exclusion Category
3	Employer TMPs	3.12	Income Tax Credit to Telecommuters	Provide tax relief to employees telecommuting.	No	Requires State legislation.	No Authority
5	Traffic Flow Improvements	5.12	Ban left turns	Banning all left turns would stop the creation of bottlenecks although slightly increase travel distances.	No	Left turns are not allowed in some heavy-traffic streets. No clear demonstration of emission reduction benefits.	No or Non-quantifiable Emission Reduction Benefits
5	Traffic Flow Improvements	5.22	55 mph speed limit during ozone season	Self-explanatory	No	Reductions in freeway speeds are governed by California Vehicle Code 22354, which authorizes Caltrans to lower speeds after doing an engineering and traffic survey, which shows that the legislatively set maximum speed of 65 mph is more than is reasonable or safe. No consideration of emissions is contemplated under this statute. This measure is not feasible until the statute is changed.	No Authority

Section 108(f) Type	Section 108(f) Description	Measure No.	Measure Title	Description	Has It Been Implemented	Reasoned Justification for Not Implementing Measure	BACM/MSM Exclusion Category
5	Traffic Flow Improvements	5.23	Require 40 mph speed limit on all facilities	Self-explanatory.	No	California Vehicle Code Sections 22357 and 22358 mandate a methodology for setting speed limits for local areas. This measure is not feasible until the statute is changed.	No Authority
5	Traffic Flow Improvements	5.24	Require lower speeds during peak periods	Self-explanatory.	No	California Vehicle Code Sections 22357 and 22358 mandate methodology for setting speed limits for local areas. This measure is not feasible until the statute is changed.	No Authority
7	Vehicle Use Restrictions	7.4	Adjust school hours so they do not coincide with peak traffic periods and ozone seasons	Measure to reduce travel during peak periods and ozone-contributing periods in the early morning.	No	School hours are dictated by many variables, including overcrowding and year-round schooling. This measure is not technically feasible.	Not Feasible
7	Vehicle Use Restrictions	7.6	Increase parking fees	Reduce driving by limiting parking through pricing measures.	No	Attorney General ruled South Coast AQMD lacks authority to implement this measure.	No Authority

Section 108(f) Type	Section 108(f) Description	Measure No.	Measure Title	Description	Has It Been Implemented	Reasoned Justification for Not Implementing Measure	BACM/MSM Exclusion Category
7	Vehicle Use Restrictions	7.9	Limit the number of parking spaces at commercial airlines to support mass transit	Reduce airport travel by limits on parking at airports.	No	Regulatory agencies do not have the legal authority to make local land use decisions. It is at the discretion of the regional or local airport authority to make local land use decisions pertaining to airports. Additionally, it is necessary to have significant mass transit available at airports before this measure can be implemented.	No Authority
7	Vehicle Use Restrictions	7.10	No Central Business District (CBD) vehicles unless LEV or alt fuel or electric	Define high-use area and ticket any vehicles present unless they are low-emitting, alternative-fueled or electric.	No	The Legislature significantly reduced authority to implement Indirect Source Control Measures through revisions to the Health & Safety Code (40717.6, 40717.8, and 40717.9).	No Authority
7	Vehicle Use Restrictions	7.14	Cash incentives to foster jobs/housing balance	Specific to locality – encouraged by California Clean Air Plan.	No	No dedicated source of funding for this measure.	Not Feasible
9	Non-Motorized Road Use	9.6	Free bikes	Provide free bikes in the manner of Boulder, CO. Simple utilitarian bikes that can be used throughout the metro area and dropped off at destination for use by anyone desiring use.	No	Bike share is being implemented in the South Coast region; free bikes are not cost-effective; In addition, evidence suggests that bicycle theft is a problem in other programs.	Not Cost-Effective

Section 108(f) Type	Section 108(f) Description	Measure No.	Measure Title	Description	Has It Been Implemented	Reasoned Justification for Not Implementing Measure	BACM/MSM Exclusion Category
9	Non-Motorized Road Use	9.9	Use condemned dirt roads for bike trails	Self-explanatory.	No	Not applicable because there are no condemned dirt roads in the region.	Not Feasible
11	Extended Idle Control Programs	11.1	Limit excessive car dealership vehicle starts	Require car dealers to limit the starting of vehicles for sale on their lot(s) to once every two weeks. Presently, a number of new and used car dealers start their vehicles daily to avoid battery failure and assure smooth start-ups for customer test drives.	No	This measure was investigated by the South Coast AQMD and it was determined that, in contrast to colder climates where vehicles are started on a daily basis, vehicles in the South Coast are started much less frequently. No clear demonstration of emission reduction benefits.	No or Non-quantifiable Emission Reduction Benefits
11	Extended Idle Control Programs	11.3	Turn off engines while stalled in traffic	Public outreach or police-enforced program.	No	This measure raises safety and congestion concerns. No clear demonstration of emission reduction benefits.	No or Non-quantifiable Emission Reduction Benefits
11	Extended Idle Control Programs	11.4	Outlaw idling in parking lots	Self-explanatory and police-enforced program.	No	No clear demonstration of emission reduction benefits.	Not or Non-quantifiable Emission Reduction Benefits

Section 108(f) Type	Section 108(f) Description	Measure No.	Measure Title	Description	Has It Been Implemented	Reasoned Justification for Not Implementing Measure	BACM/MSM Exclusion Category
11	Extended Idle Control Programs	11.5	Reduce idling at drive-throughs; ban drive-throughs	Mandate no idling or do not allow drive-through windows during ozone season.	No	No clear demonstration of emission reduction benefits.	No or Non-quantifiable Emission Reduction Benefits
14	SOV Reduction Programs	14.9	Increase State gas tax	Self-explanatory.	No	Need State legislation.	No Authority
14	SOV Reduction Programs	14.10	Pay-As-You-Drive Insurance	Self-explanatory.	No	Need State legislation. No clear demonstration of emission reduction benefits and does not advance attainment date.	No Authority
16	Voluntary Scrappage Programs	16.3	Demolish impounded vehicles that are high emitters	Self-explanatory.	No	South Coast AQMD Rule 1610 issues mobile source emission reduction credits in exchange for the scrapping of old, high emitting vehicles. No clear demonstration of emission reduction benefits due to small number of impounded old vehicles.	No or Non-quantifiable Emission Reduction

Section 108(f) Type	Section 108(f) Description	Measure No.	Measure Title	Description	Has It Been Implemented	Reasoned Justification for Not Implementing Measure	BACM/MSM Exclusion Category
16	Voluntary Scrappage Programs	16.4	Do whatever is necessary to allow cities to remove the engines of high emitting vehicles (pre-1980) that are abandoned and to be auctioned	Self-explanatory.	No	South Coast AQMD Rule 1610 issues mobile source emission reduction credits in exchange for the scrapping of old, high emitting vehicles. No clear demonstration of emission reduction benefits due to small number of abandoned or auctioned old vehicles.	No or Non-quantifiable Emission Reduction
17	Other	17.2	Promote business closures on high ozone days	Non-employer-based strategy to require local business to close on bad air quality days, thereby reducing travel.	No	No authority to implement; not economically feasible	No Authority

Attachment A: Committed Transportation Control Measures (TCMs)¹⁸

TABLE IV-B-A-1. LOS ANGELES COUNTY			
LEAD AGENCY	PROJECT ID	PROJECT DESCRIPTION	COMPLETION DATE
ALHAMBRA	LAMIPMR114	Replace existing traffic signal controllers with 2070 ATC traffic signal controllers and firmware at 14 signalized intersections along Atlantic Blvd from Huntington Drive to I-10 freeway. Install fiber optic cable connectivity to all signalized intersections, ethernet switches, communication hubs, vehicle detection. Update traffic signal timing and synchronization. Design a new central traffic signal management system to monitor and control all signalized intersections in the City.	7/31/2025
ALHAMBRA	LAMIPMR116	Replace existing traffic signal controllers with 2070 ATC traffic signal controllers and firmware at 20 signalized intersections along Valley Blvd from west City limit to east city limit. Install fiber optic cable connectivity to all signalized intersections, ethernet switches, communication hubs, vehicle detection. Update traffic signal timing and synchronization. Design a new central traffic signal management system to monitor and control all signalized intersections in the City.	2/29/2024
ALHAMBRA	LAMIPMR117	Replace existing traffic signal controllers with 2070 ATC controllers and firmware at 20 signalized intersections along Garfield Avenue from Huntington Drive to I-10 Freeway. Install fiber optic cable connectivity to all signalized intersections, communication hubs, ethernet switches, vehicle detection systems. Update traffic signal timing and synchronization. Design new central traffic signal management system to monitor and control all signalized intersections in the City.	7/31/2025
ANTELOPE VALLEY TRANSIT AUTHORITY	LA9918864	Five (5) Expansion Electric Buses - two (2) 30-ft & three (3) 35-ft to decrease headways to every 15 minutes on Route 12.	6/30/2023
AVALON	LAF9600	City of Avalon Five-Corner Comprehensive Pedestrian Project: The project proposes to construct new-permanent sidewalks, median safety islands, traffic calming (round-about) and lighting in order to provide safer access for pedestrians. The total project is approximately .25 miles in length.	12/31/2023
BALDWIN PARK	LAF3507	South Baldwin Park Commuter Bikeway Project. Construct 3-mile commuter Class I bike path along San Gabriel River and Walnut Creek connecting to major employment centers on Baldwin Park Blvd.	12/31/2023
BALDWIN PARK	LATP17S029	Construct 2.3 miles of Class I shared-use recreational path ("trail"). Develop conceptual designs for 6.8 mile Class I recreational trail along Walnut Creek and 15.3 miles of on-street Class II and Class III bikeways.	6/30/2023

¹⁸ Projects may include TCM and non-TCM portions. Committed TCMs include only that portion of the projects that meets the definition of TCMs. Updated as of June 2023 to reflect the latest information on completion dates through approved amendments to 2023 FTIP

TABLE IV-B-A-1. LOS ANGELES COUNTY			
LEAD AGENCY	PROJECT ID	PROJECT DESCRIPTION	COMPLETION DATE
BELL	LA9919091	Atlantic Ave is a principal north/south arterial corridor that conveys approximately 28,000 vehicles per day and provides access to the I-5 Freeway for City of Bell and neighboring cities. Improvements will include curb/gutter improvements, directional signage, median barrier upgrades, new pedestrian facilities, planting/landscaping restoration, sidewalk/curb cuts, new streetlights, and safety improvements. Sidewalk improvements are estimated at 6200 linear ft and the boulevard is 0.75 mile long.	12/31/2035
BURBANK	LA9918844	4 TRAFFIC SIGNALS UPGRADED TO ENABLE REAL TIME SIGNAL SYNCHRONIZATION PLANS AND MONITORING TRAFFIC. MAGNOLIA/MARIPOSA, MAGNOLIA/REESE, MAGNOLIA/SCREENLAND & VICTORY/ELMWOOD.	10/31/2026
BURBANK	LA9918853	SYNCHRONIZE 18 INTERSECTIONS ALONG VICTORY BLVD BETWEEN LINCOLN ST AND ALAMEDA AVE, SAN FERNANDO BLVD BETWEEN COHASSET STREET AND LINCOLN ST, AND BUENA VISTA ST BETWEEN SAN FERNANDO BLVD AND GLENOAKS BLVD.	9/30/2025
BURBANK	LA9918855	SYNCHRONIZE 32 TRAFFIC SIGNALS ALONG OLIVE AVE BETWEEN GLENOAKS BLVD AND ALAMEDA AVE AND ON GLENOAKS BLVD BETWEEN BUENA VISTA ST AND ALAMEDA AVE. REPLACE 4 TRAFFIC CABINETS AND ELECTRICAL UTILITY CABINETS.	9/30/2025
CALTRANS	LA0B951	Route 71: ROUTE 10 TO 0.14 MILE SOUTH SAN BERNARDINO COUNTY LINE - EXPRESSWAY TO FREEWAY CONVERSION - ADD 1 HOV LANE AND 1 MIXED FLOW LANE. (2001 CFP 8349, TCRP #50) (EA# 210600, PPNO 2741=EA 21060, PPNO 2741 + EA 21061, PPNO 2741N, EA 21062, PPNO 1741S) (TCRP #50) (Use Toll Credits as Local Match).	11/21/2028
CARSON	LA0G1130	Active Transportation Program - City-wide Bike and Pedestrian Improvements - The infrastructure component includes a Class II bike lane (1.07 mile) on Santa Fe Ave, high visibility crosswalks, countdown pedestrian signals, curb ramps, etc. The non-infrastructure component includes, education, encouragement, and enforcement programming that will occur over a three year period. Utilizing Toll Credits.	12/31/2020
COMMERCE	LA0G1704	Project includes traffic signal upgrades, signal interconnect installation, adoptive signal detection, control system, software, signal sync, traffic lane alignments, traffic signage, freeway on and off ramp improvements, and other items to improve traffic flow and capacity. 4 intersections will receive signal sync: 1) Triggs St, Telegraph Rd, Atlantic Blvd, Goodrich Blvd, and Ferguson Dr; 2) Telegraph Rd and Atlantic Blvd; 3) Atlantic Blvd and Eastern Ave; and 4) Eastern Ave and Stevens Pl.	6/30/2026
COMMERCE	LA9919026	Eastern Avenue Transit Hub. This project includes improvements in the following areas: Install new bus shelters, solar power digital displays providing arrival times, street striping, pavement, and lighting. Using Toll Development Credits of \$8K in FY 22/23 and \$218K in FY 23/24.	12/31/2026
COMPTON	LA0G1711	This Wilmington Avenue Regional Bikeway Corridor connects existing bikeways and lanes at Rosecrans Ave on the north and continues south to Victoria St. This project will provide bicycle elements including Class II bike lanes, pedestrian lighting, and missing sidewalks gaps to provide safe travels for pedestrians and bicyclists. This corridor will eventually connect the Compton Creek bike path at El Segundo with the Metro Blue Line Artesia Station. Project is 2.5 miles long.	3/31/2025

TABLE IV-B-A-1. LOS ANGELES COUNTY			
LEAD AGENCY	PROJECT ID	PROJECT DESCRIPTION	COMPLETION DATE
COMPTON	LA0G1713	This project aims to develop and upgrade the existing and obsolete citywide traffic signal system to a state of the art intelligent transportation system that synchronizes traffic signal along Rosecrans Av from city limits to city limits. There are 20 signal intersections planned for synchronization.	6/30/2025
COMPTON	LAF9530	Enhance safety/improve non-motorized transportation travels along Central Av by installing protective buffered bike lanes, improving intersection crossings and closing sidewalk gaps.	12/31/2023
COMPTON	LATP17S012	This project is the final design and construction of 29.68 miles of gap closure in the bike lane network in the Cities of Compton and Carson. Project elements include Class I, II, and III bike lane improvements including striping, bike sharrows, directional painted green lines and wayfinding signage.	12/31/2023
COVINA	LA0G1729	Citrus Ave includes 80-100 feet of public R-O-W, two new bicycle travel lanes for N/B and S/B traffic (5,950 linear ft. of bike lanes to be added), repairing sidewalks and curb ramps. Foothill Transit serves the Citrus Ave corridor and provides additional multimodal transportation connectivity. Proposed improvements will enhance first/last mile connectivity, road/concrete infrastructure, pedestrian/bicycle safety, and add tree canopy and drought tolerant streetscaping amenities.	4/30/2026
CUDAHY	LAF9605	The Cudahy City Wide Complete Streets Improvement Project focuses on the Atlantic Avenue Corridor and City Wide multimodal transportation improvements for the first/last mile. Project is approximately 1.1 miles long.	12/31/2023
CULVER CITY MUNI BUS LINES	LAF3729	Real-Time Bus Arrival Information System. Develop & install on 60 bus stop real-time bus arrival information system using intelligent transportation system (ITS) technology to disseminate "next bus" info to travelers. The project's physical component is located at bus stops and transit center within the City of Culver City. The non-physical component of the project is located on a web server.	10/31/2024
CULVER CITY	LAF7303	NETWORK-WIDE SIGNAL SYNC WITH VID & ARTERIAL PERFORMANCE MEASUREMENT SYSTEM FOR ATCS: (1) Optimizes signal coordination timing network-wide. (2) Upgrades major intersections with enhanced system detection and arterial performance measurement capabilities along Washington Bl, Sepulveda Bl, Jefferson Bl, and others. (16 signals that are synched)	12/31/2023
DIAMOND BAR	LA0G1708	Diamond Bar Blvd from Golden Springs Drive to Palomino Drive. Reconstruct asphalt and construct enhanced crosswalks, pedestrian walkways, green bicycle lanes, ADA ramps, and bioswales. Upgraded green bicycle lanes and pedestrian pathways span the entire length of the project in each direction. The total length of green bicycle lanes and pedestrian pathways are approximately 2,500 feet each.	12/31/2024
DOWNEY	LAF7311	DOWNEY CITYWIDE TRANSIT PRIORITY SYSTEM PROGRAM: (1) Synchronizes traffic signals along existing transit routes. (2) Installs new fiber optic communication along 5.5 miles of arterial streets to connect signals to the central traffic management center. (3) Installs and integrates transit priority system with the traffic signal system.	8/1/2024
DOWNEY	LAF9525	This project implements 17 miles of Class II bike lanes on eight roadways (seven of them with Road Diets) providing enhanced access to activity centers and multi-modal assets such as the Green Line and bike paths.	3/31/2024

TABLE IV-B-A-1. LOS ANGELES COUNTY			
LEAD AGENCY	PROJECT ID	PROJECT DESCRIPTION	COMPLETION DATE
EL MONTE	LA9918839	Improvements include 1.9 miles of new enhanced Class III bike lanes on Fern St and Elliot Ave from Sastre Ave to Mountain View Rd and from Mountain View Rd to North Brookside, and 1 mile of new Class II bike lanes on Durfee Ave from Elliot Ave to Valley Blvd and Valley Blvd from Durfee Ave to San Gabriel River Trail. Other improvements include pavement maintenance, repair, reconstruction on Fern St/Elliot Ave, from Sastre Ave to Mountain View Rd.	12/31/2026
EL MONTE	LATP21MPO101	Construct 1.1 mile Class IV two-way cycle track with landscape buffer; remove existing speed humps; install median curb extensions, high-visibility continental crosswalks, ADA improvements, & signage; roadway narrowing & street trees to calm traffic.	12/31/2030
EL MONTE	LATP23F101	Install 1.1-mile Class IV cycle track, Class III route (2100 feet), landscape buffer, x-walks, curb extensions, ADA ramps, conflict striping, widen sidewalk, add stop control at 1 intersection.	12/31/2032
EL SEGUNDO	LA9918809	Existing pavement shows widespread signs of deterioration throughout the corridor which constitutes a need for rehabilitation. Existing conditions on El Segundo Boulevard are missing ADA compliant curb ramps, larger traffic signal poles, dedicated bicycle facilities including bicycle detection, and adequate pedestrian crossings which will be addressed at specific locations as part of the project. 12,000 linear feet of bike lanes (Class II and Class III) will be installed.	11/15/2026
FOOTHILL TRANSIT ZONE	LA0G1234	Mt. San Antonio College (MSAC) Transit Center. The Transit Center includes 10 bus bays, 2 chargers for electric buses, a transit store, lighted sheltered wait areas, real-time bus arrival kiosks, and upgraded ADA and pedestrian access.	12/31/2024
FOOTHILL TRANSIT ZONE	LA0G1501	Construct Bus Layover Facilities Jointly by AVTA, LADOT & Foothill Transit	12/31/2023
FOOTHILL TRANSIT ZONE	LA9918847	Project will install and upgrade bus traffic signal priority at key segments on Colorado Boulevard corridor for service Lines 187. The signal priority on this corridor will improve the communication between the bus and intersection equipment to help buses along Colorado Boulevard improve travel times and schedule performance.	12/31/2026
GARDENA MUNICIPAL BUS LINES	LATRO2020	Implement transit signal priority for 8.4 miles from the Harbor Gateway Transit Station to 120th Street in the city of Gardena. Also implementing real time arrival information through variety of media including smart phones, SMS texts, call centers, and website. Computer aided dispatching (CAD) system and automated vehicle location (AVL) system will also be implemented.	6/30/2024
GLENDALE	LAF7709	GLENDALE REGIONAL BIKE PARKING NETWORK: Provides 2 high capacity bike parking facilities and 20 wayfinding signs for bicycle users within the City of Glendale, specifically Glendale Larry Zarian Transportation Center and the Glendale Marketplace/Public Library.	12/31/2023
HAWAIIAN GARDENS	LA9919050	Traffic signal improvements for upgrading signal hardware and synchronizing eight intersections along Carson Street from Pioneer Boulevard to Bloomfield Avenue. The City of Hawaiian Gardens will coordinate the project's scope and timeline with Lakewood and Long Beach for the shared intersections. The synchronization of signals will be completed at the same time and along with the City's HSIP project. Utilizing \$10K of Toll Credits to match STP-L funds in FY23 in CON. Toll Credits Used.	12/31/2030

TABLE IV-B-A-1. LOS ANGELES COUNTY			
LEAD AGENCY	PROJECT ID	PROJECT DESCRIPTION	COMPLETION DATE
HAWTHORNE	LA0G1546	Imperial Hwy Signal Improvements and Intersection. PA/ED, PS&E, ROW, Construction. Modify and upgrade 5 traffic signal, traffic striping, utilities, excavation, removal of existing pavement, concrete, asphalt and construction of curb, gutter, sidewalks and driveways. Signal Synchronization at: Imperial Highway at Prairie Avenue, Imperial Highway at Freeman Avenue, Imperial Highway at Hawthorne Boulevard, Imperial Highway at Ramona Avenue, Imperial Highway at Inglewood Avenue.	6/30/2024
HAWTHORNE	LA0G1548	Widen intersections modify and upgrade four traffic signal system, traffic striping, adjustment of utilities, excavation and removal of existing pavement, concrete, asphalt and construction of curb, gutter, sidewalks, driveways and ADA ramps. Signal Synchronization at: El Segundo Blvd at Ramona Ave. El Segundo Blvd. at Aviation Ave. El Segundo Blvd. at Isis Ave. El Segundo Blvd. at Van Ness Ave.	11/30/2024
HAWTHORNE	LAF9102	5 intersection locations; Signal improvement include Upgrade traffic signal controller and cabinet enabling, Rewiring of the signalized intersection to ensure communication between signal equipment; Upgrade pedestrian signals to count down type and push buttons, Install battery backup system to minimize disruption of traffic during power outage new vehicle detection including bicycle loops/sensors; new bike lane will be one mile (each way).	10/18/2023
HUNTINGTON PARK	LA0G1669	This project will include new signal poles, conduit, wiring, controller cabinets and video detection (not CCTV). The improvement locations include Slauson Ave at Alameda St, Slauson Ave at Santa Fe Ave, Slauson Ave at Miles Ave/Soto St, Slauson Ave at Boyle Ave/State St, Slauson Ave at Downey Rd/Malburg Way. Six new (6) signal sync intersections on Slauson at Alameda, Santa Fe, Pacific, Miles, Bickett, and State.	12/31/2024
INGLEWOOD	LA9919191	Includes but shall not be limited to preliminary investigation, roadway resurfacing, utility coordination, PS&E. Landscape, Environmental Assessment to comply with CEQA and pavement rehab. Full traffic signal modification complete with timing sheets at 15 intersections. Fiber optic improvements of 3 mi long on Crenshaw Blvd. New crosswalks, ramps, lane delineation & improved raised medians at 3 intersections. Install CCTV at 10 intersections & CMS at 2 intersections. NO NEW SIGNAL SYNC.	12/31/2032
INGLEWOOD	LAF7319	Inglewood ITS - PHASE V: (1) Designs and constructs computerized traffic control and monitoring systems, (2) Expands central traffic control and advance traffic management at 39 intersections, (3) improves 6.13 miles of fiber optic communications, (4) expands Closed Circuit Television Cameras (CCTV) at 10 intersections, (5) installs Changeable Message Signs (CMS) at 2 intersections, and (6) installs ew communication hubs at 3 intersections. NO SIGNAL SYNC.	12/31/2023
INGLEWOOD	LAF9307	City of Inglewood ITS phase VI project: 5,280 feet of fiber optic along Pincay Drive; Replace 170 controllers with Type 2070 controllers at twelve intersections; Traffic signal synchronization along Pincay Drive between Prairie and Crenshaw; Install changeable message sign at Century/Prairie; and Modernizing City Hall TMC to provide Adaptive Traffic Control and meet current standards.	6/30/2024
LAKEWOOD	LA0G1262	Lakewood BI Regional Corridor Capacity Enhancement project (Del Amo BI to north City limit) - Class II bike lanes (1.9 mile) in each direction, new sidewalk, street resurfacing, ADA & stormwater compliance, traffic signal modifications, drought resistant landscaping & irrigation, signing & striping, and utility undergrounding within the existing City right of way.	12/31/2023

South Coast Air Basin Attainment Plan for the 2012 Annual PM2.5 Standard

TABLE IV-B-A-1. LOS ANGELES COUNTY			
LEAD AGENCY	PROJECT ID	PROJECT DESCRIPTION	COMPLETION DATE
LANCASTER	LA0G928	SR-138 (SR-14) Avenue J Interchange. Project will include new northbound off-ramp and southbound on-ramp, mainline improvements to accommodate ramp modifications, improvements to Avenue J between 15th Street West and 25th Street West and traffic signal improvements. Project will reduce through lanes on Avenue J from 3 lanes to 2 lanes in each direction between 25th Street West and 15th Street West to provide bike lanes and wider sidewalks.	12/31/2023
LANCASTER	LA0G931	SR-138 (SR-14) Avenue M Interchange. Project will widen Avenue M from 10th Street to 20th Street West to provide a center turn-lane, bike lanes and sidewalks. The project includes geometric changes to the SR-138 (SR-14) ramps, intersection controls, and bike and pedestrian improvements from west of 20th Street West to 10th Street West.	12/31/2026
LAWNDALE	LAF7500	HAWTHORNE BOULEVARD CLASS II BICYCLE LANES: (1) Installs 1.0 mile of Class 2 bike lanes on Hawthorne Blvd for both directions. (2) Provides bicycle parking.	6/30/2021
LONG BEACH TRANSIT	LA0G1762	Expansion of fleet to take over a portion of the Metro Route 130 with up to (11) Battery Electric Buses (30'/35'40"). 5307 funds were awarded by BOS under the discretionary 15% suballocation. Federal funding for FY19 is \$1.887M and FY20 is \$1.548M. Adding an additional (7) buses for a total of (11) to the TIP. Utilizing TDC in FY23 for \$901K to match 5307 funds. Transit Development Credits Used.	12/31/2025
LONG BEACH	LAF9314	The project consists of signal enhancements that will include synchronization and communications. Also are included are bicycle and pedestrian improvements and inclusion of the corridor into an Adaptive Traffic Control System	12/31/2024
LONG BEACH	LATP21F103	Transform Pacific Avenue from Ocean Blvd to PCH into a complete streets best practices corridor by upgrading 1.6 miles of Class III route to Class IV curb-protected bike lanes, protected intersections, and curb extensions. Non-infrastructure elements include pedestrian safety education, targeted messaging, and interactive activities that model desired safety behaviors.	12/31/2035
LOS ANGELES A	LA0G1380	Purchase of 170 solar-powered, real-time bus arrival information signs for bus stop improvement in the Los Angeles Promise Zone	12/31/2023
LOS ANGELES A	LA0G1566	Purchase of up to 120 electric 30' to 35' buses for the DASH program expansion	9/26/2024
LOS ANGELES A	LA0G901	Historic Los Angeles Streetcar	12/31/2023
LOS ANGELES A	LAE3764	Sepulveda Boulevard Closed-Circuit Television Traffic Signal Improvement Signal Sync	4/30/2025
LOS ANGELES A	LAF3644	Broadway Historic Theater District Pedestrian Improvements 4th-6th Streets. The project will improve pedestrian safety by installing curb extensions, widening sidewalks, improving pedestrian lighting, enhancing crosswalks, and provide pedestrian amenities; benches, street trees, landscaped buffers from traffic and 10 bike racks.	11/19/2025
LOS ANGELES A	LAF3647	Menlo Ave/MLK Vermont Expo Station Pedestrian Improvements. Improve pedestrian access to the new Expo station on Vermont Ave by installing sidewalks, landscaping, and lighting along Menlo Ave. and MLK Jr. Blvd. plus a median on MLK Blvd.	6/30/2024

TABLE IV-B-A-1. LOS ANGELES COUNTY			
LEAD AGENCY	PROJECT ID	PROJECT DESCRIPTION	COMPLETION DATE
LOS ANGELES A	LAF7123	MAGNOLIA BOULEVARD WIDENING (NORTH SIDE) - CAHUENGA BOULEVARD TO VINELAND: Instead of widening, it rescoped to include pedestrian and safety-related improvements such as curb extensions where appropriate, enhanced left turn protection at select locations, trees, additional safer crossings with the introduction of pedestrian hybrid beacons, sidewalk repairs, ADA-compliant access ramps, speed tables, storm drain extension, and additional catch basins.	10/1/2023
LOS ANGELES A	LAF7814	LADOT STREETS FOR PEOPLE: TRANSIT CORRIDOR PARKLETS AND PLAZAS: Installs 12 parklets and 3 plazas. The limits of the parklets will be equal to two curbside parking spaces (approx.. 40x 6). The plaza limit varies ranging from 2,000 to 6,000 SF.	12/31/2023
LOS ANGELES A	LAF9422	LADOT will procure seven (7) 30-ft Electric clean fuel vehicles to reduce headways on six selected DASH routes	4/30/2024
LOS ANGELES A	LAF9527	Project will construct a 3.1 mile cycletrack along Chandler Boulevard, connecting the Chandler and Orange Line Bike Paths and bridging a gap in the low-stress bicycle network	1/1/2023
LOS ANGELES A	LAMIP107	Transit infrastructure improvements include the procurement and installation of real-time arrival solar-powered bus signs at each bus stop on the DASH Highland Park/Eagle Rock route. Using TDC in FY22/23 for \$194K to match CMAQ in CON.	12/31/2026
LOS ANGELES A	LARE1701A	Implementing Dynamic Corridor Ramp Metering System (DCRMS) in I-405 Sepulveda Pass Corridor (Interstate 405 from I-10 to SR101), a system-wide adaptive ramp metering strategy which simultaneously coordinates with arterial traffic signal operation. The system will dynamically adjust traffic according to current capacity restrictions caused by incidents or recurrent congestion. Improve traffic movement and access to freeway and major arterial including transit operation.	12/31/2022
LOS ANGELES A	LATP16S006	Boyle Heights Pedestrian Linkages. Pedestrian infrastructure improvements including sidewalk repairs, 3,400 linear feet of new sidewalk, and installation of pedestrian lighting, continental crosswalks, and curb ramps to improve connectivity within community and to 6th Street Viaduct Replacement Project. Utilizing Toll Credits.	12/31/2024
LOS ANGELES A	LATP17M014	Arts District Pedestrian & Cyclist Safety Project. The project will establish critical pedestrian and cyclist connections to and within the Arts District in Downtown Los Angeles which is a historic industrial neighborhood with a complex street system that challenges the mobility of all users whether they are on foot, on a bike or in a vehicle. Utilizing Toll Credits to match ATP funds.	6/30/2024
LOS ANGELES A	LATP19M013	Design and construction of 2.93 miles of greenway gap closure along the banks of the LA River, and adjacent on-street network of bicycle and pedestrian improvements	9/30/2026
LOS ANGELES A	LATP19M014	Safety and mobility improvements along 2.8 mile stretch of Broadway (Manchester Ave to Imperial Hwy) and Manchester Ave (Vermont Ave to Broadway). Includes a separated 4-mile Class IV cycle track), sidewalk and crossing improvements, signal upgrades, center median refuge island mods, and other improvements to slow speeding vehicles & increase pedestrian/bicyclist safety, plus pedestrian lighting, street trees, & pedestrian/bicyclist amenities, such as benches, bike racks, and trash receptacles.	12/31/2030

TABLE IV-B-A-1. LOS ANGELES COUNTY			
LEAD AGENCY	PROJECT ID	PROJECT DESCRIPTION	COMPLETION DATE
LOS ANGELES COUNTY	LA0D465	Colima Road-City of Whittier Limits to Fullerton Road, for a total distance of 4.9 miles. The project will widen Colima Rd by up to six feet at spot locations and restripe to accommodate three through lanes in each direction. A Class II bikeway from the City of Whittier will be extended to Larkvane Rd, a distance of 1.2 miles, and bus pads will be replaced. Includes median landscaping.	6/30/2024
LOS ANGELES COUNTY	LA0G1291	Huntington Dr - San Gabriel Bl to 132' w/o Michillinda Ave: Construct approx. 7200ft buffered Class II bike lanes, upgrade curbs & sidewalks to meet standards. Add pedestrian access through the median @S San Gabriel. Add drought tolerant landscaping/hardscape inside median. Install new traffic signal at Huntington Dr & Madre St/Muscatel Av which may require tree removal.	6/30/2023
LOS ANGELES COUNTY	LA0G1486	The Project consists of design and construction of 1.86 miles of Class I bike path along Puente Creek and 0.37 miles of enhanced Class III bike route along Rimgrove and Witzman Drive adjacent to the Rimgrove County Park. The non-infrastructure portion of the Project includes bicycle and pedestrian safety education and encouragement training workshops and rodeos to students at 3 elementary, 1 middle, and 1 high school located near the proposed bikeway.	6/30/2023
LOS ANGELES COUNTY	LA9918952	This project involves synchronizing the traffic signals at the 35 intersections on Avalon Boulevard between 126th Street and Sepulveda Boulevard. The attached map is missing the two I-405 freeway ramps, Carson Street, and Watson Center Rd/228th.	3/31/2024
LOS ANGELES COUNTY	LAF1311	South Bay Forum Traffic Signal Corridors Project. Design & construction of multijurisdictional traffic signal synchronization, intersection operational improvements, and intelligent transp. system components on regional arterials. Synchronizes 50 consecutive intersections.	6/30/2023
LOS ANGELES COUNTY	LAF1312	Gateway Cities Forum Traffic Signal Corridors, Phase V. Design and construction of multijurisdictional traffic signal synchronization and intersection operational improvements on regional arterials in the Gateway Cities region. Includes 86 consecutive intersections.	6/30/2024
LOS ANGELES COUNTY	LAF1321	San Gabriel Valley Forum Traffic Signal Corridors Project. Design & construction of multijurisdictional traffic signal synchronization, intersection operational improvements, and intelligent transportation system components. Synchronizes 83 consecutive intersections.	6/30/2023
LOS ANGELES COUNTY	LAF3519	North County Bikeways. Install three Class II and three Class III bikeway segments, including signage, striping, road widening, & road shoulder improvements (approx. 3.88 miles of bike lanes and 3.18 miles of bike routes).	6/30/2024
LOS ANGELES COUNTY	LAF5315	San Gabriel Valley Forum Traffic Signal Corridors Project. This project includes 6 intersections at Myrtle Av/Peck Rd between Huntington Dr and Clark St and provides for system wide coordination, timing and operational improvements and traffic signal synchronization, equipment upgrades and intersection operational improvements (approx. 20+ signals).	6/30/2024
LOS ANGELES COUNTY	LAF5316	South Bay Forum Traffic Signal Corridors Project - systemwide coordination, timing and operational improvements and traffic signal synchronization, equipment upgrades and intersection operational improvements in South Bay region. 25 signals system wide. Additionally, this project will install any warranted and feasible roadway improvements along the routes to improve overall progression.	6/30/2024

TABLE IV-B-A-1. LOS ANGELES COUNTY			
LEAD AGENCY	PROJECT ID	PROJECT DESCRIPTION	COMPLETION DATE
LOS ANGELES COUNTY	LAF7306	FOOTHILL BOULEVARD TRAFFIC SIGNAL CORRIDOR PROJECT: (1) Traffic signal synchronization, equipment upgrades and intersection operational improvements for 28 intersections along Foothill Bl between Lowell Av and Crown Av. (2) Installs two (2) Closed Circuit Television (CCTV) cameras and wireless network communications infrastructure which will provide for expansion of Advanced Transportation Management System (ATMS) along Foothill Bl.	6/30/2024
LOS ANGELES COUNTY	LAF7307	SAN GABRIEL VALLEY FORUM TRAFFIC SIGNAL CORRIDOR PROJECT: Implements ITS enhancements including synchronization and retiming of traffic signals, equipment upgrades, system detection, CCTV cameras, and changeable message signs to expand Advanced Transportation Management System (ATMS).	6/30/2024
LOS ANGELES COUNTY	LAF7310	SOUTH BAY FORUM TRAFFIC SIGNAL CORRIDORS PROJECT: Project area is Normandie Av between 92nd St and El Segundo Bl, Manhattan Beach Bl between Manhattan Av and Van Ness Av, and Hawthorne Bl between Imperial Highway and Manhattan Beach Bl. Project scope includes (1) Synchronization and retiming traffic signals, equipment upgrades, system detection, CCTV cameras, changeable message signs. (2) Upgrade traffic signal operations to be capable of time-based coordination.	6/30/2024
LOS ANGELES COUNTY	LAF7508	Vincent Community Bikeways. Install 2 miles of bike paths along the Big Dalton Wash between Irwindale Ave and Lark Ellen Ave and between Arrow Hwy and Citrus Ave, and 1.3 miles of bike lanes and 1.4 miles of bike routes to connect to the existing and proposed bikeways in the surrounding areas.	12/31/2023
LOS ANGELES COUNTY	LAF7700	WILLOWBROOK INTERACTIVE INFORMATION KIOSKS: Provides information to public transit users by installing 3 interactive kiosks displaying transit, neighborhood, and cultural information. The project will serve the Willowbrook area at Martin Luther King Jr. Hospital, Kenneth Hahn Plaza, and the Metro Willowbrook/Rosa Parks Blue and Green Line Station.	6/30/2024
LOS ANGELES COUNTY	LAF9302	The design and construction of traffic signal synchronization and intelligent transportation system improvements and installation of performance measurement devices in the San Gabriel Valley area.	12/31/2023
LOS ANGELES COUNTY	LAF9303	SOUTH BAY FORUM TRAFFIC SIGNAL CORRIDOR PROJECT. This project includes traffic signal synchronization on Crenshaw Boulevard between 120th Street and Rosecrans Avenue and Del Amo Boulevard between Avalon Boulevard and Susana Road (approx. 15+ signals) and also includes systemwide coordination timing, operational improvements and ITS.	6/30/2027
LOS ANGELES COUNTY	LAF9304	The design and construction of traffic signal synchronization and intelligent transportation system improvements and installation of performance measurement devices in the Gateway Cities area. There are 39 intersections in the TSSP route.	6/30/2027
LOS ANGELES COUNTY	LAF9504	E. Pasadena & E. San Gabriel Bikeway Access Improvements: Install approximately 4.8 miles of bike lanes and enhanced bike routes in the East Pasadena and East San Gabriel communities.	12/31/2022
LOS ANGELES COUNTY	LAF9511	South Whittier Community Bikeway Access Improvements: Construction of 3.1 miles of Class II and 1.8 miles of Class III bike facilities in the unincorporated County area of South Whittier along with various pedestrian intersection improvements.	6/30/2024

TABLE IV-B-A-1. LOS ANGELES COUNTY			
LEAD AGENCY	PROJECT ID	PROJECT DESCRIPTION	COMPLETION DATE
LOS ANGELES COUNTY	LATP17M025	Install a 1.6 mile long and 17-foot wide walkway adjacent to existing Marvin Braude Bike Trail to close the gap between the existing walkways connecting Pacific Palisades and the City of Santa Monica. This will increase safety for cyclists/pedestrians which will increase usage and physical activity opportunities.	12/31/2023
LOS ANGELES COUNTY	LATRO2018	The Whittier Boulevard Transit Signal Priority Project (Project) includes the deployment of ITS infrastructure to enhance arterial operations and monitoring in East Los Angeles. Wireless communications and upgraded controller equipment will be deployed along a critical segment of Whittier Blvd. that serves Metro Rapid Line 720 and provides parallel capacity to the 1-10 ExpressLanes.	6/30/2024
LOS ANGELES COUNTY MTA	2018FBX00	Los Angeles County; software modifications and hardware upgrades of fare collection equipment at Metro rail stations and on Metro and Municipal Operator buses to address equipment obsolescence, enhance system security, communicate in near real-time, and support future TAP mobile app and other new payment technologies.	12/31/2023
LOS ANGELES COUNTY MTA	LA0D198	CRENSHAW/LAX TRANSIT CORRIDOR - The Crenshaw/LAX Transit Corridor Project is an 8.5-mile light rail transit (LRT) line extending from the intersection of Crenshaw and Exposition Boulevards allowing for transfer to the Exposition Light Rail Transit line to a connection with the Metro Green Line at the Aviation/LAX Station (PPNO 4027A).	6/30/2024
LOS ANGELES COUNTY MTA	LA0F075	LIGHT RAIL TRANSIT FLEET-UP TO 193 NEW CARS SYSTEMWIDE. These expansion rail cars will be assigned to Expo II, Gold Line Foothill and Vehicle Replacements. PPNO 4025.	8/31/2023
LOS ANGELES COUNTY MTA	LA0G010	Regional Connector - Light Rail in Tunnel allowing through movements of trains, Blue, Gold, Expo Lines. From Alameda / 1st Street to 7th Street/Metro Center \$59.2M of Section 5309 NS ARPA-CIG (Capital Investment Grant) in FY22.	6/30/2024
LOS ANGELES COUNTY MTA	LA0G1052	Metro Purple Line Westside Subway Extension Section 2 - Wilshire/La Cienega to Century City FTA ARPA - CIG (Section 5309 NS) \$58.4M in FY22.	6/30/2026
LOS ANGELES COUNTY MTA	LA0G1162	Airport Metro Connector.	12/31/2024
LOS ANGELES COUNTY MTA	LA0G1167	Design and construction of streetscape, pedestrian and bicycle access improvements in the Little Tokyo and Arts District neighborhood of Downtown Los Angeles within a one-mile radius of the 1st/Central Station of the Regional Connector light rail line.	9/30/2023
LOS ANGELES COUNTY MTA	LA0G1247	The Project consists of bicycle and pedestrian transportation linkage improvements to the Rail to Rail Active Transportation Corridor (ATC) Connector Project Segment A along an approximately 5.6-mile long corridor from the future Metro Crenshaw/LAX Fairview Heights Station to the existing Metro Blue Line Slauson Station.	12/31/2023
LOS ANGELES COUNTY MTA	LA0G1375	This is a large-scale deployment of the Freight Advanced Traveler Information System (FRATIS) Program to deploy advanced congestion management technologies which can achieve significant reductions in truck congestion, improve air quality, and reduce the use of fossil fuels in the Los Angeles region.	12/30/2023

TABLE IV-B-A-1. LOS ANGELES COUNTY			
LEAD AGENCY	PROJECT ID	PROJECT DESCRIPTION	COMPLETION DATE
LOS ANGELES COUNTY MTA	LA0G447	Metro Purple Line Westside Subway Extension Section 1 - Wilshire/Western to La Cienega FTA ARPA - CIG (Section 5309 NS) \$66.4M in FY22.	12/31/2023
LOS ANGELES COUNTY MTA	LA0G635	Design and construction of pedestrian and transit enhancements along the public right-of-way of the Metro Gold Line Eastside Extension to surrounding neighborhood. Transit enhancements are within 3 miles of Eastside Goldline Extension station.	6/30/2023
LOS ANGELES COUNTY MTA	LA0G642	Metro Purple Line Westside Subway Extension Section 3 FTA ARPA - CIG (Section 5309 NS) \$93.4M in FY22.	6/30/2027
MALIBU	LA0G1748	This project aims to improve safety and traffic flow by providing striping and signage for bicycles, a connecting bike path along the beach, separation of pedestrians and bicycles from the active roadway, connectivity to Pacific Coast Highway, a safe pathway for pedestrians, a sand wall, and driveways for Lifeguard Tower access. The proposed bicycle facility will include 1,200 ft of Class I, 1,800 ft of Class II, and 3,800 ft of Class III bike lanes. The pedestrian path is 1,350 ft.	6/30/2023
METRO GOLD LINE FOOTHILL EXTENSION CONSTRUCTION AU	LA29212XY	METRO RAIL GOLD LINE FOOTHILL EXTENSION - AZUSA TO CLAREMONT (LA County Line) 12 MILE, 5 STATION LRT EXTENSION. SAFETEA-LU # 285 LEAD AGENCY WILL CHANGE TO METRO GOLD LINE.	6/30/2025
MONTEREY PARK	LAF9502	Monterey Pass Road Complete Streets Bike Project is a 1.6 mile corridor providing multimodal transportation alternatives increasing ped, bike & transit use for the first last mile.	12/31/2023
NORWALK	LA0G1342	Imperial Highway ITS Project, from San Gabriel River to Shoemaker Road: Traffic Signal Synchronization.	12/31/2023
NORWALK	LATP17S028	Design and construct 12,000 LF of Class 2 bicycle lanes and improve 2,000 LF of sidewalk on Alondra Blvd. This is part of a long-range project identified in the Gateway Cities 2014 Strategic Transportation Plan to create over 14 miles of bike lanes along this corridor.	6/1/2026
PALMDALE	LATP17S025	The improvements would consist of implementing a "Complete Streets" element that includes crosswalk enhancements, bulb-out crossings, new Class II bike lanes (0.74 mile), the upgrade of a Class II bike lane to a Class IV facility (0.3 mile), mini-roundabouts, sidewalk gap closures, ADA-compliant curb ramps, and upgraded traffic control devices along 10th Street East from Avenue Q-9 to Q-12.	12/31/2030
PASADENA	LAF3522	Cordova Street Complete Streets Project. Convert the vehicular-oriented street to a complete street by removing 2 vehicular traffic lanes to accommodate bike and pedestrian facilities. City of Pasadena - Hill Street to Arroyo Parkway.	7/30/2023
PASADENA	LAMIPMR120	The Walnut Street ITS Project consist of the implementation of ITS assets along the corridor and integration of these assets into the DOT transportation network. Integration will feature point to point connectivity via fiber optics, upgrade in traffic signal hardware, inclusion of video surveillance systems, high resolution capable controllers, traffic safety analytics and collision prediction and short wave radio for vehicle to infrastructure or V2I applications.	12/31/2025

TABLE IV-B-A-1. LOS ANGELES COUNTY			
LEAD AGENCY	PROJECT ID	PROJECT DESCRIPTION	COMPLETION DATE
PASADENA	LATP17M021	The City of Pasadena will install a 1.5-mile, two-way, protected cycle track (Class I) on Union Street from Hill Avenue to Arroyo Parkway, including necessary signal upgrades with Road diet from 3 to 2 lanes. Also installing bike boulevard (0.3 miles, Class III) along Holliston Avenue between Union St and Cordova St (no Road Diet.)	12/31/2024
PICO RIVERA	LAF7502	Regional Bikeway Project. The project will install a bicycle/pedestrian bridge, Class II bicycle lanes, a Class I shared- use path, traffic calming medians, sidewalks, curb ramps, signal modifications, and wayfinding signage, connecting to two regional Class I routes.	12/31/2023
POMONA	LAF9526	Pomona ATP Phase 2 Bicycle Network for Community Assets: Nearly 9 miles of bikeways along 5 roads, improving access to community destinations and assets, enhancing access to the local and regional multi-modal transportation network.	12/1/2026
POMONA	LATP19S009	Priority projects of the Pomona Active Transportation Plan, including 10.2 miles of bike lanes, 1.8 miles of traffic calming measures, and 14 intersections of bike/ped improvements.	9/24/2024
REDONDO BEACH	LA0G1423	Purchase and install a Real Time Passenger Information System on Beach Cities Transit fixed route buses.	12/31/2023
REDONDO BEACH	LAF3502	Redondo Beach Bicycle Transportation Plan Implementation. Implement Class II and III bike facilities identified in the City of Redondo Beach's adopted Bicycle Transportation Plan. Approximately 2.1 centerline miles of bike lanes and 15.8 centerline miles of bike routes throughout the City of Redondo Beach.	12/31/2022
ROSEMEAD	LAMIPMR111	Install adaptive traffic signal control (ATSC) system, including necessary signal system upgrades for compliance with current standards at 39 signalized locations along Garvey Ave (9 intersections - W to E city limits), Valley Blvd (7 intersections - W to E city limits), San Gabriel Blvd (6 intersections N to S city limits), Walnut Grove Ave (16 intersections - N to S city limits), and Rosemead Blvd (5 intersections - N to S city limits).	6/30/2027
SAN GABRIEL	LAMIPMR102	The proposed project will replace and upgrade traffic signal equipment at 30 signalized intersections along major arterial in the City of San Gabriel. The proposed upgrades include, but are not limited to: new loop detection, video detection, battery back-up, new controllers, and communications. The City shall furnish a list intersection locations and equipment to the Metro Project Manager prior to installation and implementation. All 30 signals are proposed to be synchronized.	5/31/2024
SANTA CLARITA - TRANSIT	LA0G774	Vista Canyon Ranch Transit Center - relocate the existing, temporary Via Princessa Metrolink Station to the Vista Canyon project site; includes Metrolink Station and Bus Transfer Station, a pedestrian overpass or undercrossing of the tracks and an adjacent parking structure with up to 750 parking spaces.	6/30/2024
SANTA CLARITA	LAF7105	DOCKWEILER DR EXTENSION (1 of 2): The project consists of extension of two lanes to connect with a future extension planned for Dockweiler Drive. It includes new sidewalks, Class II bike lane, pedestrian signal heads, high visibility crosswalks, lighting, landscaping, bicycle actuation signals and wayfinding signs.	12/31/2024

TABLE IV-B-A-1. LOS ANGELES COUNTY			
LEAD AGENCY	PROJECT ID	PROJECT DESCRIPTION	COMPLETION DATE
SANTA CLARITA	LAF9118	LYONS AV/DOCKWEILER DR EXTENSION (2 of 2): Construct Dockweiler Drive gap closure between 12th St. and existing terminus of Dockweiler Dr, just west of Valle Del Oro. Constructs 8-ft sidewalks and Class II bike lanes on both sides.	12/31/2024
SANTA CLARITA	LAF9513	Railroad Avenue Class I Bike Path: Project will add 1.45 miles of Class I bike path on Railroad Avenue and enhance connectivity to the Jan Heidt Newhall Metrolink Station to the City's bicycle trail network	6/30/2023
SANTA MONICA	LA9918887	Project to make connectivity and safety improvements on Olympic Bl between Stewart & 26th St, including sidewalk & pedestrian crossings, to provide safer first/last mile access and enhance mobility. Project consists of approx. 1,300 LF (0.25 miles) of pedestrian improvement, enhance signal and intersection geometry at 26th St & Olympic Bl to remove a right turn slip lane and island, shorten pedestrian crossing distances & improve lighting. Use TC \$221K in FY24 to match STPL. Toll Credits Used.	12/31/2023
SANTA MONICA	LATP21F109	Construction of Class IV separated bikeway, bus islands, and intersection reconfigurations along Stewart Street. Add new sidewalks and pedestrian scale lighting along Pennsylvania Ave. this project will include 1300 feet of new sidewalk and 3300 feet of new bikeways.	7/31/2027
SIGNAL HILL	LATP17S010	The project will install approximately 2.0 lane miles of bike lanes (Class II) on Spring Street, repave roadway to minimize drainage to bike lanes/level surface, revised striping, signing, modified pedestrian walkways/ramps, signal pedestrian countdown heads, safety lighting, and install bio-retention stormwater quality devices.	9/15/2026
SOUTH EL MONTE	LAF5516	Install Class II bike lanes on Santa Anita Ave from Klingerman St to end of City Limits south of Merced Ave (1.5 mi) and on Merced Ave from Fern Ave to Santa Anita Ave (1.3 mi). Install Class III bike routes with shared-lane markings on Lerma Ave from Merced Ave to SW City Limits (0.3 mi) and on Thienes Ave from Tyler Ave to SE City Limits (1 mi). Install bike parking at the Civic Center and wayfinding/signage. Utilizing TC \$13K in FY24 to match STPL CON. Toll Credits Used \$13,000 in FFY23/24.	12/31/2023
SOUTH GATE	LA9918774	Construct raised median included in the scope of work is Timing and Coordination and Intelligent Transportation System for existing three (3) traffic signals.	12/31/2023
SOUTH GATE	LATP17S006	Install a Class I bike path (750 ft), Class II bike lanes (2.65 miles), and Class III bike routes (1.61 miles) along with pedestrian improvements including sidewalk, curb extensions, ADA curb ramps, high visibility crosswalks, rectangular rapid flashing beacon, bus shelters, and bike racks.	5/24/2026
SOUTH PASADENA	LA9918928	Deploy advanced adaptive traffic management system along the north south Fair Oaks Avenue and adjacent Fremont corridor from the north City limit to Huntington Drive (12 Signals: 11 South Pasadena and 1 Pasadena). The all traffic signal systems need full scale upgrades to accommodate intelligent transportation systems technologies. The project includes ADA upgrades and changeable message signs to provide real time information for drivers to deploy Integrated Corridor Management strategies.	12/31/2026

TABLE IV-B-A-1. LOS ANGELES COUNTY			
LEAD AGENCY	PROJECT ID	PROJECT DESCRIPTION	COMPLETION DATE
SOUTH PASADENA	LAF5308	South Pasadena's ATMS, Central TCS and FOIC for Fair Oaks Av. This project is located in South Pasadena on Fair Oaks Av between Columbia St and Huntington Dr. It will establish a fiber-optic backbone communication system connection between 12 signals on Fair Oaks Av and City Hall and install the ATMS/central management/control system at its City Hall Building. Funds are for design and construction costs.	12/31/2023
SOUTHERN CALIF. REGIONAL RAIL AUTHORITY	LA0G1596	San Fernando Road Bike Path Phase III - Crossings Safety Improvement. The project is located along San Fernando Road between Branford Street in the City of Los Angeles to CP Hollywood in the City of Burbank and includes 4.2 mile of bike path and 5 at-grade crossings.	12/31/2023
TORRANCE	LA0G1589	Anza Ave from Del Amo Blvd to Sepulveda Blvd; asphalt pavement rehabilitation, repair damaged sidewalks and curb and gutter, traffic signal improvements to increase capacity and throughput (video detection, pedestrian actuation), installation of emergency vehicle preemption.	6/30/2024
VARIOUS AGENCIES	20191301	I-10 Corridor Contract 2: The project will provide one express lane in each direction from just east of I-15 to Pepper Avenue in Colton, connecting to the I-10 Corridor Contract 1 express lanes currently under construction (Toll Credits to match STP).	12/30/2027
WHITTIER	LAF5314	Gateway Cities Forum Traffic Signal Corridors Project - improve traffic signal operations by upgrading each traffic signal to federal and state standards, providing additional vehicle detection to enable operation as a fully traffic-actuated signal, installing the appropriate components to enable each signal to be capable of time-based coordination and retiming signals to improve the overall progression of traffic (approximately 17 signals included).	6/30/2023
WHITTIER	LAF7519	Project is located in the City of Whittier. It will implement a two-mile Class I bike/pedestrian path on a City-controlled easement along the Union Pacific Railroad corridor from Mills Av to Leffingwell Rd, and it will also provide a trailhead east of Mills Av. The project promotes a regional bikeway corridor by extending the 4.5-mile Whittier Greenway Trail east at the City and LA County limits. Utilizing TC of \$247K in FY24 to match CMAQ in CON. Toll Credits Used.	12/31/2023
WHITTIER	LATP16S011	Whittier Greenway Trail East Extension Gap Closure. Acquisition of final 0.5 mile and construction/completion of final 2.8 miles of the 7.3-mile Whittier Greenway Trail, a Class I bicycle and pedestrian trail along southern boundary of Whittier, connecting LA & Orange County.	12/31/2023

TABLE IV-B-A-2. ORANGE COUNTY			
LEAD AGENCY	PROJECT ID	PROJECT DESCRIPTION	COMPLETION DATE
ANAHEIM	ORA152211	Nohl Ranch Open Space Trail - project will consist of a 10-foot wide Class I bikeway and a 3 to 10-foot wide pedestrian trail (pending clearance), in compliance with Caltrans standards. The project alignment would be approximately 5,100 LF and connect Anaheim Hills Road to the signalized crossing on the east side of Avenida Bernardo North. Ancillary features of the project include lighting, lane markings, signs, bicycle parking and pedestrian amenities.	6/30/2027
BREA	ORA190906	OC Loop Brea Gap Closure - Class I, 1.30-mile bikeway along the existing railroad ROW between North Palm Street and the Brea Canyon Channel in the City of Brea.	6/30/2028
GARDEN GROVE	ORA170202	City of Garden Grove, Bicycle Corridor Improvements - New bike lanes through road rebalancing on West Street and Gilbert Street, striping buffers to existing bike lanes on Brookhurst Street, Chapman Avenue, and Lampson Avenue, striping bike lane network gaps on Brookhurst Street, improving and creating bicycle routes on Lampson Avenue, Gilbert Avenue, Imperial Avenue, Shapel Street and Deadora Drive.	10/1/2025
LA HABRA	ORA113011	La Habra Union Pacific Railroad Bikeway. ENG for Union Pacific Railroad ROW between La Habra West City Limits and La Habra East City Limits. ROW for La Habra West City Limits to Beach Boulevard. Toll Credit Match for ATP-MPO - Split project with ORA190920 for ROW.	7/1/2025
ORANGE COUNTY	ORA170205	HAZARD AVENUE BIKEWAY PROJECT between Goldenwest Street and Euclid Avenue. Construct approximately 4 miles of a Class IV (paved, on-road protected) Bikeway in the cities of Westminster and Garden Grove.	12/1/2023
ORANGE COUNTY	ORA230801	OC Loop Segment P and Q - Class I trail along the Coyote Creek Flood Channel (1.6 miles) that closes a gap along the 66-mile multi-modal regional route known as the OC Loop. Split project from ORA151508.	12/19/2030
ORANGE COUNTY TRANSPORTATION AUTHORITY (OCTA)	ORA112702	Rideshare Vanpool Program - Capital Lease Cost FY12/13 - FY20/21. This project includes subsidy, marketing, database, ride guide and associated costs for the Rideshare/Vanpool program. Transit Development Credits: FY18/19 FTA 5307 Transfer @ \$516, FY20/21 CMAQ @ \$516 and FY21/22 CMAQ @ \$516.	9/30/2024
ORANGE COUNTY TRANSPORTATION AUTHORITY (OCTA)	ORA210301	The project will install real-time display & Bravo! signage at up to 23 bus stops along the Bravo! Main Street Rapid Bus and OC Bus Route 53/53X corridor. Route 53/53X operates from Anaheim through Orange and Santa Ana to Irvine via Main Street and Bravo! Main Street Rapid Bus (Route 533) operates on Main Street from Anaheim Regional Transportation Intermodal Center to MacArthur Boulevard in Santa Ana.	12/31/2025
ORANGE COUNTY TRANSPORTATION AUTHORITY (OCTA)	ORA211701	Countywide Signal Synchronization Baseline This project aims to build and reset the synchronization baseline network for Orange County's Signal Synchronization Network or SSN for the weekday and weekend peak periods. This project will include data collection, timing optimization, implementation, fine-tuning and continuity testing of 2,500 signals along the SSN. Toll credits: CMAQ: \$1,376 in FY22/23; STBG: \$344 in FY22/23.	6/30/2029
SANTA ANA	ORA151502	Santa Ana and Fifth Protected Bike Lane - Install median protected bike lanes on Santiago, Sixth, Brown, Garfield, French, Fifth and Santa Ana with all applicable signage, striping, and signal improvements. ATP State only funding.	12/1/2026

South Coast Air Basin Attainment Plan for the 2012 Annual PM2.5 Standard

TABLE IV-B-A-2. ORANGE COUNTY			
LEAD AGENCY	PROJECT ID	PROJECT DESCRIPTION	COMPLETION DATE
SANTA ANA	ORA151503	The Edinger Ave Protected Bike Lanes Project - Install bike lanes down the 1.7 mile corridor passing through residential homes, schools, parks, and small business shopping centers. The Project includes a Safe Routes to School program at 3 schools. ATP State-Only funded.	12/1/2026
SANTA ANA	ORA170802	First Street Pedestrian Improvements - Widen existing sidewalks by three feet, narrow the vehicle lanes, construct ADA improvements on sidewalks and wheel chair ramps, provide high visibility marked crosswalks, and add a signal controlled pedestrian crossing along First Street, 1.1 mile corridor.	12/14/2026
SANTA ANA	ORA190901	Fremont Elementary and Spurgeon Intermediate SRTS - Pedestrian/bicyclist traffic safety improvements for Fremont Elementary and Spurgeon Intermediate safe routes to school. Work includes bulbouts, curb ramps, 2,383 linear feet (lf) of new sidewalk, 10,824 lf of class 3 bikeways and a road diet with 5,280 lf of class 2 bikeways. State only funds.	7/15/2026
SANTA ANA	ORA190904	McFadden Ave. Protected Bike Lane and Bicycle Blvd. Project - McFadden Ave. 15,050 linear feet of class IV protected bike lanes and road diets and 6,365 linear feet of class III Bicycle Blvd from Harbor Blvd to Grand Ave in the City of Santa Ana. ATP toll credits.	7/15/2026
SANTA ANA	ORA190905	Standard Avenue Class IV Protected Bike Lane and Class II Buffered Bike Lane from 3rd Street to Warner Avenue and Protected Intersection Project at McFadden in the City of Santa Ana. Project includes 9,900 linear feet (lf) of road diets, 4,000 lf class II, 1,700 lf class III, and 5,900 lf class IV bikeways. ATP toll credits.	7/15/2026
SANTA ANA	ORA190915	Bristol Street Protected Bike Lanes - Phase II Warner to St. Andrew Place - Class IV, 1.0-mile bicycle lane installation on Bristol Street from Warner Avenue to St. Andrew Place. This segment will install a six-foot wide bicycle lane and a four-foot wide separation barrier as a buffer within the curb to curb street width after.	2/26/2026
SANTA ANA	ORA210901	Raitt Street Protected and Buffered Bike Lane Project - Raitt St. Class 4 protected bike lane from St. Gertrude to Santa Ana Blvd, Class 2 bike lane from Warner to Occidental, and Class 3 bicycle blvd from Santa Ana Blvd to Washington.	12/30/2030
VARIOUS AGENCIES	ORA100511	SR-55 WIDENING BETWEEN I-405 AND I-5 - ADD 1 MF AND 1 HOV LANE EACH DIRECTION AND FIX CHOKEPOINTS FROM I-405 TO I-5; ADD 1 AUX LANE EA DIR BTWN SELECT ON/OFF RAMP AND NON-CAPACITY OPERATIONAL IMPROVEMENTS THROUGH PROJECT LIMITS. Toll Credit for RSTP and CMAQ (Including street traffic signal improvement at I-5/Newport Avenue onramp for mitigation. non-capacity).	4/30/2029
VARIOUS AGENCIES	ORA111210	I-5 FROM SR 55 TO SR 57 - ADD 1 HOV LANE EACH DIRECTION (PPNO 2883A). Signage from PM 31.1 to 37.7 (Utilize toll credit match).	12/31/2021
VARIOUS AGENCIES	ORA111801	I-5 (Alicia Parkway to El Toro Road) Segment 3 - The project will add one general purpose lane on the I-5 in each direction between Alicia Parkway and El Toro Road (approximately 1.7 miles), Extend the 2nd HOV lane in both directions and add auxiliary lanes where needed.	9/30/2025

TABLE IV-B-A-3. RIVERSIDE COUNTY			
LEAD AGENCY	PROJECT ID	PROJECT DESCRIPTION	COMPLETION DATE
CALIMESA	RIV190623	IN WESTERN RIVERSIDE COUNTY FOR THE CITY OF CALIMESA (JOINT PROJECT WITH CITY OF YUCAIPA) - ON COUNTY LINE RD B/W PARK AV AND BRYANT ST, CONSTRUCT 4 SINGLE-LANE AND 1 MULTI-LANE ROUNDABOUTS; AND IMPROVEMENTS TO STREET, PEDESTRIAN FACILITIES, AND BICYCLE FACILITIES.	12/31/2030
CITY OF EASTVALE	RIV210627	In Western Riverside County in the City of Eastvale - Southeast Eastvale Safe Routes to School Equitable Access Project - Construct: 1 lane mile of Class II bikeway along Orange Street from Summer Ave to Scholar Way; a pedestrian signal with bulb-outs & pedestrian refuge island; 3 additional crossing improvements for existing Class 1 path; 4 bulb-outs.	10/28/2028
CITY OF JURUPA VALLEY	RIV200703	IN WESTERN RIVERSIDE CO. FOR THE CITY OF JURUPA VALLEY - SRTS SIDEWALK GAP CLOSURE ON VARIOUS STREETS NEAR SUNNYSLOPE ELEMENTARY SCHOOL: CONSTRUCT 9,715 LF OF SIDEWALKS, 15 CROSSWALKS (11 NEW & 4 UPGRADES), 19 ADA RAMPS, SOLAR FLASHING BEACONS AT 2 AWSC INTERECTIONS AND RRFB CONTROLLED CROSSWALK (STATE-ONLY FUNDS: SB1 & SHA).	12/30/2027
HEMET	RIV181010	IN CITY OF HEMET - HEMET VALLEY BIKEWAY CONX: INSTALL CLASS II (1,200 LF), III (10,500 LF) BIKE LNS, NEW S/W (4,000 LF) W/ ADA RAMPS, XING IMP., ON PALM BW ESPLANDE & JOHNSTN, WHITTIER BW PALM & GILBERT, JOHNSTN BW PALM & GILBERT, GILBERT BW WHITTIER & CHAMBERS, CHAMBERS BW GILBERT & STATE; BIKE STAGING W/ DETECTION, LOCKERS, REPAIR AREA; INCL OUTREACH. (ATP-3 AUG STATE) TC UTILIZ FOR FY19, FY20.	9/1/2023
PERRIS	RIV210619	In Western Riv. Co. in the City of Perris: Construct 9,240 linear ft of class IV bike lanes with hardscape buffer and reflective delineators, 3 high-visibility crosswalks, 700 linear ft of sidewalks, bike repair stations, and signage on Redlands Ave between Placentia Ave and Tahoe St, and on Citrus Ave between Redlands Ave and Perris Blvd. Includes public outreach campaign.	12/31/2028
RIVERSIDE COUNTY	RIV200707	IN WESTERN RIVERSIDE CO. FOR THE UNINCORPORATED AREA OF WARM SPRINGS AND IN THE CITY OF LAKE ELSINORE - EL TORO RD/DEXTER AVE SRTS SIDEWALK PROJECT: CONSTRUCT APPROX. 5,748 LF OF SIDEWALK, CURB AND GUTTER ON EL TORO/DEXTER FROM CARMELA CT TO 630' N/O CENTRAL AVE INCLUDING 7 NEW CURB RAMPS, A NEW CROSSWALK AND 2 FLASHING BEACONS. SRTS PROGRAM INCLUDES: WALK/BIKE AUDIT, PED SAFETY CLASS, MOCK CITY EVENTS, AND SRTS LAW ENFORCEMENT.	12/30/2028
RIVERSIDE COUNTY TRANS COMMISSION (RCTC)	RIV160101	IN WESTERN RIVERSIDE COUNTY ON SR-91/I-15: On I-15 -ADD TOLL EXPRESS LANE MEDIAN DIRECT CONNECT FROM SB15 TO WB91 & EB91 TO NB15, 1 TOLL EXPRESS LANE EACH DIRECTION FROM HIDDEN VALLEY TO SR91 DIRECT CONNECTOR. CONSTRUCT OPERATIONAL IMPROVEMENT BY EXTENDING THE EB91 EXPRESS LANE (2ND LN SPLIT TO RIV160101A) AND AUXILARY LANE ALONG SR91. CONSTRUCT ADDITIONAL SIGNAGE ALONG SR91 AT PM R18.0 IN OR COUNTY.	6/30/2024
RIVERSIDE COUNTY TRANS COMMISSION (RCTC)	RIV111207	IN WESTERN RIVERSIDE COUNTY - CONTINUE THE IMPLEMENTATION OF PARK & RIDE FACILITIES THROUGH PROPERTY LEASES (VARIOUS LOCATIONS THROUGHOUT THE WESTERN COUNTY).	12/30/2028
RIVERSIDE COUNTY TRANS COMMISSION (RCTC)	RIV151104	FREEWAY SERVICE PATROL (FSP) CONTINUED IMPLEMENTATION OF FSP ON SR-91 (ORANGE COUNTY LINE TO 60/91/215 INTERCHANGE), SR-60 (MILLKEN TO THEODORE), I-215 (SAN BERNARDINO COUNTY LINE TO MURRIETA HOT SPRINGS), I-15 (SR-60 TO SR-79/TEMECULA PARKWAY).	12/31/2028

South Coast Air Basin Attainment Plan for the 2012 Annual PM2.5 Standard

TABLE IV-B-A-3. RIVERSIDE COUNTY			
LEAD AGENCY	PROJECT ID	PROJECT DESCRIPTION	COMPLETION DATE
RIVERSIDE COUNTY TRANS COMMISSION (RCTC)	RIV200105	In Western Riverside County - Continue the implementation of subsidies for eligible vanpools commuting to worksites in Western County. TDC used as follows: FFY 23/24 \$49k; FFY24/25 \$70k; & FFY25/26 \$93k.	12/30/2030
RIVERSIDE COUNTY TRANS COMMISSION (RCTC)	RIV200801	In Western Riverside County in the City of Temecula: Installation of new vehicle detection and adaptive highway metering systems on I-15 NB from the San Diego county line to the I-15/I-215 split. Includes relocation of existing ramp meters at Rancho California Rd. (RCR) and Temecula Parkway, ramp modifications at RCR and Winchester Road, variable speed limit signs, and other ITS elements. TC Utilization for CMAQ and TC for Earmarks.	12/31/2025
RIVERSIDE TRANSIT AGENCY	RIV180131	IN WESTERN RIV CO IN THE CITY OF HEMET FOR RTA - CONSTRUCTION OF THE HEMET MOBILITY HUB ON 2 ACRE PARCEL LOCATED EAST OF RAIL ROW, SOUTH OF EAST DATE STREET, W/O NORTH JUANITA ST, AND NORTH OF EAST DEVONSHIRE AVE TO INCLUDE: 10 BUS BAYS, 10 SHELTERS/CANOPIES, 20 PARKING SPACES, 1 TRAFFIC SIGNAL AT DEVONSHIRE & CARMALITA, 1 CONTROLLED INTERSECTION AT DEVONSHIRE AND JUANITA; STORAGE AND RESTROOM FACILITY. (FTA 5339: FY15 \$1,626 (URBAN) ; FY16 \$317 AND FY17 \$326 (SMALL URBAN)).	12/31/2030
WILDOMAR	RIV210630	In Western Riverside County in the City of Wildomar: Bundy Canyon ATP Corridor (CIP 026-3): Between Monte Vista Drive and Harvest Way, construct a 2.2 mile ADA compliant 15-foot wide Class I Shared Bike/Pedestrian Path along Bundy Canyon Road with lighting, wood/rope barrier, and CA MUTCD signage. Includes community programs to enhance safety and comfort for residents and students.	12/31/2029

TABLE IV-B-A-4. SAN BERNARDINO COUNTY			
LEAD AGENCY	PROJECT ID	PROJECT DESCRIPTION	COMPLETION DATE
FONTANA	20131506	IN FONTANA: SAN SEVAINE TRAIL (PHASE 1, SEG 2) North/South 1.25 mile long, 12 ft wide paved multi-use trail from Banyan St. to the Pacific Electric Trail in Fontana.	12/31/2023
HIGHLAND	SBD230803	In Highland: Construction of 1 mile of new Class II and III bicycle lanes on Orange St from Greenspot Rd to Eucalyptus Ave (Class II), Orange St from Eucalyptus Ave to Tonner Dr. (Class III), Tonner Dr. from Orange St to Streater Dr. (Class III), Steater Dr. from Baseline to Glenheather Dr. (Class II and III), Glenheather Dr. from Streater Dr. to Church St/Love St. (Class II and III) and Love St. from Church St. to Elder Gulch Paseo (Class III).	6/30/2025
REDLANDS	SBD230802	In Redlands: Installation of 0.1 miles of a Class IV bikeway on Texas Street from Citrus Valley High School (CVHS) to Domestic Avenue. Installation of 0.5 miles of Class I bicycle/pedestrian path on Domestic Avenue from Texas Street to Orange Street connecting CVHS to Orange Street. Installation of 0.25 miles of Class I bicycle/pedestrian path on Orange Street from Pioneer Street to Domestic Avenue.	4/1/2024
OMNITRANS	20150307	COUNTY-WIDE VANPOOL PROJECT (Ongoing)(TDC: FY16/17 CMAQ CON \$460k).	6/30/2023
SAN BERNARDINO COUNTY TRANSPORTATION AUTHORITY	20190010	Reconstruct Mt. Vernon Ave Bridge over I-10 to accommodate 2 new dedicated left turn and bike lanes and sidewalk, realign Mt. Vernon & E Valley Blvd Intersection, and modify portion of the WB on-ramp and EB off-ramp. Widen SB Mt Vernon Ave south of the bridge to 2 through lanes. Widen NB Mt Vernon Ave, south of the EB on-ramp, to accommodate 1 new dedicated left turn lane.	12/31/2025
SAN BERNARDINO COUNTY TRANSPORTATION AUTHORITY	20190702	SBCTA Metrolink Station Accessibility Improvement Project - Phase II: Bicycle and pedestrian accessibility improvements near five Metrolink transit stations (Montclair, Upland, Rancho Cucamonga, Fontana, and San Bernardino). Toll Credit to match ATP.	5/21/2024
VARIOUS AGENCIES	20159901	I-15 Express Lanes (Contract 1): Construct 1 Exp. Lane in each direction between Cantu-Galleano Ranch Rd. and SR-60 and 2 Exp. Lanes in each direction between SR-60 and north of Foothill Blvd. Additional improvements to AUX LN widening, undercrossing, and reconstruction of ramps and lane transitions where needed.	10/1/2026
VARIOUS AGENCIES	20191301	I-10 Corridor Contract 2: The project will provide one express lane in each direction from just east of I-15 to Pepper Avenue in Colton, connecting to the I-10 Corridor Contract 1 express lanes currently under construction (Toll Credits to match STP).	12/30/2027



APPENDIX V

Contingency Measures Infeasibility Justification

Table of Contents

Introduction	1
Control Measure Identification and Evaluation Methodology	2
Reasoned Justification for Proposing Measures Achieving Less than One Year's Worth of RFP	2
Fuel Combustion	4
1. Boilers, Steam Generators, and Process Heaters	5
2. Reciprocating Internal Combustion Engines (RICE)	15
3. Combustion Turbines	24
4. Residential and Commercial Fuel Combustion	31
5. Other Fuel Combustion	36
Waste Disposal	42
1. Landfills	42
2. Sewage Treatment	42
3. Composting	43
4. Incinerators	45
Cleaning and Surface Coating	46
Petroleum Production and Marketing	47
1. Flares	47
2. Wet Cooling Towers	53
3. Coking	53
4. FCCUs	54
Industrial Processes	55
1. Chemical	55
2. Food and Agriculture	55
3. Mineral Processes	56
4. Metal Processes	60
5. Wood and Paper	63
6. Glass and Related Products	64
7. Electronics	64
8. Other (Industrial Processes)	64
Solvent Evaporation	64
Miscellaneous Processes	65
1. Residential Fuel Combustion	65
2. Fugitive Dust Categories	66
i. Farming Operations	67
ii. Construction and Demolition	73
iii. Paved Road Dust	87 86
iv. Unpaved Road Dust	88 87
v. Fugitive Windblown Dust	98 97
3. Fires	110 109
4. Managed Burning and Disposal (Open Burning)	110 109

5. Commercial Cooking	116 <u>115</u>
6. Other (Miscellaneous Processes)	118 <u>117</u>

Attachment A: California Smog Check Contingency Measure State Implementation Plan
Revision

Attachment B: CARB’s Area Source Infeasibility Justification

Introduction

The Clean Air Act (CAA) specifies that State Implementation Plans (SIPs) must provide for contingency measures, defined in section 172(c)(9) as “specific measures to be undertaken if the area fails to make reasonable further progress, or to attain the national primary ambient air quality standard by the attainment date.” These measures must be in addition to existing measures including those proposed for attainment in this Plan.

Recently, the U.S. EPA released a guidance document, entitled Draft Guidance on the Preparation of State Implementation Plan Provisions that Address the Nonattainment Area Contingency Measure Requirements for Ozone and Particulate Matter¹ (hereafter, “Draft Guidance”). The Draft Guidance clarifies requirements for contingency measures including: (1) revising the quantity of emissions reductions that contingency measures should provide to account for declining emissions inventories over time; (2) allowing for an infeasibility justification if an area is unable to identify feasible contingency measures in sufficient quantities due to a scarcity of available, qualifying measures; and (3) revising the time period within which emission reductions from contingency measures should occur – 60 days to take effect and up to 2 years to achieve emission reductions from a triggering event.

An overview of South Coast AQMD’s contingency measure and the amount of reductions anticipated from it are presented in Chapter 6. The contingency measure in place for this standard is anticipated to achieve less than one year’s worth (OYW) of reductions, the amount of reductions recommended by the Draft Guidance. Therefore, consistent with the Draft Guidance, this appendix provides an infeasibility justification that no further opportunities for contingency measures or emission reductions exist.

To fulfill CAA requirements for PM_{2.5} SIP planning requirements, Appendix III of the PM_{2.5} Plan includes a robust control strategy analysis for Best Available Control Measures (BACM) and Most Stringent Measures (MSM). As part of the BACM/MSM analysis, staff compared rule requirements with those in other jurisdictions, focusing on potential deficiencies in South Coast AQMD’s rules. In many ways, this analysis mirrored the evaluation process that U.S. EPA recommends for developing infeasibility justifications. U.S. EPA’s Draft Guidance acknowledges the approach taken in this Plan by noting “[w]here the nonattainment plan associated with the [contingency measure] submission contains a robust control strategy analysis, that analysis can serve as a foundation for much of this effort.” Therefore, for some categories, staff referenced the BACM/MSM analysis, and associated potential control measures identified, when developing the infeasibility justification.

¹ EPA, Office of Air Quality Planning and Standards, Air Quality Policy Division, “DRAFT: Guidance on the Preparation of State Implementation Plan Provisions that Address the Nonattainment Area Contingency Measure Requirements for Ozone and Particulate Matter” (“Draft Guidance”), March 16, 2023.
<https://www.epa.gov/system/files/documents/2023-03/CMTF%202022%20guidance%203-17-23.pdf>

Control Measure Identification and Evaluation Methodology

South Coast AQMD followed the procedures outlined in the Draft Guidance for the preparation of a reasoned justification for providing contingency measures achieving less than OYW of reductions. These procedures, which involve the identification of existing and potential controls not already included in the PM2.5 Plan and evaluation of the feasibility of such controls, are outlined below:

1. Thoroughly examine the emission sources in the South Coast Air Basin and identify applicable rules.
2. Compare existing rule requirements with those in other jurisdictions and identify potential control measures that were not identified as part of the BACM/MSM analysis in Appendix III and are surplus to the control strategy in Chapter 4.
3. Review each of the measures identified in Step 2 to determine whether it is technologically and economically feasible to implement within 2 years as a contingency measure. If feasible, include the measure in the contingency measure submission.
4. For the remaining infeasible measures from Step 3, document the reason why each measure is infeasible as a contingency measure, including whether the conclusion is based on technological, economic, or other infeasibility considerations.

Reasoned Justification for Proposing Measures Achieving Less than One Year's Worth of RFP

This section contains evaluation of all direct PM2.5, NOx, and ammonia (NH3) source categories in the South Coast Air Basin (Basin) and associated control measures. In order to identify relevant source categories for this evaluation, South Coast AQMD staff began by examining sources of emissions by major source categories (MSCs), then proceeded to examine the in-depth sub-categories in each MSC, and identified rules and controls applicable to each sub-category. Table V-1 lists the Basin's projected PM2.5, NOx, and NH3 baseline emissions in tons per day (tpd) for the 2030 attainment year by three-digit Emission Inventory Code (EIC) and description. For brevity, sub-category level emissions are not included in the table. Percentages of the total emissions for each source category are provided as well.

TABLE V-1
SOUTH COAST AIR BASIN MAJOR SOURCE CATEGORIES AND 2030 BASELINE EMISSIONS
INVENTORY OVERVIEW

Major Source Category (EIC – Description)	PM2.5 Emissions (tpd)	% of 2030 PM2.5 Inventory	NOx Emissions (tpd)	% of 2030 NOx Inventory	NH3 Emissions (tpd)	% of 2030 NH3 Inventory
010 – Electric Utilities	0.43	0.80%	2.49	1.18%	0.53	0.67%
020 – Cogeneration	0.01	0.02%	0.02	0.01%	0.17	0.21%
030 – Oil and Gas Production (Combustion)	0.11	0.20%	0.93	0.44%	0.25	0.32%
040 – Petroleum Refining (Combustion)	1.79	3.31%	4.27	2.03%	1.54	1.94%
050 – Manufacturing and Industrial	1.29	2.39%	7.62	3.62%	2.20	2.77%
052 – Food and Agricultural Processing	0.05	0.09%	0.39	0.19%	0.06	0.08%
060 – Service and Commercial	1.11	2.05%	11.26	5.35%	2.21	2.79%
099 – Other (Fuel Combustion)	0.41	0.76%	2.41	1.15%	0.28	0.35%
110 – Sewage Treatment	0.00	0.00%	0.00	0.00%	0.22	0.28%
120 – Landfills	0.21	0.39%	0.39	0.19%	1.26	1.59%
130 – Incineration	0.05	0.09%	1.18	0.56%	0.24	0.30%
140 – Soil Remediation	0.00	0.00%	0.05	0.02%	0.00	0.00%
199 – Other (Waste Disposal)	0.00	0.00%	0.00	0.00%	1.67	2.10%
210 – Laundering	0.00	0.00%	0.00	0.00%	0.00	0.00%
220 – Degreasing	0.02	0.04%	0.00	0.00%	0.01	0.01%
230 – Coatings and Related Processes	1.54	2.85%	0.00	0.00%	0.10	0.13%
240 – Printing	0.00	0.00%	0.00	0.00%	0.04	0.05%
250 – Adhesives and Sealants	0.02	0.04%	0.00	0.00%	0.00	0.00%
299 – Other (Cleaning and Surface Coatings)	0.00	0.00%	0.04	0.02%	0.00	0.00%
310 – Oil and Gas Production	0.02	0.04%	0.01	0.00%	0.00	0.00%
320 – Petroleum Refining	0.88	1.63%	0.59	0.28%	0.07	0.09%
330 – Petroleum Marketing	0.00	0.00%	0.02	0.01%	0.00	0.00%
339 – Other (Petroleum Production and Marketing)	0.00	0.00%	0.01	0.00%	0.00	0.00%
410 – Chemical	0.39	0.72%	0.07	0.03%	0.01	0.01%
420 – Food and Agriculture	0.06	0.11%	0.03	0.01%	0.00	0.00%
430 – Mineral Processes	0.99	1.83%	0.38	0.18%	0.07	0.09%
440 – Metal Processes	0.26	0.48%	0.29	0.14%	0.00	0.00%
450 – Wood and Paper	3.23	5.98%	0.00	0.00%	0.01	0.01%
460 – Glass and Related Products	0.00	0.00%	0.00	0.00%	0.00	0.00%
470 – Electronics	0.00	0.00%	0.00	0.00%	0.00	0.00%
499 – Other (Industrial Processes)	0.48	0.89%	0.02	0.01%	8.59	10.83%
510 – Consumer Products	0.00	0.00%	0.00	0.00%	0.00	0.00%
520 – Architectural Coatings and Related Solvent	0.00	0.00%	0.00	0.00%	0.00	0.00%
530 – Pesticides/Fertilizers	0.00	0.00%	0.00	0.00%	1.17	1.47%
540 – Asphalt Paving/Roofing	0.03	0.06%	0.00	0.00%	0.00	0.00%
610 – Residual Fuel Combustion	6.59	12.19%	15.17	7.21%	0.11	0.14%
620 – Farming Operations	0.13	0.24%	0.00	0.00%	6.13	7.73%

Major Source Category (EIC – Description)	PM2.5 Emissions (tpd)	% of 2030 PM2.5 Inventory	NOx Emissions (tpd)	% of 2030 NOx Inventory	NH3 Emissions (tpd)	% of 2030 NH3 Inventory
630 – Construction and Demolition	2.49	4.61%	0.00	0.00%	0.00	0.00%
640 – Paved Road Dust	9.11	16.85%	0.00	0.00%	0.00	0.00%
645 – Unpaved Road Dust	1.67	3.09%	0.00	0.00%	0.00	0.00%
650 – Fugitive Windblown Dust	0.21	0.39%	0.00	0.00%	0.00	0.00%
660 – Fires	0.41	0.76%	0.08	0.04%	0.00	0.00%
670 – Waste Burning and Disposal	0.28	0.52%	0.09	0.04%	0.03	0.04%
690 – Cooking	12.30	22.76%	0.00	0.00%	0.00	0.00%
699 – Other (Miscellaneous Processes)	0.00	0.00%	0.00	0.00%	28.03	35.33%
710 through 890 (Mobile Source Categories)	7.44	13.77%	162.63	77.30%	21.32	26.87%
Total	54.05	100.00%	210.39	100.00%	79.34	100.00%

Mobile source categories (i.e., MSCs 710 through 890) comprise nearly 77 percent of the 2030 NOx emissions in the Basin. While CARB has unique authority to regulate certain mobile sources by obtaining a waiver from U.S. EPA, significant mobile source categories such as aircraft, ships, locomotives, and interstate trucks lie primarily under federal regulatory authority. It is important to note that U.S. EPA has taken the position that they are not obligated to evaluate contingency measures for sources under its authority. Furthermore, the dominance of mobile source NOx emissions significantly limits the ability for the South Coast AQMD to achieve OYW of NOx reductions from contingency measures.

Fuel Combustion

Fuel combustion emissions are shown in Table V-2 and consist of nine MSCs including 010 – Electric Utilities, 020 – Cogeneration, 030 – Oil and Gas Production (Combustion), 040 – Petroleum Refining (Combustion), 050 – Manufacturing and Industrial, 052 – Food and Agricultural Processing, 060 – Service and Commercial, 099 – Other (Fuel Combustion), and 610 – Residential Fuel Combustion. Staff examined direct PM2.5, NOx, and NH3 emissions by equipment category rather than source category because the analysis of feasible contingency measures is anticipated to be similar across each source category that combusts fuel. That is, the technologies available to minimize emissions from fuel combustion in each source category are predicted to be more dependent on the equipment combusting fuel than on the type of source generating the emissions.

As demonstrated in Table V-2, fuel combustion sources contribute 11.8 tpd of PM2.5, 44.6 tpd of NOx, and 7.36 tpd of NH3 to the 2030 baseline emissions inventory. The analysis of fuel combustion equipment was grouped into five categories: (1) boilers, steam generators, and process heaters; (2) engines; (3) combustion turbines; (4) residential and commercial fuel combustion; and (5) other fuel combustion. Each source group is evaluated separately below.

TABLE V-2
FUEL COMBUSTION SOURCE CATEGORY EMISSIONS BASED ON 2030 BASELINE INVENTORY IN
THE SOUTH COAST AIR BASIN

Industry	PM2.5 (tpd)	NOx (tpd)	NH3 (tpd)
010 – Electric Utilities	0.43	2.49	0.53
020 – Cogeneration	0.01	0.02	0.17
030 – Oil and Gas Production (Combustion)	0.11	0.93	0.25
040 – Petroleum Refining (Combustion)	1.79	4.27	1.54
050 – Manufacturing and Industrial	1.29	7.62	2.20
052 – Food and Agricultural Processing	0.05	0.39	0.06
060 – Service and Commercial	1.11	11.26	2.21
099 – Other (Fuel Combustion)	0.41	2.41	0.28
610 – Residential Fuel Combustion	6.59	15.17	0.11
Total	11.8	44.6	7.36

1. Boilers, Steam Generators, and Process Heaters

a. Overview

Boilers, steam generators, and process heaters fueled by gas or liquid fuel are used to produce hot water, produce steam, and transfer heat from combustion gases to liquid or process streams. These units emit direct PM2.5, NOx, and NH3 and can be found at facilities representing a wide range of industries including, but not limited to, electrical utilities, cogeneration, oil and gas production, petroleum refining, manufacturing and industrial, food and agricultural processing, and service and commercial facilities as shown in Table V-3. These units have significant variability in technology, size, use and age of equipment, as well as variability in potential controls for various pollutants, the affected industries, and the regulatory requirements.

TABLE V-3
BOILERS, STEAM GENERATORS AND PROCESS HEATERS EMISSIONS BASED ON 2030 BASELINE
INVENTORY IN THE SOUTH COAST AIR BASIN

Industry	PM2.5 (tpd)	NOx (tpd)	NH3 (tpd)
010 – Electric Utilities	0.06	0.48	0.10
020 – Cogeneration	0.00	0.00	0.00
030 – Oil and Gas Production (Combustion)	0.02	0.07	0.02
040 – Petroleum Refining (Combustion)	1.31	3.68	0.64
050 – Manufacturing and Industrial	0.18	1.15	0.23
052 – Food and Agricultural Processing	0.05	0.30	0.06
060 – Service and Commercial	0.47	3.58	0.20
099 – Other (Fuel Combustion)	0.00	0.00	0.00

Industry	PM2.5 (tpd)	NOx (tpd)	NH3 (tpd)
610 – Residential Fuel Combustion	0.00	0.00	0.00
Total	2.54	9.26	1.25

b. Evaluation

i. Available Control Technologies

Low NOx burners (LNB) and ultra-low NOx burners (ULNB), as well as flue gas recirculation (FGR), are commonly used combustion control technologies that manage NOx emissions in boilers, steam generators, and process heaters. The most popular post-combustion add-on control method is selective catalytic reduction (SCR). With ULNB, emission limits of 7 to 9 ppm² are often feasible to achieve. Current units burning gaseous fuels can achieve a 9 ppm NOx limit with ULNB and meeting 7 ppm is potentially possible with burner replacement.³ Operators often utilize SCR to attain an emissions limit of 5 ppm or below.

There are emerging technologies that have demonstrated achieving 5 ppm without the use of SCR and these include next generation ULNB for boilers smaller than 20 million British thermal units per hour (MMBtu/hr).⁴

ii. South Coast AQMD Control Measures

Table V-4 summarizes two South Coast AQMD control measures for boilers, steam generators, and process heaters.

TABLE V-4
SOUTH COAST AQMD CONTROL MEASURES (BOILERS, STEAM GENERATORS, AND PROCESS HEATERS)

South Coast AQMD Rule	Applicability	Control Measure
Rule 1135 - Emissions of Oxides of Nitrogen from Electricity Generating Facilities	Electric generating units at electricity generating facilities.	Boilers must achieve 5 ppm NOx at 3% O ₂
Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters (Amended 12/4/20)	Boilers, steam generators, and process heaters of equal to or greater than 5 MMBtu/hr rated input capacity used in all industrial, institutional, and commercial operations	The various limits in the rule apply to different types of units based on use and size but can be achieved using the following control technologies: LNB, ULNB, SCR

² All ppm emission limits are referenced at 3 percent volume stack gas oxygen (O₂) on a dry basis averaged over a period of 15 consecutive minutes

³ Final Staff Report for PARs 1146, 1146.1 and 1146.2, and PR 1100, South Coast AQMD, December 2018

⁴ John Zink Hamworthy SOLEX™ Burner: <https://www.johnzinkhamworthy.com/wp-content/uploads/solex-burner.pdf>. Accessed on September 27, 2023

South Coast AQMD Rule	Applicability	Control Measure
Rule 1146.1 – Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters (Amended 12/7/18)	Boilers, steam generators, and process heaters that are greater than 2 MMBtu/hr and less than 5 MMBtu/hr rated heat input capacity used in any industrial, institutional, or commercial operation	The various limits in the rule apply to different types of units based on use and size but can be achieved using the following control technologies: LNB, ULNB
Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters (Amended 12/7/18)	Natural gas-fired water heaters, boilers, and process heaters that are less than 2 MMBtu/hr	The various limits in the rule apply to different types of units based on use and size
Rule 1109.1 – Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Operations (Adopted 11/5/21)	Combustion equipment including, but not limited to, boilers and process heaters at petroleum refineries and facilities with related operations to petroleum refineries	The various limits in the rule apply to different types of units based on use and size but can be achieved using the following control technologies: LNB, ULNB, SCR

iii. Review of Control Measures in Other Jurisdictions

To find potential measures to consider as contingency measures, staff considered the control measures in place in other California jurisdictions such as San Joaquin Valley Air Pollution Control District (SJVAPCD) and Ventura County APCD (VCAPCD) that regulate boilers, steam generators, and process heaters. These rules are not structured identically across agencies or rules, which can make direct comparison difficult. For example, subcategories are organized differently among the rules. Table V-5 summarizes the applicable control measures identified in other jurisdictions. In the table, two South Coast AQMD rules for boilers, steam generators, and process heaters – Rules 1146 and 1109.1 – are compared with SJVAPCD Rules 4306 and 4320 and VCAPCD Rule 74.15. Note that the comparison could not be performed for all unit categories. For example, units fired on landfill gas have NO_x limits at 25 ppm in Rule 1146, but not in SJVAPCD's rules or VCAPCD's rule. Although this unit category is excluded from the comparison in Table V-5, it shows that South Coast AQMD has a more stringent requirement than other jurisdictions for landfill gas-fired units. For the purpose of comparison, source category numbering follows the format used in SJVAPCD Rule 4320.

Boilers, steam generators, and process heaters permitted to operate in the Basin are sources of NO_x emissions. Most of these units are installed with ULNB and/or SCR and predominantly burn natural gas so direct PM_{2.5} emissions are minimal. Nevertheless, a potential control measure in Appendix III evaluated PM_{2.5} control technologies for boilers, steam generators, and process heaters and concluded that these technologies are infeasible.

South Coast AQMD Rule 1146 is more stringent than VCAPCD Rule 74.15, but is less stringent than SJVAPCD Rules 4306 and 4320 for some of the unit categories listed below:

- Category A1 (fire tube boilers rated > 5 MMBtu/hr and ≤ 20 MMBtu/hr)
 - Rule 4320 limit: 5 ppm
 - Rule 1146 limit: 7 ppm
- Category A3 (units fired on digester gas rated > 5 MMBtu/hr and ≤ 20 MMBtu/hr)
 - Rules 4306 and 4320 limits: 9 ppm
 - Rule 1146 limit: 15 ppm
- Category A4 (thermal fluid heaters rated > 5 MMBtu/hr and ≤ 20 MMBtu/hr)
 - Rules 4306 and 4320 limits: 9 ppm
 - Rule 1146 limit: 12 ppm
- Category A5 (all other units rated > 5 MMBtu/hr and ≤ 20 MMBtu/hr)
 - Rule 4320 limit: 5 ppm
 - Rule 1146 limit: 9 ppm
- Categories B (B1, B2, and B3 – boilers rated > 20.0 MMBtu/hr and ≤ 75 MMBtu/hr)
 - Rule 4320 limit: 2.5 ppm
 - Rule 1146 limit: 7 ppm for B1 (20 to 75 MMBtu/hr) and 5 ppm for B2 (20 to 75 MMBtu/hr) and B3 (> 75 MMBtu/hr)
- Category C1 (oilfield steam generator rated > 5.0 MMBtu/hr and ≤ 20.0 MMBtu/hr)
 - Rule 4320 limit: 6 ppm
 - Rule 1146 limit: 9 ppm
- Category C2 (units rated > 20 MMBtu/hr and ≤ 75 MMBtu/hr)
 - Rule 4320 limit: 5 ppm
 - Rule 1146 limit: 9 ppm
- Category D3 (refinery boilers rated >110 MMBtu/hr)
 - Rule 4320 limit: 2.5 ppm
 - Rule 1109.1 limit: 5 ppm
- Category D4 (refinery process heaters rated > 5.0 MMBtu/hr and ≤ 40.0 MMBtu/hr)
 - Rule 4320 limit: 5 ppm
 - Rule 1109.1 limit: 9 ppm
- Category D6 (refinery process heaters rated >110 MMBtu/hr)
 - Rule 4320 limit: 2.5 ppm
 - Rule 1109.1 limit: 5 ppm

SJVAPCD Rule 4320 includes technology forcing NOx limits. For example, for categories A1 (5 ppm), B1 (2.5 ppm), C1 (6 ppm), and C2 (5 ppm), very few units have achieved these NOx limits in the SJVAPCD. As of 2020, only 2 percent of 550 units (i.e., 11 units) in these categories were permitted to comply with these NOx limits.⁵ Another example is for categories B2 (2.5 ppm), B3 (2.5 ppm), D3 (2.5 ppm), D4 (5 ppm), and D6 (2.5 ppm). These NOx limits have not been demonstrated to be achievable in practice for large scale

⁵ SJVAPCD, Final Staff Report, “Proposed Amendment to Rule 4306 (Boilers, Steam Generators, and Process Heaters - Phase 3) Proposed amendments to Rule 4320 (Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater Than 5.0 MMBtu/hr),” December 17, 2020, Appendix B: Emissions Reduction Analysis (“Boilers Staff Report: Appendix B”)

applications. Because of the technological challenge to achieve such lower limits, Rule 4320 allows operators to pay a compliance fee in lieu of meeting the technology forcing limits until such limits are proven to be feasible in practice. This contrasts with the limits in South Coast AQMD's rules which are mandatory and do not offer fee based alternative compliance options.

South Coast AQMD Rule 1146 establishes NO_x limits for existing boiler, steam generator and process heater units which have been demonstrated to be achieved in practice. The current NO_x limits for gaseous fuel fired units, excluding digester and landfill gases and fire-tube boilers, with a rated heat input capacity between 5 and 75 MMBtu/hr is 9 ppm in Rule 1146. Based on vendor discussion, NO_x emissions at a level of 7 ppm or lower are feasible only with ULNB replacement and new installation. The source test results also showed that it is technically feasible for existing Rule 1146 units (between 5 and 75 MMBtus/hr) to achieve an emission limit of 7 ppm or less with burner replacements. Achieving a 5 ppm NO_x limit usually requires the use of SCR. SCR systems are generally utilized for units greater than 10 MMBtu/hr. Although it is potentially feasible, there are several limitations for SCR retrofits to meet 4 ppm or less, such the age, flow, and size of the catalyst bed of the existing SCR system. Another factor is ammonia slip. Meeting NO_x emissions of 2.5 ppm is feasible but at the cost of higher ammonia slip (i.e., 10 ppm) which could contribute to the increased emissions of PM_{2.5} and enhance secondary PM_{2.5} formation. The most significant constraint is the inadequate safety margin between the permitted limit and the actual emissions to account for fluctuations in external factors such as ambient temperature or fuel heat input. Due to those limitations, it would not be technologically feasible for SCR retrofits to achieve the lower NO_x emission limit (e.g., 2.5 ppm).⁶

The NO_x emission limit for thermal fluid heaters in Rule 1146 is 12 ppm. Thermal fluid heaters use water as the heating fluid and typically operate at much higher temperatures than process heaters, which results in higher NO_x emissions. At the time of rule development, ULNB replacement for existing units achieved 12 ppm NO_x while an emission limit of 9 ppm was available for new units in certain applications. Based on the assumptions of 10–90 percent operating capacity of the thermal fluid heaters at different heat capacity sizes, lowering the emission limit from 12 ppm to 9 ppm for existing units would cost \$58,000 to \$523,000 per ton of NO_x reduced.⁷ Due to high cost-effectiveness, the 9 ppm NO_x emission limit is considered not feasible.

The NO_x emission limit for digester gas fired units in Rule 1146 is currently 15 ppm. In addition, South Coast AQMD Rule 1179.1 applies to boilers located at publicly owned treatment works (POTW) facilities and contains an identical 15 ppm NO_x limit for digester gas fired units > 2 MMBtu/hr. Based on discussion with vendors, digester gas fired units can be guaranteed to meet 12 ppm while 9 ppm is dependent on fuel composition and heating value which can vary depending on facility. NO_x concentration limits below 7 ppm are not feasible due to the presence of hydrogen sulfide (H₂S). Lowering NO_x emissions in digester gas fired units might also cause an increase in carbon monoxide (CO) emissions.

⁶ South Coast AQMD, Final Staff Report for PARs 1146, 1146.1 and 1146.2, December 2018.

<http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2018/2018-dec7-028.pdf?sfvrsn=6>

⁷ South Coast AQMD, 2022 Air Quality Management Plan, Attachment VI-A-1B to Appendix VI, December 2, 2022

Rule 1109.1 NO_x limits are 5 ppm with an interim limit of 7.5 ppm for refinery boilers and process heaters with rated heat input > 110 MMBtu/hr. For boilers > 110 MMBtu/hr, the class and category are cost-effective for all units to meet the 5 ppm NO_x limit; however, a couple of units were operating near the 5 ppm limit with very high cost-effectiveness (more than \$200,000 per ton reduced). Five units were also operating at less than 7.5 ppm with potential emission reductions of 0.02 tpd at a cost of nearly \$20 million. Refinery boiler and heater's NO_x limits in Rule 1109.1 are less stringent than SJVAPCD's technology forcing limits in Rule 4320; however, as stated earlier in this section, it would be technologically infeasible to achieve the 2.5 ppm NO_x limit in practice.

The implementation timeline is an additional consideration regarding the feasibility of the lower NO_x limits discussed in this section. Achieving these limits would potentially require single stage SCR, two stage SCR systems, or next generation ULNB combined with SCR. These emission control technologies require complex retrofits or full unit replacement and require significantly longer than 2 years to implement. For this reason, South Coast AQMD rules typically provide more than 3 years for operators to install these technologies to comply with lower emission limits.⁸ It is also worth noting that some heaters are incompatible with some of these control technologies (e.g., two stage SCR systems) due to space limitations.

NH₃ emissions from fuel combustion are associated with SCR usage. NH₃ is used as a reductant to convert NO_x in the flue gas into nitrogen (N₂) and water (H₂O) in the SCR system, although unreacted NH₃ is also emitted as ammonia slip due to a non-uniform distribution and mixing in the SCR reaction chamber. Ammonia has the potential to form secondary PM_{2.5} in the air, especially if there are high concentrations of sulfur in the flue gas. SCR catalyst manufacturers have developed an ammonia slip catalyst, which can be installed downstream of the SCR catalyst to convert NH₃ to nitrogen and water. However, SCR system designers and catalyst manufacturers generally prefer to optimize the NH₃ injection and distribution instead of recommending an ammonia slip catalyst since the additional catalyst adds to the cost and requires additional space which may not be available for existing SCR configurations. In addition, improvement in the SCR technology has helped to alleviate the need for an ammonia slip catalyst by achieving uniform NH₃ to NO_x distribution and mixing in the SCR design phase. South Coast AQMD considers ammonia slip limits on a case-by-case basis in the equipment permit. Under Regulation XIII – New Source Review, the BACT NH₃ slip limit for SCR is 5 ppm.

⁸ U.S. EPA similarly concluded that tighter limits for this source category are infeasible as a contingency measure due to SCR units requiring more than 2 years to install in its recently proposed Contingency Measures for Fine Particulate Matter Standards for San Joaquin Valley (88 FR 88008)

**TABLE V-5
COMPARISON OF EXISTING CONTROL REQUIREMENTS (BOILERS, STEAM GENERATORS, AND PROCESS HEATERS)**

	South Coast AQMD Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters (Amended 12/4/20)	SJVAPCD Rule 4306 – Boilers, Steam Generators, and Process Heaters (Amended 12/17/20)	SJVAPCD Rule 4320 – Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr (Amended 12/17/20)	VCAPCD Rule 74.15 – Boilers, Steam Generators and Process Heaters (Amended 11/10/20)
Applicability	Boilers, steam generators, and process heaters of equal to or greater than 5 MMBtu/hr rated input capacity used in all industrial, institutional, and commercial operations	Gaseous or liquid fuel fired boilers, steam generator, or process heater with a total rated heat input greater than 5 MMBtu/hr	Gaseous or liquid fuel fired boilers, steam generator, or process heater with a total rated heat input greater than 5 MMBtu/hr	Portable and stationary boilers, steam generators, and process heaters fired on any gaseous fuel or liquid fuel with a rated heat input capacity equal to or greater than 5 MMBtu/hr, except for utility electric power generating units and any auxiliary boiler thereof and water heaters
A. Units with a total rated heat input > 5 MMBtu/hr to ≤ 20 MMBtu/hr, except for Categories C through G units				
A1. Fire Tube Boilers	7 ppm	7 ppm	5 ppm	9 ppm
A2. Units at Schools	9 ppm	9 ppm	9 ppm	9 ppm or 12 ppm
A3. Units fired on Digester Gas	15 ppm	9 ppm	9 ppm	15 ppm
A4. Thermal Fluid Heaters	12 ppm	9 ppm	9 ppm	9 ppm or 12 ppm
A5. All other units	9 ppm	9 ppm	5 ppm	9 ppm or 12 ppm
B. Units with a total rated heat input > 20 MMBtu/hr, except for Categories C through G units				
B1. Fire Tube Boilers with a total rated heat input > 20.0 MMBtu/hr and ≤ 75 MMBtu/hr	7 ppm	7 ppm	2.5 ppm	9 ppm

	South Coast AQMD Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters (Amended 12/4/20)	SJVAPCD Rule 4306 – Boilers, Steam Generators, and Process Heaters (Amended 12/17/20)	SJVAPCD Rule 4320 – Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr (Amended 12/17/20)	VCAPCD Rule 74.15 – Boilers, Steam Generators and Process Heaters (Amended 11/10/20)
B2. All other units with a total rated heat input > 20.0 MMBtu/hr and ≤ 75 MMBtu/hour	9 ppm for units with previous NOx limit ≤ 12 and > 5 ppm prior to 12/7/18 or 5 ppm	7 ppm	2.5 ppm	9 ppm or 12 ppm
B3. Units with a rated heat input > 75 MMBtu/hr	5 ppm	5 ppm	2.5 ppm	9 ppm or 12 ppm
C. Oilfield Steam Generators				
C1. Units with a total rated heat input > 5.0 MMBtu/hr and ≤ 20.0 MMBtu/hr	9 ppm for all others	9 ppm	6 ppm	9 ppm
C2. Units with a total rated heat input > 20.0 MMBtu/hr and ≤ 75.0 MMBtu/hr (90% are 62.5 MMBtu/hr)	9 ppm	9 ppm	5 ppm	9 ppm
C3. Units with a total rated heat input > 75.0 MMBtu/hr (98% are 85 MMBtu/hr)	5 ppm	7 ppm	5 ppm	9 ppm
C4. Units firing on less than 50%, by volume, PUC quality gas	No equivalent	15 ppm	5 ppm	No equivalent
D. Refinery Units				
D1. Boilers with a total rated heat input > 5.0 MMBtu/hr and ≤ 40.0 MMBtu/hr	40 ppm and 5 ppm for replacement units*	30 ppm and 5 ppm for replacement units	5 ppm	N/A
D2. Boilers with a total rated heat input > 40.0 MMBtu/hr and ≤ 110 MMBtu/hr	5 ppm*	9 ppm and 5 ppm for replacement units	5 ppm	N/A
D3. Boilers with a total rated heat input > 110 MMBtu/hr	5 ppm* with an interim limit of 7.5 ppm	5 ppm	2.5 ppm	N/A

	South Coast AQMD Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters (Amended 12/4/20)	SJVAPCD Rule 4306 – Boilers, Steam Generators, and Process Heaters (Amended 12/17/20)	SJVAPCD Rule 4320 – Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr (Amended 12/17/20)	VCAPCD Rule 74.15 – Boilers, Steam Generators and Process Heaters (Amended 11/10/20)
D4. Process Heaters with a total rated heat input > 5.0 MMBtu/hr and ≤ 40.0 MMBtu/hr	40 ppm and 9 ppm for replacement units*	30 ppm and 9 ppm for replacement units	5 ppm	N/A
D5. Process Heaters with a total rated heat input > 40.0 MMBtu/hr and ≤ 110 MMBtu/hr	5 ppm* with an interim limit of 18 ppm	15 ppm and 9 ppm for replacement units	5 ppm	N/A
D6. Process Heaters with a total rated heat input > 110 MMBtu/hr	5 ppm* with an interim limit of 22 ppm	5 ppm	2.5 ppm	N/A
E. Lower Use Units				
E1. Units limited by a Permit to Operate to an annual heat input of 9 billion Btu/year to 30 billion Btu/year “Low Use” (no more than 10 percent operating capacity)	<ul style="list-style-type: none"> Operate units so stack is maintained with gas oxygen concentrations less than or equal to three percent on a dry basis for 15 min averaging period Tune units at least twice a year or follow different tune up procedure 	30 ppm	9 ppm * Units limited by a Permit to Operate to an annual heat input > 1.8 billion Btu/year but < 30 billion Btu/year	<ul style="list-style-type: none"> Operate units so stack is maintained with gas oxygen concentrations less than or equal to three percent on a dry basis for 15 min averaging period Tune units at least twice a year or follow different tune up procedure
Liquid Fueled Units	40 ppm	40 ppm	40 ppm	40 ppm
PM Control Requirements	None specified	None specified	<ul style="list-style-type: none"> Gaseous fuels must be public utility quality Sulfur content limits or operate an SO₂ control system 	None specified

	South Coast AQMD Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters (Amended 12/4/20)	SJVAPCD Rule 4306 – Boilers, Steam Generators, and Process Heaters (Amended 12/17/20)	SJVAPCD Rule 4320 – Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr (Amended 12/17/20)	VCAPCD Rule 74.15 – Boilers, Steam Generators and Process Heaters (Amended 11/10/20)
			<ul style="list-style-type: none"> Liquid fuels only to be used during gas curtailment periods 	

* These emission limits are from South Coast AQMD Rule 1109.1 Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Operations, which was adopted on November 5, 2021.

c. Conclusion

Staff does not propose any contingency measures for this category of units. Staff did not identify any PM2.5 control measures that are not required by South Coast AQMD for this source category. In addition, no applicable NH3 control measures were identified for consideration. For NOx, staff considered several potential measures such as lowering NOx limits using ULNB and SCR, but these were not suitable contingency measures considering that it would be technologically infeasible to design, install and operate advanced emission control technology within 2 years of the triggering event. This feasibility consideration is discussed in more detail in the evaluation section. A contingency measure that will not result in emission reductions until more than 2 years in the future would not satisfy the criteria of contingency measures as defined in the Draft Guidance.

2. Reciprocating Internal Combustion Engines (RICE)

a. Overview

A stationary RICE includes any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICEs are used in a wide array of industries, including electricity generation (either as stand-alone generators or in cogeneration applications); oil and gas production; agriculture; and commercial/institutional settings (including as back-up electricity generators). NOx and PM2.5 emissions are generated by engines combusting either gaseous or liquid fuels.

As summarized in Table V-6, from the South Coast AQMD 2030 baseline emissions inventory, engines contribute 8.79 tpd of NOx, 0.87 tpd of PM2.5, and 0.32 tpd of NH3 emissions.

TABLE V-6
STATIONARY ENGINE EMISSIONS BASED ON 2030 BASELINE INVENTORY IN THE SOUTH COAST AIR BASIN

Industry	PM2.5 (tpd)	NOx (tpd)	NH3 (tpd)
010 – Electric Utilities	0.04	0.25	0.00
020 – Cogeneration	0.00	0.00	0.00
030 – Oil and Gas Production (Combustion)	0.02	0.81	0.03
040 – Petroleum Refining (Combustion)	0.02	0.00	0.00
050 – Manufacturing and Industrial	0.65	3.32	0.25
052 – Food and Agricultural Processing	0.01	0.08	0.00
060 – Service and Commercial	0.12	2.05	0.04
099 – Other (Fuel Combustion)	0.04	2.27	0.00
Total	0.87	8.79	0.32

b. Evaluation

i. Available Control Technologies

Available control techniques for stationary engines vary by types of engine configurations. Each engine type produces emissions of NO_x, PM_{2.5} and NH₃ at different rates and can have differing approaches for controlling emissions. The engines are distributed among four categories: four-stroke rich-burn, four-stroke lean-burn, two-stroke lean-burn, and portable engines subject to the statewide Air Toxics Control Measure (ATCM).⁹

- Compression-ignition (CI) engines: CI engines are primarily diesel engines but could also be dual-fuel (diesel and natural gas) engines. Particulate matter emissions can be controlled by diesel particulate filters (DPF) and limiting fuel sulfur content. NO_x can be controlled with either combustion controls (e.g., exhaust gas recirculation) and/or exhaust treatment such as diesel oxidation catalysts as part of a DPF and SCR;
- Spark-ignition (SI) four-stroke rich-burn (4SRB) engines: 4SRB engines use natural gas as primary fuel. NO_x emissions are inherently lower from rich-burn engines compared to lean-burn and add-on controls include three-way catalysts (also known as non-selective catalytic reduction (NSCR)). PM emissions from burning natural gas are inherently low enough that any control approach generally focuses only on limiting fuel sulfur content;
- SI four-stroke lean-burn (4SLB) engines: Natural gas is the primary fuel for 4SLB engines. NO_x emissions can be controlled by combustion techniques or exhaust controls, such as SCR. PM emissions from burning natural gas are inherently low enough that any control approach generally focuses only on limiting fuel sulfur content; and
- SI two-stroke lean-burn (2SLB) engines: 2SLB engines primarily use natural gas. Typically, combustion controls are applied to reduce NO_x, including layered combustion.¹⁰ As with other SI engines fired on natural gas, PM emissions are inherently low enough that any control approach generally focuses only on limiting fuel sulfur content.

Existing federal regulations require manufacturers to certify stationary CI engines to the U.S. EPA's tiered engine requirements (Tiers 1-4, with Tier 4 being the most stringent).¹¹ Since 2014, new CI engines have been required to meet Tier 4 criteria except for engines qualifying as emergency engines which must be certified to Tier 2 or Tier 3 standards. The U.S. EPA, on the other hand, does not mandate

⁹ <https://ww2.arb.ca.gov/resources/documents/perp-regulation-and-portable-engine-atcm>

¹⁰ In a layered or stratified charge arrangement: a pre-stratified control kit is applied that results in lower combustion temperatures and lower NO_x formation. Example technologies that could be considered layered stratification include turbochargers and inter-cooling, pre-chamber ignition or high energy ignition, improved fuel injection control, and air/fuel ratio control

¹¹ See [40 CFR Part 60, Subparts IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines](#), and [40 CFR Part 1039 – Control of Emissions from New and In-Use Nonroad Compression-Ignition Engines](#)

owners/operators to replace older engines that are uncertified or certified to lower tier levels. U.S. EPA-certified Tier 4 engines are typically not required to install additional controls to meet Best Available Control Technology/Lowest Achievable Emission Rate (BACT/LAER) determination for NO_x and PM. A search of the Reasonably Available Control Technology (RACT)/BACT/LAER Clearinghouse (RBLC) did not identify "beyond Tier 4" restrictions for CI engines.

Existing federal regulations require stationary SI engines to meet emissions standards, but do not require U.S. EPA certification for all new SI engines.¹² Like CI engines, these regulations do not require owner/operators to replace older engines or upgrade engines to meet the most recent standards. However, to meet BACT/LAER determinations for NO_x, the addition of add-on NO_x controls is often required (e.g., SCR or a NSCR, depending on engine type). Because SI engines typically burn cleaner gaseous fuels, add-on PM controls are not required to meet BACT/LAER.

ii. South Coast AQMD Control Measures

Table V-7 summarizes the applicable South Coast AQMD rules and control measures that are applicable to stationary engines. A potential control measure, which examined control technologies for emergency backup generators, is presented in Appendix III. In summary, new or modified units with $\geq 1,000$ horsepower compression ignition engines are required to meet updated Lowest Achievable Emissions Rate (LAER) and BACT guidelines which require that the units achieve U.S. EPA's Tier 4 Final emission standards.¹³ Existing Tier 2 units can achieve Tier 4 Final emission limits through the use of Diesel Particle Filters (DPF) and SCR.

The evaluation section for boilers, steam generators, and process heaters discusses the source of NH₃ emissions from fuel combustion in detail. There is no applicable South Coast AQMD rule to control NH₃ emissions from RICE. Furthermore, there are no unique considerations for RICE that would warrant further evaluation in this section.

TABLE V-7
SOUTH COAST AQMD RULES AND CONTROL MEASURES (RECIPROCATING ENGINES)

South Coast AQMD Rule	Applicability	Control Measure
Rule 1110.2 – Emissions from Gaseous- and Liquid-Fueled Engines (Amended 11/3/23)	All stationary and portable engines over 50 rated brake horsepower (bhp)	
	Stationary ICE ≥ 50 bhp, including landfill and digester gas (i.e., biogas) fired engines	11 ppm NO _x
	Stationary, low-use engines	36 ppm NO _x for ≥ 500 bhp 45 ppm NO _x for < 500 bhp

¹² See [40 CFR Part 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines](#)

¹³ <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2022/2022-sept2-030.pdf?sfvrsn=6You>

South Coast AQMD Rule	Applicability	Control Measure
	Stationary, biogas-fired, low-use engines	36 x ECF* ppm NOx for ≥ 500 bhp, 45 x ECF ppm NOx for < 500 bhp
	Stationary, non-emergency electrical generators	0.070 lbs/MW-hr

* ECF is the efficiency correction factor and is no less than 1.0.

iii. Review of Control Measures in Other Jurisdictions

Table V-8 compares and summarizes the applicable control measures in South Coast AQMD with the requirements in other jurisdictions including SJVAPCD, the Sacramento Metropolitan Air Quality Management District (SMAQMD), and the Maricopa County Air Quality Department (MCAQD).

South Coast AQMD's Rule 1110.2 requires most engines to meet an 11 ppm NOx limit while non-emergency electrical generators require a 0.070 lbs/MW-hr NOx limit. Some engines used in agricultural operations can be exempt from this requirement if a Tier 4 diesel engine is installed and other requirements are met. Overall, South Coast AQMD's Rule 1110.2 is designed to require BARCT-level controls and has the most stringent NOx emission limits for stationary engines compared to other air districts. There are no applicable rules to control NH3 emissions from this category in other jurisdictions.

**TABLE V-8
COMPARISON OF EXISTING CONTROL REQUIREMENTS (RECIPROCATING INTERNAL COMBUSTION ENGINES)**

	South Coast AQMD Rule 1110.2 – Emissions from Gaseous and Liquid-Fueled Engines (Amended 11/1/19)	SJVAPCD Rule 4702 – Internal Combustion Engines (Amended 8/19/21)	SMAQMD Rule 412 – Stationary Internal Combustion Engines Located at Major Sources of NOx (Adopted 6/1/95)	Maricopa County, AZ Rule 324 – Stationary Reciprocating Internal Combustion Engines (RICE) (Amended 6/23/21)	CA ATCM for Diesel Stationary Compression Ignition Engines (Amended 5/19/11)
Applicability (Equipment, size, fuel type)	All stationary and portable engines rated >50 bhp	All internal combustion engines >50 bhp* * For non-agriculture operations (AO) engines >25 to ≤50 bhp, if non-certified, these may not be offered for sale.	Stationary IC engines rated >50 bhp located at major sources of NOx* * Major sources have potential to emit >25 tpy	Stationary IC engines >125 bhp used for cogeneration; located not at a major NOx source Stationary IC engines >50 bhp used for cogeneration not at a major NOx source if all engines aggregate to >125 bhp Stationary IC engines >50 bhp at major NOx sources Nonroad engines >125 bhp with potential to emit: 0.5 tpy PM2.5; 1.0 tpy NOx, 0.5 tpy VOC; or 1.0 tpy CO	All stationary diesel engines >50 bhp
Control Measure					
NOx emissions limit(s)	Stationary engines with approved emission control plan: 11 ppm	Non-AO SI engines by 12/31/2023: 1. Rich-burn: a. 11 ppm	SI rich-burn: 25 ppm or 90% control	CI engines >250 bhp: 530 ppm	Generally the same as EPA certified standards

	South Coast AQMD Rule 1110.2 – Emissions from Gaseous and Liquid-Fueled Engines (Amended 11/1/19)	SJVAPCD Rule 4702 – Internal Combustion Engines (Amended 8/19/21)	SMAQMD Rule 412 – Stationary Internal Combustion Engines Located at Major Sources of NOx (Adopted 6/1/95)	Maricopa County, AZ Rule 324 – Stationary Reciprocating Internal Combustion Engines (RICE) (Amended 6/23/21)	CA ATCM for Diesel Stationary Compression Ignition Engines (Amended 5/19/11)
	<p>Other stationary engines without an emission control plan, biogas-fired: 11 ppm</p> <p>Limits for low-use engines*:</p> <ul style="list-style-type: none"> • <500 bhp = 45 ppm • ≥500 bhp = 36 ppm <p>* Low use engines <500 HOP/yr or 1 billion Btu/yr. Slightly higher limits are also applicable to landfill or biogas fired engines to account for efficiency</p> <p>Non-emergency electrical generators: 2.5 ppm or 0.070 lb/MWh</p> <p>Note: agricultural and non-agricultural engines held to the same standards but with different compliance schedules applied.</p>	<p>2. Lean-burn:</p> <ol style="list-style-type: none"> a. Gas compression engines: 40 ppm b. >50% waste gas: 40 ppm c. Others: 11 ppm <p>AO SI Engines:</p> <ul style="list-style-type: none"> • Rich-burn (by 12/31/23): 11 ppm or 0.15 g/bhp-hr • Lean-burn (by 12/31/29): 0.6 g/bhp-hr or 43 ppm <p>Certified AO and non-AO compression-ignited (CI) engines (no later than 6/1/18):</p> <ul style="list-style-type: none"> • EPA certified Tier 1 or 2: EPA Tier 4 • EPA certified Tier 3 or 4: CI standard in effect at time of installation <p>Non-certified AO and non-AO CI engines (by 2011):</p>	<p>SI lean-burn: 65 ppm or 90% control</p> <p>CI: 80 ppm or 90% control</p>	<p>CI engines >399 bhp: 550 ppm (at major sources, all CI: 530 ppm)</p> <p>SI lean-burn: 110 ppm</p> <p>SI rich-burn: 20 ppm</p>	

	South Coast AQMD Rule 1110.2 – Emissions from Gaseous and Liquid-Fueled Engines (Amended 11/1/19)	SJVAPCD Rule 4702 – Internal Combustion Engines (Amended 8/19/21)	SMAQMD Rule 412 – Stationary Internal Combustion Engines Located at Major Sources of NO_x (Adopted 6/1/95)	Maricopa County, AZ Rule 324 – Stationary Reciprocating Internal Combustion Engines (RICE) (Amended 6/23/21)	CA ATCM for Diesel Stationary Compression Ignition Engines (Amended 5/19/11)
		<ul style="list-style-type: none"> • 50 – 500 bhp: EPA Tier 3 or Tier 4 • 500 – 750 bhp and <1000 annual HOP: EPA Tier 3 • >750 bhp and <1000 annual HOP: EPA Tier 4 			
PM control requirements	<p>None specified</p> <p>CI engines: via applicable EPA Tier requirements</p>	<p>SI engines: control via sulfur limits</p> <p>CI engines: via applicable EPA Tier requirements</p>	<p>None specified</p> <p>CI engines: via applicable EPA Tier requirements</p>	<p>CI: 0.40 g/bhp-hr</p> <p>All SI: not applicable</p> <p>CI engines: via applicable EPA Tier requirements (generally lower than 0.40 g/bhp-hr)</p>	<p>CI: 0.02 – 0.03 g/kW-hr, compliance deadlines vary based on engine type and whether engines were considered new or in-use (equal to or more stringent than federal standards)</p>
Exemptions (to NO _x or particulate matter emissions limits)	<ul style="list-style-type: none"> • Engines powering orchard wind machines • Emergency standby engines, engines use for fire-fighting and flood control, and any other emergency engines limited to 200 hrs/yr • Laboratory engines 	<ul style="list-style-type: none"> • Engines used to propel implements of husbandry • Engines used exclusively to power wind machines • Some de-rated AO and non-AO engines with de-rating before 6/1/2005 (below 50 bhp) 	<ul style="list-style-type: none"> • Emergency standby engines • Engines used exclusively for agricultural purposes • Engine test stands • Engine control evaluations • Nonroad engines • Motor vehicle engines • Flight line engines • Low use engines: 	<ul style="list-style-type: none"> • Emergency standby engines used for power, emergency services, sewage overflow • Compressed gas stationary RICE used for solar testing and research • Engine performance verification, including 	<p>Some emergency engines not required to install particulate matter controls</p>

	South Coast AQMD Rule 1110.2 – Emissions from Gaseous and Liquid-Fueled Engines (Amended 11/1/19)	SJVAPCD Rule 4702 – Internal Combustion Engines (Amended 8/19/21)	SMAQMD Rule 412 – Stationary Internal Combustion Engines Located at Major Sources of NOx (Adopted 6/1/95)	Maricopa County, AZ Rule 324 – Stationary Reciprocating Internal Combustion Engines (RICE) (Amended 6/23/21)	CA ATCM for Diesel Stationary Compression Ignition Engines (Amended 5/19/11)
	<ul style="list-style-type: none"> Engines used for performance testing Auxiliary engines used to power other engines/ turbines during start-ups Portable engines registered under state registration (Title 13, Article 5 of CCR) Agriculture stationary engines that: cannot get electrical service or operator does not qualify for state funding under CA Health and Safety Code Section 44229; and replace engines with Tier 4 replacement engines; and does not operate the Tier 4 engines in a manner to exceed the not-to-exceed standards of 40 CFR Part 1039 Section 1039.101(e) 	<ul style="list-style-type: none"> Engines powering mobile agricultural equipment State-registered or Rule 2280 registered portable equipment engines Emergency standby or low use engines Public safety equipment 	<ul style="list-style-type: none"> SI: varies by engine size, range is 40-200 hrs/yr CI: varies by engine size, range is 200-1,435 hrs/yr 	<p>at the production facility</p> <ul style="list-style-type: none"> Engine development and testing Flight line engines Nonroad engines Low use engines: <ul style="list-style-type: none"> Engines ≤1000 bhp operating <200 hrs/yr Engines >1000 bhp operating <100 hrs/yr 	

	South Coast AQMD Rule 1110.2 – Emissions from Gaseous and Liquid-Fueled Engines (Amended 11/1/19)	SJVAPCD Rule 4702 – Internal Combustion Engines (Amended 8/19/21)	SMAQMD Rule 412 – Stationary Internal Combustion Engines Located at Major Sources of NOx (Adopted 6/1/95)	Maricopa County, AZ Rule 324 – Stationary Reciprocating Internal Combustion Engines (RICE) (Amended 6/23/21)	CA ATCM for Diesel Stationary Compression Ignition Engines (Amended 5/19/11)
	<ul style="list-style-type: none"> Some additional exemptions also apply 				
NOx emissions compliance alternative	None listed	Payment of NOx emissions fee in lieu of meeting the emissions limits: sunsets 12/31/23 after which engines must meet limits for non-AO SI engines	None listed	None listed	None listed

c. Conclusion

Staff does not propose any contingency measures for stationary engines. No applicable NH₃ or PM_{2.5} control measures were identified for consideration. While lower limits of NO_x could be achieved by installing SCR, installing SCR and achieving reductions within 2 years of triggering would be technologically infeasible. Contingency measures should be measures that would result in the projected emission reductions within a year after the triggering event, or within 2 years with proper justification. A contingency measure that will not result in emission reductions until further in the future would not satisfy the criteria of contingency measures as defined in the Draft Guidance.

3. Combustion Turbines

a. Overview

Industries operating in the South Coast Air Basin that use combustion turbines include the following: electric utilities; cogeneration; oil and gas production; petroleum refining; and commercial operations. Most often, combustion turbines are used to generate power for supplying the electrical grid or for on-site use. Natural gas and diesel/distillate oil are the most common fuels combusted, however, according to the emissions inventory, other fuels used in the Basin include landfill gas, refinery gas, and process gas.

NO_x, NH₃, and PM_{2.5} emissions result from fuel combustion in various types of industry. Daily emissions are summarized below in Table V-9 by industry.

**TABLE V-9
COMBUSTION TURBINE EMISSIONS BASED ON 2030 BASELINE INVENTORY IN THE SOUTH
COAST AIR BASIN**

Industry	PM _{2.5} (tpd)	NO _x (tpd)	NH ₃ (tpd)
010 – Electric Utilities	0.33	1.76	0.44
020 – Cogeneration	0.00	0.01	0.01
030 – Oil and Gas Production (Combustion)	0.07	0.04	0.21
040 – Petroleum Refining (Combustion)	0.44	0.42	0.83
050 – Manufacturing and Industrial	0.06	0.08	0.06
060 – Service and Commercial	0.08	0.44	0.13
Total	0.98	2.75	1.68

The most common fuels used to generate power in the combustion turbine category are natural gas, landfill gas, process gas, and refinery gas. Electric utilities account for over 60 percent of the category total NO_x emissions, and natural gas is the dominant fuel combusted in electric utility turbines taking up about 80 percent of NO_x emissions. Service and commercial and petroleum refining are the second and third largest categories of NO_x emissions for combustion turbines, respectively. For the service and commercial sector, NO_x emissions are greatest from landfill gas-fired turbines, while combustion of process and refinery gases combined is the dominant (over 80 percent) source of NO_x emissions from turbines for petroleum refining because refinery fuel gas (RFG) burns at higher temperatures and thus can increase NO_x emissions compared to turbines burning natural gas. For example, dry low NO_x (DLN) combustors can have approximately 10 percent greater NO_x emissions when operating on refinery gas compared to natural gas.

Control of NO_x from combustion turbines can be accomplished using combustion controls, such as water or steam injection DLN and ULNB, or post-combustion controls, including SCR.¹⁴ DLN combustors can achieve between 9 ppm and 25 ppm in gas turbines operating with natural gas and between 10 ppm and 27.5 ppm in gas turbines operating on refinery gas. SCR can achieve about 95 percent NO_x reduction in both types of gas turbines. It is common for both control technologies to be applied (e.g., DLN + SCR + oxidation catalyst). Combination of DLN and SCR can achieve 2 ppm NO_x limit with proper engineering and design.

b. Evaluation

In the South Coast Air Basin, emissions from combustion turbines are regulated by Rules 1134, 1135, and 1109.1. Rule 1134 establishes limits for NO_x emissions based on unit size (0.3 MW and greater) and fuel type (gas or oil). The rule has different compliance limits through the end of 2023 by unit size and has varied emission limits on and after January 1, 2024 by fuel type. Emission limits are expressed on a dry volume basis, corrected to 15 percent O₂. The current and future applicable emission limits under Rule 1134 are further detailed in Table V-10.

Rule 1135 establishes a 2 ppm NO_x limit for combined cycle gas turbines fired with natural gas from electric generating units at electricity generating facilities (EGFs). Rule 1109.1 establishes NO_x concentration limits that represent BARCT for combustion equipment located at petroleum refineries and facilities with operations related to petroleum refineries.

Ammonia slip from SCR is expected to be the primary source of NH₃ emissions. This is discussed in detail in the evaluation section of boilers, steam generators, and process heaters. Staff did not identify any more stringent requirements for NH₃ in other districts' rules. In addition, control measure BCM-09 – Ammonia Emission Reductions from NO_x Controls commits to minimize the ammonia slip for the operation of SCRs.

¹⁴ <https://www.epa.gov/system/files/documents/2022-03/combustion-turbine-nox-technology-memo.pdf>

TABLE V-10
SOUTH COAST AQMD CONTROL MEASURES FOR COMBUSTION TURBINES

South Coast AQMD Rule	Applicability	Control Measure
Rule 1134 – Emissions of Oxides of Nitrogen from Stationary Gas Turbines (Amended 2/4/22)	Applies to all stationary gas turbines, 0.3 MW and greater	<p>NOx emission limits are identified below by unit size (MW rating) and by fuel type.</p> <p><u>Until 12/31/2023:</u></p> <p>Compliance limit = reference limit x (unit efficiency / 25%)</p> <p>Reference limits by MW rating:</p> <ul style="list-style-type: none"> • 0.3 – <2.9 MW: 25 ppm • 2.9 – <10.0 MW: 9 ppm; 15 ppm without SCR • ≥10.0 MW: 9 ppm; 12 ppm without SCR • ≥60 MW combined cycle: 9 ppm; 15 ppm without SCR • 2.9 – <10.0 MW utilizing 60% or more digester gas: 25 ppm <p><u>Beginning 1/1/2024:</u></p> <ul style="list-style-type: none"> • Liquid fuel turbines on outer continental shelf (OCS): 30 ppm • Natural gas - combined cycle/cogeneration turbine: 2 ppm • Natural gas - simple cycle: 2.5 ppm • Produced gas: 9 ppm • Produced gas - OCS turbines: 15 ppm • Other (including recuperative gas turbines): 12.5 ppm • Natural gas - compressor gas turbines: 3.5 ppm
Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities (Amended 1/7/22)	Applies to electric generating units at electricity generating facilities	<p>Combined cycle gas turbines and associated duct burners: 2 ppm</p> <p>Simple cycle gas turbines: 2.5 ppm</p>
Rule 1109.1 – Emissions of Oxides of Nitrogen from Petrochemical Refineries and Related Operations (Adopted 11/5/21)	Applies to owners or operators of facilities with units at petroleum refineries and facilities with related operations to petroleum refineries	<p><u>Gas turbines fueled with natural gas:</u></p> <ul style="list-style-type: none"> • 2 ppm NOx BARCT limit on a 24-hour rolling average • 2.5 ppm conditional limit for those operating close to BARCT limit • 5 ppm during natural gas curtailment periods

South Coast AQMD Rule	Applicability	Control Measure
		<u>Gas turbines fueled with other gaseous fuel:</u> 3 ppm on a 24-hour rolling average Gas turbines fueled with natural gas or other gaseous fuel: 20 ppm interim limit on a 365-day rolling average for facilities that exit RECLAIM but before the BARCT or conditional limit is met

Staff examined stationary gas turbine rules in other California air districts as well as the RACT/BACT/LAER Clearinghouse (RBLC) as summarized in Table V-11.

c. Conclusion

Staff compared South Coast AQMD's NOx emission limits for combustion turbines to those in other air districts. South Coast AQMD's NOx emission limits are generally the most stringent and are equivalent to BACT standards. While the RBLC contains slightly lower NOx emission limits for certain categories, lowering regulatory limits as a contingency measure would not be appropriate as affected sources would need to design and install advanced emission control technology such as SCR. This feasibility consideration is discussed in further detail in the evaluation section for boilers, steam generators, and process heaters. No contingency measures are proposed for combustion turbines, as implementing potential measures within 2 years is not feasible.

**TABLE V-11
COMPARISON OF EXISTING CONTROL REQUIREMENTS FOR GAS TURBINES**

Source Category	South Coast AQMD Rules 1134, 1135, and 1109.1	SJVAPCD Rule 4703	BAAQMD Rule 9-9	RACT/BACT/LAER Clearinghouse (RBLIC)
<3 MW: gas fuel	Rules 1134/1135: 2.5 ppm (simple cycle NG) Rule 1134: 9 ppm (PG) 12.5 ppm (other) Rule 1109.1: 2 ppm (NG) 3 ppm (other gaseous fuel)	9 ppm	<0.5 MW units: exempt 42 (natural gas) 50 (RFG, WG, LPG)	2 ppm (<25 MW non-EGU NG)
<3 MW: liquid fuel	^	25 ppm	<0.5 MW units: exempt 65 ppm	No data
3-10 MW pipeline turbine: gas fuel*	Rule 1134: 3.5 ppm (gas compressors)	8 ppm	25-42 ppm (NG) 50 ppm (RFG, WG, LPG)	2 ppm (<25 MW non-EGU NG)
3-10 MW pipeline turbine: liquid fuel	^	25 ppm	65 ppm	--
3-10 MW other turbines (<877 hr/yr): gas fuel	Rule 1134/1135: 2.5 ppm (simple cycle NG) Rule 1134: 9 ppm (PG) 12.5 ppm (other) Rule 1109.1: 2 ppm (NG) 3 ppm (other gaseous fuel)	9 ppm	25-42 ppm (NG) 50 ppm (RFG, WG, LPG)	2 ppm (<25 MW non-EGU NG)
3-10 MW other turbines (<877 hr/yr): liquid fuel	^	25 ppm	65 ppm	--
3-10 MW other turbines (>877 hr/yr): gas fuel	Rule 1134/1135: 2.5 ppm (simple cycle NG) Rule 1134: 9 ppm (PG) 12.5 ppm (other) Rule 1109.1:	5 ppm	25-42 ppm (NG) 50 ppm (RFG, WG, LPG)	2 ppm (<25 MW non-EGU NG)

Source Category	South Coast AQMD Rules 1134, 1135, and 1109.1	SJVAPCD Rule 4703	BAAQMD Rule 9-9	RACT/BACT/LAER Clearinghouse (RBLCL)
	2 ppm (NG) 3 ppm (other gaseous fuel)			
3-10 MW other turbines (>877 hr/yr): liquid fuel	^	25 ppm	65 ppm	--
>10 MW simple cycle (<200 hr/yr): gas fuel	Rule 1134/1135: 2.5 ppm (simple cycle NG) Rule 1109.1: 2 ppm (NG) 3 ppm (other gaseous fuel)	25 ppm	15 ppm (15 to 25 MW) 9 ppm (>25 to 50 MW) 5 ppm (>50 MW NG) 9 ppm (>50 MW RFG, WG)	2 ppm (>25 MW)
>10 MW simple cycle (<200 hr/yr): liquid fuel	^	42 ppm	42 ppm (15 to 25 MW) 25 ppm (>25 MW)	4 ppm (>25 MW EGU, ULSD)
>10 MW simple cycle (>200 hr/yr): gas fuel	Rule 1134/1135: 2.5 ppm (NG) Rule 1109.1: 2 ppm (NG) 3 ppm (other gaseous fuel)	5 ppm	15 ppm (15 to 25 MW) 9 ppm (>25 to 50 MW) 5 ppm (>50 MW NG) 9 ppm (>50 MW RFG, WG)	2 ppm (>25 MW)
>10 MW simple cycle (>200 hr/yr): liquid fuel	^	25 ppm	42 ppm (15 to 25 MW) 25 ppm (>25 MW)	4 ppm (>25 MW EGU ULSD)
>10 MW combined cycle, standard compliance: gas fuel	Rule 1134/1135: 2.5 ppm (NG) Rule 1109.1: 2 ppm (NG) 3 ppm (other gaseous fuel)	5 ppm	15 ppm (15 to 25 MW) 9 ppm (>25 to 50 MW) 5 ppm (>50 MW NG) 9 ppm (>50 MW RFG, WG)	2 ppm (>25 MW)
>10 MW combined cycle, standard compliance: liquid fuel	^	25 ppm	42 ppm (15 to 25 MW) 25 ppm (>25 MW)	4 ppm (>25 MW EGU ULSD)
>10 MW combined cycle, enhanced compliance: gas fuel	Rule 1134/1135: 2.5 ppm (NG) Rule 1109.1: 2 ppm (NG) 3 ppm (other gaseous fuel)	3 ppm	15 ppm (15 to 25 MW) 9 ppm (>25 to 50 MW) 5 ppm (>50 MW NG) 9 ppm (>50 MW RFG, WG)	2 ppm (>25 MW)

Source Category	South Coast AQMD Rules 1134, 1135, and 1109.1	SJVAPCD Rule 4703	BAAQMD Rule 9-9	RACT/BACT/LAER Clearinghouse (RBLC)
>10 MW combined cycle, enhanced compliance: liquid fuel	^	25 ppm	42 ppm (15 to 25 MW) 25 ppm (>25 MW)	4 ppm (>25 MW EGU ULSD)

Abbreviations: EGU – electricity generating unit; NG – natural gas; PG – process gas; RFG – refinery fuel gas; WG – waste gas; LPG – liquefied petroleum gas; ULSD – ultra-low sulfur diesel.

* 12 ppm is the limit under non-steady state operating conditions.

^ Rule 1134 disallows the use of liquid fuel in gas turbines except for units located in the outer continental shelf (OCS) or units providing emergency power to a health facility during a natural gas curtailment; Rule 1135 has similar provisions for EGUs during natural gas curtailment. NO_x limits during these periods are specified in the permit.

4. Residential and Commercial Fuel Combustion

a. Overview

Source categories 060-020 (Service and Commercial-Space Heating), 060-030 (Service and Commercial-Water Heating), 610-606 (Residential Fuel Combustion-Space Heating), and 610-608 (Residential Fuel Combustion-Water Heating) are comprised of combustion appliances or furnaces in commercial and residential buildings that typically burn natural gas leading to combustion emissions of criteria pollutants and GHGs. Space and water heating comprise nearly 90 percent of all building-related natural gas demand in California.¹⁵ In the Basin, these commercial and residential heaters account for nearly 55 percent of the region's total stationary point and area NOx emissions in 2030. Table V-12 summarizes the annual emissions of NOx and PM2.5 from these sources in the 2030 baseline emissions inventory. Note that residential and commercial space and water heating has zero NH3 emissions and that residential wood combustion is evaluated in the miscellaneous processes section of this document.

TABLE V-12
SPACE AND WATER HEATERS EMISSIONS BASED ON 2030 BASELINE INVENTORY IN THE SOUTH
COAST AIR BASIN

Source Category	NOx (tpd)	PM2.5 (tpd)
060-020: Service and Commercial – Space Heating	2.11	0.13
060-030: Service and Commercial – Water Heating	0.46	0.14
610-606: Residential Fuel Combustion – Space Heating	7.73	0.89
610-608: Residential Fuel Combustion – Water Heating	1.81	0.56
Total	12.1	1.72

Manufacturers of water heaters have implemented combustion modifications to meet the NOx limits required in rules by the South Coast AQMD and other jurisdictions. This is done using burner designs such as LNBs and ULNBs, incorporating design principles that include staged air burners, staged fuel burners, pre-mix burners, internal recirculation, and radiant burners.

It is important to note that the South Coast AQMD's existing rules for these emission categories, as well as existing rules in other jurisdictions, apply to new units manufactured or installed after the rule's compliance date. As a result, getting emission reductions from these sources is difficult because these restrictions do not apply to the existing population of units and only apply when an existing unit needs to be replaced or a unit is installed in a new home or establishment. According to the International Association of Certified Home Inspectors (NACHI), a conventional water heater has an expected service life of 6 to 12 years, a pool water

¹⁵ Michael Kenney, Nicholas Janusch, Ingrid Neumann, and Mike Jaske. 2021. California Building Decarbonization Assessment. California Energy Commission. Publication Number: CEC-400-2021-006-CMF. Web link: <https://www.energy.ca.gov/data-reports/reports/building-decarbonization-assessment>

heater has a typical life of 8 years, furnaces have a typical life of 15 to 25 years, and heat pumps and heat exchangers typically last 10 to 15 years.¹⁶ These life expectancies are guidelines only, and a number of factors can influence the actual life of these units including the quality of the unit, weather, usage, installation, and maintenance.

b. Evaluation

The South Coast AQMD currently has three rules that regulate NO_x emissions from residential and commercial water heating (Rules 1121 and 1146.2, respectively) and residential space heating (Rule 1111). Rule 1121 regulates NO_x emissions from residential type, natural gas-fired water heaters with heat input rates less than 75,000 Btu/hr; Rule 1146.2 regulates NO_x emissions from small boilers, process heaters, and water heaters including the commercial sector with heat input rates less than or equal to 2,000,000 Btu/hr; and Rule 1111 regulates NO_x emissions from residential type, natural gas-fired central furnaces for heating with heat input rate less than 175,000 Btu/hr or for combination of heating and cooling units with a cooling rate less than 65,000 Btu/hr. The emissions limits that currently apply to newly manufactured or installed residential space and water heaters and commercial water heaters are itemized in Table V-13.

TABLE V-13
SOUTH COAST AQMD CONTROL MEASURES FOR SPACE AND WATER HEATERS

South Coast AQMD Rule	Applicability	Control Measure
Rule 1121 – Control of Nitrogen Oxides from Residential Type, Natural Gas-Fired Water Heaters (Amended 9/3/04)	Residential type, natural gas-fired water heaters rated <75,000 Btu/hr; exemptions: <ul style="list-style-type: none"> • Water heaters rated ≥75,000 Btu/hr • Water heaters used in recreational vehicles • Water heaters in mobile homes (except where specified) 	<ul style="list-style-type: none"> • 10 ng NO_x/joule or 15 ppm • Gas-fired mobile home water heaters: 40 ng/joule or 55 ppm
Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters (Amended 12/7/18)	Natural gas-fired water heaters, boilers, and process heaters with a rated heat input ≤2,000,000 Btu/hr	14 ng/joule or 20 ppm
Rule 1111 – Reduction of NO _x Emissions from Natural Gas-Fired, Fan-Type Central Furnaces (Amended 9/1/23)	Natural gas-fired central furnaces rated < 175,000 Btu/hr or combined heating and cooling units rated cooling of <65,000 Btu/hr	14 ng/joule for both condensing and non-condensing furnaces, weatherized furnace, and mobile home furnaces;

¹⁶ International Association of Certified Home Inspectors, InterNACHI's Standard Estimated Life Expectancy Chart for Homes, <https://www.nachi.org/life-expectancy.htm>, accessed November 1, 2023

South Coast AQMD Rule	Applicability	Control Measure
		Mitigation fee alternate compliance option end date extended to 9/30/25 for mobile home furnaces

As summarized in Tables V-13, South Coast AQMD's regulated limits are 10 ng NO_x/joule for water heaters and 14 ng NO_x/joule for space heaters. Staff also examined water and space heater emission rule requirements that have been implemented or recommended for implementation in other air districts in Table V-14.

**TABLE V-14
OTHER AIR DISTRICTS' CONTROL MEASURES FOR SPACE AND WATER HEATERS**

Rule	Applicability	Control Measure
SJVAPCD Rule 4308 – Boilers, Steam Generators, and Process Heaters - 0.075 MMBtu/hr to less than 2.0 MMBtu/hr (Amended 11/14/13)	Applies to boilers, steam generators, process heaters and water heaters rated from 0.075 to 2 MMBtu/hr; exemptions: <ul style="list-style-type: none"> • Units installed in manufactured homes • Units installed in recreational vehicles • Hot water pressure heaters 	Pool Heaters using PUC gas: <ul style="list-style-type: none"> • ≥0.075 to ≤0.4 MMBtu/hr: 0.068 lb/MMBtu or 55 ppm • >0.4 to <2.0 MMBtu/hr: 0.024 lb/MMBtu or 20 ppm All other units using PUC gas: 0.024 lb/MMBtu or 20 ppm Units fired on non-PUC gas or liquid fuel: <ul style="list-style-type: none"> • ≥0.075 to ≤0.4 MMBtu/hr: 0.093 lb/MMBtu or 77 ppm • >0.4 MMBtu/hr: 0.036 lb/MMBtu or 30 ppm
SJVAPCD Rule 4905 – Natural Gas-Fired, Fan-Type Central Furnaces (Amended 12/16/21)	Applies to natural gas-fired, fan-type central furnaces <175,000 Btu/hr and combination heating and cooling units <65,000 Btu/hr; Exemptions: <ul style="list-style-type: none"> • Units to be installed with propane conversion kits for propane firing only 	Condensing, Non-condensing, Weatherized, and Manufactured Home Units: 14 ng/joule of heat output Emission fee compliance option for manufacturers; fee end date has passed for all unit types except Manufactured Home units with fee end date of 9/30/2023
SJVAPCD Rule 4902 – Residential Water Heaters (Certified Water Heaters) (Amended 3/19/09)	Applies to PUC quality natural gas-fired residential water heaters ≤ 75,000 Btu/hr; exemptions: <ul style="list-style-type: none"> • Water heaters >75,000 Btu/hr • Water heaters using fuels other than PUC quality natural gas 	Natural gas-fired mobile home water heater: 40 ng NO _x /joule of heat output Natural gas-fired pool heater: 40 ng NO _x /joule

Rule	Applicability	Control Measure
	<ul style="list-style-type: none"> Water heaters used exclusively in recreational vehicles 	<p>Natural gas-fired water heater (excluding mobile home water heaters, instantaneous water heaters, and pool heaters): 10 ng NOx/joule</p> <p>Natural gas-fired instantaneous residential water heaters: 14 ng NOx/joule</p>
SMAQMD Rule 414 – Water Heaters, Boilers and Process Heaters Rated Less Than 1,000,000 Btu per Hour (Amended 10/25/18)	<p>Water Heaters, boilers, or process heaters rated <1 million Btu/hr fired with gaseous or nongaseous fuels; exemptions:</p> <ul style="list-style-type: none"> Water heaters in recreational vehicles Pool/spa heaters <75,000 Btu/hr Water heaters, boiler, and process heaters fired with liquefied petroleum gas Hot water pressure washers fired with gaseous or liquid fuels 	<p><75,000 Btu/hr:</p> <ul style="list-style-type: none"> Mobile Home: 40 ng NOx/joule or 55 ppm All others: 10 ng NOx/joule or 15 ppm <p>75,000 to < 400,000 Btu/hr:</p> <ul style="list-style-type: none"> Pool/spa: 40 ng NOx/joule or 55 ppm All others: 14 ng NOx/joule or 20 ppm <p>400,000 to < 1 million Btu/hr:</p> <ul style="list-style-type: none"> All types – 14 ng NOx/joule or 20 ppm
BAAQMD Regulation 9, Rule 6 – Nitrogen Oxides Emissions from Natural Gas-Fired Water Heaters (Amended 3/15/23)	<p>Natural Gas-Fired Water Heaters and Boilers; exemptions:</p> <ul style="list-style-type: none"> Natural gas-fired water heaters and boilers rated > 2 million Btu/hr Natural gas water heaters used in recreational vehicles Water heaters using a fuel other than natural gas <p>Natural gas-fired pool/spa heaters rated <400,000 Btu/hr</p>	<p>Natural gas-fired storage tank water heaters ≤75,000 Btu/hr:</p> <ul style="list-style-type: none"> 10 ng NOx/joule (excludes water heaters used for mobile homes) 0 ng NOx/joule (manufactured after 1/1/27; excludes water heaters used for mobile homes) <p>Natural gas-fired boilers and water heaters >75,000 to 2 million Btu/hr:</p> <ul style="list-style-type: none"> 14 ng NOx/joule 0 ng NOx/joule (manufactured after 1/1/31) <p>Natural gas-fired boilers and water heaters 400,000 to 2 million Btu/hr: 14 ng NOx/joule</p> <p>Natural gas-fired mobile home water heaters: 40 ng NOx/joule</p> <p>Natural gas-fired pool/spa heaters >400,000 to 2 million Btu/hr: 14 ng NOx/joule</p>
San Diego Air Pollution Control District (SDAPCD) Rule	<p>Natural Gas-Fired Water Heaters ≤ 75,000 Btu/hr; exemptions:</p> <ul style="list-style-type: none"> Water heaters rated >75,000 Btu/hr 	<p>Natural gas-fired water heater (excluding mobile home water heaters): 10 ng NOx/joule or 15 ppm</p>

Rule	Applicability	Control Measure
69.5.1 – Natural Gas-Fired Water Heaters (Adopted 6/24/15)	<ul style="list-style-type: none"> • Water heaters used in recreational vehicles • Water heaters used exclusively to heat swimming pools and hot tubs • Water heaters using fuels other than natural gas • Instantaneous water heaters 	Natural gas-fired mobile home water heater: 40 ng NO _x /joule or 55 ppm
VCAPCD Rule 74.11 – Natural Gas-Fired Water Heaters (Revised 1/12/10)	Natural Gas-Fired Water Heaters <75,000 Btu/hr; exemptions: <ul style="list-style-type: none"> • Water heaters rated >75,000 Btu/hr • Natural gas water heaters used in recreational vehicles 	Natural gas-fired water heater (excluding mobile home water heaters): 10 ng NO _x /joule Natural gas-fired mobile home water heater: 40 ng NO _x /joule
VCAPCD Rule 74.11.1 – Large Water Heaters and Small Boilers (Revised 9/11/12)	Large Water Heaters and Small Boilers; exemptions	Units rated 75,000 to 400,000 Btu/hr: 14 ng NO _x /joule Units rated 400,000 to 1 million Btu/hr: 20 ppm NO _x (after 1/1/13)
VCAPCD Rule 74.22 – Natural Gas-Fired, Fan-Type Central Furnaces (Adopted 11/9/93)	Natural Gas-Fired, Fan-Type Central Furnaces; exemptions: <ul style="list-style-type: none"> • Units installed in mobile homes 	40 ng NO _x /joule
BAAQMD Regulation 9, Rule 4 – Nitrogen Oxides from Natural Gas-Fired Furnaces (Amended 3/15/23)	Natural gas-fired furnaces rated 175,000 Btu/hr or less	Natural gas-fired fan type central furnace: <ul style="list-style-type: none"> • 40 ng NO_x/joule (1984+) • 14 ng NO_x/joule (2024+) <i>0 ng NO_x/joule (manufactured after 1/1/29)</i>
CARB Zero-Emission Standard for Space and Water Heaters	Space heaters and water heaters, implementation begins in 2030	Zero emission standard
Other Identified Potential Measures	Residential space and water heating	<ul style="list-style-type: none"> • Develop incentives for early replacement of residential space and water heaters with high-efficiency electric heat pumps or zero-emission heaters • Require a zero-NO_x appliance standard in existing buildings.

None of the current limits in other jurisdictions are more stringent than those currently in place in the South Coast AQMD. BAAQMD's rules include zero emission limits for furnaces and water heaters that begin to phase in for new units starting in 2027. Staff analyzed the BAAQMD rules as part of the BACM/MSM evaluation in Appendix III and concluded that adoption of a zero emission standard for space and water heaters was needed to satisfy MSM requirements.

c. Conclusion

Staff has not identified any feasible controls to propose as contingency measures for this source category. The PM_{2.5} Plan control strategy already includes measures to require newly sold or installed residential fuel combustion units to be zero emission where feasible and low NO_x where not. In addition, CARB has committed to adopt the Zero-Emission Standard for Space and Water Heaters control measure to satisfy MSM requirements. The only potential contingency measure that would be surplus to those efforts would be to require replacement of existing units before the end of their useful life. Staff does not consider this to be economically feasible, especially due to the undue burden it would place on disadvantaged communities. Nevertheless, South Coast AQMD is committed to expanding access to incentives through rebate programs for zero emission space and water heaters, especially for disadvantaged communities. A rebate program is being developed through the public process associated with Proposed Amended Rules 1111 and 1121.¹⁷

5. Other Fuel Combustion

a. Overview

There are other gaseous and liquid fuel fired combustion equipment that contribute to fuel combustion emissions. These include, but are not limited to, dryers, kilns, afterburners, evaporators, fryers, and burn-off furnaces. Two South Coast AQMD rules – Rule 1147 and Rule 1147.1 – regulate NO_x emissions from these combustion units. Rule 1147 – NO_x Reductions from Miscellaneous Sources (Amended 5/6/22) establishes BARCT NO_x emission limits from miscellaneous combustion equipment and Rule 1147.1 – NO_x Reductions from Aggregate Dryers (Adopted 8/6/21) establishes NO_x limits representative of BARCT for gaseous fuel fired aggregate dryers. Emissions associated with these combustion units are summarized in Table V-15.

TABLE V-15
OTHER FUEL COMBUSTION EQUIPMENT EMISSIONS BASED ON 2030 BASELINE INVENTORY IN
THE SOUTH COAST AIR BASIN

Major Source Category	Process	NO _x (tpd)	PM _{2.5} (tpd)	NH ₃ (tpd)
020-COGENERATION	995-OTHER	0.00	0.00	0.16
040-PETROLEUM REFINING (COMBUSTION)	070-IN-PROCESS FUEL	0.00	0.00	0.00
040-PETROLEUM REFINING (COMBUSTION)	070-IN-PROCESS FUEL	0.15	0.03	0.06
050-MANUFACTURING AND INDUSTRIAL	012-OVEN HEATERS (FORCE DRYING SURFACE COATINGS)	0.03	0.00	0.00
050-MANUFACTURING AND INDUSTRIAL	012-OVEN HEATERS (FORCE DRYING SURFACE COATINGS)	0.00	0.00	0.00

¹⁷ <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-1111-and-rule-1121>

Major Source Category	Process	NOx (tpd)	PM2.5 (tpd)	NH3 (tpd)
050-MANUFACTURING AND INDUSTRIAL	070-IN-PROCESS FUEL	0.25	0.03	0.04
050-MANUFACTURING AND INDUSTRIAL	070-IN-PROCESS FUEL	0.00	0.00	0.00
050-MANUFACTURING AND INDUSTRIAL	070-IN-PROCESS FUEL	0.00	0.02	0.01
050-MANUFACTURING AND INDUSTRIAL	070-IN-PROCESS FUEL	0.00	0.05	0.08
050-MANUFACTURING AND INDUSTRIAL	070-IN-PROCESS FUEL	0.00	0.00	0.00
050-MANUFACTURING AND INDUSTRIAL	995-OTHER	0.00	0.00	0.00
050-MANUFACTURING AND INDUSTRIAL	995-OTHER	2.22	0.30	1.52
050-MANUFACTURING AND INDUSTRIAL	995-OTHER	0.04	0.00	0.00
050-MANUFACTURING AND INDUSTRIAL	995-OTHER	0.00	0.00	0.00
050-MANUFACTURING AND INDUSTRIAL	995-OTHER	0.52	0.00	0.00
052-FOOD AND AGRICULTURAL PROCESSING	070-IN-PROCESS FUEL	0.00	0.00	0.00
052-FOOD AND AGRICULTURAL PROCESSING	995-OTHER	0.00	0.00	0.00
060-SERVICE AND COMMERCIAL	012-OVEN HEATERS (FORCE DRYING SURFACE COATINGS)	0.00	0.00	0.00
060-SERVICE AND COMMERCIAL	070-IN-PROCESS FUEL	0.04	0.00	0.00
060-SERVICE AND COMMERCIAL	070-IN-PROCESS FUEL	0.01	0.00	0.00
060-SERVICE AND COMMERCIAL	070-IN-PROCESS FUEL	0.00	0.00	0.00
060-SERVICE AND COMMERCIAL	995-OTHER	0.00	0.00	0.00
060-SERVICE AND COMMERCIAL	995-OTHER	0.10	0.03	0.02
060-SERVICE AND COMMERCIAL	995-OTHER	0.62	0.15	1.59
060-SERVICE AND COMMERCIAL	995-OTHER	1.07	0.14	0.22
060-SERVICE AND COMMERCIAL	995-OTHER	3.36	0.11	0.00
060-SERVICE AND COMMERCIAL	995-OTHER	0.00	0.00	0.00
099-OTHER (FUEL COMBUSTION)	080-RESOURCE RECOVERY	0.01	0.01	0.00
099-OTHER (FUEL COMBUSTION)	995-OTHER	0.13	0.36	0.28
Total		8.56	1.24	4.00

b. Evaluation

i. Available Control Technologies

LNB or ULNB is a commercially available combustion control technology and SCR is a post-combustion add-on control technology that is commercially available and commonly employed to control NO_x emissions from a wide range of NO_x sources. Current NO_x limits in Rule 1147 are established between 20 and 60 ppm corrected to 3 percent O₂ for most unit categories, although turbines have a NO_x limit set at 9 ppm corrected to 15% O₂. Lower NO_x emissions with LNB/ULNB are feasible for burner replacements and new installation. Achieving 20 ppm NO_x using LNB/ULNB systems without SCR is feasible in certain applications. Source test data also showed existing Rule 1147 equipment and burner technology can feasibly achieve between 20 and 30 ppm NO_x in existing applications. SCR systems typically require minimum exhaust temperatures of about 500 °F, and many applications subject to Rule 1147 would need the installation of additional heat input devices, such as duct burners, to achieve SCR minimum exhaust temperatures. Duct burner installation would lower the system's overall reduction potential and raise NO_x emissions at the SCR's inlet. Additionally, according to vendor quotations, adding duct burners would raise the control system's total cost. Current Rule 1147 NO_x limits can be feasibly achieved with burner only control technologies.¹⁸

The NO_x limit for aggregate dryers in Rule 1147.1 is set at 30 ppm. Based on discussions with burner manufacturers, 25 ppm NO_x is difficult to achieve in existing facilities due to limited excess air required for low NO_x burners, while 30 ppm is achievable for most retrofit applications. Source test data also suggested existing equipment and burner technology can feasibly achieve 30 ppm NO_x. Therefore, staff finalized NO_x limits at 30 ppm in Rule 1147.1.¹⁹ SCR is often infeasible for aggregate dryers due to low exhaust temperatures (refer to details above).

ii. South Coast AQMD Control Measures

Table V-16 summarizes NO_x emission limits in Rule 1147.

TABLE V-16
NO_x EMISSION LIMITS FOR COMBUSTION EQUIPMENT CATEGORIES IN RULE 1147

Equipment Categories	Process Temperature	Emission Limits (corrected to 3% O ₂ , dry)
Gaseous Fuel Fired Equipment ¹		
Afterburner, Degassing Unit, Thermal Oxidizer, Catalytic Oxidizer or Vapor Incinerator	All	20 ppm or 0.024 lb/MMBtu
Remediation Unit	All	60 ppm or 0.073 lb/MMBtu

¹⁸ Final Staff Report for Proposed Amended Rule 1147 – NO_x Reductions from Miscellaneous Sources, South Coast AQMD, May 2022. <https://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2022/2022-May6-029.pdf?sfvrsn=6>

¹⁹ Final Staff Report for Proposed Rule 1147.1 – NO_x Reductions from Aggregate Dryers, South Coast AQMD, August 2021. <https://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-Aug6-028.pdf?sfvrsn=6>

Equipment Categories	Process Temperature	Emission Limits (corrected to 3% O ₂ , dry)
Burn-off Furnace, Burnout Oven, Incinerator or Crematory with or without Integrated Afterburner	All	30 ppm or 0.036 lb/MMBtu
Evaporator, Fryer, Heated Process Tank, or Parts Washer	All	60 ppm or 0.073 lb/MMBtu
Oven, Dehydrator, Dryer, Heater, Kiln, Calciner, Cooker, Roaster, Furnace, or Heated Storage Tank	<1,200°F	20 ppm or 0.024 lb/MMBtu
	≥1,200°F	30 ppm or 0.036 lb/MMBtu
Make-Up Air Heater or other Air Heater located outside of building with temperature-controlled zone inside building	All	30 ppm or 0.036 lb/MMBtu
Tenter Frame or Fabric or Carpet Dryer	All	20 ppm or 0.024 lb/MMBtu
Autoclave	All	30 ppm or 0.036 lb/MMBtu
Tunnel Kiln or Beehive Kiln	<1,200°F	30 ppm or 0.036 lb/MMBtu
	≥1,200°F	60 ppm or 0.073 lb/MMBtu
Chiller (Absorption or Adsorption)	All	20 ppm or 0.024 lb/MMBtu
Turbine <0.3 MW ²	All	9 ppm or 0.033 lb/MMBtu
Rotary Dryer	All	30 ppm or 0.036 lb/MMBtu
Other Unit or Process Temperature	<1,200°F	30 ppm or 0.036 lb/MMBtu
	≥1,200°F	60 ppm or 0.073 lb/MMBtu
Liquid Fuel Fired Equipment		
All liquid fuel-fired Units ²	<1,200°F	40 ppm or 0.053 lb/MMBtu
	≥1,200°F	60 ppm or 0.073 lb/MMBtu
¹ Emission limit applies to burners in Units fueled by 100% natural gas that are used to incinerate air toxics, VOCs, or other vapors; or to heat a Unit. The emission limit applies solely when burning 100% gaseous fuel and not when the burner is incinerating air toxics, VOCs, or other vapors. The Unit shall be tested or certified to meet the emission limit while fueled with natural gas. ² Emission limits in ppm for Turbines are corrected to 15% O ₂ , dry basis.		

Rule 1147.1 requires that aggregate dryers achieve a NO_x limit of 30 ppm at 3 percent O₂ dry. The compliance schedule depends on the age of the burner and current permit conditions. Equipment at aggregate facilities, potentially including aggregate dryers, are also subject to South Coast AQMD Rule 1155 – Particulate Matter

(PM) Control Devices (Amended 5/2/14). Rule 1155 establishes best management practices for PM air pollution control devices, such as baghouses, from a wide range of manufacturing operations, including aggregate dryers. Rule 1155 requires no visible emissions from any PM air pollution control devices required to have a South Coast AQMD permit. For the largest tier (Tier 3 as defined to have the filter surface area greater than 7,500 square feet) baghouse, the outlet PM concentration is required to meet 0.01 grains per dry standard cubic foot (gr/dscf) or less, and the installation of a bag leak detection system (BLDS) is required. The BLDS continuously monitors baghouse performance by detecting changes in particle mass loading in the exhaust. Facility operators are alerted when bag leakage and similar failures occur such that they can repair the problem areas in a timely manner to minimize excess PM being vented to the atmosphere.

iii. Review of Control Measures in Other Jurisdictions

Other analogous rules adopted by other air districts include SJVAPCD Rules 4309 and 4313 and VCAPCD Rule 74.34 and are summarized in Table V-17 for comparison.

TABLE V-17
OTHER AIR DISTRICTS' CONTROL MEASURES FOR OTHER FUEL COMBUSTION

Rule	Applicability	Control Measure		
SJVAPCD Rule 4309 – Dryers, Dehydrators, and Ovens (Adopted 12/15/05)	Any dryer, dehydrator, or oven that is fired on gaseous fuel, liquid fuel, or is fired on gaseous and liquid fuel sequentially, and the total rated heat input for the unit is ≥ 5.0 MMBtu/hr	NOx Limit (ppm, corrected at 19% O ₂)		
			Gaseous Fuel Fired	Liquid Fuel Fired
		Asphalt/Concrete Plants	4.3	12.0
		Milk, Cheese, and Dairy Processing <20 MMBtu/hr	3.5	3.5
		Milk, Cheese, and Dairy Processing ≥ 20 MMBtu/hr	5.3	5.3
		Other processes not described above	4.3	4.3
SJVAPCD Rule 4313 – Lime Kilns (Adopted 3/27/03)	Lime kilns	Gaseous Fuel: 0.10 lb/MMBtu of NOx Distillate Fuel: 0.12 lb/MMBtu of NOx Residual Fuel Oil: 0.20 lb/MMBtu of NOx		
VCAPCD Rule 74.34 – NOx Reductions from Miscellaneous Sources (Adapted 12/13/16)	Dryers, furnaces, heaters, incinerators, kilns, ovens, and duct burners where the total rated heat input for the unit is ≥ 5.0 MMBtu/hr	NOx Emission Limits (ppm, corrected at 3% O ₂)		
		Asphalt Manufacturing (Dryers)	40 or 0.048 lb/MMBtu	
		Sand & Gravel Processing (Dryers)	40 or 0.048 lb/MMBtu	
		Paper Products Manufacturing (Hot Air Furnace, Duct Burner, Paper Dryer)	40 or 0.048 lb/MMBtu	
		Metal Heat Treating/ Metal Melting Furnace	60 or 0.072 lb/MMBtu	
		Kiln	80 or 0.096 lb/MMBtu	

Rule	Applicability	Control Measure		
			Process Temperature <1,200°F	Process Temperature ≥1,200°F
		Oven, Dryer (besides asphalt, sand or paper dryer), Heater, Incinerator, Other Furnaces, or Other Duct Burner	30 or 0.036 lb/MMBtu	60 or 0.072 lb/MMBtu

SJVAPCD Rule 4309 contains NO_x limits between 3.5 to 5.3 ppm corrected to 19 percent O₂ which are between 32 and 50 ppm NO_x corrected to 3 percent O₂. Rule 4309 has no separate emission limits based on process temperature, so comparable NO_x emission limits may be more or less stringent compared to existing South Coast AQMD Rule 1147 depending on the process and temperature. SJVAPCD Rule 4313 has an emission limit of 0.10 lb/MMBtu of NO_x from gaseous fuel fired lime kilns which is higher than South Coast AQMD Rule 1147's NO_x limits for kilns that range from 0.024 to 0.036 lb/MMBtu depending on the process temperature.

VCAPCD Rule 74.34 establishes a NO_x emission limit of between 30 to 80 ppm corrected to 3 percent O₂ for any natural gas fired combustion unit where the unit total heat input is greater than or equal to 5 MMBtu/hr. Similar to South Coast AQMD Rule 1147, VCAPCD Rule 74.34 separates emission limits for ovens, dryers, heaters, incinerators, furnaces and duct burners depending on process temperature. Units operating below 1,200°F are limited to 30 ppm NO_x while those operating above or equal to 1,200°F are limited to 60 ppm NO_x. VCAPCD also contains separate limits for kilns of 80 ppm as well as separate limits for paper product manufacturing and aggregate processes limited to 40 ppm NO_x. VCAPCD Rule 74.34 NO_x limits are generally less stringent than existing Rule 1147 requirements and Rule 1147.1 requirement for the aggregate dryer category. For example, the NO_x limit for aggregate dryers is 40 ppm in VCAPCD Rule 74.34 while the limit is 30 ppm in Rule 1147.1. The NO_x limits for oven, dryer, heater, and furnaces range from 30 to 60 ppm in VCAPCD Rule 74.34, whereas those limits range from 20 to 30 ppm in Rule 1147.

c. Conclusion

Staff does not propose any contingency measures for this category of units. Staff did not identify any PM_{2.5} control measures that are not required by South Coast AQMD for this source category, nor were applicable NH₃ control measures identified for consideration. Staff considered several potential measures such as lowering NO_x limits using ULNB and SCR, but these were not suitable contingency measures considering that it would be technologically infeasible to design, install and operate advanced emission control technology within 2 years of the triggering event. In addition, SCR is not an appropriate control method for units with low exhaust temperatures.

Waste Disposal

a. Overview

Waste Disposal categories in the South Coast Air Basin emissions inventory include 110 – Sewage Treatment, 120 – Landfills, 130 – Incinerators, 140 – Soil Remediation, and 199 – Other (Waste Disposal). Collectively, these source categories contribute 0.26 tpd PM_{2.5} emissions, 1.58 tpd NO_x emissions, and 6.39 tpd NH₃ emissions to the 2030 South Coast Air Basin emissions inventory. These emissions are contributed by landfill flares, composting, and incinerators. Flare emissions under the waste disposal source categories are predominately generated by landfill flares. Smaller quantities of emissions are generated by sewage treatment and incineration flares combusting digester gas, process gas, waste gas, and natural gas. Composting emissions are generated by the decomposition of organic materials. Incinerator emissions are primarily generated by waste disposal activities in the industrial sector and involve combustion of distilled oil, liquified petroleum gas, natural gas, pathological waste and waste gas.

b. Evaluation

1. Landfills

The evaluation of control measures for flares, including landfill flares, is provided in the Petroleum Production and Marketing Section of this document. This evaluation focuses on control measures for landfill equipment other than flares. South Coast AQMD Rule 1150.1 – Control of Gaseous Emissions from Municipal Solid Waste Landfills regulates emissions from non-methane organic compounds (NMOC), VOCs and toxic air contaminant (TAC) emissions from Municipal Solid Waste (MSW) landfills to prevent public exposure to such emissions. This rule also reduces methane emissions, a greenhouse gas, but does not include particulate matter, NO_x or ammonia control measures.

Existing regulations for landfill emissions sources in other jurisdictions include BAAQMD Regulation 8-34, Mojave Desert Air Quality Management District (MDAQMD) Rule 1126, and SJVPACD Rule 4642. These rules have requirements for the collection and destruction of VOCs from solid waste disposal sites, but do not include particulate matter, NO_x, or ammonia control measures. As VOCs are not a significant PM_{2.5} precursor in the South Coast Air Basin, these rules were not evaluated. Staff did not identify any NO_x, particulate matter, or ammonia controls for consideration as contingency measures.

2. Sewage Treatment

The only emissions from this source category are associated with the treatment of liquid waste. For an evaluation of combustion emissions at sewage treatment plants, refer to the fuel combustion section in this appendix. Evaluation of control measures for sewage treatment did not identify any NO_x, particulate matter, or ammonia controls for consideration as contingency measures.

3. Composting

Composting is a process in which solid organic waste materials are decomposed in the presence of oxygen under controlled conditions through the action of bacteria and other microorganisms. Composting operations occur at facilities that process greenwaste, biosolids, manure, and/or foodwaste. Greenwaste composting means composting of greenwaste by itself or as a mixture with foodwaste, or with up to 20 percent manure, per pile volume basis. Agricultural composting is conducted in agricultural settings where the feedstock consists of wastes generated on-site by the production and processing of farm or agricultural products. While there are no PM_{2.5} or NO_x emissions associated with composting in the Basin, 1.6 tpd of ammonia are emitted and the remainder of this evaluation focuses on those emissions.

South Coast AQMD's Rule 1133 series contains requirements to reduce ammonia emissions due to the decomposition of organic materials. Rule 223 – Emission Reduction Permits for Large Confined Animal Facilities includes composting as a class two mitigation measure and specifies minimum composting requirements. These rules are summarized in Table V-18.

TABLE V-18
SOUTH COAST AQMD CONTROL MEASURES FOR COMPOSTING

South Coast AQMD Rule	Applicability	Requirements
Rule 1133.1 – Chipping and Grinding Activities (Amended 7/8/11)	Chipping and grinding activities to produce materials other than active or finished compost	<ul style="list-style-type: none"> • Chip or grind and utilize on-site or remove curbside, non-curbside, or mixed greenwaste from the site within 48 hours of receipt • Foodwaste cannot be processed at the facility unless approved by the Local Enforcement Agency
Rule 1133.2 – Emission Reductions from Co-Composting Operations (Adopted 1/10/03)	Co-composting operations, defined as those where biosolids and/or manure are mixed with bulking agents to produce compost	<ul style="list-style-type: none"> • Utilize an enclosure that meets the following requirements: has an inward face velocity of at least 100 ft/min; area of all openings cannot exceed 2% of the enclosure's surface area; and no measurable increase in NH₃ above background levels outside the enclosure • Conduct all curing under negative pressure

South Coast AQMD Rule	Applicability	Requirements
		<ul style="list-style-type: none"> Exhaust from the enclosure must be vented to an emission control device of at least 80% efficiency for NH₃ removal Alternatively, new co-composting operations can submit a compliance plan demonstrating an overall reduction in NH₃ emissions of at least 80%. The facilities would not have to comply with the above requirements
Rule 1133.3 – Emission Reductions from Greenwaste Composting Operations (Adopted 7/8/11)	Greenwaste composting operations that produce active or finished compost from greenwaste by itself or greenwaste in combination with manure or foodwaste	<ul style="list-style-type: none"> Cover active phase piles with at least 6 inches of finished compost within 24 hours of pile formation For the first 15 days, apply water such that the top half of the pile is wet at a depth of at least 3 inches Compost containing more than 10% foodwaste must employ an emission control device with at least 80% control efficiency for NH₃ emissions
Rule 223 – Emission Reduction Permits for Large Confined Animal Facilities (Adopted 6/2/06)	Applies to dairies with ≥ 1,000 cows and poultry farms with ≥ 650,000 chickens.	<p>If composting is selected as a mitigation measure:</p> <ul style="list-style-type: none"> Employ an aerated static pile vented to a control device with at least 80% control efficiency Compost in accordance with the requirements in Rule 1133.2

Staff evaluated regulations for composting in other jurisdictions. SJVAPCD Rule 4566 – Organic Material Composting and SJVAPCD Rule 4565 – Biosolids, Animal Manure, and Poultry Litter Operations were identified as potentially applicable. However, these rules only seek to reduce VOC emissions associated with composting and do not contain specific requirements for the control of ammonia emissions.

Antelope Valley Air Quality Management District (AVAQMD) Rule 1133 regulates emissions of VOCs and NH₃ from composting and related operations and prevents inadvertent decomposition from occurring during chipping and grinding operations. AVAQMD Rule 1133 requirements include chipping, grinding, or removal of curbside greenwaste from the site within 3 days, non-curbside greenwaste within 14 days, and mixed greenwaste from the site within 7 days of receipt. South Coast AQMD Rule 1133.1 has more stringent requirements than AVAQMD for chipping and grinding, where operators must chip or grind and utilize on-site or remove curbside, non-curbside, or mixed greenwaste from the site within 2 days of receipt.

Imperial County Air Pollution Control District (ICAPCD) Rule 430 also regulates VOC and NH₃ emissions from composting, co-composting and related operations involving animal manure and poultry litter. ICAPCD Rule 430 requires operators to select from a menu of mitigation options involving treatment of compost piles and manure management. South Coast AQMD Rule 1133.2 establishes performance standards for operations to achieve at least 70 percent and 80 percent control efficiency for VOC and NH₃ emissions for existing and new operations, respectively. South Coast AQMD Rule 1133.3 requires emission control devices and establishes Best Management Practices (BMPs) for greenwaste composting operations based on the amount of foodwaste a facility processes. Therefore, staff concludes that South Coast AQMD's rules for composting are more stringent than the composting measures in ICAPCD Rule 430.

Emission reductions from composting operations were separately evaluated in Appendix III under potential control measure (PCM) 10. According to California Department of Resources Recycling and Recovery (CalRecycle's) Final Environmental Impact Report, 46 new or expanded compost facilities and 24 new or expanded anaerobic digester facilities would be required in the South Coast Air Basin by 2030 to process newly diverted waste due to implementation of SB 1383.²⁰ Implementation of SB 1383 may result in increased emissions from processing of organic waste via composting and anaerobic digestion. The PM_{2.5} Plan seeks to further control emissions from these facilities through BCM-11 – Emission Reductions from Organic Waste Composting.

Finally, BCM-10 – Emission Reductions from Direct Land Application of Chipped and Ground Uncomposted Greenwaste seeks to require composting of chipped and ground greenwaste prior to land application. BCM-10 is one of the control measures that staff identified as being needed to satisfy MSM requirements. Composting of the greenwaste in accordance with the BMPs in Rule 1133.3 will achieve NH₃ emission reductions compared to natural decomposition.

With the inclusion of BCM-10 and BCM-11 in the control strategy, staff concludes that no further opportunities exist for a contingency measure. Furthermore, evaluation of rules in other air districts for composting did not identify any NH₃ controls that have not been implemented in the South Coast Air Basin.

4. Incinerators

Incinerators are used to burn waste material at high temperatures until reduced to ash. Staff reviewed incinerator control measures in other jurisdictions. SJVAPCD Rule 4203 – Particulate Matter Emissions from

²⁰ CalRecycle SB 1383 Final Environmental Impact Report. <https://www2.calrecycle.ca.gov/Docs/Web/119973>

Incineration of Combustible Refuse limits particulate matter emissions from the incineration of combustible refuse, establishes concentration limits and establishes an allowable emissions rate, and prohibits the discharge of visible emissions. SJVAPCD Rule 4302 – Incinerator Burning prohibits the use of any incinerator except for a multiple chamber incinerator or one equally effective in controlling air pollution.

Neither South Coast AQMD nor BAAQMD implement rules with similar particulate matter emissions requirements as in the applicable SJVAPCD regulations. However, the PM2.5 Plan control strategy includes BCM-07 – Emission Reductions from Incinerators which is expected to require control technology that results in NOx and PM2.5 emission reductions. South Coast AQMD Proposed Rule 1165 – Control of Emissions from Incinerators, which is associated with implementation of control measure BCM-07, is currently under development.²¹

c. Conclusion

As detailed above, staff did not identify any potential contingency measures for the waste disposal categories in the South Coast Air Basin that are surplus to the PM2.5 Plan control strategy and would achieve quantifiable reductions within 2 years.

Cleaning and Surface Coating

Cleaning and Surface Coating source categories include 210 – Laundering, 220 – Degreasing, 230 – Coatings and Related Process Solvents, 240 – Printing, 250 – Adhesives and Sealants, and 299 – Other (Cleaning and Surface Coating). These source categories contribute 0.04 tpd of NOx, 1.59 tpd of PM2.5, and 0.16 tpd of NH3 emissions to the 2030 baseline emissions inventory.

VOCs are the primary pollutant emitted from these source categories and their main emission sources are the application and use of solvents, coatings, inks, adhesives, and sealants. Particulate matter emissions are generated by sources in these categories via spraying, material handling, and mixing processes. NH3 and amines are commonly used in the formulation of water-based inks, coatings, and adhesives, and can contribute fugitive emissions from various applications. The small quantity of NOx emissions is associated with dryers, which typically burn natural gas. An analysis of fuel combustion sources was presented earlier in this appendix.

Most air districts including South Coast AQMD require that source operators utilize an emissions control device with a control efficiency of at least 90 percent for VOCs. Additionally, most air agencies require implementation of similar BMPs and good housekeeping to minimize emissions (e.g., requirements to install enclosures for coating operations and prohibiting the use of spray coating unless a high transfer efficiency method is used). South Coast AQMD staff did not identify any particulate matter control measures that are not already implemented in the Basin, nor did staff identify applicable measures for NOx and NH3 emissions.

²¹ <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-1165>

Thus, staff has not identified any Cleaning and Surface Coating control measures for further consideration as contingency measures in the South Coast Air Basin.

Petroleum Production and Marketing

a. Overview

Petroleum Production and Marketing categories include 310 – Oil and Gas Production, 320 – Petroleum Refining, and 330 – Petroleum Marketing, and 399 – Other (Petroleum Production and Marketing). These source categories contribute 0.91 tpd PM_{2.5} emissions, 0.63 tpd NO_x emissions, and 0.07 tpd NH₃ emissions to the 2030 South Coast Air Basin emissions inventory. The primary emission sources in these categories are flares, cooling towers, refinery coking, and Fluid Catalytic Cracking Units (FCCUs).

b. Evaluation

1. Flares

A flare is a tall stack equipped with a burner, used to destroy any excess gases produced by industrial and miscellaneous processes. Flare systems are in continuous operation. Most of the time these systems are in standby mode, ready to combust gases as soon as they enter the flare. U.S. EPA requirements for flares are addressed under 40 CFR Part 60.18 (which specifies operational requirements for flares), 40 CFR Part 63.11 (which specifies work standard practices for flares), and 40 CFR Part 60 Subpart Ja – Standards of Performance for Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007. South Coast AQMD regulates non-refinery flares (i.e., landfill, sewage treatment, and incinerator flares for waste disposal) under Rule 1118.1 and refinery flares under Rule 1118.

Existing regulations for flares in other jurisdictions include SJVAPCD Rule 4311 that requires flares exceeding annual capacity throughput thresholds to install ultra-low NO_x (ULN) flaring technologies and encourages alternative uses of waste gas to reduce flaring. Santa Barbara County Air Pollution Control District (SBCVAPCD) Rule 359 – Flares and Thermal Oxidizers, BAAQMD Rule 12-11 – Flare Monitoring at Petroleum Refineries, BAAQMD Rule 12-12 – Flares at Petroleum Refineries, and SDAPCD Rule 69.7 – Landfill Gas Flares also regulate emissions from flaring and are summarized in Table V-17. Because other districts typically regulate flaring activities under one rule, South Coast AQMD Rules 1118 and 1118.1 for refinery and non-refinery flares are listed under the same column in Table V-19.

TABLE V-19
COMPARISON OF EXISTING CONTROL MEASURES FOR FLARES

	South Coast AQMD Rule 1118 – Control of Emissions from Refinery Flares (Amended 01/06/2023) & Rule 1118.1 – Control of Emissions from Non-Refinery Flares (Amended 01/04/19)	SJVAPCD Rule 4311 – Flares (Amended 12/17/20)	SBCAPCD Rule 359 – Flares and Thermal Oxidizers (Amended 06/28/94)	BAAQMD Rule 12-11 – Flare Monitoring at Petroleum Refineries (Amended 11/03/21) & Rule 12-12 – Flares at Petroleum Refineries (Amended 11/03/21)	SDAPCD Rule 69.7 – Landfill Gas Flares (Adopted 03/09/23):
Applicability	<p><u>1118</u> Flaring operations at petroleum refineries, sulfur recovery plants, and hydrogen production plants.</p> <p><u>1118.1</u> Non-refinery facilities, including, but not limited to, oil and gas production facilities, wastewater treatment facilities, landfills, and organic liquid handling facilities.</p>	Operations involving the use of flares.	Flares and thermal oxidizers at oil and gas production sources, petroleum refinery and related sources, natural gas services and transportation sources and wholesale trade in petroleum/petroleum products.	Flares at refineries.	All landfill gas flares at a municipal solid waste landfills where flare emissions are at or above the federal major stationary source threshold for NOx.
Requirements	<p><u>1118</u></p> <ul style="list-style-type: none"> • Monitor and record data on refinery and related flaring operations and to control and minimize flaring and related emissions • Notify South Coast AQMD of flare events (both planned and unplanned) • Minimize all flaring, except during emergencies, shutdowns, startups, and turnarounds • Monitor emissions and submit quarterly emissions report • Meet performance target for sulfur dioxide emissions of less than 0.5 tons per million barrels of crude processing capacity, averaged over one year. • Any facility that exceeds performance targets must submit flare minimization plan and pay mitigation fees for excess 	<ul style="list-style-type: none"> • Reduce flaring activities with emission limits, operation limits, requirements to monitor, record, and report flaring activities • NOx, VOC, and CO emission limits by operation category for flares at oil and gas, chemical, landfill, digester, or organic liquid loading operations. • NOx and VOC emission limits for ground level enclosed flares; • If emission limits cannot be met the operator must limit flaring to the required annual throughput 	<ul style="list-style-type: none"> • Contains requirements for flares and thermal oxidizers including sulfur content limits, flare minimization plans, and emergency event provisions • NOx and VOC emission limits for ground level flares and thermal oxidizers exceeding 120 standard cubic feet per day 	<ul style="list-style-type: none"> • Reduce emissions from flares at refineries by minimizing the frequency and magnitude of flaring • Monitoring flares in several ways that include vent gas flow and composition, pilots and purging, and video monitoring • Contains management practices for flaring such as flare minimization plans, operating and design standards, recordkeeping and reporting requirements. 	<ul style="list-style-type: none"> • The landfill gas flare shall be properly maintained and operational at all times • In the event the landfill gas flare is inoperable, the gas mover equipment shall be shut down and closed within one hour • Monitoring and record keeping requirements • NOx and CO emission limits for enclosed landfill flares

	South Coast AQMD Rule 1118 – Control of Emissions from Refinery Flares (Amended 01/06/2023) & Rule 1118.1 – Control of Emissions from Non-Refinery Flares (Amended 01/04/19)	SJVAPCD Rule 4311 – Flares (Amended 12/17/20)	SBCAPCD Rule 359 – Flares and Thermal Oxidizers (Amended 06/28/94)	BAAQMD Rule 12-11 – Flare Monitoring at Petroleum Refineries (Amended 11/03/21) & Rule 12-12 – Flares at Petroleum Refineries (Amended 11/03/21)	SDAPCD Rule 69.7 – Landfill Gas Flares (Adopted 03/09/23):
	<p>emissions.</p> <p><u>1118.1</u></p> <ul style="list-style-type: none"> • Reduce NOx and VOC emissions from flaring produced gas, digester gas, landfill gas, and other combustible gases or vapors and to encourage alternatives to flaring. • Comply with applicable NOx, VOC, and CO emission limits • Comply with annual percent capacity 	<ul style="list-style-type: none"> • If annual throughput thresholds are exceeded for 2 consecutive years, flare operator must replace or modify flare to meet applicable NOx and VOC limits • Refineries meet performance target for sulfur dioxide emissions of less than 0.5 tons per million barrels of crude processing capacity, averaged over one year. 			
Exemptions	<p><u>1118</u></p> <ul style="list-style-type: none"> • Flaring as a result of a catastrophic event including a major fire or an explosion at the facility • Constitutes a safety hazard to the sampling personnel at the sampling location approved in the Flare Monitoring and Recording • Any sulfur dioxide emissions from flare events caused by external power curtailment beyond the operator's control (excluding interruptible service agreements), natural disasters or acts of war or terrorism <p><u>1118.1</u></p> <ul style="list-style-type: none"> • Flares at asphalt plants, biodiesel plants, hydrogen production plants 	<ul style="list-style-type: none"> • Flares used for well testing, tank degassing, and pipeline degassing operations • Flares that combust regeneration gas • Emergency flares not subject to emission limits • Flares operated at municipal solid waste landfills that combust less than 2,000 million standard cubic feet (MMscf) of landfill gas per calendar year and that have ceased accepting waste • Flares that combust only propane or butane or a 	<ul style="list-style-type: none"> • Burning of sulfur, hydrogen sulfide, acid sludge or other sulfur compounds in the manufacturing of sulfur or sulfur compounds • Burning of any gas with a net heating value of less than 300 Btu/scf provided the fuel used to incinerate such gas does not contain sulfur compounds in excess of the rules set limits • Permitted flares at 1.7 MMBTU/hr or less are exempt from emission limits • Emergency Flares 	<ul style="list-style-type: none"> • Flares that are used to control emissions from organic liquid storage, loading racks, marine vessel loading terminals, wastewater treatment systems, and pump seals. 	<ul style="list-style-type: none"> • Standards, Test Methods, Source Test Requirements of this rule shall not apply to an existing open landfill gas flare, which commenced operation on or before March 9, 2023.

	South Coast AQMD Rule 1118 – Control of Emissions from Refinery Flares (Amended 01/06/2023) & Rule 1118.1 – Control of Emissions from Non-Refinery Flares (Amended 01/04/19)	SJVAPCD Rule 4311 – Flares (Amended 12/17/20)	SBCAPCD Rule 359 – Flares and Thermal Oxidizers (Amended 06/28/94)	BAAQMD Rule 12-11 – Flare Monitoring at Petroleum Refineries (Amended 11/03/21) & Rule 12-12 – Flares at Petroleum Refineries (Amended 11/03/21)	SDAPCD Rule 69.7 – Landfill Gas Flares (Adopted 03/09/23):
	<p>fueled in part with refinery gas, petroleum refineries, sulfuric acid plants, and sulfur recovery plants</p> <ul style="list-style-type: none"> Flares subject to South Coast AQMD Rule 1147 Flares routing only propane or butane or a combination of propane and butane directly into the flare burner Flares at a landfill that collects less than 2,000 MMscf of landfill gas per calendar year and has either ceased accepting waste. 	combination of propane and butane			
Annual Capacity Thresholds	<p><u>1118.1</u> Non-refineries, expressed as the percentage of capacity used to flare gas:</p> <ul style="list-style-type: none"> Any gas combusted in an open flare: 5% Digester gas: 70% Landfill gas: 20% Produced gas: 5% 	<ul style="list-style-type: none"> Oil and gas and chemical operations: 25,000 MMBtu per year Landfill operations: 90,000 MMBtu per year Digester operations: 100,000 MMBtu per year Organic liquid loading operations: 25,000 MMBtu per year 			
NOx Emission Limits	<p><u>1118.1</u> Non-refineries:</p> <ul style="list-style-type: none"> Digester gas at major source: 0.025 lb/MMBtu Digester gas at minor source: 0.06 lb/MMBtu Landfill gas: 0.025 lb/MMBtu Produced gas: 0.018 lb/MMBtu Other flare gas: 0.06 lb/MMBtu 	<ul style="list-style-type: none"> Digester operations at major source: 0.025 lb/MMBtu Digester operations not at major source: 0.060 lb/MMBtu Landfill operations: 0.025 lb/MMBtu Flares at oil and gas operations or chemical 	<p>Enclosed flare exceeding 120,000 scf/day:</p> <ul style="list-style-type: none"> Without steam-assist (<10 MMBtu): 0.0952 lb/MMBtu Without steam-assist (10-100 MMBtu): 0.1330 lb/MMBtu Without steam-assist (>100 MMBtu): 0.5240 lb/MMBtu With steam-assist: 0.068 		Enclosed landfill gas flare: 0.06 lb/MMBtu

	South Coast AQMD Rule 1118 – Control of Emissions from Refinery Flares (Amended 01/06/2023) & Rule 1118.1 – Control of Emissions from Non-Refinery Flares (Amended 01/04/19)	SJVAPCD Rule 4311 – Flares (Amended 12/17/20)	SBCAPCD Rule 359 – Flares and Thermal Oxidizers (Amended 06/28/94)	BAAQMD Rule 12-11 – Flare Monitoring at Petroleum Refineries (Amended 11/03/21) & Rule 12-12 – Flares at Petroleum Refineries (Amended 11/03/21)	SDAPCD Rule 69.7 – Landfill Gas Flares (Adopted 03/09/23):
	<ul style="list-style-type: none"> Organic liquid storage: 0.25 lb/MMBtu Organic liquid loading: 0.034 lb/1,000 gallons loaded 	<p>operations: 0.018 lb/MMBtu</p> <ul style="list-style-type: none"> Organic liquid loading operations: 0.034 lb/1,000 gallons loaded <p>Enclosed Flare:</p> <ul style="list-style-type: none"> Without steam-assist (<10 MMBtu): 0.0952 lb/MMBtu Without steam-assist (10-100 MMBtu): 0.1330 lb/MMBtu Without steam-assist (>100 MMBtu): 0.5240 lb/MMBtu With steam-assist: 0.068 lb/MMBtu 	lb/MMBtu		

Refinery Flares

Every petroleum refinery operating within the South Coast AQMD's jurisdiction has one or more flares to control emissions from process units and storage vessels. Eight petroleum refining facilities, three hydrogen plants, and one sulfur recovery plant within Los Angeles County operate a total of 31 flares subject to Rule 1118. Rule 1118 requires facilities to submit notifications and reports, monitor emissions, meet emission performance targets, and maintain a public inquiry hotline. Any facility that exceeds these performance targets is required to submit a flare minimization plan and to pay mitigation fees for the excess emissions. Refineries and related facilities are required to notify South Coast AQMD of flare events expected to exceed one or more thresholds of 100 pounds of VOCs, 500 pounds of sulfur dioxides (SO₂), or 500,000 standard cubic feet of gas combusted. Rule 1118 was last amended in January 2023 to address U.S. EPA's partial SIP disapproval of the rule to remove a clause that granted the Executive Officer sole authority to approve ASTM standards, and now includes CARB and U.S. EPA approval for ASTM standards.

Evaluation of Rule 1118 revealed potentially less stringent NO_x controls compared to SJVAPCD Rule 4311. Specifically, Rule 4311 sets an annual throughput threshold of 25,000 MMBtu/year or a NO_x emission limit of 0.018 lb/MMBtu for oil and gas flares, including refinery flares, while Rule 1118 does not set an explicit NO_x limit. However, staff is currently pursuing an amendment of Rule 1118,²² which is expected to address this issue. Proposed Amended Rule (PAR) 1118, tentatively scheduled for adoption in Spring 2024, will increase the stringency of Rule 1118 by lowering SO₂ performance targets, establishing new NO_x performance targets for hydrogen clean service flares, and establishing a throughput threshold for liquified petroleum gas (LPG) clean service flares at refineries. For hydrogen clean service flares, the NO_x performance target in PAR 1118 is 0.3 lbs. per million standard cubic feet of hydrogen production capacity. PAR 1118 addresses LPG flares by instituting a throughput threshold of 15,000 MMBtu/year, which is lower than the threshold in SJVAPCD Rule 4311. Operators are expected to comply with the more stringent threshold by installing an LPG recovery system (i.e., refrigeration/chiller system) or implementing flare operation changes through installing a new LPG flare or retrofitting an existing LPG flare, resulting in lower NO_x emissions. Therefore, staff concludes that PAR 1118 is more stringent than SJVAPCD Rule 4311.

Non-refinery Flares

South Coast AQMD Rule 1118.1 – Control of Emissions from Non-Refinery Flares was adopted on January 4, 2019, to reduce NO_x and VOC emissions from flaring produced gas, digester gas, landfill gas, and other combustible gases or vapors and to encourage alternatives to flaring. Non-refinery facilities include oil and gas production facilities, wastewater treatment facilities, landfills, organic liquid handling facilities, and others. At the time of rule adoption, there were 153 facilities subject to Rule 1118.1.

Table V-16 compares Rule 1118.1 with control measures for flares implemented in other jurisdictions. NO_x limits under Rule 1118.1 are as stringent as those in other jurisdictions. Rule 1118.1 and SJVAPCD Rule 4311 both require either flare throughput reduction or flare replacement to meet applicable emission limits when the applicable annual capacity threshold is exceeded. However, each jurisdiction takes a different approach

²² <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-1118>

to setting annual capacity thresholds. Rule 1118.1 sets annual thresholds based on a percentage of capacity that a flare is used, while SJVAPCD Rule 4311 sets annual thresholds based on heat capacity in MMBtu per year. If a flare under Rule 1118.1 exceeds its annual capacity threshold, then the operator of the flare is required to take action to reduce the throughput or comply with more stringent emission limits. While direct comparison of rule requirements is challenging due to the different structures of the rules, staff concludes that Rule 1118.1 is generally as stringent as those from other agencies.

2. Wet Cooling Towers

Wet cooling towers are heat exchange devices used to remove large amounts of heat absorbed in the circulating cooling water systems at power plants, petroleum refineries, petrochemical plants, natural gas processing plants, and a wide variety of industrial operations. Small amounts of particulate matter can be emitted from cooling towers via the production of drift, when dissolved solids in the circulating fluid are entrained in the cooling air and discharged from the cooling tower. As described in the U.S. EPA's compilation of air pollutant emission factors (AP-42), drift eliminators are usually incorporated into cooling tower design to remove droplets from the air stream before exiting the tower.²³ Cooling towers contribute 0.49 tpd of PM_{2.5} emissions and zero NO_x and NH₃ emissions to the 2030 baseline emissions inventory.

Staff did not identify any federal, state, or local regulations that control PM emissions from cooling towers. The only federal requirement that applies to cooling towers is under 40 CFR 63.654 and requires monitoring and repair of leaks of VOC from heat exchange systems.

Cooling towers are evaluated in Appendix III of the PM_{2.5} Plan under PCM 3. Staff determined that prior to developing a policy to implement controls, an emissions inventory and an equipment universe must be established. Control measure BCM-13 – Emission Reductions from Industrial Cooling Towers proposes development of an emissions inventory, equipment universe, and improved emission factors for cooling towers and seeks reductions of PM_{2.5} emissions from industrial process cooling towers with drift eliminator technologies. BCM-13 aims to assess the feasibility of phasing in the use of drift eliminators with 0.001 percent drift rate for existing cooling towers where cost-effective, and a potential BACT drift rate of 0.0005 percent for new construction. Given the inclusion of BCM-13 in the control strategy, staff did not identify any potential contingency measures for cooling towers.

3. Coking

Delayed coking is a process in petroleum refining that involves the thermal decomposition of heavy hydrocarbons to produce valuable products like petroleum coke, gas oil, and other lighter hydrocarbons. This process is employed to convert the heavy residual fractions obtained from crude oil distillation into more valuable and marketable products. Delayed Coking Units (DCUs) emit 0.05 tpd PM_{2.5} emissions in the 2030 baseline inventory. DCUs are regulated by South Coast AQMD Rule 1114 – Petroleum Refinery Coking Operations. Rule 1114 requires depressurization of a coke drum to less than two pounds per square inch

²³ EPA's AP-42, Section 13.4 for Wet Cooling Towers, page 13.4-3 at https://www.epa.gov/sites/default/files/202010/documents/13.4_wet_cooling_towers.pdf

gauge prior to venting to the atmosphere, resulting in emission reductions. Staff did not identify any rules in other districts that control PM_{2.5} emissions from DCUs.

4. FCCUs

Catalytic cracking accounts for 0.48 tpd NO_x, 0.33 tpd PM_{2.5}, and 0.06 tpd NH₃ emissions in the 2030 baseline inventory. Catalytic cracking is a refinery process conducted in FCCUs where petroleum derivative feedstock is charged and fractured into smaller molecules in the presence of a catalyst. FCCUs are regulated by South Coast AQMD Rules 1105.1 and 1109.1. Relevant requirements are summarized in Table V-20.

TABLE V-20
SOUTH COAST AQMD CONTROL MEASURES FOR FCCUs

South Coast AQMD Rule	Applicability	Requirements
Rule 1105.1 – Reduction of PM ₁₀ and Ammonia Emissions from Fluid Catalytic Cracking Units (Adopted 11/7/03)	Applies to fluid catalytic cracking units at petroleum refineries	<ul style="list-style-type: none"> Filterable PM₁₀ must be limited to: <ul style="list-style-type: none"> 3.6 pounds per hour; or 0.005 gr/dscf of flue gas corrected to 3% O₂ dry; or 2.8 pounds per thousand barrels of fresh feed. NH₃ must be limited to 10 ppm corrected to 3% O₂ dry
Rule 1109.1 – Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Operations (Adopted 11/5/21)	Applies to petroleum refineries and facilities with related operations to petroleum refineries	FCCUs must meet NO _x limits of 2 ppm and 5 ppm @ 3% O ₂ on a 365-day and 7-day rolling average, respectively, with an interim NO _x limit of 40 ppm @ 3% O ₂ on a 365-day rolling average

Staff reviewed control measures for FCCUs in other jurisdictions and identified BAAQMD Regulation 6, Rule 5 as potentially applicable. This regulation contains an NH₃ emission limit that is identical to that in Rule 1105.1 and a PM₁₀ emissions limit of 0.010 gr/dscf at 5 percent O₂ on an annual average basis. Staff concluded that the requirements in Rule 1105.1 are more stringent than those in BAAQMD Regulation 6, Rule 5. Staff also evaluated requirements for FCCUs contained in 40 CFR Part 60 Subpart Ja, which did not

reveal any more stringent requirements than those in South Coast AQMD rules. Thus, staff concluded that South Coast AQMD currently implements the most stringent measures for FCCUs.

c. Conclusion

Staff did not identify any potential contingency measures for the petroleum production and marketing categories in the South Coast Air Basin that could achieve quantifiable reductions and be implemented within 2 years. While the NO_x limit for refinery flares in Rule 1118 is currently not as stringent as those in other jurisdictions, a rule amendment to address this deficiency is underway which precludes consideration of this measure for contingency purposes. The current rule amendment is the second phase of a planned two-phase amendment for Rule 1118. The first phase, adopted in 2017, primarily focused on establishing mechanisms to gather more information through scoping documents prepared by the owners and operators of regulated facilities. The current rule amendment relies upon the information gathered from the scoping documents submitted after the 2017 amendment and South Coast AQMD staff's investigations on flare emission reductions.

Industrial Processes

1. Chemical

Processes that contribute emissions to source category 410 – Chemical include the manufacture of plastic products, rubber products, chemicals, and fiberglass. Such sources contribute 0.39 tpd direct PM_{2.5} emissions, 0.07 tpd NO_x emissions, and 0.01 tpd NH₃ emissions to the Basin's 2030 baseline emissions inventory, with the majority of emissions contributed by plastics and plastic products manufacturing. There is no source-specific rule for this source category in the Basin. However, such manufacturing processes are subject to general PM emission control requirements including Rule 404 – Particulate Matter – Concentration and Rule 405 – Solid Particulate Matter - Weight. Staff did not identify any potential control measures limiting particulate matter, NH₃, or NO_x for plastics and plastic manufacturing or the remaining processes covered by this category that can achieve quantifiable reductions. To the extent that any particulate matter, NH₃, and NO_x emissions are generated by fuel combustion sources in this category, refer to the evaluation of fuel combustion sources in this appendix.

2. Food and Agriculture

Source category 420 – Food and Agriculture includes emissions from various types of processing operations including agricultural products processing, bakeries, and breweries. The projected 2030 baseline emissions for this category include 0.06 tpd PM_{2.5} emissions, 0.03 tpd NO_x emissions, and zero NH₃ emissions. While there are no applicable PM_{2.5}, NO_x, or NH₃ control measures specific to this source category, operations in the Basin are subject to the general PM emission control requirements in Rule 404 – Particulate Matter - Concentration and Rule 405 – Solid Particulate Matter - Weight. Most NO_x emissions are associated with fuel combustion in food and agricultural products processing. Control measures for fuel combustion are

evaluated in the fuel combustion section in this appendix. Staff did not identify additional control measures to propose for this source category.

3. Mineral Processes

a. Overview

Source category 430 – Mineral Processes contributes 0.99 tpd PM_{2.5} emissions, 0.38 tpd NO_x emissions, and 0.07 tpd NH₃ emissions to the 2030 Basin’s baseline emissions inventory. PM_{2.5} emissions from this category are generated by storage piles of mineral and metal products, asphaltic concrete, and sand/aggregate, asphaltic concrete production, surface blasting, and other. The majority of NO_x emissions for this source category come from “Other - Mineral and Metal Products (Unspecified),” followed by cement manufacturing and gypsum manufacturing. These processes are also responsible for the majority of ammonia emissions. Because these processes are associated with the manufacturing of mineral products such as asphalt roofing, cement and concrete, and non-metallic minerals, the source of ammonia as well as NO_x emissions is likely to be fuel combustion in heaters, dryers, and engines. Staff evaluated control measures for fuel combustion sources in the fuel combustion section of this appendix.

Particulate matter emissions from the mineral processes source category come from non-combustion related activities including earth moving activities, surface blasting, bulk material handling and mixing, wind erosion of exposed surfaces and storage piles, and vehicle activity on unpaved and paved roadways. Point sources of particulate matter emissions can also emerge throughout the manufacturing process when dust collectors are utilized for material recovery and emissions control. Baghouses are used in asphalt batch plants where moist aggregate is delivered into the drum dryer to be dried out, and in concrete batch plants where concrete materials are introduced into the mixer and agitated.

b. Evaluation

Staff reviewed control measures for this source category implemented by South Coast AQMD and other state and local air agencies. Each jurisdiction has different rule structures, which can make direct comparison difficult. Table V-21 summarizes the control measures staff considered for this source category.

TABLE V-21
CONTROL MEASURES IMPLEMENTED BY SOUTH COAST AQMD AND OTHER DISTRICTS FOR
MINERAL PROCESSES

Rule	Applicability	Control Measure
South Coast AQMD Rule 404 – Particulate Matter - Concentration (Amended 2/7/86)	Applies to any source which emits particulate matter	<ul style="list-style-type: none"> Establishes particulate matter maximum concentrations based on gas volume discharged 0.196 gr/dscf limit

Rule	Applicability	Control Measure
South Coast AQMD Rule 405 – Particulate Matter - Weight (Amended 2/7/86)	Applies to any source which emits solid particulate matter including lead and lead compounds	<ul style="list-style-type: none"> Establishes solid particulate matter discharge rates based on process weight per hour, ranging from 0.99 lbs/hr to 30.0 lbs/hr
South Coast AQMD Rule 1140 – Abrasive Blasting (Amended 8/2/95)	Establishes requirements for materials used in an abrasive blasting operation and sets limits on the opacity of air contaminants produced by blasting	<p>Comply with the following performance standards:</p> <ul style="list-style-type: none"> Confined blasting shall be used; Wet abrasive blasting shall be used; Hydroblasting shall be used; or Dry unconfined blasting abrasives shall contain: <ul style="list-style-type: none"> Before blasting, no more than 1% by weight material passing a No. 70 U.S. Standard sieve After blasting, no more than 1.8% by weight material $\leq 5 \mu\text{m}$ <p>Opacity limit requirements for abrasive blasting operations:</p> <ul style="list-style-type: none"> For a compliant operation, opacity limit is set at Ringelmann #2 for 3 minutes in any one hour For a non-compliant operation, opacity limit is set at Ringelmann #1 for 3 minutes in any one hour
South Coast AQMD Rule 1155 – Particulate Matter Control Devices (Amended 5/2/14)	Applies to permitted PM air pollution control (APC) devices venting processes that have non-combustion PM emissions	<ul style="list-style-type: none"> Requires weekly Method 22 visible emissions check for all APC devices Requires 0.01 gr/dscf standard and BLDS for Tier 3 baghouse
South Coast AQMD Rule 1156 – Further Reductions of Particulate Emissions from Cement Manufacturing Facilities (Amended 11/6/15)	Applies to all operations, materials handling, and transport at a cement manufacturing facility, including, but not limited to, kiln and clinker cooler, material storage, crushing, drying, screening, milling, conveying, bulk loading and unloading systems, internal roadways, material transport, and track-out. After facility closure, also applies to the owner/operator of the property on which a cement manufacturing facility has operated on or after November 4, 2005	<ul style="list-style-type: none"> Visible emissions not exceeding 10% opacity. For open piles, roadways, and other unpaved areas, visible emissions no greater than 20% opacity based on 12 readings or 50% opacity based on 5 readings No visible dust plum from 100 feet in any direction from any operations Require permitted air pollution control (APC) devices for various operations APC device outlet PM concentration at BACT limit 0.005 gr/dscf
South Coast AQMD Rule 1157 – PM ₁₀ Emission Reductions from Aggregate	Applies to all permanent and temporary aggregate and related operations; exemptions listed under subparagraph (h) of Rule 1157	<ul style="list-style-type: none"> Opacity limits Requires control measures (such as watering, use of dust suppressant) for paved and unpaved roads, and

Rule	Applicability	Control Measure
and Related Operations (Amended 9/8/06)		<p>unpaved vehicle and equipment traffic areas</p> <ul style="list-style-type: none"> • Requires control of carry-out and trackout • Requirements for handling, storage and transport of bulk materials including storage piles, material loading, unloading, and transferring • Requirements for storage piles • Control requirements for conveyors, crushing equipment and screening equipment
South Coast AQMD Rule 2100 – Registration of Portable Equipment (Adopted 7/11/97)	Establishes standards for registration of certain portable emissions units. The complete list of units subject to Rule 2100 is provided in subparagraph (b) of the rule. Covered sources include confined and unconfined abrasive blasting, Portland concrete batch plants, sand and gravel screening, rock crushing, and unheated pavement crushing and recycling operations	<ul style="list-style-type: none"> • 20% opacity limits (40% for unconfined abrasive blasting) • Control equipment including fabric or cartridge type filter dust collectors, wet suppression systems • 99% particulate matter control efficiency requirement for dust collection equipment • Other source-specific requirements
SJVAPCD Rule 2280 – Portable Equipment Registration (Amended 12/20/18)	Establishes standards for registration of certain portable emissions units for operation at participating districts. The complete list of units subject to Rule 2280 is provided at section 2.0 of the rule. Covered sources include confined and unconfined abrasive blasting operations, concrete batch plants, sand and gravel screening, rock crushing, and pavement crushing and recycling operations	<ul style="list-style-type: none"> • 20% opacity limits (40% for unconfined abrasive blasting) • Control equipment including fabric or cartridge type filter dust collectors, wet suppression systems • 99% efficiency requirement for dust collection equipment • Other source-specific requirements
SJVAPCD Rule 4201 – Particulate Matter Concentration (Amended 12/17/92)	Applies to any source operation which emits or may emit dust, fumes, or total suspended particulate matter	0.1 gr/dscf dust emissions limit for all sources
SJVAPCD Rule 4202 – Particulate Matter - Emission Rate (Amended 12/17/92)	Applies to any source operation which emits or may emit particulate matter	Establishes emission limits based on process throughput, ranging from 0.36 lbs/hr to 46.72 lbs/hr
SJVAPCD Regulation VIII – Fugitive PM10 Prohibitions (Amended in 2004)	Applies to specified outdoor fugitive dust sources; complete list provided at SJVPACD Rule 8011, section 3.0 (Definitions)	<ul style="list-style-type: none"> • Rule 8011 establishes general requirements for fugitive dust sources

Rule	Applicability	Control Measure
		<ul style="list-style-type: none"> • Rule 8021 contains requirements for construction, demolition, excavation, extraction, and other earthmoving activities • Rule 8031 contains standards for the outdoor handling, storage and transport of bulk materials • Rule 8041 contains standards for control of carryout and trackout at those sources subject to a SJVAPCD fugitive dust rule • Rule 8061 contains requirements for paved and unpaved roads • Rule 8071 contains requirements for unpaved vehicle and equipment traffic areas
BAAQMD Regulation 6, Rule 1 – General Requirements (Amended 8/1/18)	Applies to all types of emission sources; exemptions include temporary sandblasting, open outdoor fires, wood burning devices, and metal recycling and shredding operations	<ul style="list-style-type: none"> • 20% opacity limit • 0.15 gr/dscf limit for exhaust gas • Throughput-based emission limits, ranging from 1.78 lbs/hr to 40.0 lbs/hr, or 0.99 lbs/hr to 30.0 lbs/hr if the potential to emit TSP is greater than 1,000 kg/year
BAAQMD Regulation 6, Rule 6 – Prohibition of Trackout (Adopted 8/1/18)	Applies to large bulk material sites, large construction sites, and large disturbed surface sites	<ul style="list-style-type: none"> • Prohibits trackout to the public paved road for a distance of 25 feet • 20% opacity limit during cleanup of trackout • Monitoring and recordkeeping requirements

The control measures identified for mineral processes include limiting opacity (e.g., 20 percent), particulate matter control efficiency (e.g., 99 percent), and particulate matter concentration standards. South Coast AQMD Rule 2100 and Rule 1157 are comparable to the rules being implemented in other jurisdictions. Rule 1140 sets emission standards of air pollutants from abrasive blasting operations using the Ringelmann Chart. The Ringelmann Chart No. 1 corresponds to an opacity of 20 percent and No. 2 to an opacity of 40 percent. In addition, Rule 1155 applies to particulate matter air pollution control devices including baghouses, HEPA filters, cyclones, and electrostatic precipitators. While the 0.01 gr/dscf particulate emissions standard and installation of BLDS apply to the largest Tier 3 baghouse, the requirement of no visible emissions applies to all types of PM air pollution control devices venting non-combustion processes including this mineral process source category. The no visible emissions requirement in Rule 1155 is more stringent than the 20 percent opacity limit in other rules implemented by South Coast AQMD and other districts. Typically, an opacity reading at 20 percent is approaching the lowest level human eyes can detect and any emissions at 10 percent opacity or lower is not detectable by human eyes and thus, is considered no visible emissions. Overall, staff

did not identify any particulate matter control measures implemented in other jurisdictions that are not incorporated in South Coast AQMD rules to consider as potential contingency measures.

c. Conclusion

Staff evaluation of controls for this category did not identify any potential contingency measures that could be implemented and achieve quantifiable emission reductions within 2 years of being triggered.

4. Metal Processes

a. Overview

Source category 440 – Metal Processes includes secondary metal production, metal plating and coating operations, and other unspecified industrial processes that involve mineral and metal products, aluminum, iron, and steel. Sources in this category contribute 0.25 tpd PM_{2.5} emissions, 0.29 tpd NO_x, and zero NH₃ emissions to the 2030 Basin’s baseline emissions inventory. Metal melting, metal heat treating, metal heating, and metal forging furnaces are the primary sources of NO_x emissions in this category. Metal plating and coating also contributes NO_x emissions. NO_x can be generated as a byproduct from metal treatment processes where nitric acid is used as an oxidant. For example, plating or catalyst recovery involves the reaction of nitric acid and transition metals and emits NO_x.

b. Evaluation

Staff reviewed control measures established for this source category by South Coast AQMD, SJVAPCD, BAAQMD, VCAPCD, Great Basin Unified APCD (GBUAPCD), and Amador County Air District. Table V-22 summarizes the metal process control measures identified. The metal process controls identified rely on a range of control measures that generally fall into several common categories. Particulate matter control requirements of the relevant South Coast AQMD rules are generally similar to those identified in SJVAPCD and BAAQMD, which include opacity limits, control device efficiency, enclosures, housekeeping and best management practices. While SJVAPCD and BAAQMD rules generally regulate the non-ferrous metal melting facilities in one rule, South Coast AQMD rules divide this source category into more facility types for which separate rules are implemented for chromium and non-chromium metal melting. For example, South Coast AQMD Rule 1147.2 applies to metal melting, metal heat treating, and metal heating and forging furnaces that are operated at non-RECLAIM, RECLAIM, and former RECLAIM facilities, requiring a South Coast AQMD permit. Staff also evaluated applicable NO_x concentration limits in other air districts’ rules, among which the lowest was 60 ppm. Rule 1147.2 has more stringent NO_x concentration limits ranging from 15 to 60 ppm for metal melting, heating, forging, and treating furnaces. Note that there are zero emissions of PM_{2.5} and NO_x for chrome plating and coating operations and thus, South Coast AQMD Rule 1169 – Hexavalent Chromium - Chrome Plating and Chromic Acid Anodizing, and similar requirements in other jurisdictions were not considered in this evaluation.

TABLE V-22
EXISTING CONTROL MEASURES IN SOUTH COAST AQMD AND OTHER JURISDICTIONS (METAL PROCESSES)

Rule	Applicability	Control Measure
South Coast AQMD Rule 1147.2 – NO _x Reductions from Metal Melting and Heating Furnaces (Adopted 4/1/22)	Applies to non-RECLAIM, RECLAIM, and former RECLAIM facilities that operate metal melting, metal heat treating, and metal heating and forging furnaces that require a South Coast AQMD permit	<p>NO_x limits for existing units For unit size <40 MMBtu/hr:</p> <ul style="list-style-type: none"> • Metal melting furnace: 40 ppm • Metal heat treating, metal heating, and metal forging: <ul style="list-style-type: none"> • ≤1,200 °F: 40 ppm • >1,200 °F: 50 ppm • Units with radiant-tube burners: 50 ppm <p>For unit size ≥40 MMBtu/hr: 15 ppm</p> <p>Alternative NO_x limits for existing units For unit size <40 MMBtu/hr:</p> <ul style="list-style-type: none"> • Metal melting furnace: 50 ppm • Metal heat treating, metal heating, and metal forging: <ul style="list-style-type: none"> • ≤1,200 °F: 50 ppm • >1,200 °F: 60 ppm • Units with radiant-tube burners: 60 ppm <p>NO_x limits for new units For unit size <40 MMBtu/hr:</p> <ul style="list-style-type: none"> • Metal melting furnace: 40 ppm • Metal heat treating, metal heating, and metal forging: <ul style="list-style-type: none"> • ≤1,200 °F: 30 ppm • >1,200 °F: 40 ppm • Units with radiant-tube burners: 40 ppm <p>For unit size ≥40 MMBtu/hr: 15 ppm (All NO_x limits above are corrected to 3% O₂)</p>
South Coast AQMD Rule 1407 – Control of Emissions of Arsenic, Cadmium, and Nickel from Non-Chromium Metal Melting Operations (Amended 10/4/19)	Applies to facilities conducting non-chromium metal melting operations	<ul style="list-style-type: none"> • Particulate matter control device with 99% or greater control efficiency • Good operating practices and good housekeeping practices

Rule	Applicability	Control Measure
South Coast AQMD Rule 1407.1 – Control of Toxic Air Contaminant Emissions from Chromium Alloy Melting Operations (Adopted 1/8/21)	Applies to facilities conducting chromium alloy melting, including smelters (primary and secondary), foundries, die-casters, mills, and other establishments conducting miscellaneous melting processes	<ul style="list-style-type: none"> Chromium emission limits requiring monitoring to demonstrate compliance 10% opacity limit Prescribes building requirements for chromium alloy melting operations Requires cleaning using approved cleaning method and at certain minimum frequencies
South Coast AQMD Rule 1420.2 – Emission Standards for Lead from Metal Melting Facilities (Adopted 10/2/15)	Applies to metal melting facilities that melt 100 tons or more of lead per year	<ul style="list-style-type: none"> Ambient lead concentration limits Ambient air monitoring to demonstrate compliance Requires total enclosure for select process areas Particulate matter control devices of no less than 99% control efficiency HEPA filter or equivalent filtration media that is of a minimum of 99.97% control efficiency for 0.3 µm particles
South Coast AQMD Rule 1426 – Emissions from Metal Finishing Operations (Amended 4/2/21)	Applies to owners and operators of metal finishing facilities	<ul style="list-style-type: none"> Enclosure Good housekeeping measures Best management practices
South Coast AQMD Rule 1430 – Control of Emissions from Metal Grinding Operations at Metal Forging Facilities (Adopted 3/3/17)	Applies to metal grinding and metal cutting operations at metal forging facilities	<ul style="list-style-type: none"> Enclosures for metal grinding and cutting operations Emission control devices with 0.2 gr/dscf at control device outlet HEPA filter or filters of equivalent control efficiency 99.97% for 0.3 µm particles at final stage of control device Housekeeping requirements
South Coast AQMD Rule 1460 – Control of Particulate Emissions from Metal Recycling and Shredding Operations (Adopted 11/4/22)	Applies to metal recycling facilities and metal shredding facilities	<ul style="list-style-type: none"> Good housekeeping Best management practices
SJVAPCD Rule 7060 – Toxic Metals from Non-Ferrous Metal Melting (Adopted 12/15/94)	Applies to existing non-ferrous metal melting furnaces	<ul style="list-style-type: none"> 99% particulate matter control efficiency requirement for dust collection equipment 10% opacity limit

Rule	Applicability	Control Measure
		<ul style="list-style-type: none"> • Good operating practices demonstrated through a maintenance plan or procedures approved by the SJVAPCD • Good housekeeping practices
BAAQMD Regulation 11, Rule 15 – Airborne Toxic Control Measure for Emissions of Toxic Metals from Non-Ferrous Metal Melting (Adopted 4/6/94)	Applies to a wide range of non-ferrous metal melting operations	<ul style="list-style-type: none"> • Particulate matter control device with 99% or greater control efficiency • Good operating practices demonstrated through maintenance plan or procedures approved by BAAQMD • 10% opacity limit for fugitive emissions • Good housekeeping practices
VCAPCD Rule 74.34 – NO _x Reductions from Miscellaneous Sources (Adopted 12/13/16)	Applies to metal heat treating and metal melting furnaces	<ul style="list-style-type: none"> • 60 ppm NO_x at 3% O₂
GBUAPCD Rule 404-B – Oxides of Nitrogen (Amended 5/8/96)	Applies to combustion equipment	<ul style="list-style-type: none"> • 125 ppm with natural gas fuel • 225 ppm with liquid or solid fuel
BAAQMD Regulation 9, Rule 3 – Nitrogen Oxides from Heat Transfer Operations (Amended 4/24/18)	Heat transfer operations	<ul style="list-style-type: none"> • Existing heat transfer operation limits 175 ppm NO_x when gaseous fuel is burned • New or modified heat transfer operation limits 125 ppm NO_x when natural gas is burned
Amador County Air District Regulation II, SIP Rule 19 – Fuel Burning Equipment (Adopted 9/14/71)	Non-mobile fuel burning equipment	<ul style="list-style-type: none"> • 140 lbs/hr NO_x
SJVAPCD Rule 4301 – Fuel Burning Equipment (Amended 12/17/92)	Applies to fuel burning equipment	<ul style="list-style-type: none"> • 140 lbs/hr NO_x

c. Conclusion

Staff reviewed the available control measures for the metal processes category and found that the available measures are already being implemented in the Basin. Therefore, no contingency measures are proposed for this source category.

5. Wood and Paper

Source category 450 – Wood and Paper includes emissions from sawmills, woodworking, pulp and paper manufacturing, and paperboard/fiberboard manufacturing, and other related processes. These sources contribute 3.23 tpd PM_{2.5} emissions, 0.01 tpd NH₃ emissions, and zero NO_x emissions to the 2030 Basin's

baseline emissions inventory. Almost all (98 percent) of the PM_{2.5} emissions come from wood-related other processes whereas all NH₃ emissions come from paperboard/fiberboard manufacturing processes.

South Coast AQMD Rule 1137 – PM₁₀ Emission Reductions from Woodworking Operations (Adopted 2/1/02), includes requirements to control PM₁₀ emissions from woodworking operations with a pneumatic conveyance system. There are no other requirements for wood and paper sources implemented by the South Coast AQMD or other jurisdictions and thus, staff has not identified any controls from this category for consideration as contingency measures.

6. Glass and Related Products

No direct PM_{2.5}, NO_x, or NH₃ emissions are reported from the source category 460 – Glass and Related Products in the 2030 South Coast Air Basin emissions inventory. Therefore, this source category was not evaluated.

7. Electronics

No direct PM_{2.5}, NO_x, or NH₃ emissions are reported from the source category 470 – Electronics in the 2030 South Coast Air Basin baseline emissions inventory. Therefore, this source category was not evaluated.

8. Other (Industrial Processes)

Source category 499 – Other (Industrial Processes) consists of miscellaneous industrial sources, largely reported as “Cooling Towers-Hydrocarbon Compounds (Unspecified),” “Other-Material Not Specified,” “Other-Hydrocarbon Compounds (Unspecified),” and “Other-Textiles/Fabrics” in the South Coast Air Basin emissions inventory. These sources contribute 0.49 tpd PM_{2.5}, 0.02 tpd NO_x, and 8.59 tpd NH₃ emissions to the 2030 baseline emissions inventory. For an evaluation of control measures for cooling towers, refer to the petroleum production and marketing section. Nearly all of the NH₃ emissions in this category are associated with “Other-Material Not Specified.” Combustion sources most likely contribute to the emissions reported for this source category. Staff evaluation of control measures for fuel combustion sources is contained in the fuel combustion section of this appendix.

Solvent Evaporation

Source categories under Solvent Evaporation include 510 – Consumer Products, 520 – Architectural Coatings and Related Solvents, 530 – Pesticides/Fertilizers, and 540 – Asphalt Paving/Roofing. While these source categories emit primarily VOCs, there are also 0.03 tpd PM_{2.5}, 1.17 tpd NH₃, and zero NO_x emissions for these categories. All PM_{2.5} emissions come from asphalt roofing operations. South Coast AQMD does not have a source-specific rule regulating asphalt roofing operations. Staff reviewed MDAQMD Rule 471 – Asphalt Roofing Operations, but determined that this rule only applies to VOC emissions. Staff did not identify rules in other jurisdictions with PM_{2.5} control measures specific to asphalt roofing operations. Agricultural fertilizers are the sole source of NH₃ emissions under this source category. South Coast AQMD

has not identified effective mechanisms within its authority to regulate NH₃ emissions from agricultural fertilizers. Furthermore, South Coast AQMD is not aware of any other jurisdiction with existing rules or regulations controlling NH₃ emissions from fertilizers. Staff did not identify any other applicable measures in other jurisdictions to consider as potential contingency measures for solvent evaporation.

Miscellaneous Processes

1. Residential Fuel Combustion

a. Overview

Source category 610 – Residential Fuel Combustion consists of several subcategories, including wood combustion and fuel combustion (space heating, water heating, cooking, and other appliances, such as clothes dryers, barbecues, and water heaters used for pools, spas and hot tubs). Residential wood combustion sources are evaluated in this section; fuel combustion sources (particularly space heaters and water heaters) were previously evaluated in this appendix.

Residential fuel combustion sources contribute 6.59 tpd direct PM_{2.5}, 15.17 tpd NO_x, and 0.11 tpd NH₃ emissions to the 2030 baseline inventory (approximately 12.2 percent, 7.2 percent, and 0.14 percent of overall PM_{2.5}, NO_x, and NH₃ emissions, respectively), with wood burning contributing the majority of direct PM_{2.5} emissions. Residential wood burning includes wood-burning heaters (i.e., woodstoves, pellet stoves, and wood-burning fireplace inserts), which are used primarily for heat generation, and wood-burning fireplaces, which are used primarily for aesthetic purposes.

One of the most effective ways to reduce wintertime smoke is a curtailment program that restricts use of wood-burning heaters and fireplaces on days that are conducive to buildup of particulate matter concentrations (i.e., days where ambient PM_{2.5} and/or PM₁₀ concentrations are forecast to be above a particular level, known as a “curtailment threshold”).

South Coast AQMD Rule 445 – Wood Burning Devices establishes requirements for the sale, transfer, operation, and installation of wood burning devices and on the advertising of wood for sale intended for burning. Among those requirements is a wood burning curtailment program that implements an approved PM_{2.5} contingency measure.²⁴

b. Evaluation

The BACM/MSM analysis in Appendix III contains an extensive evaluation of control measures for residential wood burning devices. The analysis found that the curtailment threshold in Rule 445 would need to be lowered to 25 µg/m³ and the low-income exemption would need to be removed to match the stringency of other districts’ rules. This measure has been incorporated into the control strategy as BCM-18. Thus, it is ineligible for consideration as a contingency measure. However, staff determined that it would be feasible

²⁴ Air Plan Approval; California; Los Angeles—South Coast Air Basin, 87 Fed. Reg. 12866 (March 8, 2022)

to achieve OYW of PM_{2.5} emission reductions through a contingency measure that would further lower the curtailment threshold to 23 µg/m³. Staff reviewed the analysis to determine whether the additional time allowed to implement a contingency measure (i.e., for an attainment contingency measure, up to 2 years after the finding of failure to attain is allowed) would enable a previously infeasible measure to be considered as a contingency measure. However, staff did not identify any instances where this consideration would change the conclusions of the BACM/MSM analysis for wood burning devices.

c. Conclusion

Staff ~~proposes to retain the~~ identified a feasible contingency measure ~~for~~ in Rule 445 for the purposes of satisfying PM_{2.5} contingency measure requirements for the 2012 annual PM_{2.5} standard. The contingency measure would further lower the curtailment threshold beyond the level proposed in control measure BCM-18. ~~If the curtailment threshold in Rule 445 is lowered in a future rule amendment, staff will seek to preserve the same contingency measure structure.~~ There were no additional measures identified for this source category that could be implemented within 2 years and result in quantifiable emission reductions.

2. Fugitive Dust Categories

Fugitive dust source categories include 620 – Farming Operations, 630 – Construction and Demolition, 640 – Paved Road Dust, 645 – Unpaved Road Dust, and 650 – Fugitive Windblown Dust. Fugitive dust emissions are typically generated through the pulverization of surface materials by mechanical force or by entrainment of dust particles in turbulent air streams.²⁵ Fugitive dust particulate matter emissions are typically reduced and managed using control techniques or measures that prevent materials from being deposited onto surfaces (preventative) or that remove deposited materials from surfaces (mitigative). Examples of these measures include watering, elimination of dirt carryout on paved roads at construction sites and cleaning of spillage on travel surfaces within a specific timeframe after said spillage occurs. South Coast AQMD Rule 401, Rule 403, and other rules (e.g., Rules 1127, 1156, 1157, 1158, 1186, 1460, and 1466) regulate these forms of fugitive particulate matter emissions.

The following sections contain an analysis of fugitive dust source categories and associated control measures.

General Requirements for Fugitive Dust Sources

South Coast AQMD has a comprehensive suite of rules regulating fugitive dust. The Rule 403 series establishes general requirements and definitions. Notably, fugitive dust from any active operation, storage pile, or disturbed surface area must not remain visible in the atmosphere beyond the property line of the emission source or, if the emission is the result of movement of a motorized vehicle, the dust plume cannot

²⁵ EPA, "Compilation of Air Pollutant Emissions Factors, Volume 1: Stationary Point and Area Sources," Chapter 13, Section 2, available at https://www.epa.gov/sites/default/files/2020-10/documents/13.2_fugitive_dust_sources.pdf (last updated January 1995)

exceed 20 percent opacity. Additionally, Rule 401 prohibits the discharge of any pollutant that exceeds the shading of No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines. Multiple source-specific rules contain requirements that seek to minimize fugitive dust emissions.

i. Farming Operations

a. Overview

Source category 620 – Farming Operations consists of fugitive dust particulate matter emissions caused by farming related activities, including tilling dust, harvesting operations, and various animal specific feedlot operations. Similarly, U.S. EPA’s national emissions inventory indicates that dust emissions from this source category are generated from agricultural tilling and dust kicked up by animal hooves and feet. Farming operation dust emissions account for a very limited portion (about 0.2 percent) of the Basin’s PM2.5 emissions inventory, contributing 0.13 tpd in 2030. About 0.12 tpd are from tilling, dairies, and poultry farms. The remaining 0.01 tpd of PM2.5 emissions in this source category are from harvesting operations. Staff did not further evaluate measures for harvesting as the achievable emission reductions for any potential measure would be far less than 0.01 tpd and would have an inconsequential impact on air quality. Finally, this source category emits 6.13 tpd of NH3 emissions in 2030, or about 8 percent of all NH3 emissions in the Basin.

b. Evaluation

Staff reviewed control measures for the farming operations category. While there are several states and districts that have established fugitive dust rules, many of them exempt agricultural sources from regulation. Table V-19 below summarizes the applicable control measures identified in other jurisdictions with existing fugitive dust requirements for farming operations.

Staff compared South Coast AQMD rule requirements with the requirements of the rules identified in other jurisdictions. South Coast AQMD does not have a single rule that is analogous to the Conservation Management Practices (CMP) rules in other jurisdictions. This is largely because the emissions inventory for agricultural operations in the Basin is much smaller than in areas that have CMP rules. Although a direct comparison to other districts’ rules is challenging, if not impossible, qualitative inferences can be made. Rule 403 is a general fugitive dust rule that is most similar to other districts’ rules and it is therefore used as the primary comparison in Table V-23. Rule 403 is accompanied by a Fugitive Dust Handbook, including Attachment A – Agricultural Handbook, that was also consulted for the analysis.²⁶ In addition to Rule 403, South Coast AQMD Rules 223, 1127, and 1186 have requirements to control fugitive dust emissions from dairies and other Confined Animal Facilities (CAFs).

²⁶ <https://www.aqmd.gov/docs/default-source/compliance/rule-403-dust-control-forms/rule-403-fugitive-dust-implementation-handbook-0120km-arc.pdf?sfvrsn=6>

**TABLE V-23
COMPARISON OF EXISTING RULE REQUIREMENTS FOR FARMING OPERATIONS**

	South Coast AQMD Rule 403 – Fugitive Dust (including Fugitive Dust Handbook) (Amended 6/3/05)	SJVAPCD Rule 4550 – Conservation Management Practices (including District CMP handbook and CMP list) (Adopted 8/19/04)	ICAPCD Rule 806 – Conservation Management Practices (Amended 10/16/12)	MDAQMD Rule 411 – Conservation Management Practices for Agricultural Operations (Adopted 5/3/21)
Applicability	<p>Applies to agricultural vegetative crop sites with combined disturbed surface area greater than 10 acres unless the operator implements practices in the Agricultural Handbook and completes a self-monitoring form.</p> <p><u>Exemptions:</u></p> <ul style="list-style-type: none"> • Dairy farms • CAFs with disturbed surface areas of one acre or less 	<ul style="list-style-type: none"> • Applies to agricultural operation sites greater than 100 acres and with elevations less than 3,000 feet • Exempts dairies with less than 500 cows and poultry farms with less than 125,000 chickens. Other animal headcount exemptions. • Exempts forestry, grazing pastures, and nurseries. 	<p>Applies to agricultural operation sites greater than 40 acres</p>	<ul style="list-style-type: none"> • Applies to agricultural operation sites greater than 100 acres when < 5 separate residences within ¼ mile or sites greater than 40 acres when > 5 separate residences within ¼ mile.

	South Coast AQMD Rule 403 – Fugitive Dust (including Fugitive Dust Handbook) (Amended 6/3/05)	SJVAPCD Rule 4550 – Conservation Management Practices (including District CMP handbook and CMP list) (Adopted 8/19/04)	ICAPCD Rule 806 – Conservation Management Practices (Amended 10/16/12)	MDAQMD Rule 411 – Conservation Management Practices for Agricultural Operations (Adopted 5/3/21)
Control Measures - Cropland (Other)	Cease soil preparation and/or maintenance activities during wind speeds > 25 mph; soil moisture monitoring; irrigate after land leveling; conservation tillage; mulching; cover crop; crop residue management; surface roughening; cross wind stripcropping; field windbreaks; ridge roughness; wind barriers; establish vegetation; dust suppressants; surface area modification	Alternate Tilling; Application Efficiencies; Baling/Large Bales; Bulk Materials Control; Chemigation/Fertigation; Conservation Irrigation; Fallow Land; Grinding/Chipping/Shredding; Integrated Pest Management; Irrigation Power Units; Mulching; Night Farming; No Burning; Non-Tillage/Chemical Tillage; Organic Practices; Permanent Crops; Reduced Pruning; Soil Amendments; Soil Incorporation; Sulfur; Reduction or Elimination of Dusting; Surface Roughening; Transgenic Crops; Wind Barrier	Alternate Tilling; Application Efficiencies; Baling/Large Bales; Bulk Materials Control; Chemigation/Fertigation; Conservation Irrigation; Fallow Land; Grinding/Chipping/Shredding; Integrated Pest Management; Irrigation Power Units; Mulching; Night Farming; No Burning; Non-Tillage/Chemical Tillage; Organic Practices; Permanent Crops; Reduced Pruning; Soil Amendments; Soil Incorporation; Sulfur; Reduction or Elimination of Dusting; Surface Roughening; Transgenic Crops; Wind Barrier	Alternate Tilling; Application Efficiencies; Baling/Large Bales; Bulk Materials Control; Chemigation/Fertigation; Conservation Irrigation; Fallow Land; Grinding/Chipping/Shredding; Integrated Pest Management; Irrigation Power Units; Mulching; Night Farming; No Burning; Non-Tillage/Chemical Tillage; Organic Practices; Permanent Crops; Reduced Pruning; Soil Amendments; Soil Incorporation; Sulfur; Reduction or Elimination of Dusting; Surface Roughening; Transgenic Crops; Wind Barrier

	South Coast AQMD Rule 403 – Fugitive Dust (including Fugitive Dust Handbook) (Amended 6/3/05)	SJVAPCD Rule 4550 – Conservation Management Practices (including District CMP handbook and CMP list) (Adopted 8/19/04)	ICAPCD Rule 806 – Conservation Management Practices (Amended 10/16/12)	MDAQMD Rule 411 – Conservation Management Practices for Agricultural Operations (Adopted 5/3/21)
Control Measures - Poultry Operations	<u>Manure Handling & Storage</u> Cover manure; spread manure under low wind conditions; Cleanout frequency <u>Feeding</u> Boot or Sock on feed auger <u>Open Areas</u> Soil moisture; irrigation; conservation tillage; mulching <u>Unpaved Roads/Traffic Areas</u> Pavement, gravel, or asphalt required for all access roads and feed lanes (Rule 1186); Restricted access; Dust suppressant <u>Equipment Parking Areas</u> Dust suppressant; Cover/pave with gravel, asphalt, concrete	<u>Manure Handling & Storage</u> Time of Manure Spreading; Cleanout frequency; Outdoor storage <u>Feeding</u> Boot or Sock <u>Open Areas</u> Vegetation; Reduced tillage; Windblocks; Dust suppressant <u>Unpaved Roads/Traffic Areas</u> Gravel; Restricted Access; Pave; Dust suppressant; Speed Limit; Track-Out Control; Vegetation	N/A	N/A

	South Coast AQMD Rule 403 – Fugitive Dust (including Fugitive Dust Handbook) (Amended 6/3/05)	SJVAPCD Rule 4550 – Conservation Management Practices (including District CMP handbook and CMP list) (Adopted 8/19/04)	ICAPCD Rule 806 – Conservation Management Practices (Amended 10/16/12)	MDAQMD Rule 411 – Conservation Management Practices for Agricultural Operations (Adopted 5/3/21)
Control Measures - Dairy Operations	<p><u>Unpaved Roads/Traffic Areas</u> Pavement, gravel, or asphalt required for all access roads and feed lanes (Rule 1186); Restricted Access; Dust suppressant</p> <p><u>Equipment Parking Areas</u> Dust suppressant; Cover/pave with gravel, asphalt, concrete</p> <p>South Coast AQMD Rules 223 and 1127 Requirements</p> <p><u>Corral/Manure Handling</u> Scrape/harrow before 9 am or when moisture content > 20%; water corral before manure removal; clear corrals without scraping down to soil; Pave feedlanes; minimize excess water</p> <p><u>Overall Management/Feeding</u> Cover silage piles; feed according to National Research Council guidelines; feed high moisture corn; disposal requirements; flush milk parlor; enclose and vent parlor to control device</p>	<p><u>Corral/Manure Handling</u> Sprinkling of Open Corral; Frequency of scraping/cleanout; Freestall housing; Fibrous layer in dusty areas; Pull-type manure harvesting equipment; Scraping/harrowing</p> <p><u>Overall Management/Feeding</u> Bulk Materials Control; Feeding near dusk; Wet feed during mixing; Wet material in wagon first before feeding; Downwind shelterbelts/boundary trees</p> <p><u>Unpaved Roads/Traffic Areas</u> Gravel; Restricted Access; Pave; Dust suppressant; Speed Limit; Track-Out Control; Speed bumps; Appropriate equipment and vehicles</p>	N/A	N/A

	South Coast AQMD Rule 403 – Fugitive Dust (including Fugitive Dust Handbook) (Amended 6/3/05)	SJVAPCD Rule 4550 – Conservation Management Practices (including District CMP handbook and CMP list) (Adopted 8/19/04)	ICAPCD Rule 806 – Conservation Management Practices (Amended 10/16/12)	MDAQMD Rule 411 – Conservation Management Practices for Agricultural Operations (Adopted 5/3/21)
Control Measures - Feedlot Operations	<p><u>Unpaved Roads/Traffic Areas</u> Speed control; access restriction; pavement, gravel, or asphalt required for all access roads and feed lanes (Rule 1186); surface modification; track-out prevention; prohibit turning tractors and implements on paved public roads</p> <p>Below requirements are from South Coast AQMD Rules 223 and 1127:</p> <p><u>Pens/Manure Handling</u> Vacuum/scrape freestalls; remove manure daily; rake/harrow/scrape bedding; dry manure handling system; flush freestalls; shade structures</p> <p><u>Overall Management/Feeding</u> Cover silage piles; feed according to National Research Council guidelines; feed high moisture corn; disposal requirements; flush milk parlor; enclose and vent parlor to control device; cease hay grinding between 2 and 5 pm if visible emission extend more than 50 feet (Rule 1186)</p>	<p><u>Pens/Manure Handling</u> Sprinkling of Open Corral; Frequency of scraping/cleanout; Shade for animal; Fibrous layer in dusty areas; Pull-type manure harvesting equipment</p> <p><u>Overall Management/Feeding</u> Bulk Materials Control; Feeding near dusk; Wet feed during mixing; Wet material in wagon first before feeding; Downwind shelterbelts/boundary trees</p> <p><u>Unpaved Roads/Traffic Areas</u> Gravel; Restricted Access; Pave; Dust suppressant; Speed Limit; Track-Out Control; Speed bumps; Appropriate equipment and vehicles</p>	N/A	N/A

The NH3 emissions from this source category are associated with livestock waste. South Coast AQMD conducted an extensive evaluation of control measures for livestock waste as part of Potential Control Measure 4 - Emission Reductions from Livestock Waste at Confined Animal Facilities in Appendix III. Due to that evaluation, the PM2.5 Plan includes control measure BCM-08 - Emission Reductions from Livestock Waste at Confined Animal Facilities. As this control measure is part of the attainment strategy, it is ineligible for consideration as a contingency measure.

c. Conclusion

Staff compared South Coast AQMD rule requirements to measures in other jurisdictions and did not identify any PM2.5 measures for farming operations in other jurisdictions that could be implemented and achieve quantifiable emission reductions within 2 years of being triggered. In addition, the only feasible measures to further reduce NH3 emissions from livestock waste have been included as part of the control strategy. Therefore, no suitable measure can be considered as a potential contingency measure at this time.

ii. Construction and Demolition

a. Overview

Source category 630 – Construction and Demolition consists of fugitive dust particulate matter emissions caused by construction activities that result from building residential, commercial, industrial, institutional, or governmental structures. Construction and demolition activities include any on-site mechanical activities conducted in preparation of the building, alteration, rehabilitation, demolition, or improvement of property such as grading, excavation, loading, crushing, cutting, planning, shaping or ground-breaking. Construction and demolition sources contribute 2.49 tpd PM2.5 emissions representing 4.61 percent of the total PM2.5 emissions in the 2030 South Coast Air Basin emissions inventory.

b. Evaluation

South Coast AQMD regulates PM2.5 emissions from construction and demolition under Rule 403 – Fugitive Dust. Rule 403 requires the implementation of best available dust control measures during any active man-made operations capable of generating fugitive dust, and requires measures to prevent, reduce or mitigate fugitive dust emissions. This rule also requires activities defined as “large operations” to notify the South Coast AQMD by submitting specific forms and implement additional control measures. A large operation is defined as any active operation on property containing 50 or more acres of disturbed surface area; or any earth moving operation with a daily earth-moving or throughput volume of 3,850 cubic meters (5,000 cubic yards), three times during the most recent 365 day period.

Emissions from construction and demolition result predominantly from site preparation work, light-duty vehicle travel, and other operations. In addition to general rule requirements, Rule 403 requires active operations to utilize the best available control measures to minimize fugitive dust emissions from each

dust source type within the active operation. Existing regulations for construction and demolition emissions sources in other jurisdictions include SJVAPCD Rule 8021 – Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities, SMAQMD Rule 403 – Fugitive Dust, SDAPCD Rule 55- Fugitive Dust Control, and Clark County Air Quality Regulations (AQR) Section 94 – Permitting and Dust Control for Construction and Temporary Commercial Activities. Table V-24 compares regulations for the construction and demolition source category in other jurisdictions to South Coast AQMD Rule 403.

**TABLE V-24
COMPARISON OF EXISTING CONTROL MEASURES FOR CONSTRUCTION AND DEMOLITION**

	South Coast AQMD Rule 403 – Fugitive Dust (Amended 06/03/05)	SJVAPCD Rule 8021 – Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities (Amended 08/19/04)	SMAQMD Rule 403 – Fugitive Dust (Adopted 08/03/77)	SDAPCD Rule 55 – Fugitive Dust Control (Adopted 06/24/09)	Clark County Air Quality Regulations Section 94 – Permitting and Dust Control for Construction and Temporary Commercial Activities (Amended 08/03/21)
Applicability	<ul style="list-style-type: none"> Any activity or man-made condition capable of generating fugitive dust. 	<ul style="list-style-type: none"> Any construction, demolition, excavation, extraction, and other earthmoving activities, including, but not limited to, land clearing, grubbing, scraping, travel on site, and travel on access roads to and from the site Construction of new landfill disposal sites or modification to existing landfill disposal sites prior to commencement of landfilling activities. 	<ul style="list-style-type: none"> Operations which periodically may cause fugitive dust emissions into the atmosphere. 	<ul style="list-style-type: none"> Any commercial construction or demolition activity capable of generating fugitive dust emissions, including active operations, open storage piles, and inactive disturbed areas. 	<ul style="list-style-type: none"> All construction and temporary commercial activities that disturb soils and emit PM.
Requirements	<ul style="list-style-type: none"> No person shall cause fugitive dust emissions from any active operation, open storage pile, or disturbed surface area such that: <ul style="list-style-type: none"> dust remains visible in the atmosphere beyond the property line of emission source; or dust emission exceeds 20 percent opacity if the dust emission is the result of a motorized vehicle. <u>No person shall:</u> <ul style="list-style-type: none"> conduct active operations without utilizing the applicable best available control measures; see Table V-21 	<ul style="list-style-type: none"> Limit fugitive dust emissions from construction, demolition, excavation, extraction, and other earthmoving activities No person shall perform any construction, demolition, excavation, extraction, or other earthmoving activities unless rule requirements are sufficiently implemented to limit VDE to 20% opacity and comply with conditions for a stabilized surface area Implement the requirements below when using wrecking balls or other wrecking equipment to raze or demolish buildings: <ul style="list-style-type: none"> Apply sufficient water to building 	<ul style="list-style-type: none"> A person shall take every reasonable precaution not to cause fugitive dust emissions from being airborne beyond the property line where the emissions originate, from any construction, handling or storage activity, or any wrecking, excavation, grading, clearing of land or solid waste disposal operation Reasonable precautions shall include, but are 	<ul style="list-style-type: none"> Airborne Dust Beyond the Property Line: No person shall engage in construction or demolition activity in a manner that discharges visible dust emissions into the atmosphere beyond the property line for a period more than 3 minutes in any 60 minute period Track-Out/Carry-Out: Visible roadway dust from active operations, spillage from transport trucks, erosion, or track-out/carry-out shall: <ul style="list-style-type: none"> be minimized by trackout/carry-out and 	<ul style="list-style-type: none"> Establishes requirements to obtain and comply with a dust control operating permit and a dust mitigation plan, and the procedures to maintain dust control of these activities. Any person engaging in construction activities on a site having a Permit shall be subject to all conditions set forth in the permit Construction site superintendent and all others designated as on-site representatives of the

	South Coast AQMD Rule 403 – Fugitive Dust (Amended 06/03/05)	SJVAPCD Rule 8021 – Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities (Amended 08/19/04)	SMAQMD Rule 403 – Fugitive Dust (Adopted 08/03/77)	SDAPCD Rule 55 – Fugitive Dust Control (Adopted 06/24/09)	Clark County Air Quality Regulations Section 94 – Permitting and Dust Control for Construction and Temporary Commercial Activities (Amended 08/03/21)
	<ul style="list-style-type: none"> cause PM10 levels to be enhanced by 50 micrograms per cubic meter allow track-out to extend 25 feet or more in cumulative length from the point of origin from an active operation <ul style="list-style-type: none"> All track-out from an active operation shall be removed at the conclusion of each workday or evening shift Conduct an active operation with a disturbed surface area of five or more acres, or with a daily import or export of 100 cubic yards or more of bulk material without utilizing at least one of the following measures at each vehicle egress from the site to a paved public road: <ul style="list-style-type: none"> Install a pad consisting of washed gravel (minimum-size: one inch) maintained in a clean condition to a depth of at least six inches and extending at least 30 feet wide and at least 50 feet long. Pave the surface extending at least 100 feet and at least 20 feet wide. Utilize a wheel shaker/wheel spreading device consisting of raised dividers (rails, pipe, or 	<p>exterior surfaces, unpaved surface areas where equipment will operate, and razed building materials to limit VDE to 20% opacity throughout the duration of razing and demolition activities.</p> <ul style="list-style-type: none"> Apply sufficient dust suppressants to unpaved surface areas within 100 feet where materials from razing or demolition activities will fall in order to limit VDE to 20% opacity. Apply sufficient dust suppressants to unpaved surface areas where wrecking or hauling equipment will be operated in order to limit VDE to 20% opacity Handling, storage, and transport of bulk materials on-site or off-site resulting from the demolition or razing of buildings shall comply with the requirements specified in Rule 8031 (Bulk Materials) Apply water within 1 hour of demolition to unpaved surfaces within 100 feet of the demolished structure. Prevention and removal of carryout or trackout on paved public access roads from demolition operations shall be 	<p>not limited to:</p> <ul style="list-style-type: none"> Use, where possible, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the construction of roadways or the clearing of land Application of asphalt, oil, water, or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which can give rise to airborne dusts Other means approved by the Air Pollution Control Officer. 	<p>erosion control measures- (1) track-out grates or gravel beds at each egress point, wheel-washing at each egress during muddy conditions, soil binders, chemical soil stabilizers, geotextiles, mulching, or seeding; and (2) for outbound transport trucks- using secured tarps or cargo covering, watering, or treating of transported material</p> <ul style="list-style-type: none"> be removed at the conclusion of each work day when active operations cease, or every 24 hours for continuous operations The use of blowers for removal of track-out/carry-out is prohibited under any circumstances. 	<p>Permittee; all construction supervisors and foremen of on-site contractors and subcontractors; water truck and water pull drivers for each construction project are required to complete the dust control class</p> <ul style="list-style-type: none"> Any person who engages in a construction activity or temporary commercial activity, with or without a permit, shall employ Best Management Practices and comply with soil stabilization standards and emissions standards

	South Coast AQMD Rule 403 – Fugitive Dust (Amended 06/03/05)	SJVAPCD Rule 8021 – Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities (Amended 08/19/04)	SMAQMD Rule 403 – Fugitive Dust (Adopted 08/03/77)	SDAPCD Rule 55 – Fugitive Dust Control (Adopted 06/24/09)	Clark County Air Quality Regulations Section 94 – Permitting and Dust Control for Construction and Temporary Commercial Activities (Amended 08/03/21)
	<p>grates) at least 24 feet long and 10 feet wide OR install and utilize a wheel washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the site</p> <ul style="list-style-type: none"> Any other control measures approved by the EO and the U.S. EPA Additional requirements for large operations <ul style="list-style-type: none"> Dust control plan implement additional dust control measures; see Table V-22 	<p>performed in accordance with Rule 8041- Carryout and Trackout</p> <ul style="list-style-type: none"> 15 mph speed limitation and posting of speed limit signs on uncontrolled unpaved access/haul roads on construction sites Wind generated fugitive dust requirements Cease outdoor construction, excavation, extraction, and other earthmoving activities that disturb the soil whenever VDE exceeds 20% opacity Operator shall submit a Dust Control Plan to the APCD prior to the start of any construction activity that will include 10 acres or more of disturbed surface area for residential developments, or 5 acres or more of disturbed surface area for non-residential development, or will include moving, depositing, or relocating more than 2,500 cubic yards per day of bulk materials on at least three days District notification of earthmoving activities on smaller construction sites <p><u>Control Measures</u> PRE-ACTIVITY:</p>			

	South Coast AQMD Rule 403 – Fugitive Dust (Amended 06/03/05)	SJVAPCD Rule 8021 – Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities (Amended 08/19/04)	SMAQMD Rule 403 – Fugitive Dust (Adopted 08/03/77)	SDAPCD Rule 55 – Fugitive Dust Control (Adopted 06/24/09)	Clark County Air Quality Regulations Section 94 – Permitting and Dust Control for Construction and Temporary Commercial Activities (Amended 08/03/21)
		<ul style="list-style-type: none"> • Pre-water site sufficient to limit VDE to 20% opacity, and • Phase work to reduce the amount of disturbed surface area at any one time. <p>DURING ACTIVE OPERATIONS:</p> <ul style="list-style-type: none"> • Apply water or chemical/organic stabilizers/suppressants sufficient to limit VDE to 20% opacity; or • Construct and maintain wind barriers sufficient to limit VDE to 20% opacity. If utilizing wind barriers, control measure B1 above shall also be implemented. • Apply water or chemical/organic stabilizers/suppressants to unpaved haul/access roads and unpaved vehicle/equipment traffic areas sufficient to limit VDE to 20% opacity and meet the conditions of a stabilized unpaved road surface. <p>TEMPORARY STABILIZATION DURING PERIODS OF INACTIVITY:</p> <ul style="list-style-type: none"> • Restrict vehicular access to the area; and • Apply water or chemical/organic stabilizers/suppressants, sufficient to comply with the conditions of a stabilized surface 			

	South Coast AQMD Rule 403 – Fugitive Dust (Amended 06/03/05)	SJVAPCD Rule 8021 – Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities (Amended 08/19/04)	SMAQMD Rule 403 – Fugitive Dust (Adopted 08/03/77)	SDAPCD Rule 55 – Fugitive Dust Control (Adopted 06/24/09)	Clark County Air Quality Regulations Section 94 – Permitting and Dust Control for Construction and Temporary Commercial Activities (Amended 08/03/21)
Exemptions	<ul style="list-style-type: none"> • Emergency situations • Active operations conducted during essential service utilities to provide electricity, natural gas, telephone, water and sewer during periods of service outages and emergency disruptions • Any contractor subsequent to the time the contract ends, provided that such contractor implemented the required control measures during the contractual period • Any grading contractor, for a phase of active operations, subsequent to the contractual completion of that phase of earthmoving activities, provided that the required control measures have been implemented during the entire phase of earthmoving activities, through and including five days after the final grading inspection • Weed abatement operations • Blasting operations are permitted by the California Division of Industrial Safety • Sandblasting operations. 	<ul style="list-style-type: none"> • Emergency activities • Active operations conducted by essential service utilities to provide electricity, natural gas, telephone, water and sewer during periods of service outages and emergency disruptions. • Activities conducted at an elevation of 3,000 feet or higher above sea level. • On-field agricultural sources. • Blasting activities that have been permitted by the California Division of Industrial Safety • Maintenance or remodeling of existing buildings and additions to existing buildings where total building area is not increased by more than fifty percent, or 10,000 square feet, whichever is less • All additions to existing single family residential buildings. • Disking of weeds and dried vegetation related to fire prevention required by a Federal, State or local agency on a site less than one-half (½) acre. • The spreading of landfill daily cover necessary to cover garbage/rubbish in order to preserve public health and safety and to comply with the 	<ul style="list-style-type: none"> • Emissions emanating from agricultural operations, currently unworked land designated as reclaimed for agriculture, or unpaved roads open to public travel (this exclusion shall not apply to industrial or commercial facilities). 	<ul style="list-style-type: none"> • Noncommercial construction or demolition activities in support of any structure designed for and used exclusively as a dwelling for not more than four families • Emergency operations • Active operations conducted by essential service utilities to provide electricity, natural gas, telephone, water and/or sewer during periods of unplanned service outages and emergency disruptions; • Any active operation, open storage pile, or inactive disturbed area which the operator can demonstrate that necessary fugitive dust preventive or mitigating actions are in conflict with CA or federal Endangered Species Acts, or a local, state, or federal water quality requirement • Explosive blasting operations • Abrasive blasting operations regulated by Rule 71 (Abrasive Blasting) • Activities subject to an APCD permit to operate 	<ul style="list-style-type: none"> • Operation of emission units or activities permitted under a stationary source permit • Normal farm cultural practices and equestrian facilities in compliance with zoning requirements • Emergency activities that may disturb soil performed or ordered under a directive by any utility or government agency in order to prevent public injury or restore critical utilities to functional status • Temporary commercial activities outside of hydrographic Areas 212 (Las Vegas Valley), 216 (Garnet Valley), and 217 (Hidden Valley North).

	South Coast AQMD Rule 403 – Fugitive Dust (Amended 06/03/05)	SJVAPCD Rule 8021 – Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities (Amended 08/19/04)	SMAQMD Rule 403 – Fugitive Dust (Adopted 08/03/77)	SDAPCD Rule 55 – Fugitive Dust Control (Adopted 06/24/09)	Clark County Air Quality Regulations Section 94 – Permitting and Dust Control for Construction and Temporary Commercial Activities (Amended 08/03/21)
		requirements of the California Integrated Waste Management Board during wind conditions which would generate fugitive dust.		<ul style="list-style-type: none"> • Permanent unpaved roads. 	

Regulations for construction and demolition listed in Table V-24 present a variety of approaches used by other districts to mitigate fugitive dust. Staff evaluation concluded that South Coast AQMD's requirements in Rule 403 are at least as stringent as those in other districts. Some districts such as SVJAPCD have a specific rule for construction and demolition, with mitigation measures for other sources of fugitive dust such as trackout addressed under a separate rule. Other district rules listed in Table V-24 regulate multiple fugitive dust sources under the same rule. Clark County AQR Section 94 – Permitting and Dust Control for Construction and Temporary Commercial Activities is similar in structure to South Coast AQMD Rule 403 and includes best management practices for each dust source type within the active operation. Table V-25 compares South Coast AQMD Rule 403 best available control measures applicable to all construction activity to Clark County AQR Section 94 best management practices. South Coast AQMD implements additional control measures for large operations and includes contingency measures for when applicable performance standards cannot be met through these controls. South Coast AQMD Rule 403 control measures and contingency measures for large operations are presented in Table V-26.

TABLE V-25
BEST AVAILABLE CONTROL MEASURES (APPLICABLE TO ALL CONSTRUCTION ACTIVITY SOURCES)

Source Category	South Coast AQMD Rule 403 Best Available Control Measures	Clark County Air Quality Regulations, Section 94
Backfilling	<ul style="list-style-type: none"> Stabilize backfill material when not actively handling; AND Stabilize backfill material during handling; AND Stabilize soil at completion of activity. 	<ul style="list-style-type: none"> Maintain optimum moisture content in backfill material and operate equipment in a manner that limits fugitive dust to comply with regulations before, during, and after handling of material and during storage until the long-term stabilization requirements are achieved.
Clearing and grubbing	<ul style="list-style-type: none"> Maintain stability of soil through pre-watering of site prior to clearing and grubbing; AND Stabilize soil during clearing and grubbing activities; AND Stabilize soil immediately after clearing and grubbing activities. 	<ul style="list-style-type: none"> Maintain optimum moisture content in soil before, during, and after clearing and grubbing activities to prevent unstable soil conditions and limit fugitive dust until the long-term stabilization requirements are achieved
Clearing forms	<ul style="list-style-type: none"> Use water spray to clear forms; OR Use sweeping and water spray to clear forms; OR Use vacuum system to clear forms. 	<ul style="list-style-type: none"> Limit visible emissions before, during, and after the clearing of forms, foundations, and slabs to no more than an average of 20% opacity for any period totaling 3 minutes in any 60-minute period, or to no more than 50% instantaneous opacity, pursuant to the AQRs. At least one of the following must be used to clear forms, foundations, and slabs: (1) water spray (2) sweeping and water spray (3) industrial vacuum.
Crushing	<ul style="list-style-type: none"> Stabilize surface soils prior to operation of support equipment; AND Stabilize material after crushing. 	<ul style="list-style-type: none"> Maintain optimum moisture content in soil where support equipment and vehicles will operate to prevent unstable soil conditions and limit fugitive dust until the long-term stabilization requirements are achieved. Maintain optimum moisture content in material before, during, and after crushing activities to limit emissions.
Cut and fill	<ul style="list-style-type: none"> Pre-water soils prior to cut and fill activities; AND Stabilize soil during and after cut and fill activities. 	<ul style="list-style-type: none"> Maintain optimum moisture content in soil where support equipment and vehicles will operate to prevent unstable soil conditions and limit fugitive dust until the long-term stabilization requirements listed in BMP 11 are achieved. Maintain optimum moisture content in soils before, during, and after cut and fill activities to limit fugitive dust until the long-term stabilization requirements are achieved.
Demolition-mechanical/manual	<ul style="list-style-type: none"> Stabilize wind erodible surfaces to reduce dust; AND Stabilize surface soil where support equipment and vehicles will operate; AND Stabilize loose soil and demolition debris and comply with South Coast AQMD Rule 1403. 	<ul style="list-style-type: none"> An asbestos survey must be conducted on any facility or structure subject to NESHAP requirements before demolition can commence. A separate, complete Clark County NESHAP Demolition Notification Form must be submitted to DAQ for each structure at least 10 working days prior to demolition. The asbestos survey must be attached to this notification. Maintain optimum moisture content in soil where support equipment and vehicles will operate to prevent unstable soil conditions and limit fugitive dust until the long-term stabilization requirements are achieved. Maintain optimum moisture content in demolition debris before, during, and after demolition activities to limit emissions.

Source Category	South Coast AQMD Rule 403 Best Available Control Measures	Clark County Air Quality Regulations, Section 94
		<ul style="list-style-type: none"> Stabilize surrounding area immediately following demolition by applying water and/or dust palliative to all disturbed soil surfaces.
Disturbed soil	<ul style="list-style-type: none"> Stabilize disturbed soil throughout the construction site; AND Stabilize disturbed soil between structures. 	<ul style="list-style-type: none"> Maintain optimum moisture content in soils before, during, and after all construction activities to prevent unstable soils and limit fugitive dust until the long-term stabilization requirements listed in BMP 11 are achieved. If interior block walls are planned, install walls as early as possible in the construction project.
Earth-moving activities	<ul style="list-style-type: none"> Pre-apply water to depth of proposed cuts; AND Re-apply water as necessary to maintain soils in a damp condition and to ensure that visible emissions do not exceed 100 feet in any direction; AND Stabilize soils once earth-moving activities are complete. 	-
Importing/exporting of bulk materials	<ul style="list-style-type: none"> Stabilize material while loading to reduce fugitive dust emissions; AND Maintain at least six inches of freeboard on haul vehicles; AND Stabilize material while transporting to reduce fugitive dust emissions; AND Stabilize material while unloading to reduce fugitive dust emissions; AND Comply with Vehicle Code Section 23114. 	<ul style="list-style-type: none"> Maintain optimum moisture content in surface soils and bulk material before, during, and after all importing/exporting activities to prevent unstable soils and limit fugitive dust until the long-term stabilization requirements listed in BMP 11 are achieved. Clean the wheels and undercarriage of haul trucks before they leave the construction site. Check belly/end dump truck seals regularly, and remove trapped rocks to prevent spillage.
Landscaping	<ul style="list-style-type: none"> Stabilize soils, materials, slopes. 	<ul style="list-style-type: none"> Maintain optimum moisture content in soils and landscaping material before, during, and after landscaping activities to limit fugitive dust until the long-term stabilization requirements listed in BMP 11 are achieved. Apply water, surfactant, or tackifier to maintain disturbed soils and landscaping material in a stable condition until the long-term stabilization requirements listed in BMP 11 are achieved.
Road shoulder maintenance	<ul style="list-style-type: none"> Apply water to unpaved shoulders prior to clearing; AND Apply chemical dust suppressants and/or washed gravel to maintain a stabilized surface after completing road shoulder maintenance. 	-
Screening	<ul style="list-style-type: none"> Pre-water material prior to screening; AND Limit fugitive dust emissions to opacity and plume length standards; AND Stabilize material immediately after screening. 	<ul style="list-style-type: none"> Maintain optimum moisture content in soil where support equipment and vehicles will operate to prevent unstable soil conditions and limit fugitive dust until the long-term stabilization requirements listed in BMP 11 are achieved. Maintain optimum moisture content in material before, during, and after screening activities to limit emissions until the long-term stabilization requirements are achieved. All stockpiles must be removed or leveled prior to project completion unless otherwise approved by the Control Officer. Stockpiles approved to be left in place must be in compliance with the long-term stabilization requirements

Source Category	South Coast AQMD Rule 403 Best Available Control Measures	Clark County Air Quality Regulations, Section 94
Staging areas	<ul style="list-style-type: none"> Stabilize staging areas during use; AND Stabilize staging area soils at project completion 	<ul style="list-style-type: none"> Maintain optimum moisture content in soils before, during, and after all staging area activities to prevent unstable soils and limit fugitive dust until the long-term stabilization requirements are achieved.
Stockpiles/Bulk Material Handling	<ul style="list-style-type: none"> Stabilize stockpiled materials. Stockpiles within 100 yards of off-site occupied buildings must not be greater than eight feet in height; or must have a road bladed to the top to allow water truck access or must have an operational water irrigation system that is capable of complete stockpile coverage. 	<ul style="list-style-type: none"> Maintain optimum moisture content in soil where support equipment and vehicles will operate to prevent unstable soil conditions and limit fugitive dust until the long-term stabilization requirements are achieved. Maintain optimum moisture content in material before, during, and after stockpiling activities to limit fugitive dust until long-term stabilization is achieved.
Traffic areas for construction activities	<ul style="list-style-type: none"> Stabilize all off-road traffic and parking areas; AND Stabilize all haul routes; AND Direct construction traffic over established haul routes. 	<ul style="list-style-type: none"> Limit visible dust emissions from vehicle operations and stabilize all unpaved routes, including unpaved parking areas.
Trackout	<ul style="list-style-type: none"> Do not allow track-out to extend 25 feet or more in cumulative length from the point of origin from an active operation All track-out from an active operation shall be removed at the conclusion of each workday or evening shift 	<ul style="list-style-type: none"> Install and maintain a trackout control device in an effective condition at all access points where Paved and unpaved access or travel routes intersect Maintain dust control and clean all trackout that extends 50 feet or more from paved surfaces.
Trenching	<ul style="list-style-type: none"> Stabilize surface soils where trencher or excavator and support equipment will operate; AND Stabilize soils at the completion of trenching activities. 	<ul style="list-style-type: none"> Maintain optimum moisture content in soil where support equipment and vehicles will operate to prevent unstable soil conditions and limit fugitive dust until the long-term stabilization requirements are achieved Maintain optimum moisture content in soils before, during, and after trenching activities to limit fugitive dust until the long-term stabilization requirements are achieved.
Truck Loading	<ul style="list-style-type: none"> Pre-water material prior to loading; AND Ensure that freeboard exceeds six inches 	<ul style="list-style-type: none"> Maintain optimum moisture content in soil where support equipment and vehicles will operate to prevent unstable soil conditions and limit fugitive dust until the long-term stabilization requirements are achieved. Maintain optimum moisture content in material before, during, and after truck loading activities to limit fugitive dust.
Turf Overseeding	<ul style="list-style-type: none"> Apply sufficient water immediately prior to conducting turf vacuuming activities to meet opacity and plume length standards; AND Cover haul vehicles prior to exiting the site. 	-
Unpaved roads/parking lots	<ul style="list-style-type: none"> Stabilize soils to meet the applicable performance standards; AND Limit vehicular travel to established unpaved roads (haul routes) and unpaved parking lots. 	<ul style="list-style-type: none"> Limit visible dust emissions from vehicle operations and stabilize all unpaved routes, including unpaved parking areas.
Vacant Land	<ul style="list-style-type: none"> For vacant lots 0.10 acre or larger and have a cumulative area of 500 square feet or more that are driven over and/or used by motor vehicles and/or off-road vehicles: prevent motor vehicle and/or off-road vehicle trespassing, parking and/or access by installing barriers, curbs, fences, gates, posts, signs, shrubs, trees or other effective control measures. 	-

TABLE V-26
SOUTH COAST AQMD RULE 403 ADDITIONAL MEASURES FOR LARGE OPERATIONS

Source Category	Control Action	Contingency Measure
Earth-moving (except construction cutting and filling areas, and mining operations)	<ul style="list-style-type: none"> • Maintain soil moisture content at minimum of 12%, as determined by ASTM method D2216, or other equivalent method approved by Executive Officer, CARB, and the U.S. EPA. 2 soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and 2 such evaluations each subsequent four-hour period of active operations; OR • For any earth-moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction. 	<p>For ALL earth-moving activities:</p> <ul style="list-style-type: none"> • Cease all active operations; OR • Apply water to soil not more than 15 minutes prior to moving such soil.
Earth-moving: Construction fill areas	<ul style="list-style-type: none"> • Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. For areas which have an optimum moisture content for compaction of less than 12 percent, as determined by ASTM Method 1557 or other equivalent method approved by the Executive Officer, CARB, and the U.S. EPA, complete the compaction process as expeditiously as possible after achieving at least 70 percent of the optimum soil moisture content. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations during each subsequent four hour period of active operations. 	<ul style="list-style-type: none"> • See above.
Earth-moving: Construction cut areas and mining operations	<ul style="list-style-type: none"> • Conduct watering as necessary to prevent visible emissions from extending more than 100 feet beyond the active cut or mining area unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors. 	<ul style="list-style-type: none"> • See above.
Disturbed surface areas (except completed grading areas)	<ul style="list-style-type: none"> • Apply dust suppression in sufficient quantity and frequency to maintain a stabilized surface. Any areas which cannot be stabilized, as evidenced by wind driven fugitive dust must have an application of water at least twice per day to at least 80 percent of the unstabilized area. 	<p>For ALL disturbed surface areas:</p> <ul style="list-style-type: none"> • On the last day of active operations prior to a weekend, holiday, or any other period when active operations will not occur for not more than four consecutive days: apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of six months; OR • Apply chemical stabilizers prior to wind event; OR • Apply water to all unstabilized disturbed areas 3 times per day. If there is any evidence of wind driven fugitive dust, watering frequency is increased to a minimum of four times per day; OR • Establish a vegetative ground cover within 21 days after active operations have ceased; OR

Source Category	Control Action	Contingency Measure
		<ul style="list-style-type: none"> Utilize any combination of control actions such that, in total, these actions apply to all disturbed surface areas.
Disturbed surface areas: Completed grading areas	<ul style="list-style-type: none"> Apply chemical stabilizers within five working days of grading completion; OR Take actions specified for inactive disturbed surface areas. 	<ul style="list-style-type: none"> See above.
Inactive disturbed surface areas	<ul style="list-style-type: none"> Apply water to at least 80 percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, excluding any areas which are inaccessible to watering vehicles due to excessive slope or other safety conditions; OR Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR Establish a vegetative ground cover within 21 days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; OR Utilize any combination of control actions above such that, in total, these actions apply to all inactive disturbed surface areas. 	<ul style="list-style-type: none"> See above.
Unpaved roads	<ul style="list-style-type: none"> Water all roads used for any vehicular traffic at least once per every two hours of active operations [3 times per normal 8 hour work day]; OR Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 miles per hour; OR Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface. 	<ul style="list-style-type: none"> Apply chemical stabilizers prior to wind event; OR Apply water twice per hour during active operation; OR Stop all vehicular traffic.
Open storage piles	<ul style="list-style-type: none"> Apply chemical stabilizers; OR Apply water to at least 80 percent of the surface area of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust; OR Install temporary coverings; OR Install a three-sided enclosure with walls with no more than 50 percent porosity which extend, at a minimum, to the top of the pile. This option may only be used at aggregate-related plants or at cement manufacturing facilities. 	<ul style="list-style-type: none"> Apply water twice per hour; OR Install temporary coverings.
Paved road track-out	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Cover all haul vehicles; OR Comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads.
All Categories	<ul style="list-style-type: none"> Any other control measures approved by EO and U.S. EPA 	<ul style="list-style-type: none"> Any other contingency measures approved by EO and U.S. EPA

c. Conclusion

Although a direct comparison to other districts' rules is challenging due to the different structures, qualitative inferences can be made. South Coast AQMD control measures for construction and demolition sources employ a variety of mitigation measures based on source type and are generally as stringent as rule in other districts. These measures focus on limiting VDE, stabilizing soils and storage piles, and minimizing trackout. Furthermore, South Coast AQMD Rule 403 includes additional, more stringent measures for large operations. Staff did not identify any applicable construction and demolition controls for consideration as contingency measures.

iii. Paved Road Dust

a. Overview

Source category 640 – Paved Road Dust includes emissions resulting from vehicles traveling over paved surfaces. Resuspended particulate emissions (e.g., vehicle-related deposition like exhaust, material spillage, pavement wear, litter, etc.) from paved roads originate from loose materials present on the surface. The average speed of vehicles traveling on the road, average daily vehicular traffic, number of lanes and average daily vehicular traffic per lane, percentage of heavy vehicles present, and presence of curbs, storm sewers and parking lanes are significant factors that can contribute to paved road dust emissions. Although control techniques for paved roads that prevent material from being deposited onto the surface (preventive controls) are usually more cost effective than control techniques that remove deposited materials from the travel lanes (mitigative controls), both methods are used in conjunction to minimize particulate emissions within this category. Determining the correct strategies in minimizing particulate matter emissions, however, can often be complicated. For example, street sweeping gutters and curb areas may actually increase the redistribution of loose material onto the traveled portion of the road, which may produce a short-term increase in particulate matter emissions.²⁷

Paved road sources contribute 9.11 tpd direct PM_{2.5} emissions, representing 16.9 percent of 2030 baseline PM_{2.5} emissions. South Coast AQMD has a number of regulations to reduce trackout and prevent materials from being deposited on roadways. These include:

- Rule 403 series
- Rule 1156 – Further Reductions of Particulate Emissions from Cement Manufacturing Facilities
- Rule 1157 – PM₁₀ Emission Reductions from Aggregate and Related Operations
- Rule 1158 – Storage, Handling, and Transport of Coke, Coal and Sulfur
- Rule 1460 – Control of Particulate Emissions from Metal Recycling and Shredding Operations
- Rule 1466 – Control of Particulate Emissions from Soils with Toxic Air Contaminants

²⁷ EPA, "Compilation of Air Pollutant Emissions Factors, Volume 1: Stationary Point and Area Sources," Chapter 13, Section 2.1, available at https://www.epa.gov/sites/default/files/2020-10/documents/13.2.1_paved_roads.pdf (last updated January 2011).

Additionally, Rule 1186 – PM10 Emissions from Paved and Unpaved Roads, and Livestock Operations contains requirements for the construction of roadways which are intended to reduce PM2.5 emissions. Rule 1186 also requires PM10-efficient street sweepers.

b. Evaluation

Appendix III contains an extensive evaluation of paved road dust control measures. Based on that evaluation, a potential control measure examining the feasibility of increased sweeping frequencies and requiring the use of the most efficient sweepers was identified. As a result, the control strategy includes BCM-14 – Further Emission Reductions from Paved Road Dust Sources, which calls for a pilot project to assess the effectiveness of closed system regenerative air sweepers as there is some evidence that these sweepers reduce entrained dust emissions compared to mechanical brush sweepers. Staff reviewed the BACM/MSM analysis in Appendix III and found that there weren't any areas where the analysis could be expanded for paved road dust contingency measures.

c. Conclusion

Staff conducted an extensive BACM/MSM analysis for paved road dust, which resulted in the inclusion of BCM-14 in the control strategy. There were no other potential control measures identified that would be surplus to the control strategy and result in quantifiable emission reductions within 2 years of being triggered.

iv. Unpaved Road Dust

a. Overview

Source category 645 – Unpaved Road Dust includes particulate emissions from vehicles traveling over unpaved roads or surfaces. The force and weight of vehicles on unpaved road surfaces grinds and minimizes surface materials on these roads. These particles are lifted and dropped onto the road surface, where they are then exposed and carried off by air currents. Determining the correct strategies in minimizing particulate matter emissions originating from unpaved roads is complex due to available control options that are broad in scope, effectiveness, and cost. For example, although paving is highly effective in terms of minimizing fugitive dust on unpaved roads, doing so is extremely costly and may not be optimal, or feasible, for industrial roads subject to heavy vehicle usage. Water and chemical suppressants, although requiring frequent re-application, may be a more feasible option as the associated costs are lower. Additionally, measures such as limiting access to unpaved roads based on vehicle type, vehicle speed, and vehicle daily trips (VDT) can be considered.²⁸

²⁸ EPA, "Compilation of Air Pollutant Emissions Factors, Volume 1: Stationary Point and Area Sources," Chapter 13, Section 2.2, available at https://www.epa.gov/sites/default/files/2020-10/documents/13.2.2_unpaved_roads.pdf (last updated November 2006)

Unpaved road sources contribute 1.67 tpd of direct PM_{2.5} emissions by 2030, representing 3.1 percent of the total PM_{2.5} emissions in the Basin. The Rule 403 series and multiple source-specific rules regulate fugitive particulate emissions, including those categorized as unpaved road fugitive dust. These rules reduce ambient concentrations of particulate matter by requiring actions to prevent, reduce, or mitigate fugitive dust emissions.

The PM_{2.5} Plan includes BCM-19 – Emission Reductions from Unpaved Road Dust Sources, which seeks to further assess the feasibility of paving as a PM_{2.5} control method for unpaved lots, roads, and shoulders. However, as mentioned above, other means exist to control emissions from unpaved roads and the remainder of the evaluation will therefore focus on these methods.

b. Evaluation

Unpaved road dust was evaluated in Appendix III as part of the BACM/MSM demonstration and a potential control measure was identified which served as the foundation for BCM-19. South Coast AQMD's existing rules for unpaved road dust are summarized in Table V-27, while Table V-28 summarizes control measures in other jurisdictions.

TABLE V-27
SOUTH COAST AQMD'S EXISTING RULES COVERING UNPAVED ROAD DUST

South Coast AQMD Rule	Applicability	Control Measure
Rule 403 – Fugitive Dust (Amended 6/3/05)	<p>Applies to any activity or man-made condition capable of generating fugitive dust.</p> <p>Exemptions:</p> <ul style="list-style-type: none"> Unpaved roads used solely for the maintenance of wind-generating equipment Unpaved public alleys as defined in Rule 1186 Unpaved service roads that are less than 50 feet in width, are within 25 feet of the property line, and have less than 20 vehicle trips per day 	<p>Performance standards:</p> <ul style="list-style-type: none"> Dust must not remain visible beyond the property line of the emission source and the dust emission cannot exceed 20% opacity if the emission is the result of vehicle movement. <p>For unpaved roads/lots, stabilize soil to meet the performance standards.</p> <p>Stabilize disturbed soil throughout a construction site and between structures.</p> <p>Apply water to unpaved shoulders prior to clearing.</p> <p>Apply chemical dust suppressants and/or washed gravel to maintain a stabilized surface after completing road shoulder maintenance.</p> <p>Limit vehicular travel to established unpaved roads (haul routes) and unpaved parking lots.</p> <p>For vacant lots that are 0.1 acres or larger and have a cumulative area of 500 square feet or more driven over and/or used by motor vehicles and/or off-road vehicles, prevent motor vehicle and/or off-road vehicle trespassing, parking and/or access by installing barriers, curbs, fences, gates, posts, signs, shrubs, trees or other effective control measures.</p>

South Coast AQMD Rule	Applicability	Control Measure
Rule 403.2 – Fugitive Dust from Large Roadway Projects (Adopted 6/3/22)	Applies to large roadway projects conducted in close proximity to an area of public exposure or sensitive receptors.	<p>For projects located within 500 feet of an area of public exposure or 1,000 feet of a sensitive receptor, requires:</p> <ul style="list-style-type: none"> the appointment of a Dust Control Supervisor who has completed the South Coast AQMD Fugitive Dust Control Class; and that speeds be restricted to 15 mph on unpaved roads; and that either water or a chemical stabilizer be applied to all unpaved roads.
Rule 1127 – Emission Reductions from Livestock Waste (Adopted 8/6/04)	Applies to dairy farms and related operations such as heifer and calf farms and manure processing operations.	Pave feedlanes at least 8 feet on the corral side of the feedlane fence.
Rule 1156 – Further Reductions of Particulate Emissions from Cement Manufacturing Facilities (Amended 11/6/15)	Applies to all operations, materials handling, and transport at a cement manufacturing facility.	<p>For haul roads, chemical dust suppressants must be applied at least twice per year, signs must be posted requiring trucks to use those roads unless traveling to maintenance areas, and a 35 mph speed limit must be enforced.</p> <p>For other unpaved roadways, chemical dust suppressants must either be applied twice per year or a gravel pad must be used and speed must be limited to 15 mph.</p> <p>For roadways and other unpaved areas, dust emissions exceeding 20 percent or 50 percent opacity based on the average of 12 or 5 consecutive readings, respectively, is not allowed.</p>

South Coast AQMD Rule	Applicability	Control Measure
Rule 1157 – PM10 Emissions Reductions from Aggregate and Related Operations (Amended 9/8/06)	Applies to all permanent and temporary aggregate and related operations.	<p>Chemical stabilizers applied on internal unpaved haul roads to maintain a stabilized surface.</p> <p>Signs posted stating haul trucks must not use these roads unless traveling to maintenance areas.</p> <p>Apply chemical stabilizers to maintain a stabilized surface or gravel pad on unpaved non-haul roads and parking and staging areas.</p>
Rule 1158 – Storage, Handling, and Transport of Coke, Coal and Sulfur (Amended 7/11/08)	Applies to the operator of a facility that produces, stores, handles, transports, or uses coke, coal or sulfur.	<p>Requires paving of ground surfaces where material accumulations occur.</p> <p>Requires paving of roads used for transporting or moving material excluding material storage areas.</p> <p>Requires trucks to be driven only on paved roads.</p>
Rule 1186 – PM10 Emissions from Paved and Unpaved Roads, and Livestock Operations (Amended 7/11/08)	<p>Applies to specified land uses and activities which result in fugitive dust as a result of vehicular travel on paved and unpaved public roads, and at livestock operations.</p> <p><u>Exemptions:</u></p> <ul style="list-style-type: none"> • Essential public services that are in compliance with SCAQMD Rule 403 (Fugitive Dust); • Visible roadway accumulations on roads with less than 500 Average Daily Trips (ADT). • Roads closed to vehicles; • Events that lead to a State 	<p>Annual treatment of unpaved roads that have greater than the ADT of all unpaved roads within a jurisdiction by either:</p> <ul style="list-style-type: none"> • Paving at least 1 mile of such roads • Applying chemical stabilization to 2 miles of such roads • Installing signage at 1/4 mile intervals that prohibits vehicular speeds in excess of 15 mph; speed bumps; or maintaining road in manner that prohibits travel at speeds in excess of 15 mph <p>For livestock operations, a requirement that all unpaved access connections and unpaved feed lane access areas are either paved or covered with gravel.</p>

TABLE V-28
OTHER JURISDICTION'S RULES COVERING UNPAVED ROAD DUST

Rule	Applicability	Control Measure
SJVAPCD Rule 8051 – Open Areas (Amended 9/21/23)	<p>Applies to any open area with at least 0.5 acres within urban areas or 3.0 acres within rural areas and at least 1,000 square feet of disturbed surface area.</p> <p><u>Exemptions:</u> Exemptions listed in 8011; Any weed abatement activity utilizing mowing and/or cutting, and which leaves at least three inches of stubble immediately after such mowing/cutting has occurred.</p>	<p><u>Control measures include:</u></p> <ul style="list-style-type: none"> • Apply and maintain water or dust suppressants to all unvegetated areas; • Establish vegetation on all previously disturbed areas; • Pave, apply and maintain gravel, or apply and maintain chemical/organic stabilizers/suppressants. <p><u>For open areas:</u> Implement, apply, maintain, and reapply, if necessary, at least one or a combination of the Control Measures to comply at all times with the conditions for a stabilized surface and limit VDE to 20% opacity as defined in Rule 8011.</p> <p><u>For vehicle use in open areas:</u> Prevent unauthorized vehicle access upon evidence of trespassing by posting “No Trespassing” signs or installing physical barriers such as fences, gates, posts, and/or other appropriate barriers to effectively prevent access to the area.</p>

Rule	Applicability	Control Measure
SJVAPCD Rule 8061 – Paved and Unpaved Roads (Amended 8/19/04)	<p>Applies to any new or existing public or private paved or unpaved road, road construction project, or road modification project</p> <p><u>Exemptions:</u></p> <ul style="list-style-type: none"> • Exemptions in Rule 8011; • Any unpaved road segment with less than 26 annual average daily vehicle trips (AADT); • Maintenance and resurfacing of existing paved roads do not apply to section 5.2 of this rule; • Agricultural sources subject to Rule 8081; • Emergency activities performed to ensure public health and safety; • Equipment used to remove debris beyond the capabilities of PM10-efficient street sweepers. 	<p><u>Control measures include:</u></p> <ul style="list-style-type: none"> • Watering; • Uniform layer of washed gravel; • Roadmix; • Paving; • Chemical/organic dust stabilizer/suppressants; • APCO-approved method that limits VDE to 20% opacity. <p>On any unpaved road segment with AADT equal to or greater than 26, limit VDE to 20% opacity and comply with the requirements of a stabilized unpaved road by application and/or re-application of at least one control measure or implement an APCO-approved Fugitive PM10 Management Plan specified in Rule 8011.</p> <p>Construction of any new unpaved road within an urban area is prohibited unless the road meets the definition of a temporary unpaved road within an urban area.</p> <p>Establish a maximum speed limit of 25 mph on each unpaved road with AADT equal to or greater than 26.</p>

Rule	Applicability	Control Measure
SJVAPCD Rule 8071 – Unpaved Vehicle/Equipment Traffic Areas (Amended 9/16/04)	<p>Applies to any unpaved vehicle/equipment traffic area</p> <p><u>Exemptions:</u></p> <ul style="list-style-type: none"> Unpaved vehicle and equipment traffic areas with less than 50 AADT; <p>Agricultural sources subject to the requirements of Rule 8081.</p>	<p><u>Control measures include:</u></p> <ul style="list-style-type: none"> Watering; Uniform layer of washed gravel; Roadmix; Paving; Vegetative Materials; Chemical/organic dust stabilizer/suppressants; APCO-approved method that limits VDE to 20% opacity. <p>Limit VDE to 20% opacity and comply with the requirements of a stabilized unpaved road by application and/or re-application of at least one control measure or implement an APCO-approved Fugitive PM₁₀ Management Plan specified in Rule 8011:</p> <ul style="list-style-type: none"> Where 50 or more AADT will occur; For unpaved vehicle/equipment traffic areas with 150 VDT, or 150 VDT that are utilized intermittently for a period of 30 days or less during the calendar year during the period that the unpaved vehicle/equipment traffic area is utilized; On each day that 25 or more VDT with 3 or more axles will occur on an unpaved vehicle/equipment traffic area. <p>The District must be notified at least 48 hours before a special event that will result in 1,000 or more vehicles traveling/parking on an unpaved area by the owner/operator. During the duration of the special event vehicle travel/parking, the owner/operator shall limit VDE to 20% opacity and comply with the requirements of a stabilized unpaved road by the application and/or reapplication/maintenance of water or chemical/organic dust stabilizers/suppressants.</p>

Rule	Applicability	Control Measure
SJVAPCD Rule 8081 – Agricultural Sources (Amended 9/16/04)	<p>Applies to off-field agricultural sources.</p> <p><u>Exemptions:</u></p> <ul style="list-style-type: none"> On-field agricultural sources; Unpaved road segments with less than 75 VDT; <p>Any unpaved vehicle and equipment parking and traffic area less than 1.0 acre and more than one mile from an urban area, or with less than 50 AADT or less than 150 VDT that are utilized intermittently for a period of 30 days or less during the calendar year.</p>	<p><u>Control measures include:</u></p> <ul style="list-style-type: none"> Watering; Uniform layer of washed gravel; Roadmix; Paving; Chemical/organic dust stabilizer/suppressants; APCO approved method that limits VDE to 20% opacity <p>On each day that 75 or more VDT, or 25 or more VDT with 3 or more axles, will occur on an unpaved road segment, limit VDE to 20% opacity and comply with the requirements of a stabilized unpaved road by application and/or re-application/maintenance of at least one control measure (including vegetative materials) or implement an approved Fugitive PM₁₀ Management Plan as specified in section 7.0.</p> <p>Where 50 or more AADT will occur on an unpaved vehicle/equipment traffic area, limit VDE to 20% opacity and comply with the requirements of a stabilized unpaved road by the application and/or reapplication/maintenance of at least one control measure or implement an approved Fugitive PM₁₀ Management Plan as specified in section 7.0.</p> <p>For unpaved vehicle/equipment traffic areas with 150 or more VDT, or 150 or more VDT that are utilized intermittently for a period of 30 days or less during the calendar year, implement at least one control option.</p> <p>On each day that 25 or more VDT with 3 or more axles will occur on an unpaved vehicle/equipment traffic area, the owner shall limit VDE to 20% opacity and comply with the requirements of a stabilized unpaved road by the application and/or re-application/maintenance of at least one of the control measures.</p>

Rule	Applicability	Control Measure
Clark County Division of Air Quality Section 91 – Fugitive Dust from Unpaved Roads, Unpaved Alleys, and Unpaved Easement Roads (Amended 4/15/14)	<p>Applies to unpaved roads, unpaved alleys, unpaved easements, and unpaved access roads for utilities and railroads.</p> <p><u>Exemptions:</u></p> <ul style="list-style-type: none"> • Non-commercial, non-institutional private driveways, horse trails, hiking paths, bicycle paths, or other similar paths that have been officially designated by a governing body for exclusive use for purposes other than travel by motor vehicles; • Stationary sources, except that these control measures shall be considered as part of a BACT determination. 	<p>Implement the following control measures for all unpaved roads having an ADT of 150 or more:</p> <ul style="list-style-type: none"> • Paving; • Apply Dust Palliatives in compliance with stabilization standards; • Apply and maintain an alternative control measure approved in writing by the Control Officer and Region IX Administrator. <p>Unless as an interim component of an active paving project, no unpaved roads or alleys can be constructed in public thoroughfares in hydrographic area 212, 216, and 217.</p> <p>Control measures are considered effectively implemented when opacity does not exceed 20%.</p>

South Coast AQMD's rules seek to limit VDE, restrict vehicle speed, and require paving, watering, or stabilizing of road surfaces and are generally more stringent compared to rules in other districts. For example, SJVAPCD Rule 8051 and South Coast AQMD Rule 403 both require control measures for disturbed open areas. However, Rule 8051 applies to open areas of at least 0.5 acres within urban areas or 3.0 acres within rural areas and at least 1,000 square feet of disturbed surface area, while Rule 403 applies to lots that are 0.1 acres or larger and have a cumulative disturbed surface area of 500 square feet or more. Only one measure, SJVAPCD Rule 8061, was determined to be potentially more stringent as it prohibits new unpaved roads within urban areas unless the road is a temporary unpaved road. South Coast AQMD does not have an identical requirement. However, the South Coast Air Basin is highly urbanized and it is likely that few, if any, new roads are unpaved. Any new unpaved roads within urban

areas are likely temporary and other South Coast AQMD rules already control emissions from these sources.

c. Conclusion

The South Coast Air Basin is a highly urbanized and highly paved environment. This contrasts with other jurisdictions included in this analysis, such as Clark County, Nevada and the San Joaquin Valley, where unpaved surfaces are much more common. Although there are approximately 1,900 miles of unpaved roads within the Basin, many of these are not well-traveled or are unsuitable for paving. For example, unpaved roads are located within regional parks or national forests. Mitigation measures other than paving, such as enforcing speed limits, are likely already in place in these locations.

Unpaved road emissions are regulated by multiple South Coast AQMD rules and the PM_{2.5} Plan includes BCM-19, which seeks further emission reductions from unpaved roads. Staff evaluated available control measures and did not identify any unpaved road dust controls that could be implemented and achieve quantifiable emission reductions within 2 years of being triggered. Therefore, no contingency measure is proposed.

v. Fugitive Windblown Dust

a. Overview

Source category 650 – Fugitive Windblown Dust includes particulate emissions resulting from wind erosion of exposed agricultural lands (non-pasture), erosion of pasture lands, and soil from unpaved roads and associated areas. Due to environmental complexities and the understanding that windblown activities occur to some extent at all times, it can be challenging to design control measures to minimize particulate matter emissions from this category. In the 2030 baseline emissions inventory, fugitive windblown dust sources contribute 0.21 tpd direct PM_{2.5} emissions, representing 0.4 percent of the total PM_{2.5} emissions in the Basin. Rule 403 and multiple source-specific rules regulate fugitive windblown dust from a wide range of activities (e.g., farming, storage, transferring materials within an open area, etc.).

b. Evaluation

Within the South Coast AQMD, fugitive windblown dust is primarily regulated by Rule 403, while multiple source-specific rules also have requirements to prevent wind-driven fugitive dust from being generated, including Rule 1156 for cement manufacturing facilities, Rule 1157 for aggregate and related operations, and Rule 1158 for storage, handling, and transport of coke, coal and sulfur. Rule 403 and other rules define wind-driven fugitive dust as “visible emissions (or particulate matter emissions) from any disturbed surface area which is generated by wind action alone.” Examples of applicable fugitive dust source types include, but are not limited to:

- Wind blowing across the surface of landfills can carry dust into the air;
- Any large areas with unpaved surfaces such as parking lots, open fields, or vacant lots can be a

source of fugitive windblown dust; and

- Outdoor open storage and improper handling of materials can contribute to fugitive dust in windy conditions.

Some industrial operations and construction/demolition activities can create an environment where materials become airborne due to wind if the site is not properly maintained and contained. Therefore, various man-made activities can also contribute indirectly to fugitive windblown dust, and measures need to be implemented to prevent, reduce, and mitigate wind-driven fugitive dust emissions.

Rule 403 establishes a visible opacity requirement and a number of dust control requirements to prevent wind-driven fugitive dust emissions from active and inactive operations, including best available control measures for all construction activities, contingency control measures for large operations, and conservation management practices for confined animal facilities. In addition, Rule 223 has feed and waste mitigation measures for dairy and poultry CAFs designed to reduce windblown dust.

South Coast AQMD's rule requirements for this source category and the control measures required by other jurisdictions were evaluated. Table V-29 and Table V-30 summarize the control measures representative of the available control measures for fugitive windblown dust by South Coast AQMD and other jurisdictions, respectively.

TABLE V-29
SOUTH COAST AQMD'S RULES FOR FUGITIVE WINDBLOWN DUST

South Coast AQMD Rule	Applicability	Control Measure
Rule 223 – Emission Reduction Permits for Large Confined Animal Facilities (Adopted 6/2/06)	Applies to dairies with ≥ 1,000 cows and poultry farms with ≥ 650,000 chickens.	<u>Dairy operations:</u> <ul style="list-style-type: none"> • Store grain in a weatherproof storage structure from October through May • Cover silage piles, except where feed is being removed • Cover dry manure and separated solids piles from October through May <u>Poultry operations:</u> <ul style="list-style-type: none"> • Store grain in a weatherproof storage structure from October through May • Cover waste outside the housing from October through May
Rule 403 – Fugitive Dust (Amended 6/3/05)	Applies to any activity or man-made condition capable of generating fugitive dust.	Requires that windblown dust emissions from any active operation, open storage pile, or disturbed surface area not remain visible in the atmosphere beyond the property line of the source.

South Coast AQMD Rule	Applicability	Control Measure
	<p><u>Exemptions:</u></p> <ul style="list-style-type: none"> • Dairy farms • Confined animal facilities with combined disturbed surface areas ≤ 1 acre • Agricultural vegetative crop operations with combined disturbed surface areas ≤ 10 acres • Agricultural vegetative crop operations with combined disturbed surface areas > 10 acres, provided that they implement conservation management practices • Active operations conducted during emergency life-threatening situations or state emergency • Essential service utilities operations • Contractors upon contract completion • Grading contractors upon contract completion • Weed abatement operations by counties or fire departments • Sandblasting operations 	<p>Application of best available control measures for active operations to minimize dust.</p> <p><u>For inactive disturbed surface areas:</u></p> <ul style="list-style-type: none"> • Apply water to at least 80% of all inactive disturbed surface areas on a daily basis when there is evidence of wind-driven fugitive dust • Apply dust suppressants in sufficient quantities • Establish vegetative ground cover within 21 days after active operations have ceased. <p><u>For unpaved roads:</u></p> <ul style="list-style-type: none"> • Water all roads used for vehicular traffic at least once per every 2 hours of active operations, 3 times per normal 8 hour work day • Restrict vehicle speed to 15 mph • Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface. <p><u>For open storage piles:</u></p> <ul style="list-style-type: none"> • Apply chemical stabilizers • Apply water to at least 80% of the surface area of all open storage piles on a daily basis when there is evidence of wind-driven fugitive dust • Install temporary coverings • Install a 3-sided enclosure with walls with no more than 50% porosity which extend, at least, to the top of the pile. <p><u>For disturbed surface areas:</u></p> <p>Apply water to all unstabilized disturbed areas 3 times/day. If there is any evidence of wind-driven fugitive dust, watering frequency is increased to a minimum of 4 times/day</p> <p><u>For vacant land:</u></p> <p>In vacant lots that are 0.1 acres or larger and have a cumulative area of 500 square feet or more driven over and/or used by motor vehicles and/or off-road vehicles, prevent motor vehicle</p>

South Coast AQMD Rule	Applicability	Control Measure
<p>Rule 1156 – Further Reductions of Particulate Emissions from Cement Manufacturing Facilities (Amended 11/6/15)</p>	<p>Applies to all operations, materials handling, and transport at a cement manufacturing facility, including, but not limited to, kiln and clinker cooler, material storage, crushing, drying, screening, milling, conveying, bulk loading and unloading systems, internal roadways, material transport, and track-out</p>	<p>and/or off-road vehicle trespassing, parking and/or access by installing barriers, curbs, fences, gates, posts, signs, shrubs, trees or other effective control measures.</p> <p><u>For crushing, screening, milling, grinding, blending, drying, heating, mixing, sacking, palletizing, packaging, and other related operations:</u></p> <ul style="list-style-type: none"> • Use wind fences on at least two sides of the primary crusher with one side facing the prevailing winds. This structure shall be equipped and operated with a wet suppression system • Apply dust suppressants during all operations to dampen and stabilize materials and prevent visible emissions <p><u>For clinker material storage:</u></p> <ul style="list-style-type: none"> • Use a 3-sided barrier with roof, provided the open side is covered with a wind fence material of a maximum 20% porosity, allowing a removal opening for vehicle access <p><u>For active open non-clinker material storage:</u></p> <ul style="list-style-type: none"> • Apply chemical dust suppressants to stabilize the entire surface area of the pile; or • Install and maintain a 3-side barrier or wind fences with one side facing the prevailing winds and with at least two feet of visible freeboard from the top of the storage pile to provide wind sheltering, maintain surface stabilization of the entire pile, and store the materials completely inside the three-sided structure at all times; or • Install and maintain a 3-sided barrier with roof, or wind fences with roof, to provide wind sheltering; or • Install and maintain a tarp over the entire surface area of the storage pile.
<p>Rule 1157 – PM₁₀ Emission Reductions from Aggregate and Related Operations (Amended 9/8/06)</p>	<p>Applies to all permanent and temporary aggregate and related operations</p>	<p><u>Performance standards:</u></p> <ul style="list-style-type: none"> • Prohibit discharge of fugitive dust emissions exceeding 20% opacity from any activity, equipment, storage pile, or disturbed surface area, based on an average of 12

South Coast AQMD Rule	Applicability	Control Measure
		<p>consecutive readings of South Coast AQMD Opacity Test Method 9B</p> <ul style="list-style-type: none"> • Prohibit discharge of fugitive dust emissions exceeding 50% opacity based on five consecutive readings of Opacity Test Method 9B • Prohibit any visible fugitive dust plume from exceeding 100 ft in any direction from any activity, equipment, storage pile, or disturbed surface area. <p><u>For storage piles:</u></p> <ul style="list-style-type: none"> • Stabilize the entire surface area of the open storage piles of materials, except for areas that are actively disturbed during loading/unloading activities • Re-apply dust suppressants to re-stabilized disturbed areas of the piles at the end of each work day • Prohibit open storage piles taller than 8 ft if within 300 feet of buildings or homes. Alternatively, irrigate to stabilize the entire pile surface
Rule 1158 – Storage, Handling, and Transport of Coke, Coal and Sulfur (Amended 7/11/08)	Applies to the operator of a facility that produces, stores, handles, transports, or uses coke, coal or sulfur	<p><u>Control measures:</u></p> <ul style="list-style-type: none"> • Water spray system sufficient to control fugitive dust emissions during operations of material transfer and ships or railcars loading • Prohibit fugitive dust emissions exceeding 10% opacity • Apply chemical stabilizers to control fugitive dust emissions • Install temporary covers

South Coast AQMD Rule	Applicability	Control Measure
Rule 1460 – Control of Particulate Emissions from Metal Recycling and Shredding Operations (Adopted 11/4/22)	Applies to owners or operators of a Metal Recycling Facility or Metal Shredding Facility.	<ul style="list-style-type: none"> • Clean traffic areas and ground surfaces where scrap metal operations take places. All materials collected during cleaning must be stored in covered containers • Apply sufficient water during loading/unloading of scrap metal, transportation throughout facility, and during processing activities <p>Fugitive dust minimization Best Management Practices (BMPs)</p> <p><u>For scrap metal storage piles:</u></p> <ul style="list-style-type: none"> • Apply sufficient water daily, except on days of 0.1 inches of precipitation; and • Store within an enclosure with three walls that extend 2 ft. above the height of the piles; or • Store within a three-sided windscreen with no more than 50% porosity, at least 2 ft. above the height of the piles <p><u>For high value grade metal piles:</u></p> <ul style="list-style-type: none"> • Cover with 12 mil intact plastic sheeting; • Store within an enclosure with three walls that extend 2 ft. above the height of the piles; • Store within a three-sided windscreen with no more than 50% porosity, at least 2 ft. above the height of the piles; or • Apply sufficient water daily, except on days of 0.1 inches of precipitation <p><u>Within 100 m from a sensitive receptor:</u></p> <ul style="list-style-type: none"> • Cease scrap metal unloading/loading, sorting, shearing, baling, torch cutting, and shredding activities for 15 min if wind speed is > 25 mph averaged over 1 min <p><u>Metal shredder residue:</u></p> <ul style="list-style-type: none"> • Store within a three-walled enclosure that extends 2 ft above the height of the residue; and • Retain the metal shredder residue in the perimeter of the enclosure <p><u>Vehicle egress:</u></p> <ul style="list-style-type: none"> • Utilize a wheel shaker or wheel spreading device; • Maintain a wheel washing system on the manufacturer’s specification; or

South Coast AQMD Rule	Applicability	Control Measure
		<ul style="list-style-type: none"> • A paved surface from facility loading/unloading area leading to a paved public road <p>Other BMPs:</p> <ul style="list-style-type: none"> • Limit vehicle speed at 15 mph • Maintain paved vehicle traffic areas and the areas where scrap metal unloading/loading, sorting, shearing, baling, torch cutting, shredding, and storage activities take place • Not allow track out to exceed 25 ft in cumulative length from the facility. Remove all track out at the conclusion of each workday or evening shift • Store waste material in a covered container

**TABLE V-30
OTHER JURISDICTIONS' CONTROL MEASURES FOR FUGITIVE WINDBLOWN DUST**

Rule	Applicability	Control Measure
SJVAPCD Rule 4550 – Conservation Management Practices (includes District CMP handbook and CMP list) (Re-adopted 8/19/04)	<p>Applies to agricultural operation sites</p> <p><u>Exceptions:</u></p> <ul style="list-style-type: none"> • Agricultural operation sites less than 100 acres; • Woodland and wasteland not under cultivation or used for pasture; • Agricultural operation sites with low limit thresholds for the number of dairy cows, cattle turkeys, chickens, or laying hens 	<p>Conservation management practices (CMPs) are provided for:</p> <ul style="list-style-type: none"> • Poultry Operation: Open Areas (Vegetation, Reduced Tillage, Windblocks, Dust Suppressants) • Overall Management/Feeding: Dairy and Feedlot Operations (Downwind Shelterbelts/Boundary Trees, Bulk Materials Control) • Cropland: Other (Alternate Till, Wind Barrier, Surface Roughening, Permanent Crops, Mulching, Cover Crops, Bulk Materials Control, Night Farming) • Poultry Operations: Manure Handling & Storage (Outdoor Storage, Time of Manure Spreading) • Owner shall implement applicable CMPs, after preparing and submitting a CMP application to the Air Pollution Control Officer (APCO) for approval, for each agricultural operation site. This shall be done no later than ten days after notification by the APCO of the CMP application approval.
SJVAPCD Rule 8051 – Open Areas (Amended 9/21/23)	<p>Applies to any open area with at least 0.5 acres within urban areas or 3.0 acres within rural areas and at least 1,000 square feet of disturbed surface area.</p> <p><u>Exemptions:</u></p> <ul style="list-style-type: none"> • Exemptions listed in 8011; Any weed abatement activity utilizing mowing and/or cutting, and which leaves at least three inches of stubble immediately after such mowing/cutting has occurred. 	<p><u>Control measures include:</u></p> <ul style="list-style-type: none"> • Apply and maintain water or dust suppressants to all unvegetated areas; • Establish vegetation on all previously disturbed areas; • Pave, apply and maintain gravel, or apply and maintain chemical/organic stabilizers/suppressants. <p><u>For open areas:</u> Implement, apply, maintain, and reapply, if necessary, at least one or a combination of the Control Measures to comply at all times with the conditions for a stabilized surface and limit VDE to</p>

Rule	Applicability	Control Measure
		<p>20% opacity as defined in Rule 8011.</p> <p><u>For vehicle use in open areas:</u> Prevent unauthorized vehicle access upon evidence of trespassing by posting “No Trespassing” signs or installing physical barriers such as fences, gates, posts, and/or other appropriate barriers to effectively prevent access to the area.</p>
<p>SJVAPCD Rule 8081 – Agricultural Sources (Amended 9/16/04)</p>	<p>This rule applies to off-field agricultural sources.</p> <p><u>Exemptions:</u></p> <ul style="list-style-type: none"> On-field agricultural sources; Any outdoor storage, handling, or transport of bulk materials that would be damaged by wetting; Outdoor storage of any bulk storage at a single site where no material is actively being added or removed and the area size is less than 100 cubic yards; Transport of bulk materials in an outdoor area for a distance of twelve feet or less with the use of a chute or conveyor device. 	<p><u>Control measures include:</u></p> <ul style="list-style-type: none"> Apply water or suitable chemical/organic stabilizers/suppressants; Construct and maintain wind barriers with less than 50% porosity. <p><u>Control measures for storage of bulk materials:</u></p> <ul style="list-style-type: none"> Comply with conditions for a stabilized surface; Cover bulk materials with tarps, plastics, or other suitable materials and anchor the cover; Construct and maintain fences or wind barriers with less than 50% porosity along with applying water or suitable chemical/organic stabilizers/suppressants; Utilize a 3-sided structure with a height at least equal to the height of the storage pile and with less than 50% porosity. <p><u>Control measures for on-site transporting of bulk materials:</u></p> <ul style="list-style-type: none"> Limit vehicular speed while traveling; Load all haul trucks such that the freeboard is not less than 6 inches when material is transported on any paved public access road and apply water to the top of the load or cover haul trucks with a suitable closure. <p><u>Control measures for off-site transporting of bulk materials:</u></p> <ul style="list-style-type: none"> Clean the interior of the cargo

Rule	Applicability	Control Measure
		<p>compartment or cover the cargo compartment before the empty truck leaves the site;</p> <ul style="list-style-type: none"> • Prevent spillage or loss of bulk material from cargo openings; • Load all haul trucks such that the freeboard is not less than 6 inches when material is transported on any paved public access road and apply water to the top of the load or cover haul trucks with a suitable closure. <p><u>Control measures for outdoor transport of bulk materials with a chute or conveyor:</u></p> <ul style="list-style-type: none"> • Fully enclose the chute or conveyor; • Operate water spray equipment that wets materials; • Wash separated or screened materials to remove conveyed materials. • Implement a 20% opacity VDE limit or comply with the conditions for a stabilized surface (as defined in Rule 8011), using the control measures listed above, prior to doing any outdoor handling, storage, and transporting of bulk materials.
<p>ICAPCD Rule 804 – Open Areas (Amended 9/11/18)</p>	<p>Applies to any open area with at least 0.5 acres within urban areas or 3.0 acres within rural areas and at least 1,000 square feet of disturbed surface area.</p> <p><u>Exemptions:</u></p> <ul style="list-style-type: none"> • Exemptions listed in ICAPCD Rule 800, Section E; • Agricultural Operation Sites subject to ICAPCD Rule 806; • Recreational OHV Use Areas on public lands subject to ICAPCD Rule 800. 	<p><u>Control measures include:</u></p> <ul style="list-style-type: none"> • Apply and maintain water or dust suppressant(s) to all unvegetated areas; • Establish vegetation on all disturbed areas; • Pave, apply and maintain Gravel, or apply and maintain Chemical Stabilizers/Suppressants; • Implement alternative BACM if approved by both the APCD and EPA. Alternative BACM may be approved by the APCD and EPA in accordance with a technical evaluation demonstrating that the proposed alternative BACM achieves particulate matter emission

Rule	Applicability	Control Measure
		<p>reductions equivalent to the BACM measures identified above and that the dust control method will achieve a stabilized surface and meet the 20% opacity requirement.</p> <p><u>For open areas:</u></p> <ul style="list-style-type: none"> • Comply with one or more of the Control Measures to comply with the conditions of a Stabilized Surface (as defined in ICAPCD Rule 800) and limit VDE to 20% opacity. <p><u>For vehicle use in open areas:</u></p> <p>Within 30 days following initial discovery of evidence of trespass, prevent unauthorized vehicle access by posting “No Trespassing” signs or installing physical barriers such as fences, gates, posts, and/or appropriate barriers to effectively prevent access to the area.</p>

Rule	Applicability	Control Measure
<p>Clark County Division of Air Quality (CCDAQ) Section 90 — Fugitive Dust from Open Areas and Vacant Lots (Amended 1/21/2020)</p>	<p>The provisions of this regulation shall apply to Open Areas and Vacant Lots which are located in a PM10 nonattainment area.</p> <p><u>Exemptions:</u></p> <ul style="list-style-type: none"> • Farm cultural practices or the raising of fowl or animals. • Stationary sources, defined as buildings, structures, facilities, or installations that emit or may emit any regulated air pollutant, except that these control measures shall be considered as part of a BACT determination. 	<p>One or more of the following control measures shall be applied to open areas and vacant lots greater than 5,000 square feet that are disturbed:</p> <ul style="list-style-type: none"> • Prevent motor vehicle and/or off-road vehicle trespassing, parking, and/or access by installing barriers, curbs, fences, gates, posts, signs, shrubs, trees, or other effective traffic control measures where there is evidence of soil disturbance; • Uniformly apply and maintain surface gravel or Dust Palliatives to all areas disturbed by Motor Vehicles in compliance with one of the stabilization standards described in this rule; • Apply and maintain an alternative control measure approved in writing by the Control Officer and the Region IX EPA Administrator. <p>One or more of the following control measures shall be applied if machinery is used to clear weeds and/or trash from open areas and vacant lots greater than 5,000 square feet:</p> <ul style="list-style-type: none"> • Pre-wet surface soils before mechanized weed abatement and/or trash removal occurs; • Maintain dust control measures while mechanized weed abatement and/or trash removal is occurring; • Pave, apply gravel, apply water, or apply a suitable Dust Palliative after mechanized weed abatement and/or trash removal occurs. <p>Submit dust mitigation plans for open areas and vacant lots having a cumulative area of 10,000 acres or greater.</p>

Our evaluation of available control measures for this category did not identify any available measures that are not being implemented in South Coast AQMD rules. Each of these rules requires the use of one or more control measures that requires the applicable sources to meet at least one of three conditions:

- Maintain a stabilized surface (e.g., any disturbed surface area or open bulk storage pile that is resistant to windblown fugitive dust emissions); or
- A 20 percent opacity VDE limit; or
- A three-sided walled enclosure with no more than 50 percent porosity.

Typically, those conditions need to be met for the applicable source to be in compliance with the rule. Evaluation of control measures in other jurisdictions in Table V-27 did not identify any potential new control measures to consider as contingency measures. In fact, some of South Coast AQMD's source-specific rules require more stringent opacity and porosity requirements compared to other districts' rules. For example, Rule 1156 requires a three-sided walled enclosure with a maximum 20 percent porosity, and Rule 1158 limits visible emissions to 10 percent opacity, both of which are more stringent than control measures in other jurisdictions. In addition, Rule 403 has lower thresholds (0.1 acres or 500 square feet of vehicle-driven area) for vacant lots, compared to SJVAPCD (0.5 acres for urban or 3.0 acres for rural area and 1,000 square feet of disturbed surface area), ICAPCD (0.5 acres for urban or 3.0 acres for rural area and 1,000 square feet of disturbed surface area), or CCDAQ (5,000 square feet of disturbed surface area).

c. Conclusion

Stringent requirements for fugitive windblown dust are already in place in the Basin, and staff did not identify any potential contingency measures that could be triggered within 2 years and achieve quantifiable emission reductions.

3. Fires

Source Category 660 – Fires includes emissions from automobile fires and structure fires. The structural fire subcategory includes residential and commercial structures as well as mobile home fires. The fires source category contributes 0.41 tpd direct PM_{2.5}, 0.08 tpd NO_x, and zero NH₃ emissions to the 2030 emissions inventory. The reported emissions are based on the number of vehicle fires per year and based on structural fires data from California Fire Incident Reporting System from the California State Fire Marshall's Office.¹⁰³ Considering the fires under this source category are non-routine and unpredictable, no control measures have been identified to mitigate emissions from these sources.

4. Managed Burning and Disposal (Open Burning)

a. Overview

Source category 670 – Managed Burning and Disposal consists of numerous sub-categories including various agricultural burning, forest management, and non-agricultural open burning. This source category

contributes 0.08 tpd direct PM2.5, 0.29 tpd NOx, and 0.03 NH3 emissions to the 2030 emissions inventory. Over 80 percent of the emissions involve range improvement and prescribed burning. South Coast AQMD Rule 444 – Open Burning has strict requirements for when and which types of burns are allowed.

1. Burning of Agricultural Materials:

Agricultural burning involves open burning of vegetative materials produced from growing and harvesting of crops. It includes the burning of grass and weeds in fence rows, ditch banks and berms in no-till orchard operations, the burning of fields being prepared for cultivation, the burning of agricultural wastes, and the operation or maintenance of a system for the delivery of water for agricultural operations.

2. Land Management and Hazard Reduction Burning:

Prescribed burning is the planned application of fire conducted by state and federal land managers, local governments, utilities and private land owners to meet planned resource management objectives, such as forest management, wildlife habitat management, range improvement, fire hazard reduction, wilderness management, weed abatement, watershed rehabilitation, vegetation manipulation, disease and pest prevention, and ecosystem management. Hazard reduction burning involves the disposal of dry brush surrounding homes and businesses in the wildland-urban interface in order to ensure a barrier of fire protection of 100 feet in all directions.

b. Evaluation

Table V-31 summarizes Rule 444 requirements and Table V-32 summarizes the control measures in other jurisdictions.

TABLE V-31
RULE 444 REQUIREMENTS

Applicability	Requirements
<ul style="list-style-type: none"> • Agricultural burning • Disposal of Russian thistle • Prescribed burning • Fire prevention/suppression training; • Open detonation or use of pyrotechnics • Fire hazard removal • Disposal of infectious waste, other than hospital waste, research of testing materials, equipment or techniques • Disposal of contraband • Residential burning • Beach burning. <p>Exemptions:</p> <ul style="list-style-type: none"> • Fire suppression training by fire agencies • Open burning to protect crops from freezing • Open burning on islands located 15 miles or more from the mainland • Fireworks display • Explosives detonation • Recreational and ceremonial fires • Food preparation fires and fires for warmth at social gatherings. 	<ul style="list-style-type: none"> • No specific agricultural crop phase outs or bans. • Burning of waste/garbage is prohibited. • No burning except on permissive burn days or marginal burn days on which burning is permitted in the applicable source or receptor area, and such burning is not prohibited by the applicable public fire protection agency. • Specific requirements for burn authorization requests and permit conditions for each category of burning.

**TABLE V-32
OTHER CONTROL MEASURES CONSIDERED (MANAGED BURNING AND DISPOSAL)**

Measure	Applicability	Requirements
SJVAPCD Rule 4103 – Open Burning (Amended 4/15/10)	<p>Open burning conducted in the San Joaquin Valley Air Basin, except for prescribed burning and hazard reduction burning (regulated under District Rule 4106)</p> <p>Exemptions:</p> <ul style="list-style-type: none"> • Fires used for cooking, campfires, and religious fires with clean fuel, dry wood or charcoal • Emergency burning by a fire agency • Respectful burning of an unserviceable American Flag • Bags used for agricultural chemicals • Raisin trays. 	<ul style="list-style-type: none"> • No burning of garbage or other materials • Burning shall be allocated by the APCO dependent on dispersion conditions and shall avoid negative impacts to receptors • No permit shall be issued for the burning of the field crops, prunings, weed abatement, orchard removals, vineyard removals, surface harvested prunings and other materials, except for crops covered by section 5.5.2 • Additional requirements for burning times, drying times, contraband burning • Permit required for burning of Russian Thistle • Conditional burning permit required for diseased materials with specific requirements • Burn plans required for fire suppression training, burning of contraband

Measure	Applicability	Requirements
SJVAPCD Rule 4106 – Prescribed Burning and Hazard Reduction Burning (Adopted 6/21/01)	Applies to all prescribed burning and to hazard reduction burning in wildland-urban interface.	<ul style="list-style-type: none"> No burning of garbage or green waste District allocates burning permits based on predicted meteorological conditions and whether contaminants could create or contribute to an exceedance of an ambient air quality standard or impact smoke sensitive areas Requirements such as minimizing smoke, ignition devices, keeping vegetation free of dirt, soil, and moisture Requirement for prescribed burn conductors to complete prescribed burning smoke management training class approved by the APCO Permits required for all hazard reduction burning, valid only on days that burning is not prohibited by the CARB, by the District
BAAQMD Regulation 5 – Open Burning (Adopted 11/20/19)	<p>Open burning activities Exemptions:</p> <ul style="list-style-type: none"> Fires set only for cooking Fires burning as safety flares or for the combustion of waste gases Flame cultivation when the burning is performed with LPG or natural gas-fired burners designed and used to kill seedling grass and weeds and the growth is such that the combustion will not continue without the burner Fires set for the purposes of fire training using one gallon or less of flammable liquid per fire. 	<ul style="list-style-type: none"> No specific agricultural crop phase-outs or bans Recreational fires allowed on non-curtailement days On permissive burn days, numerous select fire types are allowed with permission from the APCO.

Measure	Applicability	Requirements
SMAQMD Rule 501 – Agriculture Burning (Amended 4/3/97)	<p>Agricultural burning, including:</p> <ul style="list-style-type: none"> • Agricultural waste disease prevention • Range improvement • Forest, wildlife and game habitat, irrigation system, and wild land vegetation management • Paper containers of agricultural chemicals. <p>Contains similar exemptions as San Joaquin Valley for agricultural operations, including burning of bags used for agricultural chemicals and emergency agricultural burns which would cause</p>	<ul style="list-style-type: none"> • No specific crop phase outs or bans (subject to air basin-wide rice burning reduction) • Permit holder must contact District for permission to burn and ensure that it is not a no-burn day and must contact the fire protection agency having jurisdiction over the burn location • Contains specific drying time requirements for different agricultural materials.
VCAPCD Rule 56 – Open Burning (Adopted 11/11/03)	<p>Combustible materials in open outdoor fires Exemptions:</p> <ul style="list-style-type: none"> • Fires used only for the heating or cooking of food for human consumption • Recreational fires confined to a fireplace or barbecue pit • Flag burning • Fire suppression training • Fire agency or public officer may set fires to reduce hazards as needed. 	<ul style="list-style-type: none"> • No specific crop phase-outs or bans • Permit required for open burning • Burning only allowed on permissive burn days • Open burning allowed for the disposal of agricultural wastes in the pursuit of agricultural operations, range improvement burning, wildland vegetation management burning, levee, reservoir, or ditch maintenance and the disposal of Russian thistle • Burn times, drying times, and permit conditions also specified.

Measure	Applicability	Requirements
PCAPCD Rule 301 – Nonagricultural Burning Smoke Management (Amended 8/9/18)	<p>Open outdoor fires, including the use of burn barrels</p> <p>Exemptions:</p> <ul style="list-style-type: none"> • Fire hazard reduction burning • Public officer waiver • Recreational or cooking fire • American Flag • Open burning conducted by public officers. 	<ul style="list-style-type: none"> • No person shall ignite or allow open outdoor burning without a valid burn permit from the District for fire hazard reduction, mechanized burner, open burning conducted by public officers, right of way clearing, levee, ditch and reservoir maintenance. • Separate burn permit required from fire protection agency with jurisdiction in area of the proposed burn project. • Air Pollution Control Officer may prohibit or add additional specific burn permit conditions.

Staff did not identify any more stringent requirements in other districts' rules except SJVAPCD's near-complete prohibition of agricultural burning by 2025. Staff evaluated potential control measures for agricultural, prescribed, and training burns as part of the BACM/MSM analysis in Appendix III. The analysis found that agricultural burning is extremely limited in the Basin and the high incremental cost of chipping and grinding compared to burning renders this measure infeasible. Further, reductions that would be achieved (< 0.01 tpd PM_{2.5}) would have an inconsequential impact on air quality. Regarding prescribed burns, Appendix III discusses why it is infeasible to place additional restrictions on a critical public safety program that is proven to reduce wildfire severity. For the same reasons, it is unreasonable to consider a contingency measure for prescribed burns.

c. Conclusion

Staff does not propose any contingency measures for this source category. Appendix III provides detailed discussions on the prescribed burns category.

5. Commercial Cooking

a. Overview

Source category 690 – Commercial Cooking mostly includes emissions from commercial charbroiling, deep fat frying, and general cooking. The majority of emissions in this category come from charbroiling, which consists of two types of commercial charbroilers: chain-driven and under-fired. A chain-driven charbroiler

is a semi-enclosed broiler that moves food mechanically through the device on a grated grill to cook the food for a specific amount of time. An under-fired charbroiler has a metal "grid," a heavy-duty grill similar to that of a home barbecue, with gas burners, electric heating elements, or solid fuel (wood or charcoal) located under the grill to provide heat to cook the food. Under-fired charbroilers are widely used in commercial kitchens to cook meats, including beef, burgers, and chicken. These heavy-duty appliances commonly use evenly spaced, gas-fired burners to produce direct-flame, radiant heat a few inches below slatted, cast-iron cooking surfaces.²⁹ The slatted cooking surface allows fat, oil, and grease (FOG) from the meat to fall into the burner flames, which produces flaring that brings the flame into direct contact with the meat. Charbroilers do not include flat-top or plancha grills with continuous cooking surfaces that prevent the flame from directly contacting the meat.

Commercial cooking sources contribute 12.30 tpd direct PM_{2.5} emissions and zero NO_x and NH₃ emissions to the 2030 emissions inventory. Commercial charbroiling contributes about 75 percent of the PM_{2.5} emissions from commercial cooking. The remaining emissions are identified as "unspecified cooking operations." Therefore, the remainder of this analysis focuses on commercial charbroiling emissions.

The primary source of PM_{2.5} from charbroiling is the burning of FOG and entrainment of the resulting aerosols in the products of combustion from the cooking flames. It is estimated that greater than 85 percent (by weight) of FOG particles from under-fired charbroilers have aerodynamic diameters less than 1 μ m.³⁰ The smoke and vapors generated by cooking on either type of charbroiler contain water, VOC, and PM. Larger particles and grease are typically captured by the grease filter of the ventilation hood over the charbroiler. The remaining VOC and particulate pollution are exhausted unless a secondary control is installed.

Catalytic oxidizers are used to control PM_{2.5} emissions from chain-driven charbroilers, but they are not effective for reducing emissions from under-fired charbroilers. For under-fired charbroilers, the exhaust from these devices loses heat as it is directed to the control device, and the reactions at the catalyst cannot take place under these lower temperatures. In a chain-driven charbroiler, charbroiling exhaust is directed through the catalytic oxidizer with little loss of temperature. Thus, electrostatic precipitators (ESP) and filter media are anticipated to be the potential control technologies for reducing PM_{2.5} emissions from

²⁹ Specifications for Commercial Hoods and Kitchen Ventilation in the 2019 California Mechanical Code are classified under four duty categories: light, medium, heavy, and extra-heavy duty cooking service. Gas underfired charbroilers are listed as heavy-duty cooking appliances. Charbroilers utilizing solid fuel (e.g., charcoal, wood) are classified as extra-heavy-duty and are outside the scope of this evaluation. Available at <https://epubs.iapmo.org/2019/CMC/index.html#p=136>

³⁰ South Coast AQMD, Approve and Adopt Technology Advancement Office Clean Fuels Program 2017 Annual Report and 2018 Plan Update and Resolution, Receive and File Revised Membership of Technology Advancement Advisory Group, and Approve and Adopt Membership Changes for Clean Fuels Advisory Group (March 2, 2018). Available at <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2018/2018-mar2-034.pdf> (accessed June 16, 2022)

under-fired charbroilers.³¹

b. Evaluation

Rule 1138 reduces emissions by requiring catalytic oxidizers for chain-driven charbroilers that cook greater than or equal to 875 pounds of meat per week. Currently, Rule 1138 does not require emissions controls for under-fired charbroilers.

A thorough evaluation of the stringency of Rule 1138 as it compares to other districts' rules was conducted as part of the BACM/MSM analysis in Appendix III. Staff concluded that the applicability threshold for chain-driven charbroilers in Rule 1138 would need to be lowered to satisfy MSM requirements and, therefore, BCM-12 – Further Emission Reductions from Commercial Cooking is included in the control strategy.

c. Conclusion

The BACM/MSM analysis in Appendix III contains an exhaustive evaluation of potential controls for this source category and staff did not identify any areas where the analysis could be expanded. Therefore, there are no potential contingency measures for charbroilers that would be surplus to the control strategy.

6. Other (Miscellaneous Processes)

There are no direct PM_{2.5} or NO_x emissions from this source category; however, there are 28.03 tpd of NH₃ emissions in the 2030 baseline. Humans and pets are the source of these NH₃ emissions and it would therefore be unreasonable to propose contingency measures for this source category.

³¹ San Joaquin Valley Air Pollution Control District. *Commercial Underfired Charbroiler Emissions Control Technologies*. Available at <http://www.valleyair.org/Grants/documents/rctp/Charbroiler-Control-Technologies.pdf> (accessed 06/01/2022)

**South Coast Air Basin Attainment Plan for the 2012
Annual PM2.5 Standard**

**ATTACHMENT A: California Smog Check
Contingency Measure State Implementation
Plan Revision**

California Smog Check Contingency Measure State Implementation Plan Revision

Released: September 15, 2023



Table of Contents

California Smog Check Contingency Measure State Implementation Plan Revision.....	1
Executive Summary.....	1
Section 1. Contingency Requirements and Litigation.....	5
Section 2. CARB’s Opportunities for Contingency Measures.....	7
Section 3. California Smog Check Program.....	13
Section 4. Smog Check Contingency Measure	15
A. Implementation	16
B. Title VI and Environmental Justice.....	17
C. Fiscal Impacts to State Programs	20
D. CEQA.....	23
Section 5. Nonattainment Area Analyses.....	24
A. Coachella Valley	24
B. Eastern Kern County	26
C. Mariposa County	28
D. Sacramento Metro Area	29
E. San Diego County	31
F. San Joaquin Valley	33
G. South Coast Air Basin	36
H. Ventura County.....	38
I. West Mojave Desert	39
J. Western Nevada County	41
Section 6. Staff Recommendation.....	43

Appendix A: Infeasibility Analysis	44
Infeasibility Analysis	45
Measure Analysis.....	45
Appendix B: Smog Check Contingency Measure Emissions Benefits Methodology.....	59
Smog Check Contingency Measure Emissions Benefits.....	60
Review Of Current Information	60
Approach	61
Instructions For Configuring and Running EMFAC2011.....	62
Appendix C: Carl Moyer Program Emissions Impacts Analysis Methodology.....	67
Moyer Program Emissions Reductions Estimates Methodology	68
Appendix D: California Health and Safety Code § 44011(a)(4)(A) and (B)	70

Executive Summary

The *California Smog Check Contingency Measure State Implementation Plan Revision* (Measure) addresses State Implementation Plan (SIP) contingency measure requirements of the federal Clean Air Act (Act) for certain areas designated as nonattainment of the national ambient air quality standards (NAAQS or standards) within the State. This Measure is necessary to address contingency measure requirements and respond to recent court actions to meet statutory deadlines related to contingency measures. This Measure includes an action that is triggered if a nonattainment area fails to attain by the applicable attainment date, fails to meet a reasonable further progress (RFP) milestone, fails to meet a quantitative milestone, or fails to submit a required quantitative milestone report or milestone compliance demonstration (collectively referred to as “Triggering Events”).

The Motor Vehicle Inspection and Maintenance Program (Smog Check Program) is a vehicle inspection and maintenance program administered by the California Bureau of Automotive Repair (BAR) that identifies vehicles with faulty emission control components. Smog Check inspections are required biennially as a part of the vehicle registration process and/or when a vehicle changes ownership or is registered for the first time in California. In 2017, Assembly Bill (AB) 1274 added Health and Safety Code (H&SC) § 44011(a)(4)(B)(ii) which allowed vehicles eight or less model-years old to be exempt from requirements for Smog Check inspections. In lieu of an inspection, this law requires seven and eight model-year old vehicles owners to pay an annual Smog Abatement Fee of \$25, \$21 of which goes to the Air Pollution Control Fund for use to incentivize clean vehicles and equipment through the Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program). This law also specifies that this exemption is allowed unless CARB determines that exempting these vehicles prohibits the State from meeting SIP commitments. At that time, the AB 1274 analysis¹ indicated that the emissions reductions from the increase in funding to the Moyer Program would outweigh the benefits of requiring seven and eight model-year old vehicles to obtain a Smog Check inspection.

CARB staff has now determined that removal of these exemptions may be needed to meet the contingency measure SIP requirements. CARB staff has also determined that in all of the relevant nonattainment areas, requiring a Smog Check inspection on eight model-year old vehicles provides more emission reductions than the potential loss in Moyer Program emission reductions that would result from the foregone funding. In 2017, when AB 1274 enacted this change in Smog Check exemptions, the benefit from additional funding for Moyer Program projects was estimated to outweigh the disbenefit from exempting additional vehicles. However, since 2017 the Program has successfully incentivized the

¹ *Bill Analysis - AB-1274 Smog check: exemption. (ca.gov)*

turnover of many dirty engines and equipment and Moyer Program projects are now less cost-effective than before, resulting in a net benefit from this Measure.

If a Triggering Event occurs, the Measure would:

- Change the existing smog check inspection exemptions in the California Smog Check Program in the applicable nonattainment area(s);
- Apply to the California nonattainment area(s) and standard(s) for which the Triggering Event occurs, from those listed on the next page in Table 1.; and
- Be implemented within 30 days of the effective date of a U.S. EPA finding that a Triggering Event occurred.

Seven areas in California under State jurisdiction are designated as nonattainment for the 75 parts per billion (ppb) 8-hour ozone standard, and ten areas in California under State jurisdiction are designated as nonattainment for the 70 ppb 8-hour ozone standard, with classifications of Moderate, Serious, Severe or Extreme. Additionally, the San Joaquin Valley is designated as nonattainment for the 80 ppb 8-hour ozone standard, the 12 microgram per meter cubed ($\mu\text{g}/\text{m}^3$) annual, 15 $\mu\text{g}/\text{m}^3$ annual, and 35 $\mu\text{g}/\text{m}^3$ 24-hour PM_{2.5} standards. The South Coast Air Basin is also designated as nonattainment for the 12 $\mu\text{g}/\text{m}^3$ annual PM_{2.5} standard. For all of these standards, nonattainment areas were or will be required to submit SIP revisions meeting contingency measure and other applicable requirements of the Act.

CARB staff has worked with local air districts to prepare contingency measure SIP revisions which were adopted and submitted to the U.S. Environmental Protection Agency (U.S. EPA) through CARB. Further, in 2018, CARB staff submitted the [*2018 Updates to the California State Implementation Plan*](#) (2018 SIP Update) which included a statewide contingency measure that was developed following U.S. EPA guidance available at the time. However, multiple lawsuits challenging U.S. EPA's interpretation of the Act led to U.S. EPA's determination that the previously submitted 2018 SIP Update contingency measures did not fully meet the Act's requirements. CARB staff is now proposing to submit the Measure to be consistent with U.S. EPA's current interpretation of the contingency measure provisions of the Act. The Measure as included in this SIP revision will be applicable for the California nonattainment areas and standards as listed in Table 1.

Table 1. Nonattainment Areas and Applicable Standards

Area	Applicable Standards
Coachella Valley	70 ppb Ozone, 75 ppb Ozone
Eastern Kern County	70 ppb Ozone, 75 ppb Ozone
Mariposa County	70 ppb Ozone
Sacramento Metro Area	70 ppb Ozone, 75 ppb Ozone
San Diego County	70 ppb Ozone, 75 ppb Ozone
San Joaquin Valley	70 ppb Ozone, 75 ppb Ozone, 80 ppb Ozone, 15 µg/m ³ PM2.5, 35 µg/m ³ PM2.5, 12 µg/m ³ PM2.5
South Coast Air Basin	12 µg/m ³ PM2.5, 70 ppb Ozone, 75 ppb Ozone
Ventura County	70 ppb Ozone
Western Mojave Desert	70 ppb Ozone, 75 ppb Ozone
Western Nevada	70 ppb Ozone

CARB staff initiated the public process with release of a concept document and workshop in August 2023 to solicit input from the public. The concept document and other materials were available in English and Spanish, and the workshop provided a forum in both English and Spanish for the proposed Measure to be discussed in a public setting and provide additional opportunity for public feedback, input, and ideas. CARB staff also analyzed the impacts of the Measure on vehicle owners in disadvantaged communities (DACs). CARB staff compared the proportion of the vehicles subject to the Measure if triggered to those registered in DACs to the proportion of vehicles subject to the Measure in total using DMV data. CARB staff found that, in all nonattainment areas, the proportion of vehicle owners potentially impacted by the Measure, if triggered, is not disproportionate to the population as a whole.

CARB staff has determined that the Measure meets the Act contingency measure requirements and that exercising H&SC § 44011(a)(4)(B)(ii) is needed to meet the SIP requirements.

Further, CARB staff last submitted updates to the Smog Check Program to U.S. EPA for incorporation into the California SIP in 2009 and U.S. EPA approved them on July 1, 2010.² As previously mentioned, the additional exemptions from the Smog Check Program were made by AB 1274 in 2017. As a part of this SIP revision, CARB staff is submitting H&SC § 44011(a)(4)(A) and (B) into the California SIP to incorporate these changes in the Smog Check Program.

The Board is scheduled to consider the Measure on October 26, 2023. CARB staff recommends the Board to adopt the Measure addressing contingency measure requirements for the applicable standards and nonattainment areas as listed in Table 1 and approve submittal into the California SIP of California H&SC sections 44011(a)(4)(A) and (B). If adopted, CARB staff will submit the Measure and H&SC sections 44011(a)(4)(A) and (B) to U.S. EPA as a revision to the California SIP.

² 75 Fed. Reg. 38023 (July 1, 2010)

Section 1. Contingency Requirements and Litigation

The Clean Air Act ("Act") specifies that SIPs must provide for contingency measures, defined in section 172(c)(9) as "specific measures to be undertaken if the area fails to make reasonable further progress (RFP), or to attain the national primary ambient air quality standard by the attainment date...."³ The Act is silent though on the specific level of emission reductions that must flow from contingency measures. In the absence of specific requirements for the amount of emission reductions, in 1992, U.S. EPA conveyed that the contingency measures should, at a minimum, ensure that an appropriate level of emissions reduction progress continues to be made if attainment of RFP is not achieved and additional planning by the State is needed (57 Federal Register 13510, 13512 (April 16, 1992)). While U.S. EPA's ozone guidance states "contingency measures should represent one year's worth of progress amounting to reductions of 3 percent of the baseline emissions inventory for the nonattainment area", U.S. EPA has accepted contingency measures that equal less than one year's worth of RFP in some situations. Specifically, U.S. EPA has historically accepted lesser amounts as they see appropriate considering "U.S. EPA's long-standing recommendation that states should consider 'the potential nature and extent of any attainment shortfall for the area' and that contingency measures 'should represent a portion of the actual emissions reductions necessary to bring about attainment in the area.'"⁴

In recent years, court decisions, as described below, have excluded a category of contingency measures from what U.S. EPA may properly approve. Historically, U.S. EPA allowed contingency measure requirements to be met via excess emission reductions from ongoing implementation of adopted emission reduction programs. In the past, CARB used this method to meet contingency measure requirements. In 2016, in *Bahr v. U.S. Environmental Protection Agency*⁵ (*Bahr*), the Ninth Circuit determined U.S. EPA erred in approving a contingency measure that relied on an already-implemented measure for a nonattainment area in Arizona, thereby rejecting U.S. EPA's longstanding interpretation of section 172(c)(9) of the Act. U.S. EPA staff interpreted this decision to mean that contingency measures must include a future action triggered by a Triggering Event. This decision was applicable to only the states covered by the Ninth Circuit. In the rest of the country, U.S. EPA still allowed contingency measures using their pre-Bahr stance. In January 2021, in *Sierra Club v. Environmental Protection Agency*⁶, the United States Court of Appeals for the D.C. Circuit, ruled that already implemented measures do not qualify as contingency measures for the rest of the country (*Sierra Club*).

³ 42 U.S.C. § 7502(c)(9).

⁴ See, e.g. 78 Fed.Reg. 37741, 37750 (Jun. 24, 2013), approval finalized with 78 Fed.Reg. 64402 (Oct. 29, 2013).

⁵ *Bahr v. U.S. Environmental Protection Agency*, (9th Cir. 2016) 836 F.3d 1218.

⁶ *Sierra Club v. Environmental Protection Agency*, (D.C. Cir. 2021) 985 F.3d 1055.

In response to *Bahr* and as part of the 75 ppb 8-hour ozone SIPs due in 2016, CARB staff developed the statewide Enhanced Enforcement Contingency Measure (Enforcement Contingency Measure) as a part of the *2018 Updates to the California State Implementation Plan* to address the need for a triggered action as a part of the contingency measure requirement. CARB staff worked closely with U.S. EPA regional staff in developing the contingency measure package that included the triggered Enforcement Contingency Measure, a district triggered measure and emission reductions from implementing CARB's mobile source emissions program. However, as part of the *San Joaquin Valley 2016 Ozone Plan for 2008 8-hour Ozone Standard* SIP action, U.S. EPA wrote in their final approval that the Enforcement Contingency Measure did not satisfy requirements to be approved as a "standalone contingency measure" and approved it only as a "SIP strengthening" measure⁷. U.S. EPA did approve the San Joaquin Valley Air Pollution Control District triggered measure and the implementation of the mobile reductions along with a CARB emission reduction commitment as meeting the contingency measure requirement for this SIP.

Subsequently, the Association of Irrigated Residents filed a lawsuit against the U.S. EPA for its approval of various elements within the *San Joaquin Valley 2016 Ozone Plan for 2008 8-hour Ozone Standard*, including the contingency measure. The Ninth Circuit issued its decision in *Association of Irrigated Residents v. EPA*⁸ (*AIR*) that U.S. EPA's approval of the contingency element was arbitrary and capricious and rejected the triggered contingency measure that achieves much less than one year's worth of RFP. Most importantly, the Ninth Circuit said that, in line with U.S. EPA's longstanding interpretation of what is required of a contingency measure and the purpose it serves, together with *Bahr*, all reductions needed to satisfy the Act's contingency measure requirements must come from the contingency measure itself. The Ninth Circuit also said that the amount of reductions needed for contingency should not be reduced absent U.S. EPA adequately explaining its change from its historic stance on the amount of reductions required. U.S. EPA staff has interpreted *AIR* to mean that triggered contingency measures must achieve the entirety of the amount of emission reductions needed for the contingency measure requirement on their own. In addition, surplus emission reductions from ongoing programs cannot reduce the amount of reductions needed for the contingency measure requirements.

In response to *Bahr* and *Sierra Club*, in 2021, U.S. EPA convened a nationwide internal task force to develop guidance to support states in their development of contingency measures. The draft guidance was released in March 2023 and is currently undergoing a public review process. The draft guidance proposes a new method for how to calculate one year's worth of progress for the targeted amount of contingency measures reductions and provides new clarification on the reasoned justification U.S. EPA requires to facilitate approval of contingency measures with lesser amounts of reductions. Per the draft guidance, such a

⁷ 87 Fed. Reg. 59688 (October 3, 2022)

⁸ *Association of Irrigated Residents v. U.S. Environmental Protection Agency*, (9th Cir. 2021) 10 F.4th 937

reasoned justification would need to include an infeasibility analysis detailing why there are insufficient measures to meet one year's worth of progress. U.S. EPA relied on the draft guidance when they proposed a federal implementation plan to meet the PM2.5 contingency measure requirements in the San Joaquin Valley on August 8, 2023⁹.

Section 2. CARB's Opportunities for Contingency Measures

Much has changed since U.S. EPA's 1992 guidance on contingency measures. Control programs across the country have matured as have the health-based standards. U.S. EPA strengthened ozone standards in 1997, 2008 and 2015 with attainment dates out to 2037 for areas in "extreme" nonattainment. California has the only three extreme ozone nonattainment areas in the country for the 2015 ozone NAAQS. Extreme ozone nonattainment areas are allowed to use a provision in the Act where emission reduction measures can wait for technology to advance. California also has multiple PM2.5 nonattainment areas with the highest possible classification and greatest attainment challenges. Thus, control measures are needed for meeting the NAAQS as expeditiously as possible, rather than being held in reserve.

To address contingency measure requirements given the courts' decisions and U.S. EPA's draft guidance, CARB staff and local air districts would need to develop a measure or measures that, when triggered by a Triggering Event, will achieve one year's worth of progress for the given nonattainment area unless it is determined that it is infeasible to achieve one year's worth of emission reductions. Given CARB's wide array of mobile source control programs, the relatively limited portion of emissions primarily regulated by the local air districts, and the fact that primarily-federally regulated sources are expected to account for approximately 52 percent of statewide nitrogen oxides (NOx) emissions by 2037¹⁰, finding triggered measures that will achieve the required reductions is nearly impossible. That said, even discounting the amount to reflect the proportion of sources that are primarily federally regulated, additional control measures that can be identified by CARB staff are scarce or nonexistent that would achieve the required emissions reductions needed for a contingency measure.

Adding to the difficulty of identifying available control measures, not only does the suite of contingency measures need to achieve a large amount of reductions, but they will also need to achieve these reductions in the year following the year in which the Triggering Event has been identified. Although the newly released draft guidance proposes allowing for up to two years to achieve those reductions, control measures achieving the level of reductions required often take more than two years to implement and will likely not result in immediate reductions. In California's 2022 State SIP Strategy, CARB's three largest NOx reduction

⁹ 88 Fed. Reg. 53431 (August 8, 2023)

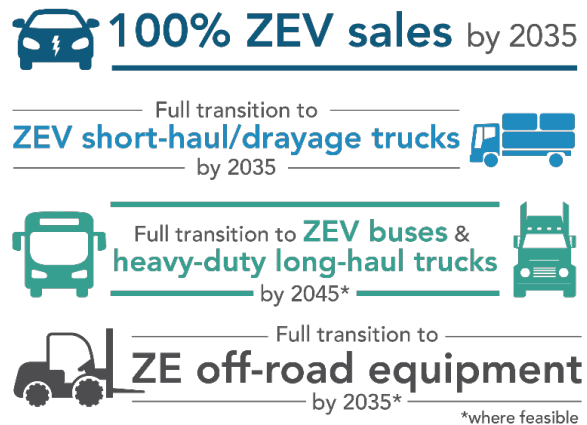
¹⁰ Source: CARB 2022 CEPAM v1.01; based on 2037 emissions totals.

measures, In-Use Locomotive Regulation, Advanced Clean Fleets, and Transportation Refrigeration Unit II, rely on accelerated turnover of older engines/trucks. The need for buildout of potential infrastructure upgrades and market-readiness of new equipment options that meet requirements limits the availability to have significant emission reductions in a short amount of time. Options for a technically and economically feasible triggered measure that can be implemented and achieve the necessary reductions in the time frame required are scarce in California.

CARB has over 50 years of experience reducing emissions from mobile sources like cars and trucks, as well as other sources of pollution under State authority. The Reasonably Available Control Measures for State Sources analysis that CARB included in all of the 70 ppb 8-hour ozone SIPs illustrates the reach of CARB's current programs and regulations, many of which set the standard nationally for other states to follow. Few sources CARB has primary regulatory authority over remain without a control measure, and all control measures that are in place support the attainment of the NAAQS. There is a lack of additional control measures that would be able to achieve the necessary reductions for a contingency measure. Due to the unique air quality challenges California faces, should such additional measures exist, CARB would pursue those measures to support expeditious attainment of the NAAQS and would not reserve such measures for contingency purposes. Nonetheless, CARB staff has continued to explore options for potential statewide contingency measures utilizing its authorities and applying draft guidance.

A central difficulty in considering a statewide contingency measure under CARB's authority, is that CARB is already fully committed to driving sources of air pollution in California to zero-emission everywhere feasible and as expeditiously as possible. In 2020, Governor Newsom signed Executive Order N-79-20 ([Figure 1](#)) that established a first-in-the-nation goal for 100 percent of California sales of new passenger cars and trucks to be zero emission by 2035. The Governor's order also set a goal to transition 100 percent of the drayage truck fleet to zero- emission by 2035, all off-road equipment where feasible to zero -emission by 2035, and the remainder of the medium and heavy-duty vehicles to zero--emission where feasible by 2045.

Figure 1 - Governor Newsom Executive Order N-79-20



California is committed to achieving these goals, and CARB is pursuing an aggressive control program in conjunction with other state and local agencies. CARB's programs not only go beyond emissions standards and programs set at the federal level, but many include zero-emissions requirements or otherwise, through incentives and voluntary programs, that drive mobile sources to zero-emissions, as listed in Table 2 below. CARB is also exploring and developing a variety of new measures to drive more source categories to zero-emissions and reduce emissions even further, as detailed in the 2022 State SIP Strategy. With most source categories being driven to zero-emissions as expeditiously as possible, opportunities for having triggered measure that could reduce NO_x, reactive organic gases (ROG) and PM_{2.5} emissions by the amount required for contingency measures are scarce.

Table 2. Emissions Sources and Respective CARB Programs with a Zero-Emissions Requirement/Component

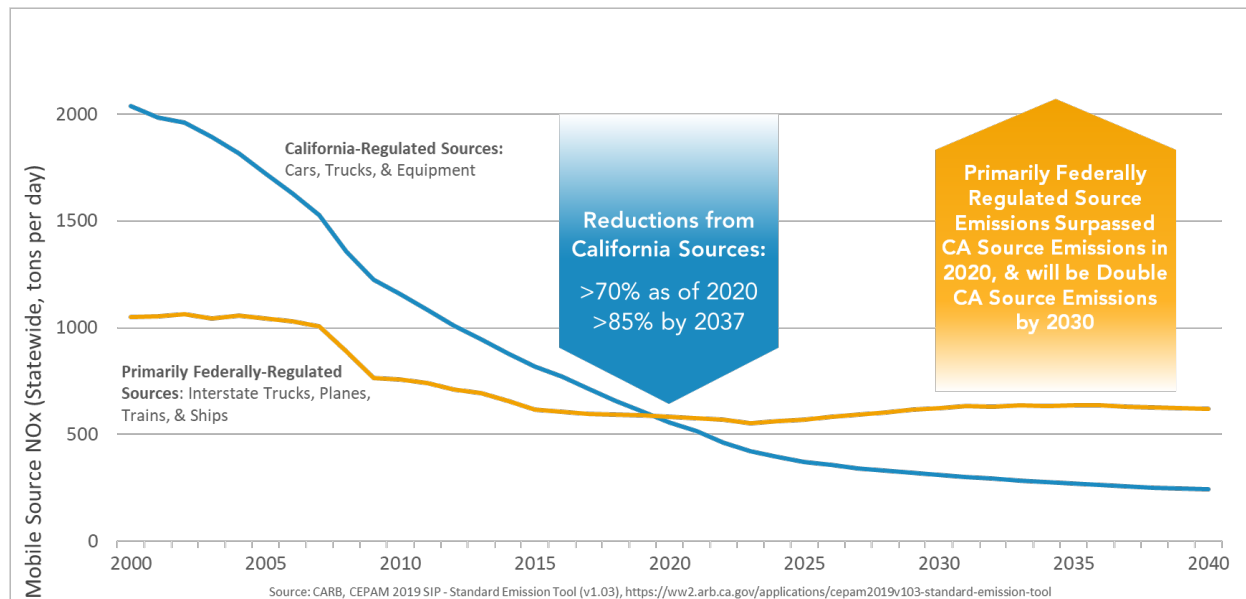
Emission Source	Regulatory Programs
Light-Duty Passenger Vehicles and Light-Duty Trucks	<ul style="list-style-type: none"> Advanced Clean Cars Program (I and II), including the Zero Emission Vehicle Regulation Clean Miles Standard
Motorcycles	<ul style="list-style-type: none"> On-Road Motorcycle Regulation*
Medium Duty-Trucks	<ul style="list-style-type: none"> Advanced Clean Cars Program (I and II), including the Zero Emission Vehicle Regulation Zero-Emission Powertrain Certification Regulation Advanced Clean Trucks Regulation Advanced Clean Fleets Regulation
Heavy-Duty Trucks	<ul style="list-style-type: none"> Zero-Emission Powertrain Certification Regulation Advanced Clean Trucks Regulation Advanced Clean Fleets Regulation
Heavy-Duty Urban Buses	<ul style="list-style-type: none"> Innovative Clean Transit Advanced Clean Fleets Regulation
Other Buses, Other Buses - Motor Coach	<ul style="list-style-type: none"> Zero-Emission Airport Shuttle Regulation Advanced Clean Fleets Regulation
Commercial Harbor Craft	<ul style="list-style-type: none"> Commercial Harbor Craft Regulation
Recreational Boats	<ul style="list-style-type: none"> Spark-Ignition Marine Engine Standards*
Transport Refrigeration Units	<ul style="list-style-type: none"> Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (Parts I and II*)
Industrial Equipment	<ul style="list-style-type: none"> Zero-Emission Forklifts* Off-Road Zero-Emission Targeted Manufacturer Rule*
Construction and Mining	<ul style="list-style-type: none"> Off-Road Zero-Emission Targeted Manufacturer Rule*
Airport Ground Support Equipment	<ul style="list-style-type: none"> Zero-Emission Forklifts*
Port Operations and Rail Operations	<ul style="list-style-type: none"> Cargo Handling Equipment Regulation Off-Road Zero-Emission Targeted Manufacturer Rule*
Lawn and Garden	<ul style="list-style-type: none"> Small Off-Road Engine Regulation Off-Road Zero-Emission Targeted Manufacturer Rule*
Ocean-Going Vessels	<ul style="list-style-type: none"> At Berth Regulation
Locomotives	<ul style="list-style-type: none"> In-Use Locomotive Regulation

*Indicates program or regulation is in development

Most air pollution sources in California that are not as well controlled are primarily-federally regulated sources. (Figure 2). This includes interstate trucks, ships, locomotives, aircraft, and certain categories of off-road equipment, constituting a large source of potential emissions reductions. Since these are primarily regulated at the federal and, in some cases,

international level, options to implement a contingency measure with reductions approximately equivalent to one year's worth of progress are limited.

Figure 2 - State vs. Federal Mobile Source NO_x Emissions



CARB staff has analyzed CARB's suite of control measures for all sources under CARB authority to identify potential contingency measure options. CARB currently has programs in place or under development for most sources and have evaluated a variety of regulatory mechanisms within existing and new programs for potential contingency triggers. After conducting a full analysis of measures for contingency measure opportunities, CARB staff determined that changes in the Smog Check Program are appropriate to use to meet the Act contingency measure requirement. The Measure was found to be the most feasible option given timing and technical constraints for adoption and implementation. The full infeasibility analysis can be found in Appendix A. Further, U.S. EPA recently released their own infeasibility analysis¹¹ in which they came to the same conclusion with respect to the scarcity of available contingency measures in CARB's mobile source control programs.

With this proposal, CARB staff would adopt and submit the Measure for the 70 ppb 8-hour ozone, 75 ppb 8-hour ozone, 80 ppb 8-hour ozone, the 12 µg/m³ and 15 µg/m³ annual PM_{2.5}, and 35 µg/m³ 24-hour PM_{2.5} standards for the relevant nonattainment areas to address the contingency measure requirements of the Act as interpreted by U.S. EPA in the draft guidance. The Measure consists of a triggered contingency measure that, if triggered,

¹¹ EPA Source Category and Control Measure Assessment and Reasoned Justification Technical Support Document; Federal Implementation Plan for Contingency Measures for the Fine Particulate Matter Standards; San Joaquin Valley, California. <https://www.regulations.gov/docket/EPA-R09-OAR-2023-0352>

would change the exemptions for motor vehicles in the California Smog Check Program for the relevant local air district and applicable standard as specified in Table 1 that, together with the local air districts' contingency measures, addresses the contingency measure requirements of the Act. A detailed description of the Measure is described in Section 4 below.

Section 3. California Smog Check Program

The Smog Check Program is a vehicle inspection and maintenance program administered by BAR. The Smog Check Program aims to reduce air pollution in the state by identifying vehicles with harmful excess emissions for repair or retirement. While BAR administers the Program, the California Department of Motor Vehicles (DMV) provides the vehicle registration and licensing information to support administration and enforcement of the Smog Check Program. Smog Check inspections are required biennially as a part of the vehicle registration process and/or when a vehicle changes ownership or is registered for the first time in California, depending on the area and severity of the air quality problem. Certain areas with worse air quality issues are subject to an enhanced version of the Program with stricter requirements. All gasoline-powered vehicles, hybrid vehicles, and alternative-fuel vehicles that are model-year 1976 and newer, as well as all diesel vehicles model-year 1998 and newer with a gross-vehicle weight rating of 14,000 pounds and less, are subject to Smog Check inspections.

However, there are several exceptions. Motorcycles and electric-powered vehicles are not subject to the Smog Check Program. Additionally, in 2017, California Assembly Bill (AB) 1274 was enacted, which amended the H&SC to exempt vehicles up to eight model -years old (MYO); previously, vehicles had been exempt up to six MYO. These seven and eight MYO vehicles that would otherwise be subject to a Smog Check inspection must pay an annual Smog Abatement Fee of \$25, \$21 of which goes to the Air Pollution Control Fund for use through the Moyer Program. Per H&SC § 44011(a)(4)(B)(ii), these motor vehicles eight or less MYO are exempted from biennial Smog Check inspection, unless CARB finds that providing an exception for these vehicles will prohibit the state from meeting the state commitments with respect to the SIP.

In 2017, when this change in Smog Check exemptions was enacted, the benefit from additional funding for Moyer Program projects was estimated to outweigh the disbenefit from exempting additional vehicles. However, since 2017, the cost-effectiveness of Moyer Program projects has increased as the program has successfully incentivized the turnover of many dirty engines and equipment. Moyer Program projects are now less cost-effective than before, resulting in a net benefit from this Measure.

As such, the ability to make the relevant finding for H&SC § 44011(a)(4)(B)(ii) purposes is within CARB's authority, and the other State agencies that implement California's Smog Check Program will be bound by it. CARB staff last submitted updates to the Smog Check Program to U.S. EPA for incorporation into the California SIP in 2009 and approved by U.S. EPA on July 1, 2010.¹² As previously mentioned, the additional exemptions from the Smog Check Program were made by AB 1274 in 2017. As a part of this SIP revision, CARB

¹² 75 Fed. Reg. 38023 (July 1, 2010)

staff is also proposing the Board approve submittal of H&SC § 44011(a)(4)(A) and (B) into the California SIP to incorporate these changes in the Smog Check Program. The H&SC sections are included in Appendix D.

Further the Smog Check Program meets federal requirements for an inspection and maintenance (I/M) program. On March 23, 2023, CARB adopted the California Smog Check Performance Standard Modeling (PSM) and Program Certification for the 70 parts per billion (ppb) 8-hour Ozone Standard (Smog Check Certification) to address I/M SIP requirements for the 70 ppb 8-hour ozone standard. CARB staff submitted it to U.S. EPA as a SIP revision. The Smog Check Certification demonstrated that the California's Smog Check Program meets the applicable federal I/M program requirements for all the 70 ppb 8-hour ozone nonattainment areas in California.

Section 4. Smog Check Contingency Measure

The Measure will consist of changing the existing Smog Check inspection exemptions in California's Smog Check Program in any applicable nonattainment area listed in Table 1. that fails to satisfy any one of the following (failures of which are collectively referred to as "Triggering Events"):

- Attain by the applicable attainment date;
- Meet a reasonable further progress (RFP) milestone;
- Meet a quantitative milestone; or
- Submit a required quantitative milestone report or milestone compliance demonstration.

The Measure will be initiated within 30 days of the effective date of a U.S. EPA determination of a Triggering Event. The exemption will change from the existing eight or less MYO to seven or less MYO in the applicable nonattainment area. If triggered, these additional vehicles would then be subject to Smog Check inspections based on the area in which the vehicle is registered (i.e., enhanced, basic, and change of ownership), resulting in additional emissions control equipment failures being identified and corrected, thereby reducing emissions that typically result when emissions control equipment is not performing as designed. The emissions reduction estimates from the Measure are detailed for each nonattainment area in Section 5 of this report. The methodology for calculating these estimates can be found in Appendix B. The Measure can be triggered a second time for a nonattainment area; if triggered a second time, the Smog Check exemption would then only apply to vehicles six or less MYO.

Implementation of the Measure will require coordination with other California State agencies. Their relevant roles and responsibilities are outlined below.

- **Bureau of Automotive Repair:** BAR, as part of the Department of Consumer Affairs, provides oversight of the automotive repair industry and administers vehicle emissions reduction and safety programs. Specifically, as it pertains to the Measure, BAR administers and enforces the Smog Check Program.
- **California Department of Motor Vehicles:** DMV administers vehicle registration and licensing and supports BAR in administering the Smog Check Program.

CARB staff will work closely with BAR and DMV staff throughout the process and leading up to a possible Triggering Event, so that both agencies have as much notice as possible for the work that will be required for full implementation of the Measure. For most potential failures to attain a relevant standard, preliminary data for the relevant ozone or PM_{2.5} season is available earlier and U.S. EPA makes their failure to attain findings six months after the attainment date, so CARB staff will be able to notify and work with BAR and DMV preemptively to ensure the Measure implementation is as smooth as possible.

CARB staff has quantified the emission reductions that would be achieved from implementation of the Measure, if triggered, and have documented the results in Section 5 of this report. The emission reductions anticipated are surplus to the current Smog Check Program in the nonattainment areas and they are not otherwise required by or assumed in a SIP-related program, or any other adopted State air quality program. The changes to Smog Check exemptions are enforceable since DMV requires a vehicle owner to obtain a Smog Check inspection certificate indicating a vehicle has passed its Smog Check inspection to renew their vehicle registration. The reductions from the Measure are permanent in that, if triggered, the vehicle will need to be repaired in order to renew their registration.

A. Implementation

Within 30 days of the effective date of U.S. EPA determining an applicable Triggering Event occurred, CARB will transmit a letter to BAR and DMV conveying its finding under H&SC § 44011(a)(4)(B)(ii) that providing the exception for certain motor vehicles from Smog Check inspection in specific nonattainment areas (defined by specified ZIP Codes) will prohibit the State from meeting commitments with respect to the SIP as required by the Act. This letter will explain that the Measure is being triggered to meet contingency measure requirements under Act section 172(c)(9) and/or 182(c)(9), and effectuating the change to the Smog Check exemptions for motor vehicles from eight or less MYO to seven or less MYO throughout the applicable nonattainment area (or six or less MYO in cases of the second trigger).

Prior to CARB staff submitting a letter to BAR and DMV, CARB staff will coordinate with BAR and DMV if there is potential for contingency to be triggered in the nonattainment areas in Table 1. CARB staff will meet regularly with BAR and DMV staff throughout the process to implement this Measure. Upon receipt of the CARB letter and the applicable ZIP Codes, CARB, BAR and DMV staff will begin implementation of the change in exemption length to Smog Check and take the following actions:

- DMV will update their Smog Check renewal programming to require a Smog Check inspection for the eight MYO vehicles (or seven MYO in the case of a second trigger) in the ZIP Codes provided by CARB staff;
- The eight to seven MYO (or seven to six MYO) exemption change will begin for registrations expiring beginning January 1st of the applicable year considering the time it takes for DMV to program this change and their registration renewal process;
- 60 days before the expiration date of the vehicle registration, DMV will send out registration renewals that include these newly impacted vehicles along with those already subject to Smog Check inspection;
- The notice will include information on the change in exemptions, reason for change, and resources for obtaining a Smog Check inspection from a certified station;

- CARB staff will work with DMV to develop and include an informational paper that will accompany the registration renewal with the information as included in the notice; and
- BAR and DMV will administer and enforce the new changes to the Smog Check Program.

B. Title VI and Environmental Justice

Title VI of the Civil Rights Act of 1964 (Title VI) provides that no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance. Other relevant federal laws prohibit discrimination in the use of federal funds based on disability, sex, and age.¹³ As a recipient of federal funds, CARB must ensure it complies with Title VI and U.S. EPA's Title VI implementation regulations¹⁴ in its relevant programs and policies.

CARB's public process to engage with stakeholders in development of the Measures, its equity analysis of the Measure, and information about CARB's Civil Rights Policy and Compliant process is summarized below.

Public Process

In developing the proposed Measure, CARB staff engaged in a thorough public process that addresses the requirements of Title VI. CARB staff initiated the public process with release of a concept document and hosting a remote online workshop in August 2023 to solicit input from the public.¹⁵ The workshop was hosted through Zoom in the late afternoon to allow more community members to participate without needing to travel. The public notice for the workshop provided a contact for special accommodation requests by interested stakeholders, and CARB staff also made available on the notice and its website a staff email address to accept public questions and comments. The concept document and other materials were available in English and Spanish on the website and through emails sent to relevant email list serves, including the Environmental Justice Stakeholders Group. The workshop included translation services that provided a forum in both English and Spanish for the proposed Measure to be discussed in a public setting and provide additional opportunity for public feedback, input, and ideas. After the workshop, CARB staff

¹³ Section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794; Title IX of the Education Amendments of 1972, as amended, 20 U.S.C. §§ 1681 et seq.; Age Discrimination Act of 1975, 42 U.S.C. §§ 6101 et seq.; and Federal Water Pollution Control Act Amendments of 1972, Pub. L. 92-500 § 13, 86 Stat. 903 (codified as amended at 33 U.S.C. § 1251 (1972)).

¹⁴ 40 C.F.R. Part 7.

¹⁵

has made the recording of the workshop available on its website. CARB staff considered the public feedback it received in developing the Measure. CARB staff will continue to address the requirements of Title VI in the event implementation of the Measure is triggered and provide continuing opportunities for public feedback.

Racial Equity, Environmental Justice, and Equity Analysis

Central to CARB's mission is the commitment to racial equity and environmental justice and ensuring a clean and healthy environment for all Californians. Many low-income and overburdened communities within the nonattainment areas, and across the State, continue to experience disproportionately high levels of air pollution and the resulting detrimental impacts to their health. To address longstanding environmental and health inequities from elevated levels of criteria pollutants (and toxic air contaminants), CARB prioritizes environmental justice, incorporating racial equity, and conducting meaningful community engagement in its policy and planning efforts and programs. It is imperative to optimize California's control programs to maximize emissions reductions and provide targeted near-term benefits in those communities that continue to bear the brunt of poor air quality.

Across the agency, CARB is engaged in specific localized efforts include development of community air monitoring networks to learn about local exposures, development of a racial equity assessment lens to consider benefits and burdens of CARB programmatic work in the planning stages, continuously increasing and improving community engagement efforts, and implementation of Assembly Bill (AB) 617 (C. Garcia, Chapter 136, Statutes of 2017), known as the Community Air Protection Program¹⁰. Significant progress has been made to address air pollution statewide and in local communities, and it is imperative to also ensure all Californians have access to healthy air quality.

Specific to this Measure, given the existing disproportionate impacts overburdened communities already face, CARB staff sought to evaluate whether the proposed Measure would itself impact disproportionately burden certain communities. In conducting this evaluation, CARB staff analyzed whether there would be disproportionate impact on disadvantaged communities within the affected nonattainment areas if the Measure is triggered.

CARB staff also analyzed the impacts of the Measure on vehicle owners in disadvantaged communities (DACs). CARB staff evaluated the potential impacts on owners of 8 MYO vehicles that reside in disadvantaged communities (DACs), which are defined by California Senate Bill 535¹⁶ as census tracts receiving the highest 25 percent of overall scores in *CalEnviroScreen 4.0*¹⁷. These communities face the highest air pollution and other

¹⁶ De Leon, https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201120120SB535

¹⁷ <https://oehha.ca.gov/calenviroscreen>

environmental burdens, and CARB staff is working to ensure that policy changes do not have a negative disproportionate impact on these populations.

In order to evaluate whether vehicle owners in DACs will be disproportionately impacted by this Measure if it is triggered, CARB staff compared the proportion of 8 MYO vehicles subject to the Smog Check inspection that are registered in DACs in each nonattainment area to the proportion of vehicles that are subject to the Smog Check inspection at some point in their lifetime that are registered in DACs for each nonattainment area. CARB staff used DMV data reflecting vehicle registrations as of 2021; thus, model year 2013 was used to represent 8 MYO vehicles and calculate the proportion of vehicles subject to the change. CARB staff assumes that the proportion of 8 MYO vehicles subject to the Smog Check inspection will be approximately equivalent in future attainment years. Based on this analysis for all areas in Table 1, CARB staff found that the proportion of vehicle owners potentially impacted by the Measure, if triggered, is not disproportionate to the population as a whole in each of the nonattainment areas analyzed. The proportion of people impacted with vehicles registered in DACs is about equal to the proportion of vehicle owners residing in DACs area-wide and generally represent a relatively small portion of the total population being impacted.

$$\frac{\text{8MYO vehicles registered in DACs in nonattainment area}}{\text{8MYO vehicles registered in nonattainment area}} = \frac{\text{all vehicles registered in DACs in nonattainment area}}{\text{all vehicles registered in nonattainment area}}$$

If the Measure is triggered, though, there could be other potential impacts to vehicle owners that should be considered. The main impacts to vehicle owners are the additional monetary cost and time of obtaining a Smog Check inspection and potential repairs one year earlier than previously required. The inspection and certification costs are mostly offset by the Smog Abatement Fee that exempted vehicle owners must pay. A Smog Check inspection averages \$55 and is required every other year in most areas of the State. The Smog Abatement Fee is \$25 and paid annually as a part of renewal of vehicle registration, thus two years of the Smog Abatement Fee is roughly equivalent to the average cost of a Smog Check Inspection.

Repair costs can range, but generally cost \$750 on average, which could be a significant cost burden. However, financial assistance is available through BAR's Consumer Assistance Program, which provides up to \$1,200 for repair costs. In terms of time to obtain a Smog Check inspection which can vary significantly due to location, many vehicles require regular service throughout the year, and owners may be able to schedule a Smog Check inspection concurrently. Additionally, the potential foregone dollars to the Moyer Program may reduce additional opportunities for emission reductions in districts where the local air district dedicates Moyer Program funds exclusively to disadvantaged communities. CARB staff will

continue to explore additional activities or funding opportunities to mitigate these potential disproportionate impacts.

Civil Rights Policy and Discrimination Complaint Process

Under CARB's written Civil Rights Policy and Discrimination Complaint process (Civil Rights Policy), CARB has a policy of nondiscrimination in its programs and activities and implements a process for discrimination complaints filed with CARB, which is available on CARB's website. The Civil Rights Officer coordinates implementation of CARB's nondiscrimination activities, including as the Equal Employment Opportunity (EEO) Officer for employment purposes, and who can be reached at *EEOP@arb.ca.gov*, or (279) 208-7110.¹⁸

The Civil Rights Policy and Discrimination Complaint Process provides the following information about the nondiscrimination policy and its applicability:

It is the California Air Resources Board (CARB) policy to provide fair and equal access to the benefits of a program or activity administered by CARB. CARB will not tolerate discrimination against any person(s) seeking to participate in, or receive the benefits of, any program or activity offered or conducted by CARB. Members of the public who believe they were unlawfully denied full and equal access to an CARB program or activity may file a civil rights complaint with CARB under this policy. This non-discrimination policy also applies to people or entities, including contractors, subcontractors, or grantees that CARB utilizes to provide benefits and services to members of the public. [. . .]

As described in the Civil Rights Policy and Discrimination Complaint Process, the Civil Rights Officer coordinates implementation of nondiscrimination activities:

CARB's Executive Officer will have final authority and responsibility for compliance with this policy. CARB's Civil Rights Officer, on behalf of the Executive Officer, will coordinate this policy's implementation within CARB, including work with the Ombudsman's Office, Office of Communications, and the staff and managers within a program or activity offered by CARB. The Civil Rights Officer coordinates compliance efforts, receives inquiries concerning non-discrimination requirements, and ensures CARB is complying with state and federal reporting and record retention requirements, including those required by Code of Federal Regulations, title 40, section 7.10 et seq.

¹⁸ CARB. California Air Resources Board and Civil Rights. <https://ww2.arb.ca.gov/california-air-resources-board-and-civil-rights>; Civil Rights Policy and Discrimination Complaint Process. November 1, 2016. <https://ww2.arb.ca.gov/sites/default/files/2023-01/2016-11-03%20CARB%20Civil%20Rights%20Policy%20Revised%20Final.pdf>

The Civil Rights Policy and Discrimination Complaint Process also describes in detail the complaint procedure, as follows:

A Civil rights complaint may be filed against CARB or other people or entities affiliated with CARB, including contractors, subcontractors, or grantees that CARB utilizes to provide benefits and services to members of the public. The complainant must file his or her complaint within one year of the alleged discrimination. This one-year time limit may be extended up to, but no more than, an additional 90 days if the complainant first obtained knowledge of the facts of the alleged violation after the expiration of the one-year time limit. [. . .]

The Civil Rights Officer will review the facts presented and collected and reach a determination on the merits of the complaint based on a preponderance of the evidence. The Civil Rights Officer will inform the complainant in writing when CARB has reached a determination on the merits of the discrimination complaint. Where the complainant has articulated facts that do not appear discriminatory but warrants further review, the Civil Rights Officer, in his or her discretion, may forward the complaint to a party within CARB for action. The Civil Rights Officer will inform the complainant, either verbally or in writing, before facilitating the transfer. [. . .]

CARB will not tolerate retaliation against a complainant or a participant in the complaint process. Anyone who believes that they have been subject to retaliation in violation of this policy may file a complaint of retaliation with CARB following the procedures outlined in this policy.

There is a Civil Rights Complaint Form available¹⁹ on the webpage, which should be used by members of the public to file a complaint of discrimination against CARB that an individual believes occurred during the administration of its programs and services offered to the public. As described on CARB's webpage, for all complaints submitted, the Civil Rights Officer will review the complaint to determine if there is a prima facie complaint (which means, if all facts alleged were true, would a violation of the applicable policy exist). If the Civil Rights Officer identifies a prima facie complaint in the jurisdiction of the Civil Rights Office, the Civil Rights Office will investigate and determine whether there is a violation of the policy.

The laws and regulations that CARB implements through this policy include:

- Code of Federal Regulations, Title 40 Parts 5 and 7;
- Title VI of the U.S. Civil Rights Act of 1964, as amended;

¹⁹ CARB. Civil Rights Complaint Form. July 2019. https://ww2.arb.ca.gov/sites/default/files/2023-01/eo_eeo_033_civil_rights_complaints_form.pdf

- Section 504 of the Rehabilitation Act of 1973;
- Age Discrimination Act of 1975;
- Title IX of the Education Amendments of 1972;
- California Government Code, title 2, Division 3, Part 1, Chapter 2, Article 9.5, *Discrimination*, section 11135 et seq.; and
- California Code of Regulations, title 2, section 10000 et seq.

As part of its overarching civil rights and environmental justice efforts, CARB is in the process of updating its Civil Rights Policy and will make those publicly available once complete. These updates will reflect available U.S. EPA and U.S. Department of Justice resources for Title VI and environmental justice policies. CARB encourages U.S. EPA to issue additional guidance to further clarify Title VI requirements and expectations to assist state implementation efforts.

C. Fiscal Impacts to State Programs

The Measure has some fiscal impacts. Previously exempted vehicles will no longer pay the annual Smog Abatement Fee of \$25, but instead pay the biennial Smog Check inspection certification fee of \$8.25, which is directed to BAR to fund the Smog Check Program. Of the Smog Abatement fee, \$21 is directed to the Air Pollution Control Fund to fund the Moyer Program, which will no longer be collected if the exemption changes. If the Measure is triggered, this will result in fewer funds being directed towards the Air Pollution Control Fund for the Moyer Program, but an increase in certification fees for BAR. For each nonattainment area and standard, CARB staff used the estimated number of vehicles impacted by the change in exemption model year to estimate the fiscal impact of a potential change in exemption if the Measure is triggered. The estimated loss of funding if triggered is detailed for each nonattainment area in Section 5.

The potential loss of funds resulting from the Measure being triggered in an area may result in a loss of funds for the Moyer Program, which could result in fewer Moyer Program projects and fewer opportunities for additional emission reductions. If the Measure is triggered in a nonattainment area, the monetary impacts will be statewide. The Moyer Program funds are collected statewide but allocated to each local air district according to requirements set by H&SC §44299.2. For South Coast Air Basin only, the allocation is based on human population relative to the State as a whole. For the remaining local air districts, funds are allocated based on each local air district's population, air quality, and historical allocation awarded in Fiscal Year (FY) 2002-2003. CARB staff used the statewide average cost effectiveness of Moyer Program projects to estimate the Moyer Program emission reductions impact if the Measure is triggered. Based on CARB staff analysis, the resulting potential foregone emissions reductions from fewer potential projects funded through the Moyer Program will not outweigh the emissions reductions benefit from the Measure. The

estimated loss in potential emissions reductions from the Moyer Program is detailed below in each nonattainment area section of this report. The methodology for calculating the impact of the loss of Moyer Program funds can be found in Appendix C.

D. CEQA

CARB staff has determined that the Measure is exempt from CEQA under the “general rule” or “common sense” exemption (14 CCR 15061(b)(3)). The common sense exemption states a project is exempt from CEQA if “the activity is covered by the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA.” The Measure addresses contingency measure requirements under the Act and would remove an exemption from a Smog Check inspection for certain model year vehicles only in the event a Triggering Event occurs. The Measure would only go into effect in the area in which it is triggered. The change in exemptions for vehicles required to obtain a Smog Check inspection, only if triggered by an applicable event, would not require new equipment and has no potential to adversely affect air quality or any other environmental resource area. Based on CARB staff’s review it can be seen with certainty that there is no possibility that the Measure may result in a significant adverse impact on the environment; therefore, this activity is exempt from CEQA.

CARB staff has also determined that the Measure is categorically exempt from CEQA under the “Class 8” exemption (Cal. Code Regs., tit. 14, § 15308). Class 8 exemptions apply to “actions taken by regulatory agencies, as authorized by state or local ordinance, to assure the maintenance, restoration, enhancement, or protection of the environment where the regulatory process involves procedures for protection of the environment.” The proposed Measure is an action by CARB, a regulatory agency, to protect the environment in the event a Triggering Event occurs. The Measure will assure the maintenance and enhancement of the environment by removing exemptions from the Smog Check Program, resulting in additional emissions control equipment failures being identified and corrected, thereby reducing emissions that typically result when emissions control equipment is not performing as designed. CARB staff analysis indicates air emission benefits exceed the disbenefits in each relevant air basin. Therefore, the Smog Check Contingency Measure is also exempt as a Class 8 exemption.

Section 5. Nonattainment Area Analyses

California's nonattainment challenge for ozone and PM2.5 NAAQS in most of the State is driven in part due to motor vehicle emissions. While CARB’s regulations require motor vehicles to meet emission standards throughout their useful lives, this is not guaranteed. CARB staff recommends the Board exercise the authority under this statute and find that exempting motor vehicles that are less than 8 years old from the requirements is preventing the State from meeting its commitments under the Act related to complying with the Act's contingency measure requirements. Subjecting vehicles to the Smog Check Program to reduce emissions as a contingency measure when a Triggering Event occurs would help the State meet its contingency measure requirement under the Act. In addition to CARB’s actions, each local air district has either included a complementary contingency measure or measures in their SIP or will provide a reasoned justification for why they are unable to provide contingency measures for the full amount of reductions as specified in the draft guidance. Below, for each nonattainment area listed in Table 1, CARB staff is providing the estimate of the one year's worth of progress, estimate of contingency measure reductions, equity impacts, and Moyer Program impacts.

A. Coachella Valley

The Measure complements local air district efforts to meet contingency measure requirements for the 75 ppb and 70 ppb 8-hour ozone standards. The required amount of emission reductions from contingency measures, or one year’s worth (OYW) of progress based on the draft guidance, is shown in Table 3.

Table 3. Coachella Valley OYW of Progress
(reductions calculated on summer planning inventory)

Standard	Attainment Year	NOx (tpd)	ROG (tpd)
75 ppb 8-hour Ozone	2031	0.34	0.14
70 ppb 8-hour Ozone	2037	0.17	0.10

Table 4 documents the emission reductions that occur after the attainment year due to implementation of the Measure if triggered.

Table 4. Coachella Valley Potential Reductions from Measure
(reductions calculated on summer planning inventory)

Standard	Attainment Year	NOx Benefits (tpd)	ROG Benefits (tpd)
75 ppb 8-hour Ozone	2031	0.008	0.003
70 ppb 8-hour Ozone	2037	0.008	0.003

Equity Impacts

Table 5 documents the potential impact of the Measure on DACs as identified in [CalEnviroScreen 4.0](#) in the Coachella Valley. The proportion of vehicles that are registered in DACs and would be impacted if the Measure is triggered is proportional to the general population of all vehicles registered in DACs overall, about 4 percent. There is not expected to be a disproportionate impact on disadvantaged communities should the measure be triggered.

Table 5. Coachella Valley Vehicle Populations

All Vehicles	All Vehicles Population	8MYO Vehicles* (MY 2013)	8MYO Vehicles* (MY 2013) Population
Total Vehicle Population	320,375	Vehicle Population	14,622
Vehicle Population in DACs	15,492	Vehicle Population in DACs	640
Proportion DAC	4.84%	Proportion DAC	4.38%

*MY 2013 Vehicle populations were used to represent 8MYO vehicles.

Carl Moyer Impacts

Should the Measure be triggered in Coachella Valley, the potential funds lost by year is listed below in Table 6. The loss in funding would have statewide impacts as the funds are collected and redistributed to districts based on the formula H&SC § 44299.2. Based on statewide cost effectiveness and historical allocations to each local air district, the estimated loss in potential emission reduction benefits in Coachella Valley if the Measure is triggered is shown in Table 7.

Table 6. Coachella Valley 8 MYO Smog Abatement Fees

Standard	Attainment Year	Potential Dollars
75 ppb 8-hour Ozone	2031	\$ 311,468
70 ppb 8-hour Ozone	2037	\$ 325,868

Table 7. Coachella Valley Carl Moyer Program Potential Foregone Emissions Reductions

(reductions calculated on annual planning inventory consistent with Moyer Program cost-effectiveness)

Standard	Attainment Year	NOx (tpd)
75 ppb 8-hour Ozone	2031	0.0002
70 ppb 8-hour Ozone	2037	0.0002

B. Eastern Kern County

The Measure complements local air district efforts to meet contingency measure requirements for the 75 ppb and 70 ppb 8-hour ozone standards. The required amount of emission reductions from contingency measures, or OYW of progress based on the draft guidance, is shown in Table 8.

Table 8. Eastern Kern County OYW of Progress

(reductions calculated on summer planning inventory)

Standard	Attainment Year	NOx (tpd)	ROG (tpd)
75 ppb 8-hour Ozone	2026	0.30	0.08
70 ppb 8-hour Ozone	2032	0.26	0.07

Table 9 documents the emission reductions that would occur after the attainment year due to implementation of the Measure if triggered.

Table 9. Eastern Kern County Potential Reductions from Measure
(reductions calculated on summer planning inventory)

Standard	Attainment Year	NOx Benefits (tpd)	ROG Benefits (tpd)
75 ppb 8-hour Ozone	2026	0.003	0.001
70 ppb 8-hour Ozone	2032	0.003	0.001

Equity Impacts

Table 10 documents the potential impact of the Measure on DACs as identified in [CalEnviroScreen 4.0](#) in Eastern Kern County. The proportion of vehicles that are registered in DACs and would be impacted if the Measure is triggered is proportional to the general population of all vehicles registered in DACs overall, about 4 percent. There is not expected to be a disproportionate impact on disadvantaged communities, should the measure be triggered.

Table 10. Eastern Kern County Vehicle Populations
(vehicle populations calculated from EMFAC2021 Fleet Database)

All Vehicles	All Vehicles Population	8MYO Vehicles* (MY 2013)	8MYO Vehicles* (MY 2013) Population
Total Vehicle Population	86,909	Vehicle Population	4,209
Vehicle Population in DACs	3,640	Vehicle Population in DACs	174
Proportion DAC	4.19%	Proportion DAC	4.12%

*MY 2013 Vehicle populations were used to represent 8MYO vehicles.

Carl Moyer Impacts

Should the Measure be triggered in Eastern Kern County, the potential funds lost statewide by year is listed below in Table 11. Based on statewide cost effectiveness and historical allocations to each local air district, the loss in potential emission reduction benefits in Eastern Kern County if the Measure is triggered is shown in Table 12.

Table 11. Eastern Kern County 8 MYO Smog Abatement Fees

Standard	Attainment Year	Potential Dollars
75 ppb 8-hour Ozone	2026	\$ 112,514
70 ppb 8-hour Ozone	2032	\$ 116,670

Table 12. Eastern Kern Carl Moyer Program Potential Foregone Emissions Reductions
(reductions calculated on annual planning inventory consistent with Moyer Program cost-effectiveness)

Standard	Attainment Year	NOx (tpd)
75 ppb 8-hour Ozone	2026	0.000003
70 ppb 8-hour Ozone	2032	0.000003

C. Mariposa County

The Measure complements local air district efforts to meet contingency measure requirements for the 70 ppb 8-hour ozone standard. The required amount of emission reductions from contingency measures, or OYW of progress based on the draft guidance, is shown in Table 13.

Table 13. Mariposa County OYW of Progress
(reductions calculated on summer planning inventory)

Standard	Attainment Year	NOx (tpd)	ROG (tpd)
70 ppb 8-hour Ozone	2026	0.02	0.13

Table 14 documents the emission reductions that would occur after the attainment year due to implementation of the Measure if triggered.

Table 14. Mariposa County Potential Reductions from Measure
(reductions calculated on summer planning inventory)

Standard	Attainment Year	NOx Benefits (tpd)	ROG Benefits (tpd)
70 ppb 8-hour Ozone	2026	0.0003	0.0001

Equity Impacts

Per scores in [CalEnviroScreen 4.0](#), there are very few vehicles registered in DACs in Mariposa County. There is not expected to be a disproportionate impact on disadvantaged communities should the measure be triggered.

Carl Moyer Impacts

Should the Measure be triggered in Mariposa County, the potential funds lost by year is listed below in Table 15. Based on district allocations of Moyer Program funds per H&SC §44299.2, Mariposa County receives \$200,000 regardless of the funding available statewide. Thus, there will be no emissions disbenefit from a decrease in Moyer Funds in Mariposa County if the measure is triggered, shown in Table 16.

Table 15. Mariposa County 8 MYO Smog Abatement Fees

Standard	Attainment Year	Potential Dollars
70 ppb 8-hour Ozone	2026	\$ 8,691

Table 16. Mariposa County Carl Moyer Program Potential Foregone Emissions Reductions

(reductions calculated on annual planning inventory consistent with Moyer Program cost-effectiveness)

Standard	Attainment Year	NOx (tpd)
70 ppb 8-hour Ozone	2026	0.000

D. Sacramento Metro Area

The Measure complements the local air districts' efforts to meet contingency measure requirements for the 75 ppb and 70 ppb 8-hour ozone standards. The required amount of emission reductions from contingency measures, or OYW of progress based on the draft guidance, is shown in Table 17.

Table 17. Sacramento Metro OYW of Progress

(reductions calculated on summer planning inventory)

Standard	Attainment Year	NOx (tpd)	ROG (tpd)
75 ppb 8-hour Ozone	2024	2.20	1.78
70 ppb 8-hour Ozone	2032	1.26	0.99

Table 18 documents the emission reductions that occur after the attainment year due to implementation of the Measure if triggered.

Table 18. Sacramento Metro Area Potential Reductions from Measure

(reductions calculated on summer planning inventory)

Standard	Attainment Year	NOx Benefits (tpd)	ROG Benefits (tpd)
75 ppb 8-hour Ozone	2024	0.077	0.037
70 ppb 8-hour Ozone	2032	0.047	0.015

Equity Impacts

Table 19 documents the potential impact of the Measure on DACs as identified in [CalEnviroScreen 4.0](#) in the Sacramento Metro area. The proportion of vehicles that are registered in DACs and would be impacted if the Measure is triggered is proportional to the general population of all vehicles registered in DACs overall, about 7 percent. There is not expected to be a disproportionate impact on disadvantaged communities should the measure be triggered.

Table 19 Sacramento Metro Area Vehicle Populations

(vehicle populations calculated from EMFAC2021 Fleet Database)

All Vehicles	8 MYO Vehicles (MY 2013)		
Total Vehicle Population	1,766,464	MY13 Vehicle Population	88,163
Vehicle Population in DACs	135,377	MY13 Vehicle Population in DACs	6,387
Proportion DAC	7.66%	Proportion DAC	7.24%

Carl Moyer Impacts

Should the Measure be triggered in the Sacramento Metro Area, the potential funds lost by year is listed below in Table 20. Based on statewide cost effectiveness and historical allocations to each local air district, the loss in potential emission reduction benefits in Sacramento Metro Area if the Measure is triggered is shown in Table 21.

Table 20. Sacramento Metro Area 8 MYO Smog Abatement Fees

Standard	Attainment Year	Potential Dollars
75 ppb 8-hour Ozone	2024	\$ 2,554,206
70 ppb 8-hour Ozone	2032	\$ 2,020,844

Table 21. Sacramento Metro Area Carl Moyer Program Potential Foregone Emissions Reductions

(reductions calculated on annual planning inventory consistent with Moyer Program cost-effectiveness)

Standard	Attainment Year	NO _x (tpd)
75 ppb 8-hour Ozone	2024	0.0009
70 ppb 8-hour Ozone	2032	0.0007

E. San Diego County

The Measure complements local air district efforts to meet contingency measure requirements for the 75 ppb and 70 ppb 8-hour ozone standards. The required amount of emission reductions from contingency measures, or OYW of progress based on the draft guidance, is shown in Table 22.

Table 22. San Diego County OYW of Progress

(reductions calculated on summer planning inventory)

Standard	Attainment Year	NO _x (tpd)	ROG (tpd)
75 ppb 8-hour Ozone	2026	2.19	1.97
70 ppb 8-hour Ozone	2032	1.26	0.89

Table 23 documents the emission reductions that occur after the attainment year due to implementation of the Measure if triggered.

Table 23. San Diego County Potential Reductions from Measure
(reductions calculated on summer planning inventory)

Standard	Attainment Year	NOx Benefits (tpd)	ROG Benefits (tpd)
75 ppb 8-hour Ozone	2026	0.065	0.027
70 ppb 8-hour Ozone	2032	0.056	0.016

Equity Impacts

Table 24 documents the potential impact of the Measure on DACs as identified in [CalEnviroScreen 4.0](#) in San Diego County. The proportion of vehicles that are registered in DACs and would be impacted if the Measure is triggered is proportional to the general population of all vehicles registered in DACs overall, about 5.5 percent. There is not expected to be a disproportionate impact on disadvantaged communities, should the measure be triggered.

Table 24. San Diego County Vehicle Populations
(vehicle populations calculated from EMFAC2021 Fleet Database)

All Vehicles		8 MYO Vehicles (MY 2013)	
Total Vehicle Population	2,360,242	MY13 Vehicle Population	117,373
Vehicle Population in DACs	146,252	MY13 Vehicle Population in DACs	6,433
Proportion DAC	6.20%	Proportion DAC	5.48%

Carl Moyer Impacts

Should the Measure be triggered in San Diego County, the potential funds lost by year is listed below in Table 25. Based on statewide cost effectiveness and historical allocations to each local air district, the loss in potential emission reduction benefits in San Diego County if the Measure is triggered is shown in Table 26.

Table 25. San Diego County 8 MYO Smog Abatement Fees

Standard	Attainment Year	Potential Dollars
75 ppb 8-hour Ozone	2026	\$ 2,308,061
70 ppb 8-hour Ozone	2032	\$ 2,341,248

Table 26. San Diego County Carl Moyer Program Potential Foregone Emissions Reductions

(reductions calculated on annual planning inventory consistent with Moyer Program cost-effectiveness)

Standard	Attainment Year	NO _x (tpd)
75 ppb 8-hour Ozone	2026	0.001
70 ppb 8-hour Ozone	2032	0.001

F. San Joaquin Valley

The Measure complements district efforts to meet contingency measure requirements for the 80 ppb, 75 ppb and 70 ppb 8-hour ozone standards, the 15 ug/m³ and 12 ug/m³ annual PM_{2.5} standards, and the 35 ug/m³ 24-hour PM_{2.5} standard. On May 18, 2023, specific to PM_{2.5} standards, the San Joaquin Valley Air Pollution Control District adopted their *PM_{2.5} Contingency Measure SIP Revision* which was submitted to U.S. EPA by CARB staff. Further, on June 23, 2023, CARB staff committed to submit to U.S. EPA a triggered contingency measure under State authority for the PM_{2.5} standards. If adopted, the Measure will be submitted to U.S. EPA to fulfill that commitment.

The required amount of emission reductions from contingency measures, or OYW of progress based on the draft guidance, is shown in Table 27 for the 80 ppb, 75 ppb and 70 ppb 8-hour ozone standards.

Table 27. San Joaquin Valley OYW of Progress

(reductions calculated on summer planning inventory)

Standard	Attainment Year	NO _x (tpd)	ROG (tpd)
80 ppb 8-hour ozone	2023	7.57	2.40
75 ppb 8-hour Ozone	2031	4.25	1.88
70 ppb 8-hour Ozone	2037	2.35	1.73

Table 28 documents the emission reductions that occur after the attainment year due to implementation of the Measure if triggered.

Table 28. San Joaquin Valley Potential Reductions from Measure
(reductions calculated on summer planning inventory for ozone, annual planning inventory for PM2.5)

Standard	Attainment Year	NOx Benefits (tpd)	ROG Benefits (tpd)
80 ppb 8-hour Ozone	2023	0.112	0.056
15 µg/m ³ Annual PM2.5	2023	0.117	0.052
35 µg/m ³ 24-hour PM2.5	2024	0.120	0.052
12 µg/m ³ Annual PM2.5	2030	0.086	0.027
75 ppb 8-hour Ozone	2031	0.079	0.025
70 ppb 8-hour Ozone	2037	0.076	0.024

Equity Impacts

Table 29 documents the potential impact of the Measure on DACs as identified in [CalEnviroScreen 4.0](#) in the San Joaquin Valley. The proportion of vehicles that are registered in DACs and would be impacted if the Measure is triggered is proportional to the general population of all vehicles registered in DACs overall, about 28-29 percent, though the percentage of people residing in DACs in San Joaquin Valley is relatively higher compared to other districts. There is not expected to be a disproportionate impact on disadvantaged communities should the measure be triggered.

Table 29. San Joaquin Valley Vehicle Populations
(vehicle populations calculated from EMFAC2021 Fleet Database)

All Vehicles		8 MYO Vehicles (MY 2013)	
Total Vehicle Population	2,493,831	MY13 Vehicle Population	113,744
Vehicle Population in DACs	738,064	MY13 Vehicle Population in DACs	31,906
Proportion DAC	29.60%	Proportion DAC	28.05%

Carl Moyer Impacts

Should the Measure be triggered in San Joaquin Valley, the potential funds lost by year is listed below in Table 30. Based on statewide cost effectiveness and historical allocations to each local air district, the loss in potential emission reduction benefits in the San Joaquin Valley if the Measure is triggered is shown in Table 31.

Table 30. San Joaquin Valley 8 MYO Smog Abatement Fees

Standard	Attainment Year	Potential Dollars ²⁰
80 ppb 8-hour Ozone	2023	\$ 3,781,802
15 µg/m ³ Annual PM2.5	2023	\$ 3,781,802
35 µg/m ³ Annual PM2.5	2024	\$ 3,880,753
12 µg/m ³ Annual PM2.5	2030	\$ 3,171,435
75 ppb 8-hour Ozone	2031	\$ 3,167,124
70 ppb 8-hour Ozone	2037	\$ 3,300,289

Table 31 San Joaquin Valley Carl Moyer Program Potential Foregone Emissions Reductions

(reductions calculated on annual planning inventory consistent with Moyer Program cost-effectiveness)

Standard	Attainment Year	NOx (tpd)
80 ppb 8-hour Ozone	2023	0.004
15 µg/m ³ Annual PM2.5	2023	0.004
35 µg/m ³ Annual PM2.5	2024	0.004
12 µg/m ³ Annual PM2.5	2030	0.003
75 ppb 8-hour Ozone	2031	0.003
70 ppb 8-hour Ozone	2037	0.003

²⁰ For years with multiple standards/ triggers in the same year, the loss in smog abatement fees would only be triggered once.

G. South Coast Air Basin

The Measure complements local air district efforts to meet contingency measure requirements for the 75 ppb and 70 ppb 8-hour ozone standards, and the 12 ug/m³ annual PM2.5 standard. The required amount of emission reductions from contingency measures, or OYW of progress based on the draft guidance, is shown in Table 32 for the 75 ppb and 70 ppb 8-hour ozone standards.

Table 32. South Coast Air Basin OYW of Progress

(reductions calculated on summer planning inventory)

Standard	Attainment Year	NOx (tpd)	ROG (tpd)
75 ppb 8-hour Ozone	2031	4.12	6.38
70 ppb 8-hour Ozone	2037	2.62	3.54

Table 33 documents the emission reductions that occur after the attainment or final RFP milestone year due to implementation of the Measure if triggered.

Table 33. South Coast Air Basin Potential Reductions from Measure

(reductions calculated on summer planning inventory for ozone, annual planning inventory for PM2.5)

Standard	Attainment/RFP Year	NOx Benefits (tpd)	ROG Benefits (tpd)
75 ppb 8-hour Ozone	2029	0.295	0.096
70 ppb 8-hour Ozone	2035	0.254	0.077
12 µg/m ³ Annual PM2.5	2030	0.300	0.093

Equity Impacts

Table 34 documents the potential impact of the Measure on DACs as identified in [CalEnviroScreen 4.0](#) in the South Coast Air Basin. The proportion of vehicles that are registered in DACs and would be impacted if the Measure is triggered is lower than the proportion of the general population of all vehicles registered in DACs overall, though the percentage of people residing in DACs in the South Coast Air Basin is relatively higher compared to other local air districts. There is not expected to be a disproportionate impact on disadvantaged communities should the measure be triggered.

Table 34. South Coast Vehicle Populations
(vehicle populations calculated from EMFAC2021 Fleet Database)

All Vehicles		8 MYO Vehicles (MY 2013)	
Total Vehicle Population	11,296,609	MY13 Vehicle Population	504,562
Vehicle Population in DACs	3,324,206	MY13 Vehicle Population in DACs	129,225
Proportion DAC	29.43%	Proportion DAC	25.61%

Carl Moyer Impacts

Should the measure be triggered in the South Coast Air Basin, the potential funds lost by year is listed below in Table 35. Based on statewide cost effectiveness and historical allocations to each local air district, the loss in potential emission reduction benefits in the South Coast Air Basin if the Measure is triggered is shown in Table 36.

Table 35. South Coast 8 MYO Smog Abatement Fees

Standard	Attainment/RFP Year	Potential Dollars
75 ppb 8-hour Ozone	2029	\$ 11,273,782
70 ppb 8-hour Ozone	2035	\$ 11,195,217
12 µg/m ³ Annual PM2.5	2030	\$ 11,122,871

Table 36. South Coast Carl Moyer Program Potential Foregone Emissions Reductions
(reductions calculated on annual planning inventory consistent with Moyer Program cost-effectiveness)

Standard	Attainment/RFP Year	NOx (tpd)
75 ppb 8-hour Ozone	2029	0.024
70 ppb 8-hour Ozone	2035	0.024
12 µg/m ³ Annual PM2.5	2030	0.024

H. Ventura County

The Measure complements local air district efforts to meet contingency measure requirements for the 70 ppb 8-hour ozone standard. The required amount of emission reductions from contingency measures, or OYW of progress based on the draft guidance, is shown in Table 37.

Table 37. Ventura County OYW of Progress
(reductions calculated on summer planning inventory)

Standard	Attainment Year	NOx (tpd)	ROG (tpd)
70 ppb 8-hour Ozone	2026	0.48	0.20

Table 38 documents the emission reductions that occur after the attainment year due to implementation of the Measure if triggered.

Table 38. Ventura County Potential Reductions from Measure
(reductions calculated on summer planning inventory)

Standard	Attainment Year	NOx Benefits (tpd)	ROG Benefits (tpd)
70 ppb 8-hour Ozone	2026	0.013	0.005

Equity Impacts

Table 39 documents the potential impact of the Measure on DACs as identified in [CalEnviroScreen 4.0](#) in Ventura County. The proportion of vehicles that are registered in DACs and would be impacted if the Measure is triggered is proportional to the general population of all vehicles registered in DACs overall, about 3 percent. There is not expected to be a disproportionate impact on disadvantaged communities, should the measure be triggered.

Table 39. Ventura County Vehicle Populations
(vehicle populations calculated from EMFAC2021 Fleet Database)

All Vehicles		8 MYO Vehicles (MY 2013)	
Total Vehicle Population	661,147	MY13 Vehicle Population	29,970
Vehicle Population in DACs	22,466	MY13 Vehicle Population in DACs	899
Proportion DAC	3.40%	Proportion DAC	3.00%

Carl Moyer Impacts

Should the Measure be triggered in Ventura County, the potential funds lost by year is listed below in Table 40. Based on statewide cost effectiveness and historical allocations to each local air district, the loss in potential emission reduction benefits in Ventura County if the Measure is triggered is shown in Table 41.

Table 40. Ventura County 8 MYO Smog Abatement Fees

Standard	Attainment Year	Potential Dollars
70 ppb 8-hour Ozone	2026	\$ 459,328

Table 41. Ventura County Carl Moyer Program Potential Foregone Emissions Reductions

(reductions calculated on annual planning inventory consistent with Moyer Program cost-effectiveness)

Standard	Attainment Year	NOx (tpd)
70 ppb 8-hour Ozone	2026	0.00008

I. West Mojave Desert

The Measure complements local air districts efforts to meet contingency measure requirements for the 75 ppb and 70 ppb 8-hour ozone standards. The required amount of emission reductions from contingency measures, or OYW of progress based on the draft guidance, is shown in Table 42.

Table 42. West Mojave Desert OYW of Progress
(reductions calculated on summer planning inventory)

Standard	Attainment Year	NOx (tpd)	ROG (tpd)
75 ppb 8-hour Ozone	2026	1.50	0.39
70 ppb 8-hour Ozone	2032	1.18	0.35

Table 43 documents the emission reductions that occur after the attainment year due to implementation of the Measure if triggered.

Table 43. West Mojave Desert Potential Reductions from Measure
(reductions calculated on summer planning inventory)

Standard	Attainment Year	NOx Benefits (tpd)	ROG Benefits (tpd)
75 ppb 8-hour Ozone	2026	0.021	0.009
70 ppb 8-hour Ozone	2032	0.018	0.006

Equity Impacts

Table 44 documents the potential impact of the Measure on DACs as identified in [CalEnviroScreen 4.0](#) in the West Mojave Desert. The proportion of vehicles that are registered in DACs and would be impacted if the Measure is triggered is proportional to the general population of all vehicles registered in DACs overall, about 8.5 percent. There is not expected to be a disproportionate impact on disadvantaged communities, should the measure be triggered.

Table 44. West Mojave Desert Vehicle Populations
(vehicle populations calculated from EMFAC2021 Fleet Database)

All Vehicles		8 MYO Vehicles (MY 2013)	
Total Vehicle Population	665,512	MY13 Vehicle Population	23,721
Vehicle Population in DACs	56,624	MY13 Vehicle Population in DACs	2,047
Proportion DAC	8.5%	Proportion DAC	8.6%

Carl Moyer Impacts

Should the measure be triggered in West Mojave Desert, the potential funds lost by year is listed below in Table 45. Based on statewide cost effectiveness and historical allocations to each local air district, the loss in potential emission reduction benefits in West Mojave Desert if the Measure is triggered is shown in Table 46.

Table 45. West Mojave Desert 8 MYO Smog Abatement Fees

Standard	Attainment Year	Potential Dollars
75 ppb 8-hour Ozone	2026	\$ 746,890
70 ppb 8-hour Ozone	2032	\$ 752,076

Table 46. West Mojave Desert Carl Moyer Program Potential Foregone Emissions Reductions

(reductions calculated on annual planning inventory consistent with Moyer Program cost-effectiveness)

Standard	Attainment Year	NOx (tpd)
75 ppb 8-hour Ozone	2026	0.00006
70 ppb 8-hour Ozone	2032	0.00006

J. Western Nevada County

The Measure complements local air district efforts to meet contingency measure requirements for the 70 ppb 8-hour ozone standard. The required amount of emission reductions from contingency measures, or OYW of progress based on the draft guidance, is shown in Table 47.

Table 47. Western Nevada County OYW of Progress

(reductions calculated on summer planning inventory)

Standard	Attainment Year	NOx (tpd)	ROG (tpd)
70 ppb 8-hour Ozone	2026	0.09	0.08

Table 48 documents the emission reductions that occur after the attainment year due to implementation of the Measure if triggered.

Table 48. Western Nevada County Potential Reductions from Measure
(reductions calculated on summer planning inventory)

Standard	Attainment Year	NOx Benefits (tpd)	ROG Benefits (tpd)
70 ppb 8-hour Ozone	2026	0.002	0.001

Equity Impacts

Per scores in *CalEnviroScreen 4.0*, there is only one vehicle registered in a DAC within the Western Nevada County nonattainment area. There is not expected to be a disproportionate impact on disadvantaged communities, should the measure be triggered.

Carl Moyer Impacts

Should the Measure be triggered in Western Nevada County, the potential funds lost by year is listed below in Table 49. Based on district allocations of Moyer Program funds per H&SC §44299.2, Northern Sierra Air Quality Management District, the local air district for Western Nevada County, receives \$200,000 regardless of the funding available statewide. Thus, there will be no emissions disbenefit from a decrease in Moyer Funds in Western Nevada County if the measure is triggered, shown in Table 50.

Table 49. Western Nevada County 8 MYO Smog Abatement Fees

Standard	Attainment Year	Potential Dollars
70 ppb 8-hour Ozone	2026	\$ 79,262

Table 50. Western Nevada County Carl Moyer Program Potential Foregone Emissions Reductions

(reductions calculated on annual planning inventory consistent with Moyer Program cost-effectiveness)

Standard	Attainment Year	NOx Benefits (tpd)
70 ppb 8-hour Ozone	2026	0.000

Section 6. Staff Recommendation

CARB staff recommends the Board:

1. Adopt the Measure addressing contingency measure requirements for the applicable nonattainment areas and standards as listed in Table 1;
2. Approve submittal into the California SIP of H&SC sections 44011(a)(4)(A) and (B); and
3. Direct the Executive Officer to submit the Measure, and H&SC sections 44011(a)(4)(A) and (B), to U.S. EPA as a revision to the California SIP.

Appendix A: Infeasibility Analysis

Infeasibility Analysis

Measure Analysis

CARB staff analyzed CARB's suite of control measures for all sources under CARB authority to identify potential contingency measure options. CARB control measures reduce NO_x, ROG and PM_{2.5} emissions. CARB currently has programs in place or under development for most of these sources and have evaluated a variety of regulatory mechanisms within existing and new programs for potential contingency triggers.

Criteria for Contingency Feasibility

CARB staff has evaluated potential options for a contingency measure within each of CARB's regulations (Table 51) using three criteria to determine its feasibility given the contingency measure requirements under the Act, recent court decisions and draft guidance. First, each measure was evaluated on whether it could be implemented within 30 days of being triggered and achieve the necessary reductions within 1-2 years of being triggered. Second, the technological feasibility of each option was considered to assess whether the measure would be technically feasible to implement. Measure requirements may be unavailable or cost prohibitive to implement, especially in the time frame required for contingency. Lastly, CARB staff evaluated whether the timeline for adoption would be compatible with the current consent decree deadline of September 30, 2024²¹. The contingency measure must be adopted by CARB and submitted to and fully approved by U.S. EPA by this date to resolve a San Joaquin Valley PM_{2.5} Federal Implementation Plan (FIP) published by U.S. EPA on August 7, 2023. A CARB statewide measure needing a full regulatory process typically requires five years for development and adoption by CARB and additional time for U.S. EPA's approval process including obtaining an Act waiver or authorization.

Challenges for CARB Measures

Based on CARB's feasibility analysis, there are a few common components of CARB regulations that limit the options for contingency measures. All new engine and emissions standards set by CARB require waivers or authorizations from federal preemption under the Clean Air Act; this process can take anywhere from months to several years, and then U.S. EPA must also act to approve the regulation into the California SIP. Further, CARB regulations that require fleet turnover or new engine standards require a long lead time for implementation. Engine manufacturers would need lead time to design, plan, certify, manufacture, and deploy cleaner engines to meet a new or accelerated engine standard, while fleet regulations necessitate that manufacturing is mature so that there is enough supply available to meet that demand. On the consumer side, additional time would be required for procurement implementation and there may be additional infrastructure

²¹ See 87 Fed.Reg. 71631 (Nov. 23, 2022).

needed to meet new requirements. Thus, measures that require fleet turnover or new engine standards are not appropriate to be used as a triggered contingency measure.

CARB regulations are also technology-forcing, which makes it difficult to amend regulations or pull compliance timelines forward with only 1-2 years notice as industry needs time to plan, develop, and implement these new technologies. It would be infeasible to require industry to turn over their fleets within one year if the technology is not readily available at a reasonable cost. CARB regulations are also the most stringent air quality control requirements in the country, so there are few opportunities to require additional stringency. CARB is driving sources under our authority to zero-emission everywhere feasible to ensure attainment of air quality standards across the State, and to support near-source toxics reductions and climate targets. However, the zero-emissions targets also eliminates opportunities for contingency.

Lastly, many of CARB's options for a contingency measure would require a full rulemaking process and would not be adopted by CARB, received an Act waiver/authorization, and approved by U.S. EPA within the timeframe specified, making many of the options infeasible. Based on the U.S. EPA FIP timeline, CARB staff would need to find a measure that could realistically be adopted and approved by U.S. EPA within the next year. However, most CARB measures must go through a regulatory process for adoption that can take approximately five years from start to finish.

Table 51. Assessment of Potential CARB Contingency Measures

Emission Source	Regulatory Programs	Latest Amendment Requirements	Contingency Options	Trigger Feasibility	Technological Feasibility
Light-Duty Passenger Vehicles and Light-Duty Trucks	Advanced Clean Cars Program (I and II), including the Zero Emission Vehicle (ZEV) Regulation	Amended 8/25/22 Requires 100% ZEV new vehicle sales by 2035 and increasingly stringent standards for gasoline cars and passenger trucks.	Pulling compliance timelines forward. Setting more stringent standards.	No; standards need years of lead time to be developed, certified, and implemented; infeasible to implement new standard or manufacturing requirements within 60 days and achieve reductions within one year.	No; current standards and requirements are technology forcing and most stringent in the nation, including a zero-emission requirement. Further stringency would not be feasible.
	Clean Miles Standard	Adopted 5/20/21 Set eVMT (electric miles traveled) and greenhouse gas (GHG) requirements for Transportation Network Companies (TNCs).	Pulling forward timeline to achieve 100% eVMT.	No; standards and fleet requirements need lead time to be implemented; infeasible to implement new standard or purchasing requirements within 60 days and achieve reductions within one year.	No; zero-emissions technology requirement is most stringent standard; TNCs are only a small portion of on-road vehicles, depending on area, may not achieve many reductions.

Emission Source	Regulatory Programs	Latest Amendment Requirements	Contingency Options	Trigger Feasibility	Technological Feasibility
	On Board Diagnostics II (OBD)	Amended July 22, 2021 Required updates to program to address cold start emissions and diesel particulate matter (PM) monitoring. Many of the regulatory changes included phase-ins that are not 100% until 2027.	Removing or pulling phase-in timelines forward. Setting more stringent OBD requirements.	No; OBD requirements need significant lead time to be developed, adopted, and implemented; infeasible to fully implement new requirements within 60 days and achieve similar reductions within one year.	No; the OBD requirements require sufficient lead time to implement with significant development time needed for hardware/ software changes and verification/validation testing.
	California Smog Check Program	Amended 2010 via legislation Smog Check Program enhancements, including new technologies and test methods.	Change the exemptions from 8 to 7 and/or 6 model years. Require annual Smog Check. Require annual Smog Check for only high mileage vehicles.	Yes (changing the exemptions) because it is not a regulatory change; No (other options); Smog Check requirements need significant lead time to be developed, adopted, and implemented; infeasible to fully implement new requirements within 60 days and achieve similar reductions within one year.	Yes (changing the exemptions) and would not have disproportionate impacts; Yes (other options), but would disproportionately impact low-income populations and disadvantaged communities.
	Reformulated Gasoline	Amended May 2003 Required removal of methyl tert-butyl ether (MTBE) and included refinery limits and cap limits.	Require more stringent standards. Change cap limits and refinery limits.	No; fuel standards need years of lead time to be developed, certified, and implemented; infeasible to implement new standard within 60 days and achieve reductions within one year.	No; current standards and requirements are some of most stringent in the world; not feasible to require further stringency of specifications and develop or manufacture in a compressed timeline.
Motorcycles	On-Road Motorcycle Regulation*	Proposed hearing: 2023 May require exhaust emissions standards (harmonize with European standards), evaporative emissions standards, and Zero Emission Motorcycle sales thresholds.	Pulling compliance timelines forward. Require more stringent emissions standards.	No; standards need years of lead time to be developed, certified, and implemented; infeasible to implement new standard within 60 days and achieve reductions within one year.	No; Any increase to the stringency of proposed standards would require an additional 1 to 2 years of lead time for 1) CARB staff to evaluate feasibility, and 2) manufacturers to develop and certify compliant motorcycles.

Emission Source	Regulatory Programs	Latest Amendment Requirements	Contingency Options	Trigger Feasibility	Technological Feasibility
Medium Duty-Trucks	Clean Diesel Fuel	Amended 2013 Established more stringent standards for diesel fuel.	Require more stringent fuel standard.	No; fuel standards need years of lead time to be developed, certified, and implemented; infeasible to implement new standard within 60 days and achieve reductions within one year.	No; infeasible to require more stringent standards in compressed timeline.
	Heavy-Duty Engine and Vehicle Omnibus Regulation	Adopted 8/27/20 Established new low NOx and lower PM tailpipe standards and lengthened the useful life and emissions warranty of in-use heavy-duty diesel engines.	Require more stringent standard, make optional idling standard required. Update testing requirements or corrective action procedures.	No; standards need years of lead time to be implemented; infeasible to implement new sales requirement within 60 days and achieve reductions within one year.	No; infeasible to require more stringent standards in compressed timeline.
	Advanced Clean Trucks Regulation	Adopted 6/25/20 Established manufacturer zero-emission truck sales requirement and company and fleet reporting.	Move up timeline for ZEV sales requirement. Reduce threshold for compliance.	No; manufacturer sales requirements need years of lead time to be implemented; infeasible to implement new sales requirement within 60 days. Sales requirement would not happen immediately or within one year of trigger; infeasible to achieve reductions within one year.	No; current sales requirement is technology forcing and most stringent in the nation.
	Advanced Clean Cars Program (I and II), including the Zero Emission Vehicle Regulation	Amended 8/25/22 Requires 100% ZEV new vehicle sales by 2035 and increasingly stringent standards for gasoline cars and passenger trucks.	Pulling compliance timelines forward. Setting more stringent standards.	No; standards need years of lead time to be developed, certified, and implemented; infeasible to implement new standard or manufacturing requirements within 60 days and achieve reductions within one year.	No; current standards and requirements are technology forcing and most stringent in the nation, including a zero-emission requirement. Further stringency would not be feasible.

Emission Source	Regulatory Programs	Latest Amendment Requirements	Contingency Options	Trigger Feasibility	Technological Feasibility
	Advanced Clean Fleets Regulation	Adopted 4/27/23 Establishes zero-emission purchasing requirements for medium- and heavy-duty vehicle fleets (including state and local agencies, and drayage fleets, high priority, and federal fleets); would also require 100% zero-emission new vehicle sales starting 2040.	Pulling compliance timelines forward. Reduce threshold for compliance.	No; fleet requirements need years of lead time to be implemented; infeasible to implement new purchasing requirements within 60 days. Purchasing requirement and turnover would not happen immediately; infeasible to achieve reductions within one year. Because of near term compliance deadlines, moving forward deadlines would not result in many reductions.	No; current fleet requirements are technology forcing and most stringent in the nation, eventually requiring zero-emissions only.
Heavy-Duty Trucks	Heavy-Duty Low NOx Engine Standards	See Omnibus.	More stringent standards were set with Omnibus Regulation.	No; engine standards need years of lead time to be developed, certified, and implemented; infeasible to implement new standard or purchasing requirements within 60 days and achieve reductions within one year.	No; infeasible to require more stringent technology forcing standards in compressed timeline if technology/ alternatives are not widely available.
	Optional Low-NOx Standards for Heavy-Duty Diesel Engines	Amended 8/27/20 as a part of Omnibus to lower the optional low NOx emission standards for on-road heavy-duty engines.	Make option required.	No; engine standards need years of lead time to be developed, certified, and implemented; infeasible to implement new standard or purchasing requirements within 60 days and achieve reductions within one year.	No; infeasible to require more stringent technology forcing standards in compressed timeline if technology/ alternatives are not widely available.
	Heavy-Duty Inspection and Maintenance Regulation	Adopted 12/9/21 Requires periodic vehicle emissions testing and reporting on nearly all heavy-duty vehicles operating in California.	Increase frequency of testing.	No; increased I/M requirements need significant lead time to be developed, adopted, and implemented; infeasible to fully implement new requirements within 60 days and achieve similar reductions within one year.	Yes, but costs would disproportionately impact small businesses and low-income populations.

Emission Source	Regulatory Programs	Latest Amendment Requirements	Contingency Options	Trigger Feasibility	Technological Feasibility
	Heavy-Duty OBD	Amended July 22, 2021 Required updates to program to address cold start emissions and diesel PM monitoring. Many of the regulatory changes included phase-ins that are not 100% until 2027.	Removing or pulling phase-in timelines forward. Setting more stringent OBD requirements.	No; OBD requirements need significant lead time to be developed, adopted, and implemented; infeasible to fully implement new requirements within 60 days and achieve similar reductions within one year.	No; the OBD requirements require sufficient lead time to implement with significant development time needed for hardware/ software changes and verification/validation testing.
	Heavy-Duty Engine and Vehicle Omnibus Regulation	Adopted 8/27/20 Established new low NOx and lower PM Standards and lengthened the useful life and emissions warranty of in-use heavy-duty diesel engines.	Require more stringent standard, make optional idling standard required. Update testing requirements or corrective action procedures.	No; standards need years of lead time to be developed, certified, and implemented; infeasible to implement new standard or sales requirements within 60 days and achieve reductions within one year.	No; infeasible to require more stringent technology forcing standards in compressed timeline.
	Cleaner In-Use Heavy-Duty Trucks (Truck and Bus Regulation)	Adopted 12/17/10 Requires heavy-duty diesel vehicles that operate in California to reduce exhaust emissions. By January 1, 2023, nearly all trucks and buses will be required to have 2010 or newer model year engines to reduce PM and NOx.	None	-	-
	Zero-Emission Powertrain Certification Regulation	Adopted 12/6/19 Establishes certification requirements for zero-emission powertrains.	None	-	-

Emission Source	Regulatory Programs	Latest Amendment Requirements	Contingency Options	Trigger Feasibility	Technological Feasibility
	Advanced Clean Trucks Regulation	Adopted 6/25/20 Established manufacturer zero-emission truck sales requirement and company and fleet reporting.	Move up timeline for ZEV sales requirement. Reduce threshold for compliance.	No; manufacturer sales requirements need years of lead time to be implemented; infeasible to implement new sales requirement within 60 days. Sales requirement would not happen immediately or within one year of trigger; infeasible to achieve reductions within one year.	No; current sales requirement is technology forcing and most stringent in the nation.
	Advanced Clean Fleets Regulation	Adopted 4/27/23 Establishes zero-emission purchasing requirements for medium- and heavy-duty vehicle fleets (including state and local agencies, and drayage fleets, high priority, and federal fleets); would also require 100% zero-emission new vehicle sales starting 2040.	Pulling compliance timelines forward. Reduce threshold for compliance.	No; fleet requirements need years of lead time to be implemented; infeasible to implement new purchasing requirements within 60 days. Purchasing requirement and turnover would not happen immediately; infeasible to achieve reductions within one year. Because of near term compliance deadlines, moving forward deadlines would not result in many reductions.	No; current fleet requirements are technology forcing and most stringent in the nation, eventually requiring zero-emissions only.
Heavy-Duty Urban Buses	Innovative Clean Transit	Adopted 12/14/2018 Requires all public transit agencies to gradually transition to a 100% zero-emission bus fleet.	Move compliance timelines forward. Remove various exemptions or compliance options.	No; fleet requirements need years of lead time to be implemented; infeasible to implement new purchasing requirements within 60 days. Purchasing requirement and turnover would not happen immediately; infeasible to achieve reductions within one year.	No; current requirements are technology forcing and most stringent (zero-emission requirement). Further stringency is not possible; expediting timelines would not be feasible.

Emission Source	Regulatory Programs	Latest Amendment Requirements	Contingency Options	Trigger Feasibility	Technological Feasibility
	Advanced Clean Fleets Regulation	Adopted 4/27/23 Establishes zero-emission purchasing requirements for medium- and heavy-duty vehicle fleets (including state and local agencies, and drayage fleets, high priority, and federal fleets); would also require 100% zero-emission new vehicle sales starting 2040.	Pulling compliance timelines forward. Reduce threshold for compliance.	No; fleet requirements need years of lead time to be implemented; infeasible to implement new purchasing requirements within 60 days. Purchasing requirement and turnover would not happen immediately; infeasible to achieve reductions within one year. Because of near term compliance deadlines, moving forward deadlines would not result in many reductions.	No; current fleet requirements are technology forcing and most stringent in the nation, eventually requiring zero-emissions only.
Other Buses, Other Buses - Motor Coach	Zero-Emission Airport Shuttle Regulation	Adopted 6/27/19 Requires airport shuttles to transition to zero-emission fleet.	Pull compliance timelines forward. Remove reserve airport shuttle exemption.	No; fleet requirements need years of lead time to be implemented; infeasible to implement new purchasing requirements within 60 days. Purchasing requirement and turnover would not happen immediately; infeasible to achieve reductions within one year.	No; current requirements are technology forcing and most stringent (zero-emission requirement). Further stringency is not possible. Not many shuttles in area, would not achieve many reductions.
	Advanced Clean Fleets Regulation	Adopted 4/27/23 Establishes zero-emission purchasing requirements for medium- and heavy-duty vehicle fleets (including state and local agencies, and drayage fleets, high priority, and federal fleets); would also require 100% zero-emission new vehicle sales starting 2040.	Pulling compliance timelines forward. Reduce threshold for compliance.	No; fleet requirements need years of lead time to be implemented; infeasible to implement new purchasing requirements within 60 days. Purchasing requirement and turnover would not happen immediately; infeasible to achieve reductions within one year. Because of near term compliance deadlines, moving forward deadlines would not result in many reductions.	No; current fleet requirements are technology forcing and most stringent in the nation, eventually requiring zero-emissions only.

Emission Source	Regulatory Programs	Latest Amendment Requirements	Contingency Options	Trigger Feasibility	Technological Feasibility
Commercial Harbor Craft	Commercial Harbor Craft (CHC) Regulation	Amended 3/24/22 Established more stringent standards, all CHC required to use renewable diesel, expanded requirements, and mandates zero-emission and advanced technologies.	Set more stringent standards. Pull compliance timelines forward.	No; Technology requirements and standards need years of lead time to be developed, certified, and implemented; infeasible to implement new standard or requirements within 60 days and achieve reductions within one year.	No; standards set are technology forcing and most stringent; not technologically feasible to require increased stringency in compressed timeline.
Recreational Boats	Spark-Ignition Marine Engine Standards*	Proposed hearing: 2029 Would establish catalyst-based emission standards and percentage of zero-emission technologies for certain applications.	Set more stringent standard.	No; standards need years of lead time to be developed, certified, and implemented; infeasible to implement new standard within 60 days and achieve reductions within one year.	No; standards being set will be most stringent feasible, including zero-emission requirement); would not save a more stringent standard for contingency
Transport Refrigeration Units	Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRUs) (Parts I and II*)	Amended 2/24/22 (Part I), Part II proposed CARB hearing in 2025 Requires diesel-powered truck TRUs to transition to zero-emission, PM emission standard for newly manufactured non-truck TRUs. Part II would establish zero-emission options for non-truck TRUs.	Set more stringent standards. Pull compliance timelines forward	No; standards and fleet requirements need years of lead time to be implemented; infeasible to implement new standard or purchasing requirements within 60 days and achieve reductions within one year.	No; current requirements are technology forcing and most stringent (zero-emission requirement). Further stringency is not possible; expediting timelines would not be feasible; would not save a more stringent standard for contingency
Industrial Equipment	Large Spark-Ignition (LSI) Engine Fleet Requirements Regulation	Amended July 2016 Extended recordkeeping requirements, established labeling, initial reporting, and annual reporting requirements.	Set more stringent performance standards	No; standards and fleet requirements need years of lead time to be implemented; infeasible to implement new standard or purchasing requirements within 60 days and achieve reductions within one year.	No; Infeasible to require further stringency within one year given timeline for technology development and certification. See Zero-Emission Forklifts below.

Emission Source	Regulatory Programs	Latest Amendment Requirements	Contingency Options	Trigger Feasibility	Technological Feasibility
	Off-Road Regulation	Amended 11/17/22 Requires phase out of oldest and highest-emitting engines, restricts addition of Tier 3 and 4i engines, mandates renewable diesel for all fleets.	Pull phase-out or compliance timelines forward	No; fleet requirements need years of lead time to be implemented; infeasible to implement new purchasing and turnover requirements within 60 days and achieve reductions within one year.	No; Infeasible to require further stringency within one year given timeline for technology development and certification.
	Zero-Emission Forklifts*	Proposed CARB hearing in 2023. Would require model-year phase-out and reporting requirements and manufacturer sales restrictions.	Pull phase-out or compliance timelines forward	No; standards requirements need years of lead time to be developed, certified, and implemented; infeasible to implement new standard within 60 days and achieve reductions within one year.	No; standards being set will be technology forcing and most stringent feasible, including zero-emission requirement; would not save a more stringent standard for contingency
	Off-Road Zero-Emission Targeted Manufacturer Rule*	Proposed CARB hearing in 2027. Would require manufacturers of off-road equipment and/or engines to produce for sale zero-emission equipment and/or powertrains as a percentage of their annual statewide sales volume.	Pull forward compliance timelines or increase percentage sales requirements	No; Manufacturing and sales requirements need years of lead time to be implemented; infeasible to pull forward standards within 60 days and achieve reductions within one year.	No; standards being set will be technology forcing and most stringent feasible, including zero-emission requirement; would not save a more stringent standard for contingency
Construction and Mining	Off-Road Zero-Emission Targeted Manufacturer Rule*	Proposed CARB hearing in 2027. Would require manufacturers of off-road equipment and/or engines to produce for sale zero-emission equipment and/or powertrains as a percentage of their annual statewide sales volume.	Pull forward compliance timelines or increase percentage sales requirements	No; Manufacturing and sales requirements need years of lead time to be implemented; infeasible to pull forward standards within 60 days and achieve reductions within one year.	No; standards being set will be technology forcing and most stringent feasible, including zero-emission requirement; would not save a more stringent standard for contingency

Emission Source	Regulatory Programs	Latest Amendment Requirements	Contingency Options	Trigger Feasibility	Technological Feasibility
	Off-Road Regulation	Amended 11/17/22 Requires phase out of oldest and highest-emitting engines, restricts addition of Tier 3 and 4i engines, mandates renewable diesel for all fleets.	Pull phase-out or compliance timelines forward	No; fleet requirements need years of lead time to be implemented; infeasible to implement new purchasing and turnover requirements within 60 days and achieve reductions within one year.	No; Infeasible to require further stringency within one year given timeline for technology development and certification.
Airport Ground Support Equipment	Zero-Emission Forklifts*	Proposed CARB hearing in 2023. Would require model-year phase-out and reporting requirements and manufacturer sales restrictions.	Pull phase-out or compliance timelines forward	No; standards requirements need years of lead time to be developed, certified, and implemented; infeasible to implement new standard within 60 days and achieve reductions within one year.	No; standards being set will be technology forcing and most stringent feasible, including zero-emission requirement; would not save a more stringent standard for contingency
	Large Spark-Ignition (LSI) Engine Fleet Requirements Regulation	Amended July 2016 Extended recordkeeping requirements, established labeling, initial reporting, and annual reporting requirements.	Set more stringent performance standards	No; standards and fleet requirements need years of lead time to be implemented; infeasible to implement new standard or purchasing requirements within 60 days and achieve reductions within one year.	No; Infeasible to require further stringency within one year given timeline for technology development and certification.
	Off-Road Regulation	Amended 11/17/22. Requires phase out of oldest and highest-emitting engines, restricts addition of Tier 3 and 4i engines, mandates renewable diesel for all fleets.	Pull phase-out or compliance timelines forward	No; fleet requirements need years of lead time to be implemented; infeasible to implement new purchasing and turnover requirements within 60 days and achieve reductions within one year.	No; Infeasible to require further stringency within one year given timeline for technology development and certification.

Emission Source	Regulatory Programs	Latest Amendment Requirements	Contingency Options	Trigger Feasibility	Technological Feasibility
Port Operations and Rail Operations	Cargo Handling Equipment Regulation*	Proposed CARB hearing in 2025. Amendments to transition to zero-emission technology.	None	No; Standards requirements need years of lead time to be developed, certified, and implemented; infeasible to implement new standard within 60 days and achieve reductions within one year. Fully implemented in 2017 and relies on other engine standards, making it infeasible to trigger without regulatory process changing other standards.	No; Considering regulation to move towards zero-emissions. Currently assessing availability of technologies.
	Off-Road Zero-Emission Targeted Manufacturer Rule*	Proposed CARB hearing in 2027. Would require manufacturers of off-road equipment and/or engines to produce for sale zero-emission equipment and/or powertrains as a percentage of their annual statewide sales volume.	Pull forward compliance timelines or increase percentage sales requirements	No; Manufacturing and sales requirements need years of lead time to be implemented; infeasible to pull forward standards within 60 days and achieve reductions within one year.	No; standards being set will be technology forcing and most stringent feasible, including zero-emission requirement; would not save a more stringent standard for contingency
Lawn and Garden	Small Off-Road Engine (SORE) Regulation	Amended 12/9/21 Requires most newly manufactured SORE to meet emission standards of zero starting in model year (MY) 2024.	Move up implementation deadlines	No; Standards requirements need years of lead time to be implemented; infeasible to pull forward standards within 60 days. Purchasing would not happen immediately or within one year of trigger; infeasible to achieve reductions within one year.	No; current standards and requirements are a technology forcing zero-emission certification requirement. Further stringency would not be possible.

Emission Source	Regulatory Programs	Latest Amendment Requirements	Contingency Options	Trigger Feasibility	Technological Feasibility
Ocean-Going Vessels	At Berth Regulation	Amended 8/27/20 Expands requirements to roll-on roll-off vessels and tankers, smaller fleets, and new ports and terminals.	Remove option to use alternate control technology or set more stringent alternate control technology requirements. Reduce threshold for 'low activity terminals' exemption.	No; control technology requirements need years of lead time to be implemented; infeasible to pull forward standards within 60 days and achieve reductions within one year.	No; regulation already requires use of shore power or alternate control technology for every visit.
	Ocean-going Vessel Fuel Regulation	Amended 2011 Extended clean fuel zone and included exemption window.	Set more stringent requirements	No; fleet requirements need years of lead time to be implemented; infeasible to implement new purchasing and turnover requirements within 60 days and achieve reductions within one year.	No; not feasible to require further stringency in a compressed timeline.
Locomotives	In-Use Locomotive Regulation	Adopted 4/27/23, Requires each operator to deposit funds into spending account for purchasing cleaner locomotive technology, sets idling limits, and requires registration and reporting. Starting in 2030, only locomotives less than 23 years old can operate in the state. Newly built passenger, switch, and industrial locomotives must operate in a zero emission configuration, and in 2035 newly built freight line haul locomotives.	Move up implementation deadlines. Set stricter idling requirements.	No; Fleet requirements need years of lead time to be implemented; infeasible to pull forward standards within 60 days and reductions within one year. No, for idling requirements.	No; current standards and requirements are technology forcing, include a zero-emission requirement. Further stringency would not be possible. No, for idling requirements, CARB is committing to re-evaluate the requirement during next assessment.

Emission Source	Regulatory Programs	Latest Amendment Requirements	Contingency Options	Trigger Feasibility	Technological Feasibility
Areawide Sources	Zero-Emission Standard for Space and Water Heaters	Proposed CARB hearing in 2025. Beginning in 2030, 100% of sales of new space heaters and water heaters would need to meet a zero-emission standard.	Set trigger for more stringent standards or timelines.	No; Standards requirements need years of lead time to be implemented; infeasible to pull forward standards within 60 days. Purchasing would not happen immediately or within one year of trigger; infeasible to achieve reductions within one year.	No; current standards and requirements are a technology forcing zero-emission certification requirement. Further stringency would not be possible.

There were few options identified for a contingency measure based on the infeasibility analysis. As previously stated, there are limitations to utilizing CARB regulations for contingency measures and CARB currently has programs in place or under development for most of these sources to reduce NO_x, ROG and PM_{2.5} emissions. However, the analysis did result in identifying the ability to utilize provisions within the Smog Check Program for a viable contingency measure, which is now being proposed.

Appendix B: Smog Check Contingency Measure Emissions Benefits Methodology

Smog Check Contingency Measure Emissions Benefits

Table 52. List of Non-Attainment Areas and Attainment Years

Standard	Area	Attainment Year
80 ppb 8-hour Ozone	San Joaquin	2023
75 ppb 8-hour Ozone	Sac Metro	2024
	Eastern Kern	2026
	West Mojave	2026
	San Diego	2026
	South Coast	2029
	Coachella Valley	2031
	SJV	2031
70 ppb 8-hour Ozone	Ventura	2026
	Western Nevada	2026
	Mariposa	2026
	Eastern Kern	2032
	Sacramento Metro	2032
	San Diego	2032
	West Mojave	2032
	South Coast	2035
	Coachella	2037
	SJV	2037
15 ug PM2.5	San Joaquin	2023
35 ug PM2.5	San Joaquin	2024
12 ug PM2.5	San Joaquin	2030
	South Coast	2030

Review Of Current Information

The Emission FACtor (EMFAC) model is California’s official emissions inventory model for on-road mobile sources. EMFAC2021 is the latest U.S. Environmental Protection Agency (U.S. EPA) approved version for use in California for State Implementation Plan (SIP) development and transportation conformity analysis²², and reflects the most recent emission and activity updates and newly adopted regulations at the time of its release. At the present time, almost the entire California vehicle fleet is subjected to the Smog Check Program and hence, in-use testing programs that inform emission rates in EMFAC2021 implicitly incorporate the emissions benefits of California’s Smog Check Program in the model output. In addition, EMFAC2021 does not have functionality to output emissions from the light-duty

²² <https://www.govinfo.gov/content/pkg/FR-2022-11-15/pdf/2022-24790.pdf>

fleet without the effects of Smog Check Program. However, an earlier version of the model, EMFAC2011, used a different modeling framework that allows users to estimate emissions impacts of the Smog Check based on user-defined program requirements specific to each NAA.²³

Unlike the latest version of the model, EMFAC2011 baseline outputs reflect emissions from a fleet without an I/M Program. Because California's Smog Check Program began in 1984, emissions data without an I/M program in EMFAC2011 were derived from U.S. EPA data collected on approximately 7,000 vehicles in Hammond, Illinois and Ann Arbor, Michigan in the 1990s before an I/M program was in effect.²⁴ CARB staff used these data for several versions of the model, up through EMFAC2011, to inform emission rates by vehicle technology group for a theoretical California fleet without an I/M program. Using data from CARB's longstanding Light-Duty Vehicle Surveillance Program (VSP), where vehicles failing the California Smog Check Program were tested before and after repairs, CARB staff adjusted baseline emission rates to reflect the benefits of having an I/M program based on requirements for each region in the State.

Approach

Since the Measure would change the current 8 model-year exemption to 7 model-years, CARB staff applied emission benefits of the change to the calendar year when vehicles would become 8 model-years old. Using this approach, all vehicles, regardless of when annual registration is due and the initial I/M Program inspections were performed during the year the vehicles turned 7 model-years old, will reflect the impacts of being initially subject to the I/M Program requirements for a full calendar year.

CARB staff used EMFAC2011 to derive the emissions impact of an I/M Program for each pollutant and vintage of vehicle newly becoming 8 model-years old in the attainment years listed in Table 52. The emissions impact is reflected as a ratio of emissions with no I/M Program relative to a baseline with an I/M program. As a fraction, this would be: (no-I/M) / (I/M), where ratios greater than one reflect the degree of emissions benefits of having an I/M program in place. CARB staff applied the ratios calculated using EMFAC2011 to the output from EMFAC2021²⁵ because the newest model represents the current California fleetwide emissions reflecting the current model year distribution, populations, accrual rates (miles driven per year), and emissions rates. The details of EMFAC2011 setup and run are provided in in the next section.

CARB staff applied the following equation:

²³ <https://www.federalregister.gov/documents/2013/03/06/2013-05245/official-release-of-emfac2011-motor-vehicle-emission-factor-model-for-use-in-the-state-of-california>

²⁴ <https://ww2.arb.ca.gov/sites/default/files/2023-03/emfac2000-ef.pdf>

²⁵ Downloaded from EMFAC2021 web database: <https://arb.ca.gov/emfac/emissions-inventory>

Benefits of removing 8-year exemption = Age 8 No-I/M emissions - Age 8 I/M emissions = (EMFAC2021 Age 8 Gasoline Vehicle Emissions²⁶ × EMFAC2011 Age 8 No-IM/IM Ratio²⁷) - EMFAC2021 Age 8 Gasoline Vehicle Emissions²⁶

For ozone nonattainment areas, the estimated benefits include NO_x and ROG in tons per day for summer season. For PM_{2.5} nonattainment areas, because EMFAC2011 does not reflect benefits from tailpipe PM emissions from the Smog Check Program, the annual NO_x and ROG emission benefits are included instead, as these are precursors to secondary PM_{2.5} formation in the atmosphere.

It should be noted that, some of CARB's recent regulations, including Advanced Clean Cars II (ACC II) and Advanced Clean Fleets (ACF) were finalized and adopted after release of EMFAC2021. Therefore, the emission benefits estimated for this Measure using EMFAC2021 do not reflect the impacts from these regulations.

Instructions For Configuring and Running EMFAC2011

1. For the "I/M" scenario, in the main menu, click "Add New Scenario".

The screenshot shows the EMFAC2011 software interface. At the top, there is a menu bar with 'MAIN' and several icons. Below the menu bar is a window titled 'List of Available Scenarios' with a 'No file' status. The window is divided into two main sections. On the left is a large empty box for the 'List of Available Scenarios'. On the right is the 'Current Scenario Data' section, which contains fields for 'Number: 0 of 0', 'Name:', 'Calendar Year:', 'Season:', and 'Type:'. Below these fields are several buttons: 'IM Program Parameters', 'Add New Scenario', 'Edit Scenario', 'Delete Scenario', 'Save', 'Save As...', 'Run', 'Finish Editing', and 'Cancel'.

2. Select "State", "Use Average" in "Step 1 - Geographic Area", select modeled calendar year(s) in "Step 2 - Calendar Years", Select "Summer" for ozone NAAs or "Annual" for PM NAAs in "Step 3 - Season or Month", then click "Next".

²⁶ Include all gasoline vehicle classes subject to California Smog Check Program

²⁷ Derived based on light-duty vehicle classes under 8,500 lbs. in EMFAC2011

Basic scenario data - Select Area, Calculation Method, Calendar Year(s), and Season

Step 1 - Geographic Area

Area Type: State

State

Air Basin

District

County

Calculation Method

By Sub-Area

Use Average

Step 2 - Calendar Years

Select

8 calendar years in the range 2023 to 2035 selected

Step 3 -- Season or Month

Summer

Cancel

Next >

Finish

- Click "Default Title" in "Step 4 - Scenario Title for Reports", select "All" in "Step 5 - Model Years", select "Modify" in "Step 6 - Vehicle Classes" and choose "PC/T1/T2/T3" from the pop-up window, select "Default" in "Step 7 - I/M Program schedule", then click "Next".

Input 1 | Input 2 | Mode and Output | Tech/IM | CYr Basis | . | . | .

Basic scenario data - Select or Enter Scenario Title

Step 4 -- Scenario Title for Reports

Statewide totals Avg Summer 8 CYrs 2023 to 2035 Default Title

Default Title

In Emfac Impact Rate reports, titles over 40 characters will be truncated!

Step 5 - Model Years

All model years selected

All

Modify

Step 6 - Vehicle Classes

MODIFIED: 4 of 21 vehicle classes selected

All

Modify

Step 7 - I/M Program Schedule

Standard I/M schedules

Default

Modify

Cancel

< Back

Next >

Finish

- In the tab "Burden - Area planning inventory", choose "Detailed Planning Inventories (CSV)" and click "Model Yrs". Select "Output Frequency" as "Day".

Input 1 | Input 2 | Mode and Output | Tech/IM | CYr Basis | . | . | . | .

Burden - Area planning inventory | **Emfac - Area fleet average emissions** | Calimfac - Detailed vehicle data

Scenario Type: BURDEN
Area-Specific Planning Emissions Inventory (tons/yr)

BURDEN Inventory Files and Reports

Planning Inventory (BUR)

☐ Standard ☐ HD Detail

Detailed Planning Inventories (CSV)

MVEI7G (BCD)

Weighted Model Year Activity (WT)

CEIDARS/CFUS (CTF)

Detailed Outputs (BDN)

☒ Model Yrs ☐ Tech Groups ☐ Speeds

Output Frequency

☐ Hour ☒ Day

Output Particulate As...

☐ Total PM ☒ PM10 ☐ PM2.5

Output Hydrocarbons As...

☐ TOG ☐ THC ☒ ROG ☐ CH4

Speed categories...

☐ 1 ☐ 5 ☒ 10 MPH

Cancel < Back Edit Program Constants Finish

5. No need to change any inputs in tab "Emfac - Area fleet average emissions". Leave any inputs at the default settings.

Input 1 | Input 2 | Mode and Output | Tech/IM | CYr Basis | . | . | . | .

Burden - Area planning inventory | **Emfac - Area fleet average emissions** | Calimfac - Detailed vehicle data

Scenario Type: EMFAC -- Area-specific fleet average emissions (g/hr) for selected temperatures, relative humidities speeds

Configure EMFAC Outputs

Temperal

Relative Humidities

Speed...

Emfac Rate Files

Binary Impacts (BIN)

ASCII Impacts (ERP)

Summary Rates (RTS)

Detailed Impact Rates (RTL)

Output Particulate As...

☐ Total PM ☒ PM10 ☐ PM2.5

Output Hydrocarbons As...

☐ TOG ☐ THC ☒ ROG ☐ CH4

Cancel < Back Edit Program Constants Finish

6. No need to change any inputs in tab "Calimfac - Detailed vehicle data". Leave any inputs at the default settings. Click "Finish" to go back to the main menu.

Input 1 | Input 2 | Mode and Output | Tech/IM | CYr Basis | . | . | . | .

Burden - Area planning inventory | Emfac - Area fleet average emissions | Calimfac - Detailed vehicle data

Scenario Type: CALIMFAC -- Detailed vehicle data (g/mi)

CALIMFAC Bag Options

- ☐ FTP Bag 1 (g/mi)
- ☐ FTP Bag 2 (g/mi)
- ☐ FTP Bag 3 (g/mi)
- ☐ UC Bag 1 (g/trip)
- ☐ UC Bag 2 (g/mi)
- ☒ FTP Composite (g/mi)

CALIMFAC Correction Factors

- ☐ No Correction Factors

Emission Factor Files and Reports

MY Emission Factor Regressions (OUT)

- ☐ I/M ☒ No I/M ☐ Tech Group

By Calendar Year (CYW)

- ☐ I/M ☐ No I/M ☐ I/M Credits

By Model Year (MY1, MY2)

Regime Fractions (RG1-RG6)

Output Particulate As...

- ☐ Total PM
- ☒ PM10 ☐ PM2.5

Output Hydrocarbons As..

- ☐ TOG ☐ THC
- ☒ ROG ☐ CH4

Cancel < Back Edit Program Constants Finish

7. In the "MAIN" menu, save the current input by clicking "Save", then click "Run" to start the model run. Only the .bdn output file is needed for data analysis, which shows the detailed emissions output by model year, vehicle class, and fuel type.

MAIN | . | . | . | . | . | . | . | .

File: C:\emfac2011\statewide_0828_1.inp

List of Available Scenarios

01 Statewide totals Avg Summer 8 CYrs 2023 to 2035

Current Scenario Data

Number: 1 of 1

Name: Statewide totals Avg Summer 8 CYrs 2023 to 2035 Default Title

Calendar Year: 2023

Season: Summer

Type: Calimfac

IM Program Parameters

Add New Scenario

Edit Scenario

Delete Scenario

Save

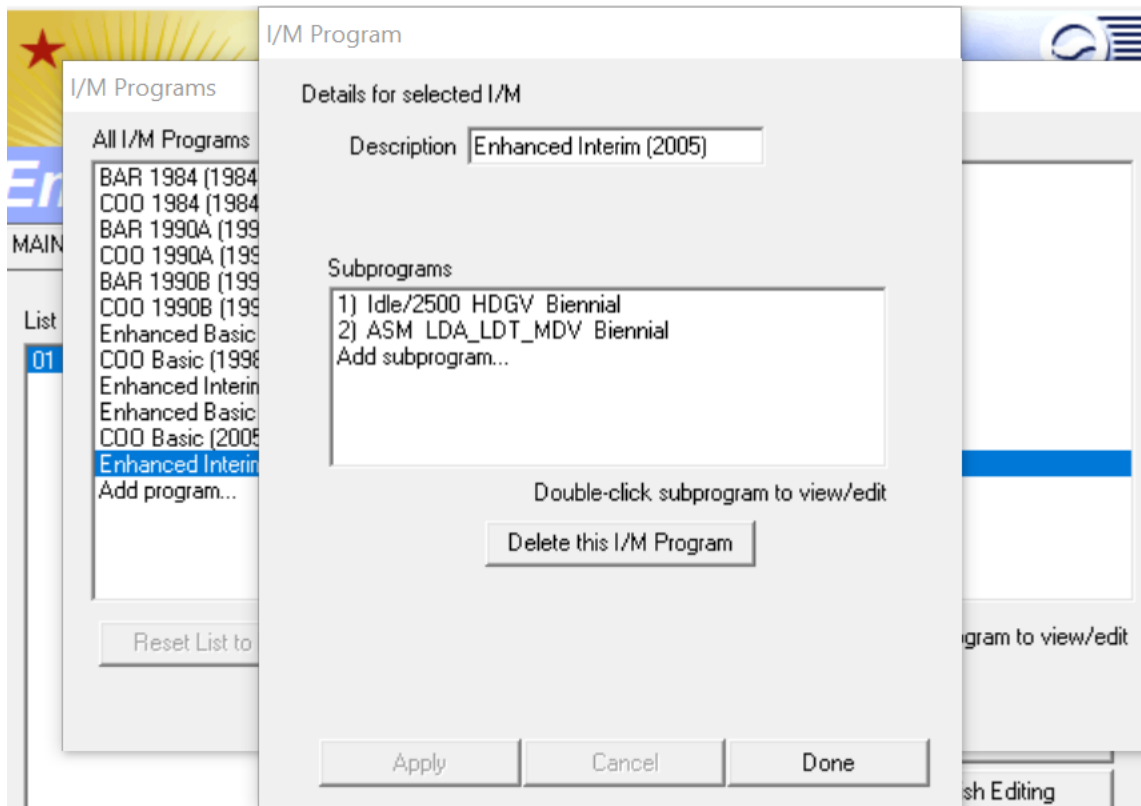
Save As...

Run

Finish Editing

Cancel

8. For "No-I/M" scenario, repeat Steps 1 to 6, except that in the main menu, click "IM Program Parameters", double click each program and delete, and click "Done" to go back to the main menu. Then proceed to Step 7 to start the model run.



Appendix C:

Carl Moyer Program Emissions Impacts Analysis Methodology

Moyer Program Emissions Reductions Estimates Methodology

CARB staff conducted analysis to determine the potential disbenefit of the Measure resulting from a potential loss in funding for the Moyer Program. If the Measure is triggered, the Moyer Program would receive less funding from fewer smog abatement fees being collected, as discussed in section 4C of this document. The calculation of the potential emissions disbenefit from losing Moyer Program funding consisted of two main components:

1. Vehicle Population
2. Moyer Program Statewide NOx Cost Effectiveness

The vehicle populations were estimated using EMFAC2021 and calculated as described in Appendix B. The statewide cost effectiveness was estimated as described in Appendix H of the Fiscal Year 2022-23 Funding Plan for Clean Transportation Incentives.²⁸

The methodology for calculating the potential emissions reductions loss is as follows:

First, CARB staff calculated the potential loss in funding by multiplying the smog abatement fee directed towards the Moyer Program of \$21 by the estimated vehicle population affected in each area for their respective attainment year. This results in the statewide total potential loss in funding if triggered in the respective area. An example calculation from a theoretical area missing attainment in 2023 is shown below.

$$\text{Total potential loss in funding resulting from an area missing attainment in 2023} = \text{Portion of smog abatement fee to Moyer} * 8\text{MYO vehicle population in nonattainment area in 2023}$$

Next, to find the area-specific foregone funding and related emission reductions, CARB staff used three years of historical Moyer Program funding allocations to local air districts to calculate the average proportion of funding typically awarded to each district. This district allocation calculation is done for each nonattainment area's corresponding local air district. An example calculation for a single local air district (District X) is shown below.

$$\text{District Allocation (\%)} = \frac{\text{Historical Average allocation to District X (\$)}}{\text{Total Carl Moyer Program Funding (\$)}}$$

The local air district allocation percentage for each area is then applied to the calculated loss in funding. This results in the potential loss in funding for each specific local air district.

²⁸ https://ww2.arb.ca.gov/sites/default/files/2022-10/proposed_fy2022_23_funding_plan_final.pdf

$$\text{Loss in funding for District X (\$)} = \text{District Allocation (\%)} * \text{Total potential loss in funding}$$

Divide the total loss in funding calculated for each area by the statewide NOx cost effectiveness and convert to tons per day. Each project is assumed to have a 10-year project life.

$$\text{Loss in reductions (tpd)} = \frac{\text{Loss in funding for District X (\$)}}{\text{statewide NOx cost effectiveness}/10/365 \left(\frac{\$}{\text{ton}} \right)}$$

The result is the total loss in potential emissions reductions for each district from foregone funding for Moyer Program projects.

Appendix D:
California Health and Safety Code § 44011(a)(4)(A) and (B)

State of California

HEALTH AND SAFETY CODE

Section 44011

44011. (a) All motor vehicles powered by internal combustion engines that are registered within an area designated for program coverage shall be required biennially to obtain a certificate of compliance or noncompliance, except for the following:

[REDACTED]

(4) (A) Except as provided in subparagraph (B), all motor vehicles four or less model-years old.

(B) (i) Beginning January 1, 2005, all motor vehicles six or less model-years old, unless the state board finds that providing an exception for these vehicles will prohibit the state from meeting the requirements of Section 176(c) of the federal Clean Air Act (42 U.S.C. Sec. 7401 et seq.) or the state's commitments with respect to the state implementation plan required by the federal Clean Air Act.

(ii) Notwithstanding clause (i), beginning January 1, 2019, all motor vehicles eight or less model-years old, unless the state board finds that providing an exception for these vehicles will prohibit the state from meeting the requirements of Section 176(c) of the federal Clean Air Act (42 U.S.C. Sec. 7401 et seq.) or the state's commitments with respect to the state implementation plan required by the federal Clean Air Act.

(iii) Clause (ii) does not apply to a motor vehicle that is seven model-years old in year 2018 for which a certificate of compliance has been obtained.

[REDACTED]

[REDACTED]

(Amended by Stats. 2017, Ch. 633, Sec. 1. (AB 1274) Effective October 10, 2017.)

**South Coast Air Basin Attainment Plan for the 2012
Annual PM2.5 Standard**

Appendix V

**ATTACHMENT B: CARB'S AREA SOURCE INFEASIBILITY
JUSTIFICATION**

CARB Reactive Organic Gases Area Source Measure Analysis

CARB adopted the *California Smog Check Contingency Measure* to address contingency measure requirements throughout the State. U.S. EPA proposed to approve the *California Smog Check Contingency Measure* as a contingency measure on December 20, 2023. The Smog Check Contingency Measure, if triggered in a nonattainment area, would reduce the exemption for vehicles that are 8 model years old and newer to seven model years old and newer, thereby increasing the number of vehicles subject to Smog Check. This measure, if triggered, would achieve additional NO_x and ROG reductions beyond what is currently achieved by the Smog Check Program by identifying additional emissions control equipment failures from vehicles previously exempt.

The *California Smog Check Contingency Measure* includes, in Appendix A, analysis on the feasibility of contingency measures related to CARB's mobile source control programs that target both ROG and NO_x. CARB staff are now evaluating potential options for a contingency measure achieving ROG reductions from area sources that the State has authority to regulate, including both CARB and Department of Pesticide Regulation (DPR) 's regulations (Table 2), to determine feasibility given the contingency measure requirements under the Clean Air Act, recent court decisions and U.S. EPA draft guidance. The State currently has programs in place for these area sources and has evaluated a variety of regulatory mechanisms within existing and new programs for potential contingency triggers. Each measure was evaluated on whether it could be implemented within 60 days of being triggered and achieve the necessary reductions within 1-2 years of being triggered. Additionally, the technological feasibility of each option was considered to assess whether the measure would be technologically feasible to implement. More stringent requirements may be unavailable or economically infeasible to implement, especially in the time frame required for contingency measure implementation. Some measures aim to reduce VOC emissions as opposed to ROG emissions. However, VOC and ROG emissions are virtually equivalent. Thus, both terms are used interchangeably throughout this document.

Challenges for CARB Measures

Based on CARB's feasibility analysis, which is similar to our mobile source analysis, there are a few common components of CARB area source regulations that limit the options for contingency measures. CARB regulations that require development of new emissions control technologies or new product formulations require a long lead time for implementation. Manufacturers would need lead time to research, plan, certify, manufacture, and deploy lower-emitting alternatives to meet a new or accelerated standard.

Draft CARB Contingency Measure Analysis

Additionally, consumer-based regulations necessitate that manufacturing is mature so that there is enough supply available to meet the additional demand. On the consumer side, additional time would be required for procurement implementation based on the new requirements. Thus, measures that require product turnover, new standards or reformulation are not appropriate to be used as a triggered contingency measure given the compressed timeline required for contingency.

CARB regulations are also technology-forcing, which makes it difficult to amend regulations or pull compliance timelines forward with only 1-2 years notice as industry needs time to research, plan, develop, and implement these new technologies and product formulations. It would be infeasible to require industry to purchase and install large numbers of new control technologies within one year if the technology is not readily available at a reasonable cost. CARB regulations are also the most stringent air quality control requirements in the country, so there are few opportunities to require additional stringency. CARB is driving sources under our authority to near-zero and zero-emissions everywhere feasible to provide for attainment of air quality standards across the State, and to support near-source toxics reductions and climate targets. However, these targets which are already being addressed in many CARB regulations also eliminate opportunities for a contingency measure.

Lastly, many of CARB's options for a contingency measure would require a full rulemaking process and would not be adopted by CARB and approved by U.S. EPA within the timeframe needed, making many of the options infeasible. Given U.S. EPA failure to submit and disapproval actions for the 75 ppb 8-hour ozone standard, sanction clocks have started and sanctions could be triggered in San Joaquin Valley, Coachella Valley, Mojave Desert and the Sacramento region in 2024. As such, CARB and these local air districts need to identify measure(s) that could realistically be adopted and submitted to U.S. EPA prior to that time. However, most CARB measures must go through a regulatory process that can take approximately five years from beginning development of a regulation to it being adopted by the CARB Board.

Based on CARB staff analysis, no additional measures were identified at this time to serve as a contingency measure to reduce ROG emissions beyond the California Smog Check Contingency Measure. More detail on the CARB staff analysis, including potential emission reduction options for each area source category are described in the following sections.

Consumer Products

Consumer products refer to chemically formulated products used by household and institutional consumers, such as detergents, personal care and cosmetics products, home

Draft CARB Contingency Measure Analysis

and garden products, and disinfectants. CARB regulations for consumer products aim to reduce the amount of VOCs, toxic air contaminants, and greenhouse gases that are emitted from using these consumer products.

CARB is actively seeking further emission reductions to support ozone attainment in the South Coast and elsewhere in California. Towards this end, CARB's 2022 State SIP Strategy includes a consumer products statewide emissions reduction commitment of 20 tons per day (tpd) of VOCs.

To achieve the 20 tpd VOCs emission reduction, CARB staff anticipates casting a wide net in its review of product categories. CARB staff plans to launch a survey in early 2024 to collect sales and formulation data for products sold recently in California. Survey data will identify opportunities to further reduce ozone formation from consumer products. Staff expects to bring regulatory proposals to the Board by 2027.

The Consumer Products Rulemaking Process

In granting CARB authority to regulate consumer products, which were previously regulated by local air pollution control districts and air quality management districts, it was the Legislature's intent to have a single set of regulatory requirements applicable statewide, rather than a patchwork of regulations. CARB's Consumer Products Regulation applies statewide.

For any consumer products rulemaking, proposed amendments are the culmination of a multi-year public process by CARB to identify the most promising, technically-sound strategies to effectively help California meet its air quality challenges. The recent 2021 rulemaking took close to seven years and included the following three phases of regulatory development: 1) development and implementation of the three-year survey; evaluation and publication of 2013 through 2015 Consumer and Commercial Products Survey data; 2) evaluation of potential regulatory strategies based upon the survey data; and 3) development and refinement of Proposed Amendments.

Manufacturers need lead time to reformulate existing products to meet new VOC standards. Based on previous rulemakings, five significant milestones exist and are associated with reformulating products to meet new consumer product regulatory requirements: 1) research and development; 2) efficacy testing; 3) stability testing; 4) safety testing; and 5) consumer acceptance testing. In addition, manufacturers must make modifications to product labels. While there is some opportunity for manufacturers to run these processes concurrently, often a problem in any one of these milestones require the manufacturer to start the process again.

Draft CARB Contingency Measure Analysis

When setting technology forcing standards, CARB may provide for a Technical Assessment prior to effective dates. This enables CARB to assess progress made by manufacturers in developing complying products. In cases where product development challenges result in infeasibility of timely implementation, the assessment could result in amendments to the standards or to extensions in compliance deadlines.

Additionally, technology forcing standards often require modifications to facilities, equipment, and manufacturing processes. This would be the case if a product is reformulated to use compressed gas propellant instead of liquefied gas propellant. Use of compressed gas propellant requires the purchase and installation of new equipment and modifications to facility assembly lines, necessitating sufficient lead time for implementation as well as certainty about implementation dates for the technology forcing standards. CARB staff will be evaluating increased use of compressed gas propellant for the upcoming consumer product rulemaking.

Trigger Feasibility

To provide reductions qualifying for contingency purposes, CARB would need to adopt regulatory amendments which yield emission reductions that could be implemented within a short period of time from a triggering event.

For a given product category for which CARB proposes more stringent VOC standards, CARB cannot call for earlier implementation of those standards for contingency purposes. This is because CARB already requires implementation under short timelines to maximize air quality benefits in support of expeditious attainment of ambient air quality standards.

Neither can CARB set lower limits for products that would be produced and warehoused, but not sold unless a triggering event occurred. Warehousing of “contingency” products would be cost prohibitive for manufacturers and would not provide the Consumer Products Program with the maximum feasible air quality benefits, as required by the Legislature. Some consumer products also have limited shelf life and given the uncertainty of when a triggering event may occur, such an approach is not feasible.

Technological Feasibility

The Legislature, in Health and Safety Code (H&SC) Section 41712(b)(2) and 41712(d), stipulates that CARB’s consumer product regulations must set standards which are commercially and technologically feasible. Therefore, during every consumer products rulemaking, CARB sets VOC limits that are the most technologically and commercially feasible at the time.

Draft CARB Contingency Measure Analysis

CARB's Consumer Products Regulation does not require lower VOC content products in some parts of California, which could then be required in other parts of California in need of contingency reductions.

When proposing more stringent VOC standards, CARB cannot establish two increasingly restrictive sets of VOC limits: one limit in support of attainment, which would go into place by a defined date; and a second, more stringent limit which would only be implemented if contingency needs were triggered. This is because: (1) State law, stated in H&SC section 41712(b)(1), requires CARB to adopt the most stringent feasible standards for attainment purposes; and (2) further reductions from consumer products are needed for attainment of ozone ambient air quality standards.

Neither could CARB set a single, more restrictive VOC standard, implement those requirements, and then hold back a portion of the anticipated emission reductions for contingency purposes while still dedicating the majority of accruing reductions towards attainment targets. In such a case, additional actual emission reductions would not occur if contingency requirements were triggered. This approach would therefore not satisfy requirements for contingency reduction.

Even if no further VOC reductions were needed for attainment, setting more stringent standards for contingency purposes would still not be a viable undertaking. This is because the testing and development of lower VOC products meeting more stringent standards could take years and much investment by manufacturers. Timelines would not mesh with the quick turnaround time needed for contingency reductions. In short, CARB cannot require development of new consumer products just in case additional emission reductions are needed. This means CARB cannot produce contingency reductions by setting more stringent standards for consumer product categories other than those which CARB would regulate further to secure the 20 tpd VOC emission reduction target for attainment purposes.

Further, CARB cannot, when seeking reductions in the very near-term (and consistent with contingency reduction timelines), rely on other jurisdictions whose regulations are resulting in lower-emitting consumer products which they could then offer for sale in California. California's Consumer Products Program is world-leading, cutting-edge and technology forcing. Manufacturers have not already developed products, and marketed them elsewhere, which they could direct to California in case a need for contingency reductions is triggered.

In summary, a consumer product contingency measure seeking additional emission reductions either by setting more restrictive standards, or by accelerating effective dates of standards, is infeasible.

Draft CARB Contingency Measure Analysis

Oil and Gas

For decades, air districts with significant oil production have adopted and implemented rules designed to reduce criteria pollutant precursor emissions from the oil and gas sector to meet national ambient air quality standards (NAAQS) and Clean Air Act requirements. The air district rules control emissions of reactive organic gases (ROG) from tanks, separators, and compressors, and specify requirements for leak detection and repair (LDAR). The air district rules do not cover methane specific sources.

In 2017, CARB adopted the Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities (also known as the Oil and Gas Methane Regulation) to address methane emissions from equipment and processes not already controlled for ROG purposes by existing air district rules. Although the Oil and Gas Methane Regulation is intended to reduce methane emissions, many of the covered sources also emit ROG as co-pollutants, and therefore the regulation also reduces ROG emissions. Only four air districts in California with nonattainment areas have oil and gas equipment subject to the regulation: Sacramento Metropolitan Air Quality Management District, San Joaquin Valley Air Pollution Control District, South Coast Air Quality Management District, and Ventura County Air Pollution Control District. The air district rules and the Oil and Gas Methane Regulation complement one another and together reduce ROG emissions from California's oil and natural gas sector.

Starting in 2012, U.S. EPA established regulations to reduce air pollution from the oil and natural gas industry consisting of new source performance standards. U.S. EPA also promulgated a Control Techniques Guideline in 2016 for the Oil and Natural Gas Industry which requires all states with applicable nonattainment areas to meet the prescribed levels of control in order to satisfy reasonably available control technology requirements. The CTG requirements are met in California via air district rules and CARB's submittal of the Oil and Gas Methane Regulation. In December 2023, U.S. EPA finalized updated regulations for the oil and natural gas industry including more stringent new source performance standards and, for the first time, Emissions Guidelines. U.S. EPA's recent Emissions Guidelines will require that CARB amend the Oil and Gas Methane Regulation to meet the more stringent requirements.

Methane and ROG emissions can originate from oil and gas infrastructure when natural gas is either intentionally released ("vented" emissions) or unintentionally leaked ("fugitive" emissions). Intentional releases can occur due to process designs (e.g., as a fluid to operate pneumatic devices), for safety or maintenance reasons, or for when no other control or disposal options exist (where allowed). Unintentional leaks can occur due to factors such as defects or wear in connections, valves, seals, and similar mechanisms, or due to process

Draft CARB Contingency Measure Analysis

upsets, system malfunctions, or human error. Vented emissions can be controlled primarily by replacing equipment with lower-emitting models or adding vapor collection systems to equipment, and the further controls that will be required under the recent U.S. EPA Emissions Guidelines represent all controls that are technologically feasible. Fugitive emissions are addressed through leak detection and repair (LDAR) to find and fix unintentional leaks. In each of these areas, there are no additional available feasible control measures that could meet the requirements of a contingency measure.

First, there are not currently any additional measures in the Oil and Gas Methane Regulation that could be triggered without undertaking amendments to the regulation. The process for amending a regulation takes years to complete and requires the development of new measures, stakeholder engagement, and the formal regulatory process itself.

Second, even if the length of the regulatory process were not a barrier, no available surplus emission reductions could reasonably be implemented within the short timeframe required upon a triggering event. Implementation of additional controls requires at least two to three years for oil and gas facilities to comply with. New controls are not easily installed on equipment and would take additional time to upgrade, which likely does not fit in the contingency timeline required. Each of the potential emission reduction mechanisms in the Oil and Gas Methane Regulation are analyzed below:

- Reduce venting through equipment replacement or vapor control (control venting emissions):
 - The Oil and Gas Methane Regulation already includes strict venting standards for most categories of equipment designed to vent natural gas as part of normal operation. The areas where further control of vented emissions may be feasible are all being addressed by U.S. EPA's Emissions Guidelines (finalized December 2023), which are standards that CARB must meet for existing sources to demonstrate compliance with the Clean Air Act; these are measures that must be implemented and cannot be held in reserve for use as triggered contingency measures. These include banning all associated gas venting, requiring all pneumatic controllers to be zero-emission, and requiring minimization of emissions from liquids unloading to the greatest extent possible.
- Expand/increase LDAR (control fugitive emissions):
 - Under the Oil and Gas Methane Regulation, LDAR is already mandated on a quarterly basis using a very sensitive methodology (U.S. EPA's Method 21). The only exemption that results in a significant number of sources not being subject to LDAR is for equipment handling exclusively heavy oil¹, which is not

¹ Oil with an API gravity of less than 20.

Draft CARB Contingency Measure Analysis

economically feasible to control based on analysis using currently available data.

In summary, there are no new technologically feasible control measures that CARB can implement in the Oil and Gas Methane Regulation that could meet the triggering timelines and other requirements, and are available to use as contingency measures.

Petroleum Marketing – Vehicle Refueling

Vapor recovery systems are installed at gasoline dispensing facilities (GDFs) to collect, contain, and return gasoline vapors that would otherwise escape into the atmosphere. Gasoline vapor emissions contain smog forming volatile organic compounds (VOCs) that are controlled in two phases at GDFs. Phase I vapor recovery collects vapors displaced from a storage tank when a cargo tank truck delivers gasoline. Phase II vapor recovery collects and stores vapors displaced during the transfer of gasoline from the GDF storage tanks into the vehicle tank. Stored gasoline vapors in the GDF tanks are then transferred into gasoline cargo tank trucks during Phase I activities and returned to gasoline terminals for processing. CARB regulations establish statewide performance standards for vapor recovery systems that must be achieved during the transfer and storage of gasoline. In addition, all vapor recovery systems must undergo CARB certification tests to demonstrate compliance with applicable performance standards before those systems can be sold, offered for sale, or installed in California.

Vapor recovery system performance standards for GDFs have become more stringent over the years. Since 2001, CARB has adopted over a dozen significant advancements as part of the Enhanced Vapor Recovery (EVR) program. Phase I EVR requires more durable and leak-tight components, along with an increased collection efficiency of 98%. Phase II EVR includes three major advancements: (1) dispensing nozzles with less spillage and required compatibility with ORVR (onboard refueling vapor recovery) vehicles, (2) a processor to manage the headspace pressure within the GDF storage tank, and (3) an in-station diagnostic (ISD) system that provides warning alarms to alert a GDF operator of potential vapor recovery system malfunctions. Phase I EVR was fully implemented in 2005 and Phase II EVR was fully implemented by 2011.

Additionally, CARB's air toxic control measure for benzene requires retail GDFs to install Phase I and Phase II systems to reduce public exposure. Exceptions to the measure include gasoline (1) dispensed from or transferred to a storage tank with a capacity less than 260 gallons, (2) dispensed to implements of animal husbandry; or (3) dispensed to vehicles with fuel tanks less than 5 gallons capacity.

Draft CARB Contingency Measure Analysis

Since the implementation of Phase I and Phase II EVR in 2011, CARB staff has made additional improvements to the vapor recovery program. For GDF equipped with underground storage tanks, a total of four regulatory amendments were completed between 2011 and 2023 to strengthen performance standards, adjust implementation dates to reflect evolving technology, clarify dimension requirements for nozzles and vehicle fill pipes, and improve cost effectiveness for system upgrade requirements. Two of the most recently implemented control measures, hose permeation and more stringent nozzle spillage standard, are described below.

- Hose Permeation Standard:

CARB adopted performance standards for gasoline dispensing hose permeation on July 26, 2012. The intent of this standard is limiting the amount of gasoline that permeates through the dispensing hose. Hose permeation performance standards only apply to hoses in which liquid gasoline contacts the outer hose wall, specifically: Phase II vacuum assist and conventional hoses (latter are installed in facilities that are exempt from Phase II because they fueled predominately vehicles equipped with ORVR). Existing facilities subject to the performance standard were allowed four years from the effective date to attain compliance. The effective date is defined as the date when the first dispensing hose meeting the performance standard is certified by CARB.

The first conventional and vacuum assist hoses that met the new permeation standard were certified by CARB on June 10, 2014, and September 24, 2014, respectively. These certification dates establish the effective dates and associated four-year periods (commonly referred to as “the four-year clock”) for existing subject GDFs to comply. Existing GDFs that used conventional hoses and vacuum assist hoses had until June 10, 2018, and September 24, 2018, respectively to comply with the low permeation hose standard. New GDFs constructed after the effective dates that use vacuum assist or conventional hoses are required to install low permeation hoses at the time of construction.

- More Stringent Nozzle Spillage Standard:

In April 2015, CARB adopted new performance standards and specifications for Enhanced Conventional (ECO) nozzles that are installed at non-retail GDFs, which are exempt from Phase II requirements by district rules. These GDFs fueled predominantly vehicles that are equipped with ORVR, which collects displaced vapor during vehicle refueling.

CARB staff have compiled and evaluated mass emission factors for nozzle spillage based on CARB certification test data for three EVR nozzles and two ECO nozzles. In April 2020,

Draft CARB Contingency Measure Analysis

staff found that the mass emission factors based on certification data for all five nozzles are substantially lower than applicable performance standards. This finding demonstrated nozzles are performing much better than predicted for EVR implementation at the time CARB adopted the EVR regulations.

Consequently, in December 2020, the Board approved a more stringent performance standard of 0.05 lbs/kgal for nozzle spillage for both EVR and ECO nozzles to preserve emission reductions that are already occurring and prevent emissions from increasing.

Recent analysis indicates that CARB certified vapor recovery systems designed for use at GDFs are well over 90% effective² in reducing VOC emissions that would otherwise be emitted to the atmosphere. Given the maturity and robustness of the program and the stringency of existing control measures that have been implemented statewide, there are no available additional control measures that would be feasible to implement within the timeframes required for contingency measures. Even if more stringent control measures could be adopted, they would not be able to be implemented in the contingency timeframe required as manufacturers and retailers would need more than two years of lead-time, as has been provided in the past, to comply with new standards.

CARB staff believes future amendments will improve existing test procedures and ease the burden of compliance for GDF operators without causing any increase in emissions or costs. Further, absent any changes to vapor recovery controls, CARB staff expects that gasoline vapor emissions will track proportionally to fuel dispensed. As California transitions to more fuel-efficient vehicles, zero emission vehicles, and alternative fuel sources, gasoline consumption and associated vapor emissions are expected to decrease. However, as long as gasoline remains a major fuel source, CARB will need to maintain an active and effective vapor recovery program.

In summary, California has the most comprehensive vapor recovery program applicable to GDFs in the country, and there are no new technologically feasible control measures that could meet the triggering timelines and other requirements, and are available to use as contingency measures. California's program includes:

1. rigorous performance standards for Phase I transfer, Phase II transfer, In-Station Diagnostic systems, hose permeation, storage tank pressure management, and nozzle spillage,
2. strong enforcement of performance standards by local air districts, and

² https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2023/vapor_recovery_2023/isor.pdf

Draft CARB Contingency Measure Analysis

3. going well beyond US EPA's Stage I (Phase I in California), which is the sole focus of US-EPA's vapor recovery requirements.

Going forward, the vapor recovery program will remain an important part of California's efforts to control regional ozone levels and reduce public exposure to benzene.

Petroleum Marketing – Cargo Tanks

In California, gasoline vapor emissions are controlled to reduce emissions of air pollutants, specifically VOCs and various toxic air contaminants (TACs) such as benzene. Emissions are controlled during the transfer of gasoline from storage tanks at refineries or terminals/bulk plants to tanker trucks also called cargo tanks (CTs). Cargo tanks transport gasoline to service stations also called GDFs. The Cargo Tank Vapor Recovery Program (CTVRP) regulations require annual testing of CTs to ensure that they do not exceed the allowable leak rate. Such tests are performed by CT owner/operators or independent testing contractors. Test results are submitted to CARB CTVRP staff for review and provide the basis for issuing a certification document with a decal, which must be renewed annually. To ensure the integrity of the program, CTVRP staff monitors the testing conducted by CT owners, operators, and contractors. Additionally, CTVRP staff perform random inspections and testing of CTs. Also, loading facilities are prohibited from transferring gasoline to CTs with invalid or expired certifications. Because of the severe and unique air pollution problems facing California, CARB's gasoline vapor control standards for CTs are more stringent than comparable federal standards.

CARB first adopted the cargo tank vapor recovery certification regulations on April 18, 1977. These regulations established a five-minute static pressure test with an allowable leak rate to prevent excessive gasoline vapor emissions and a one-minute test for CARB inspectors to monitor CTs loaded with gasoline. There have been six amendments to this regulation (1984, 1995, 1998, 2013, 2017, 2023). These amendments were mostly administrative in nature. However, the 1995 amendment reduced the allowable leak rate by 50%, making the CTVRP the strictest emission standards in the nation.

Altering of a CT design to control emissions would require input and approval from federal agencies such as Department of Transportation (DoT) and U.S. EPA, along with State agencies such as State Fire Marshal and California Highway Patrol. Getting such approval to implement new controls may take years due to the cumbersome approval process. The CTVRP already requires more stringent emission standards than the U.S. EPA. The current CARB and U.S. EPA standard is measured in Inches of Water Column (WC"). As an example, a cargo tank in California is not allowed to leak more than 0.5 WC" (0.018psi) in a five-minute test. CTs are as vapor tight as the current industry standards and design allows for.

Draft CARB Contingency Measure Analysis

There is currently no design or technology that can reduce this number. Additionally, as mentioned, design alterations would require numerous and lengthy federal, State(s), and local municipalities approvals. Implementation of any new standards would also require long lead times to deploy new technologies and would likely take more than two years. As the population of zero emission vehicles increases on California roads, emissions from CTs will be reduced due to a decline in demand for gasoline.

In summary, due to the timelines involved in development of technology, altering CT designs, and anticipated drop in gasoline demand, there are no new technologically feasible control measures in the CTVRP that could meet the triggering timelines and other requirements, and are available to use as contingency measures.

Portable Fuel Containers (Gas Cans)

Portable Fuel Containers (PFCs), or gas cans, are used to fill a variety of equipment, including lawnmowers, vehicles, and personal watercraft. However, spillage and evaporative emissions can occur, which can result in ozone-forming smog and health related problems. In California, gas cans use low permeation materials and automatic sealing nozzles to minimize or eliminate spillage and evaporative emissions. All gas cans sold in California must be certified by CARB as meeting the low-emission requirements.

CARB staff analyzed PFCs to identify potential contingency measure options. It would not be possible to begin implementation of any contingency measures for PFCs within 60 days.

CARB does not regulate consumer use of PFCs and must achieve emission reductions through performance requirements, including emission standards, for new PFCs.

Manufacturers would need more than 1-2 years to design, certify, and manufacture PFCs that meet more stringent emission standards. Additionally, CARB regulations typically need to allow additional time for sell-through provisions to allow for consumers and retailers to transition to the new products, which further extends the implementation timeline. Adopting more stringent emission standards is not feasible to implement as a contingency measure because the regulatory process would take approximately 5 years from start to finish. The standards currently in place are also the most stringent standards across the nation.

In summary, there are no new technologically feasible control measures in the PFC regulations that could meet the triggering timelines and other requirements and are available to use as contingency measures.

Pesticides

Pesticides are used for urban and agricultural pest management across the State and are an area-wide source of ROG and other types of emissions. Pesticides are regulated under both

Draft CARB Contingency Measure Analysis

federal and state law. Under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), the U.S. EPA has authority to control pesticide distribution, sale, and use. The Department of Pesticide Regulation (DPR) has primary and broad authority to regulate the sale and use of pesticides in California. The pesticide element of the ozone SIP requires DPR to develop and implement regulations to reduce ROG emissions by specified amounts from agricultural and structural pesticide applications in nonattainment areas. CARB is supporting DPR to use its broad authorities to reduce ROG emissions as well as limit harmful exposures to pesticides impacting communities across the State.

DPR can generally reduce exposures to pesticides through the development and implementation of necessary restrictions on pesticide sales and use and by encouraging integrated pest management. Mitigation measures may be implemented by several methods, including regulations, local permit conditions, pesticide label changes, or product cancellation. Current regulations set limits on applications of certain pesticides and specify methods for application to protect public health. DPR regulations have been found by U.S. EPA to meet RACT, RACM, and BACM requirements as a part of past SIP submittals. Most recently, as a part of the 2022 State SIP Strategy developed to support attainment of the 70 ppb ozone standard across California, DPR committed to update their 1,3-Dichloropropene (1,3-D) regulations for health risk mitigation and volatile organic compound emissions reductions. The regulatory updates address both cancer and acute risk to non-occupational bystanders through requirements including those on applicators to use totally impermeable film tarpaulins or other mitigation measures that provide a comparable degree of protection from exposure. DPR submitted the rulemaking documents to the Office of Administrative Law on November 7, 2023, for final review and if approved will go into effect on January 1, 2024.

DPR has divided pesticide products into two groups for SIP purposes: fumigants and non-fumigants. The lead time needed to develop regulations for both groups of pesticide products may not fit in the contingency timeline required. For fumigant pesticide products, the primary measure to reduce ROG emissions is to change fumigation methods, such as deeper injection into the soil and covering fumigated areas with tarps that have low permeability. Developing new fumigation methods normally requires several years of research followed by rulemaking that usually requires two years or more to complete. For non-fumigant pesticide products, the primary measure to reduce ROG emissions is to change product formulations to reduce the ROG content. This also takes several years of research and rulemaking to complete. Additionally, changing product formulation normally requires review and registration of a new product by U.S. EPA and this takes a year or more to complete. For both fumigant and non-fumigant products, little work on contingency measures can be done beforehand due to changing pesticide use patterns. Pesticide products that contribute the most emissions currently may not be the ones that contribute

Draft CARB Contingency Measure Analysis

the most in the future due to changing cropping patterns, introduction of new pesticide products, and other factors.

Further, DPR regulations are the most stringent pesticide controls in the country and represent all measures that are technologically feasible at this time. For example, U.S. EPA's Office of Pesticide Programs also works to reduce emissions to reduce toxic exposure and their measures are implemented through nationwide product label changes. U.S. EPA has nearly completed its most recent review of 1,3-D with minimal label changes, while DPR's 1,3-D regulations include fumigation method requirements that will further reduce emissions. CARB and DPR are not aware of any other states with regulatory requirements to reduce ROG emissions from pesticide products.

At this time, no additional measures for regulating pesticides have been identified for use as a contingency measure. However, DPR has developed a process to identify possible additional control measures through its roadmap for sustainable pest management (SPM). SPM is a process of continual improvement that integrates an array of practices and products aimed at creating healthy, resilient ecosystems, farms, communities, cities, landscapes, homes, and gardens. SPM examines the interconnectedness of pest pressures, ecosystem health, and human wellbeing. Going forward, CARB will continue to partner with DPR and explore the best methods to limit pesticide exposures, while also reducing emissions of volatile organic compounds.

Summary

At this time, CARB is including a zero-emission component in most of our regulations, both those already adopted and those that are in development, and the vast majority of these regulations are statewide in scope. Beyond the wide array of sources CARB has been regulating over the last few decades, and especially considering those we are driving to zero-emission, there are few area sources of emissions left for CARB to implement additional controls upon under its authorities for contingency purposes in the Coachella Valley.

Beyond the Smog Check Contingency Measure, no additional contingency measures were identified for mobile and non-mobile sources through CARB's analysis as shown in Table 1. Considering the air quality challenges California faces, if a measure achieving such reductions were feasible, CARB would implement the measure to support expeditious attainment of the NAAQS as the Clean Air Act requires rather than withhold it for contingency measure purposes. Further, should there be a measure achieving the required emission reductions, the measure would likely take more than 1-2 years to implement

Draft CARB Contingency Measure Analysis

during which time the expected emission benefits could be reduced due to natural turnover of products and equipment.

Table 1: Assessment of Potential CARB Contingency Measures

Emission Source	Regulatory Programs	Latest Amendment Requirements	Contingency Options	Trigger Feasibility	Technological Feasibility
Pesticides	Fumigant products ROG reduction	Effective 4/1/16; Revise existing field fumigation methods.; Effective 1/1/24; Restrict use of 1,3-D for only agricultural commodities, set limits on application rate and methods to limit exposure/ emissions.	Require more stringent limitations and stricter application methods.	No; Trigger for use limit for 4 NAAs included in existing regulations; Standards requirements need years of lead time to be implemented; infeasible to pull forward standards within 60 days. Infeasible to achieve reductions within two years.	No; Research needed to achieve additional reductions.
	Non-fumigant products ROG reduction	Effective 11/1/13; Sale and use restrictions for products that have any of 4 primary active ingredients and applied to any of 7 crops in San Joaquin Valley.	Require use of "low-VOC" products.	No; Trigger requiring "low-VOC" products that have any of 4 primary active ingredients and applied to any of 7 crops in San Joaquin Valley included in existing regulations; Standards requirements need years of lead time to be implemented; infeasible to pull forward standards within 60 days. Infeasible to achieve reductions within two years.	No; Research needed to achieve additional reductions.

Draft CARB Contingency Measure Analysis

Emission Source	Regulatory Programs	Latest Amendment Requirements	Contingency Options	Trigger Feasibility	Technological Feasibility
Oil and Gas	Oil and Gas Methane Regulation	Adopted 3/23/17. Requires quarterly monitoring of methane emissions and some equipment will require vapor collection systems.	Reduce venting through equipment replacement or vapor control (control venting emissions). Expand/increase LDAR (control fugitive emissions).	No; Standards and requirements need years of lead time to be implemented; infeasible to pull forward standard within 60 days. Purchasing would not happen immediately or within one year of trigger; infeasible to achieve reductions within one 1-2 years.	No; only feasible controls are required to be implemented under U.S. EPA's Emissions Guidelines (finalized December 2023). No; current LDAR requirements are the most stringent in the country.
Consumer Products	Consumer Products	Amended 3/25/21. Lowered VOC standards for hair-care products, personal fragrance, manual aerosol air fresheners, and aerosol crawling bug insecticide.	Adopt and implement more stringent emission standards; pull forward compliance deadlines	No; Standards and requirements need years of lead time to be implemented; infeasible to pull forward standard within 60 days. Purchasing and manufacturing would not happen immediately or within one year of trigger; infeasible to achieve reductions within one 1-2 years.	No; cannot require manufacturers to develop new formulations and products only for contingency and to warehouse just for contingency purposes. Also, since California has the most stringent requirements, cannot bring in lower-emitting products already manufactured for other markets.
Consumer Products	Portable Fuel Container (PFC) Regulation	Amended 4/1/2017. Updated certification test fuel, established 4 year certification term, and streamlined test procedures with U.S. EPA.	Adopt and implement more stringent emission standards	No; Standards requirements need years of lead time to be implemented; infeasible to enforce more stringent standards within 60 days. Purchasing would not happen immediately or within one year of trigger; infeasible to achieve reductions within 1-2 years.	No; standards currently in place are the most stringent.

Draft CARB Contingency Measure Analysis

Emission Source	Regulatory Programs	Latest Amendment Requirements	Contingency Options	Trigger Feasibility	Technological Feasibility
Cargo Tanks (hauling gasoline)	Cargo Tank Vapor Recovery Program	Amended 10/01/23, Administrative in nature; corrected grammatical errors, removed imprecise language regarding alternative test procedures.	Setting more stringent standards	No; technology in this field has no new innovations and standards are more stringent than federal guidelines.	No; current standards and requirements are the most stringent in the nation and current technologies are most advanced.
Petroleum Marketing – Vehicle Refueling	Enhanced Vapor Recovery	<p>Adopted July 26, 2012; performance standards for gasoline dispensing hose permeation</p> <p>April 2015; New performance standards and specifications for ECO Nozzles, including a more stringent nozzle spillage standard over EVR nozzles.</p> <p>December 2020; more stringent performance standard of 0.05 lbs/kgal for nozzle spillage for both EVR and ECO nozzles</p>	Adopt and implement more stringent emission and performance standards	Standards requirements need years of lead time to be implemented; infeasible to enforce more stringent standards within 30 or 60 days. Purchasing would not happen immediately or within one year of trigger; infeasible to achieve reductions within one year.	California has the most comprehensive vapor recovery program applicable to GDFs in the country; no additional opportunities for increased stringency



APPENDIX VI

Precursor Demonstration



Table of Contents

Introduction	1
U.S. EPA PM2.5 Precursor Demonstration Guidance	2
Emissions Inventory and Air Quality Modeling.....	3
Design Values.....	6
Precursor Demonstration Methods.....	7
Development of Contribution Threshold for Annual PM2.5 in South Coast Air Basin	9
Calculation of Bootstrapped Confidence Interval	9
Calculation of Contribution Threshold	10
Results.....	11
Precursor Demonstration Results.....	16
Concentration-based Analysis	16
Sensitivity-based Analysis.....	18
Sulfur Dioxide Analysis.....	19
Volatile Organic Carbon Analysis	24
Conclusion.....	28

Introduction

Fine particulate matter (PM2.5) is composed of particles that are both directly emitted, such as soot and dust, or formed as a result of secondary reactions between atmospheric chemicals. The United States Environmental Protection Agency (U.S. EPA) identifies four gaseous species as precursors of PM2.5 due to their participation in reactions resulting in secondary PM2.5 formation: oxides of nitrogen (NOx), oxides of sulfur (SOx), volatile organic compounds (VOCs), and ammonia (NH3).

As a part of the EPA's PM2.5 State Implementation (SIP) Requirements Rule (PM2.5 Rule)¹, these four precursor pollutants are subject to PM2.5 SIP planning requirements. The PM2.5 Precursor Demonstration Guidance² (Guidance) permits air agencies to "submit an optional precursor demonstration designed to show that for a specific PM2.5 nonattainment area, emissions of a particular precursor from sources within the nonattainment area do not or would not contribute significantly to PM2.5 levels that exceed" the national ambient air quality standards (NAAQS). If the agency's demonstration is approved by U.S. EPA, the attainment plan "may exclude that precursor from certain control requirements under the Clean Air Act."

The following contains demonstrations that two PM2.5 precursors, SOx and VOCs do not contribute significantly to ambient PM2.5 levels that exceed the 2012 annual PM2.5 standard in the South Coast Air Basin (Basin) and therefore, South Coast Air Quality Management District (AQMD) is requesting for exclusion from certain control requirements specified in the Clean Air Act (Act). The other two precursors, NOx and NH3, are significant precursors to annual PM2.5 in the Basin and are consequently not included in this demonstration.

The contents of the demonstration are as follows: 1) An overview of EPA guidelines surrounding the PM2.5 precursor demonstration is provided, and it includes the introduction of modeling methods, the calculation of the PM2.5 design value, 2) and an overview of the concentration- and sensitivity-based analyses which serve as the basis of the precursor demonstration. ~~3~~2) The methodology behind the calculation of contribution thresholds, originally outlined by the U.S. EPA, is described. Following this methodology, the calculations of a confidence interval and contribution threshold specific to the Basin are outlined. And the alternative contribution threshold calculated for the Basin is discussed. ~~4~~3) The results of precursor demonstration relative to the alternative contribution threshold is presented. Furthermore, the concentration- and sensitivity-based analyses are discussed.

¹ PM25 NAAQS Final SIP Requirements Rule July 2016 | US EPA. Available at: <https://www.epa.gov/pm-pollution/pm25-naaqs-final-sip-requirements-rule-july-2016>

² PM2.5 Precursor Demonstration Guidance, May 2019. Available at: https://www.epa.gov/sites/default/files/2019-05/documents/transmittal_memo_and_pm25_precursor_demo_guidance_5_30_19.pdf

U.S. EPA PM2.5 Precursor Demonstration Guidance

The Guidance, finalized by the U.S. EPA in May 2019, is available to “assist air agencies who may wish to submit PM2.5 precursor demonstrations.” The Guidance provides recommendations or guidelines, as authorized under the Act, “that will be useful to air agencies in developing the precursor demonstrations by which the U.S. EPA can ultimately determine whether sources of a particular precursor contribute significantly to PM2.5 levels that exceed the standard in a particular nonattainment area.” The recommendations encompass methods for modeling the essential analysis and establishing thresholds for assessing how a precursor affects PM2.5 levels.

Following the Guidance, the following precursor demonstration analyzes “the relationship between precursor emissions and the formation of secondary PM2.5 components” using an air quality model and take into consideration additional relevant factors. The following features two PM2.5 precursors: VOCs and SOx emissions in the South Coast Air Basin. The Guidance outlines a process for conducting the precursor demonstration, which comprises an initial analysis based on concentration, followed by a sensitivity analysis, and the addition of supporting information that complements the sensitivity-based analysis.

The purpose of the precursor demonstration is to determine the presence or absence of significance corresponding to the contribution of a given PM2.5 precursor to PM2.5 levels. The U.S. EPA defines significance in terms of a contribution threshold, a mathematically determined cutoff derived using an approach similar to that used for the Significant Impact Level (SIL) developed in the Prevention of Significant Deterioration (PSD) memorandum.³ Discussions of significance and the development of SILs are based on an understanding of the inherent variability of regional air quality arising from changes in meteorological conditions. SimilarlyConsequently, in the context of PM2.5 precursors, when observing changes in air quality, small changes —defined as those lower than the SIL— are considered insignificant, as their contributions are lower than the day-to-day variability in air quality in a given region.

The Guidance recommends using a contribution threshold based on nationwide data, as well as the statistical methodology behind its calculation. However, it specifically states that “if the estimated air quality impact is greater than or equal to the recommended contribution threshold, this fact would not necessarily preclude approval of the precursor demonstration”. The U.S. EPA allows air agencies to submit additional information regarding other pertinent factors they deem relevant for assessing whether the contribution of emissions of a particular precursor to levels that exceed the NAAQS is “significant” or not. The significance of a precursor’s contribution is to be determined “based on the facts and circumstances of the area”.

³ PM2.5 Precursor Demonstration Guidance, May 2019. Available at:
https://www.epa.gov/sites/default/files/2019-05/documents/transmittal_memo_and_pm25_precursor_demo_guidance_5_30_19.pdf

The emissions inventory, air quality modeling system and design values (DV) employed for this precursor demonstration are identical to those used in the rest of the PM2.5 plan. While a brief description of emissions inventory and modeling configuration are provided in this section, details are available in Chapters 3 and 5 of the PM2.5 plan and Appendices I and II.

Emissions Inventory and Air Quality Modeling

The emissions inventory consists of stationary sources and mobile sources. Stationary sources are divided into two major subcategories: point sources and area sources. Point sources are permitted facilities with one or more emission sources at an identified location (e.g., power plants, refineries, and industrial processes factories) and subject to Annual Emission Report (AER) program⁴. These facilities generally have annual emissions of 4 tons or more of either VOCs, NOx, SOx, or PM, or annual emissions of over 100 tons of CO. Facilities are required to report their emissions of criteria pollutants and selected air toxics pursuant to Rule 301 to the South Coast AQMD on an annual basis, subject to audit, if any of these thresholds are exceeded. The 2018 annual reported emissions are used to update the stationary source inventory.

Area sources consist of many small emission sources (e.g., residential water heaters, architectural coatings, consumer products, and permitted sources that are smaller than the above thresholds) which are distributed across the basin and are not required to individually report their emissions. CARB and the South Coast AQMD jointly develop emission estimates for approximately 400 area source categories. Emissions from these sources are estimated using the latest activity information and representative emission factors if available. Activity data are usually obtained from survey data or scientific reports, e.g., U.S. Energy Information Administration (EIA) reports for fuel consumption other than natural gas fuel, natural gas consumption data from Southern California Gas Company (SoCalGas), and solvent, sealant and architectural coatings sales reports required under the South Coast AQMD Rules 314, 1113 and 1168. Some activity data, such as population, housing, and vehicle miles travelled (VMT), as well as a large portion for area sources are from SCAG. Emission factors are based on rule compliance factors, source tests, manufacturer's product or technical specification data, default factors (mostly from AP-42, the U.S. EPA's published emission factor compilation), or weighted emission factors derived from point source facilities' annual emissions reports. Additionally, emissions over a given area may be calculated using socioeconomic data, such as population, number of households, or employment in different industry sectors.

Mobile sources consist of two subcategories: on-road sources and off-road sources. On-road vehicle emissions were calculated with CARB's EMFAC2021 model and travel activity data provided by SCAG from their adopted 2020 RTP/SCS. EMFAC2021 calculates exhaust and evaporative emission rates by vehicle type for different vehicle speeds and environmental conditions. Temperature and humidity profiles are used to produce monthly, annual, and episodic inventories. Emission rate data in EMFAC2021 is collected from various sources, such as individual vehicles in a laboratory setting, tunnel studies, and certification

⁴ <https://www.aqmd.gov/home/rules-compliance/compliance/annual-emission-reporting>

data. The EMFAC2021 model incorporates recently adopted regulations, such as Advanced Clean Trucks (ACT),⁵ and Heavy-Duty Low NOx Omnibus Regulations. EMFAC2021 does not incorporate Heavy-Duty Inspection and Maintenance (I/M) Regulation, because this regulation was approved after the development of EMFAC2021. However, the effect of Heavy Duty I/M is incorporated in this plan as an external adjustment to EMFAC2021 emissions.

Emissions from off-road vehicle categories are primarily based on estimated activity levels and emission factors using a suite of category-specific models or the OFFROAD2007 model where a new model was not available. Separate models have been developed for estimating emissions from different categories of off-road mobile sources. The emissions presented here are consistent with the off-road emissions developed for the 2022 AQMP, except for a small change in construction equipment emissions. After the development of the 2022 AQMP, an error was discovered in the emission allocations for in-use emissions from off-road construction equipment in Riverside County. This error only affected future year emissions and is now corrected.

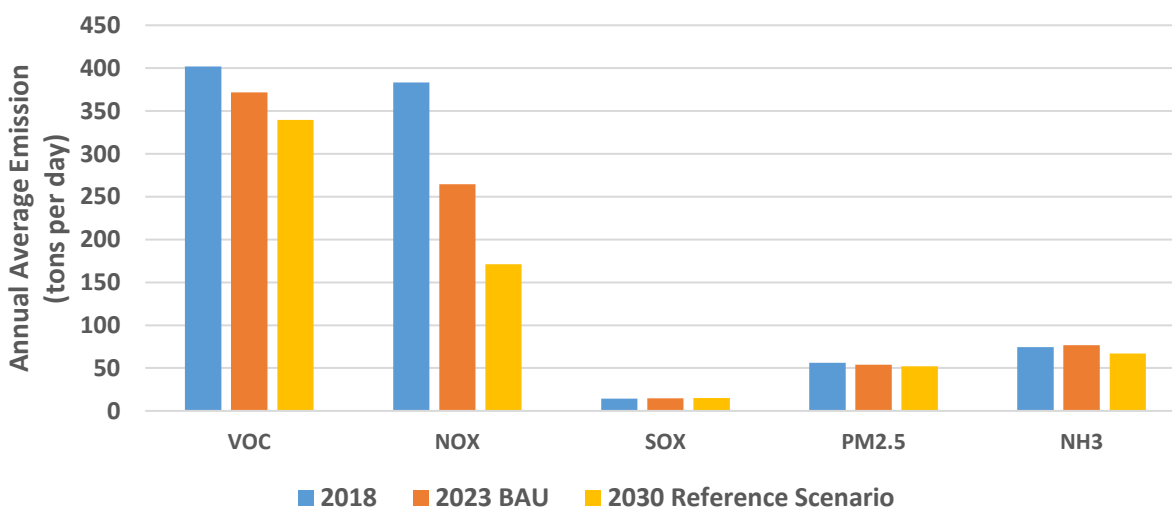
The emissions obtained from the above were used as inputs to calculate pollutant concentrations. Pollutant concentrations were calculated using the U.S. EPA-supported Community Multiscale Air Quality (CMAQ) (version 5.3.3) model, with chemistry input from the Statewide Air Pollution Research Center (SAPRC) 07 chemistry and the Weather Research and Forecasting (WRF) (version 4.4.2) model supplying meteorology data. The modeling platform tracks primary pollutants directly emitted that includes precursors of ozone and particulate matter (PM_{2.5}) and the formation of secondary pollutants like ozone and particles formed from the chemical reactions that occur in the atmosphere. The PM_{2.5} simulations spanned an entire year, from January to December, using meteorological conditions from 2018. The simulations were conducted over an area with a western boundary over 100 miles west of the Ports of Los Angeles and Long Beach. The eastern boundary extends slightly beyond the Colorado River while the northern and southern boundaries of the domain extend to the San Joaquin Valley and the Northern portions of Mexico, respectively. CMAQ was simulated with a 4-kilometer grid resolution.

PM_{2.5} concentrations were simulated with CMAQ for the base 2018 and the attainment year, 2030. The modeling setup for 2030 remains consistent with the attainment scenario outlined in Chapter 5, with the exception of increased ammonia and NOx emissions by 9 and 4 tons per day, respectively. These adjustments were made to rectify technical errors identified in earlier emissions scenarios. This simulation is referred to as 2030 Reference Scenario in this Appendix. These adjustments are not anticipated to alter the precursor sensitivities discussed in this Appendix. Figure VI-1 provides the PM precursors as well as direct emitted PM_{2.5} emission over the South Coast Air Basin in 2018 and in the attainment year, 2030. For reference, the 2023 baseline (business-as-usual) emission inventory is also provided in the plot.

Future growth projections were based on demographic growth forecasts for various socioeconomic categories (e.g., population, housing, employment by industry) developed by SCAG for their 2020 RTP/SCS. Industry growth factors for 2030 were also provided by SCAG. Table VI-1 summarizes key socioeconomic parameters used in emissions inventory development.

**TABLE VI-1
BASELINE DEMOGRAPHIC FORECASTS**

Category	2018	2030	2030 % Growth from 2018
Population (Millions)	16.7	18.0	7.9
Housing Units (Millions)	5.3	6.0	11.7
Total Employment (Millions)	7.7	8.3	7.3
Daily VMT (Millions)	388	395	1.8



**FIGURE VI-1
SOUTH COAST AIR BASIN TOTAL VOC, NOX, SOX, PM2.5, AND NH3 EMISSIONS IN 2018, 2023
BASELINE (BAU), AND 2030 REFERENCE SCENARIO**

The air quality modeling platform utilized in this precursor demonstration is the same modeling platform used for the PM2.5 plan. This modeling platform underwent comprehensive model evaluation against available meteorological and air quality measurements at monitoring sites. The WRF model effectively captures synoptic flows, daily land-sea breezes, and mountain-valley circulations. Crucial meteorological parameters for air quality modeling, such as ground temperature, relative humidity, and wind speed, closely align with observed data. The CMAQ model simulates seasonal variations and diurnal changes in PM mass across the basin adequately, albeit with underestimations in the San Fernando region and overestimations in the Foothills and Urban source regions. Additionally, the CMAQ model generally

reproduces the spatial distribution of PM species, exhibiting higher levels of nitrate and organic matter for receptors in urban areas compared to inland stations. Refer to Appendix II of this Plan for further details on model performance evaluation.

Design Values

The PM_{2.5} annual DV for a specific year is determined by averaging the annual PM_{2.5} concentrations over a three-year period that includes the given year and the two preceding years. However, U.S. EPA guidance on modeling the attainment demonstration¹ recommends using a 5-year weighted DV centered on the base year selected for the attainment demonstration as the modeling Base Design Value (DVB). This 5-year weighted average approach recommended by EPA is to reduce year-to-year variability compared to a single 3-year DV. In the context of this plan, the DVB for each monitoring station is calculated as the average of the DVs for 2018 through 2020 (denoted as DV 2018, DV 2019, and DV 2020 in Figure VI-2). This calculation covers a 5-year period from 2016 through 2020, centered at the base year 2018. Under certain circumstances, the U.S. EPA allows modification of DVB calculation, such as in the case of exceptional events. Figure VI-2 presents the U.S. EPA-recommended DVB calculation on the left. The 2020 DV calculation includes the year 2020, which was marked by several extraordinary events that significantly altered PM_{2.5} concentrations in the basin. These events include the COVID-19 pandemic and subsequent changes in human activity, and record-setting wildfires. Thus, this precursor demonstration uses a modified DVB for 2018 that excludes the 2020 DV from DVB calculations and replaces it with the average of 2018 and 2019 annual means (Figure VI-2, right). In addition, exceptional events on July 4 and 5 due to Fourth of July fireworks are also excluded.

2018 Base Design Value (DVB)		
DV 2018	DV 2019	DV 2020
2016-2018	2017-2019	2018-2020
Average = DVB = $\frac{(DV\ 2018) + (DV\ 2019) + (DV\ 2020)}{3}$		

2018 Base Design Value (DVB)		
DV 2018	DV 2019	DV Modified
2016-2018	2017-2019	2018-2019
Average = DVB = $(DV\ 2018) + (DV\ 2019) + \left(\frac{Avg2018 + Avg2019}{2}\right)$		
3		

FIGURE VI-2
PM_{2.5} 5-YEAR WEIGHTED AVERAGE FOR 2018 BASE DESIGN VALUE

Precursor Demonstration Methods

EPA's Guidance allows for two types of analyses to be used as a part of a precursor demonstration:

1. The **concentration-based** analysis is the initial required step in the precursor demonstration. The goal of the concentration-based analysis is to analyze the contribution of SOx and VOC to overall PM2.5 DVs, through the use of ambient data and, optionally, air quality modeling. The following demonstration estimates the contribution of precursors to overall PM2.5 DVs based on speciated measurements during the period of 2017-2019. This approach is consistent with the speciation used in the attainment demonstration in the PM2.5 Draft PM Plan. The contribution of individual precursor was evaluated with a concentration-based analysis using ambient data to determine whether precursor emissions contribute to total annual PM2.5 concentrations.
2. The **sensitivity-based analysis** is an optional analysis that may be necessary should the concentration-based analysis fail to demonstrate that a precursor does not significantly contribute to PM2.5 DVs. In contrast to the concentration-based analysis, which reports the direct contributions of precursors to PM2.5 DVs, the sensitivity-based analysis reports the changes in PM2.5 DVs in response to a decrease in precursor emissions. If reductions scenarios show that a pre-specified percentage drop in precursor concentrations results in a change in DV that is less than the contribution threshold, then the contribution of these reductions can be deemed non-significant. The U.S. EPA recommends multiple percentage emissions reductions sensitivities in the range of 30-70 percent precursor reductions, with a strict recommendation of keeping percent reductions above 30 percent. In light of U.S. EPA's recommendations, we conducted a sensitivity analysis of SOx and VOC emissions, testing reductions of 30 and 50 percent. Emission reductions are applied to all anthropogenic emissions throughout the Basin, including emissions over water up to 100 nautical miles from the shore.

This demonstration follows the EPA-approved methodology previous employed in the San Joaquin Valley SIP revision.⁵ The sensitivity-based analysis is focused on the future year 2030 DVs. To estimate future PM2.5 DVs, the U.S. EPA recommends the use of relative response factors (RRF). In this approach, future year concentration predictions require two elements: base year (2018) DVs and RRFs. The RRF is simply a ratio of the future year predicted air quality to the simulated air quality in the base year, representing the model predicted change in air quality in response to predicted emissions changes. For the annual PM2.5 attainment demonstration, base year and future modeled concentrations are calculated as a quarterly average of a 3-by-3 grid centered at each station for each specific component. The ratio of base to future

⁵ San Joaquin Valley Air Pollution Control District 2018 PM2.5 SIP Precursor Demonstrations for Ammonia, SOx, and OG. Available at: <https://www.valleyair.org/pmplans/documents/2018/pm-plan-adopted/G.pdf>. U.S. EPA approved the precursor demonstration for the SJVAPCD 2018 plan (85 FR 44192) and 2021 plan revision (88 FR 86581). Precursor demonstration for the 1997 Annual PM2.5 Standard for the San Joaquin Valley, available at: https://www2.valleyair.org/media/3cme1005/chapter_4-precursor-demonstration.pdf. U.S. EPA proposed the approval of the precursor demonstration (88 FR 45276).

year quarterly mean concentrations for each component is the RRF for that component. Future year DVs were calculated using species- and site-specific RRFs by the corresponding quarterly DVs. The total future quarterly values at each site are then calculated by adding all the individual components and the blank and the four quarterly average concentrations are then averaged at each site to determine the future annual DVs.

The Guidance allows air agencies to conduct precursor demonstration modeling to illustrate that precursor emissions do not significantly contribute to PM_{2.5} concentrations in nonattainment areas, “either in a base year or a future year”. Following the precursor demonstration included in the San Joaquin Valley SIP revision for the 1997 annual PM_{2.5} standard⁶, this demonstration conducted a sensitivity analysis using projected emissions for 2030, the future attainment year. The projected emissions for 2030 encompass measures from the 2022 AQMP/SIP that can be implemented by 2030, as detailed in the attainment control strategy presented in Chapter 4 of this Plan. Using 2030 as the reference year for the precursor demonstration is justified because emission levels for PM_{2.5} precursors in 2030 are closer to the emission levels in 2023, the conditions during the development of this Plan, than ~~to the emission levels in 2018~~ are (as shown in Figure VI-1). Although 2023 is closer to 2018 than to 2030, emission inventories indicate that between 2018 and 2023, the South Coast Air Basin experienced a sharper yearly decline in PM_{2.5} precursor emissions compared to the period from 2023 to 2030. The average NO_x emission decrease rate is 24 tons per year during the years 2018 to 2023, compared with 13 tons per year during 2023 to 2030. The reduction in PM_{2.5} precursor emissions is primarily driven by cleaner vehicles and equipment mandated by regulations such as CARB’s 2010 Truck, resulting in corresponding declines in NO_x emissions, which are already in place and Bus regulation and ~~will continue to decrease with defined stationary source NO_x RECLAIM shave for the period of 2018 to 2023 and mobile control measures included in the 2022 AQMP/SIP and CARB’s 2022 State SIP Strategies⁷ and this Plan.~~ In addition, with the expected rapid change of baseline NO_x emissions over the basin in coming years, the atmospheric chemistry conditions in modeling base year 2018 may not be representative at the 2030 attainment year nor in the future beyond that. Model response in the 2030 attainment year provides a more realistic assessment of the potential impact of PM precursors controls than transient current or base year conditions.

The sensitivity-based analysis is based on the sensitivity of PM_{2.5} DVs to reductions of 30-50 percent in the PM_{2.5} precursor emissions. The results of the sensitivity-based analyses for SO_x and VOC emission reductions are discussed in following sections.

⁶ *Ibid.*

⁷ ~~2022 State Strategy for the State Implementation Plan, available at: https://ww2.arb.ca.gov/sites/default/files/2022-08/2022_State_SIP_Strategy.pdf.~~

Development of Contribution Threshold for Annual PM_{2.5} in South Coast Air Basin

This section describes the calculation of a contribution threshold that is specific to the South Coast Air Basin. The Basin is characterized by distinctive atmospheric conditions owing to its complex terrain and diverse land use. Unlike any other areas in the country, the terrain in the basin extends from coastal areas at sea-level altitude to mountain ranges with elevations above 11,000 feet, within 60 miles. This relatively small area confined between seashore and high mountains houses over 17 million people and encompasses a wide range of land use, ranging from dense urban clusters to inland residential areas and foothills, further extending to the Coachella Valley near deserts. The rugged orography creates complex circulation patterns that transports air pollutants back and forth the basin, with sea-to-land breeze to recirculated layer aloft due to the presence of high mountain ranges. Some monitoring sites near coastal areas frequently experience impacts from emissions by ships, while two sites situated near busy major freeways are heavily influenced by on-road mobile sources. As a result, variation of air pollutant concentrations within the Basin is wider than the average variation observed throughout the entire US. Therefore, we propose the use of a contribution threshold that is based on observations from the South Coast Air Basin alone. Past Federal Reference Method (FRM) 24-hour PM_{2.5} data are first used to calculate a bootstrapped confidence interval for DVs and then this confidence interval is used to calculate the contribution threshold using only observations from monitors within the Basin.

Calculation of Bootstrapped Confidence Interval

The FRM 24-hour PM_{2.5} data (with likely exceptional events removed) are used to calculate the confidence interval in the region. DV periods each include three consecutive years (with exceptions⁸) and labeled with the last year of the three-year period. The DV periods used in this analysis are: 2017, 2018, 2019, 2020, 2019, 2021, and 2022. The data from each single year are grouped by quarter (i.e., Jan-Mar as Q1, Apr-Jun as Q2, Jul-Sep as Q3, and Oct-Dec as Q4). Bootstrap re-sampling with replacement using the Matlab function “bootstrp” is performed on the individual quarter 20,000 times, following the U.S. EPA recommendation in the Technical Basis for the EPA’s Development of the Significant Impact Thresholds for PM_{2.5} and Ozone⁹ (Technical Basis Document) to ensure the stability of all the cases, and the default seed was chosen to allow the repeatability of resampling results. Each resampling dataset

⁸ Exceptional events include exceedances caused by Independence Days fireworks for all years, 2017 Thomas Fire, 2018 Woolsey Fire, 2018 Camp Fire, 2020 Bobcat and El Dorado Fires, 2020 long range transport of wildfire smoke from Central and Northern California, 2020 Blue Ridge and Silverado Fires, and the 2020 Airport and Bond Fires. To ensure that the contribution threshold is not biased high from exceptional events, these days are removed for the contribution threshold calculation.

⁹ [Technical Basis for the EPA's Development of the Significant Impact Thresholds for PM_{2.5} and Ozone](https://www.epa.gov/sites/default/files/2018-04/documents/ozone_pm2.5_sils_technical_document_final_4-17-18.pdf). April 2018. Available at: https://www.epa.gov/sites/default/files/2018-04/documents/ozone_pm2.5_sils_technical_document_final_4-17-18.pdf

keeps the original data size and is then averaged to obtain the quarterly mean. For example, if Q1 has 80 samples, Q2 has 86 samples, Q3 has 91 samples and Q4 has 85 samples, then for Q1, 20,000 new sample datasets, Q1(1), Q1(2), Q1(3), ..., Q1(20,000), each with 80 measurements of PM_{2.5} are sampled with replacement from the original dataset Q1. A similar process is applied to the other three quarters, resulting in 20,000 datasets of Q2 with 86 samples in each set, 20,000 datasets of Q3 with 91 samples in each set and 20,000 datasets of Q4 with 85 samples in each set. The 20,000 averaged $\overline{Q1}$, $\overline{Q2}$, $\overline{Q3}$, and $\overline{Q4}$ are then calculated respectively and rounded to the hundredth $\mu\text{g}/\text{m}^3$ (i.e., two decimal places).

The quarterly means are further averaged to obtain the annual mean. The same calculations are also applied on the other two years in the defined DV period. The DV for the annual PM_{2.5} NAAQS were then computed as the average of the three annual means and rounded to the tenth $\mu\text{g}/\text{m}^3$ (i.e., one decimal place) for the defined DV period. This process is consistent with the annual PM_{2.5} DV calculation and yields 20,000 resampling DV values. To determine the confidence interval (CI) from these 20,000 DVs, the DV are ranked from low to high. According to the Technical Basis Document, *“the lower bound for the 50 percent CI is the 5000th ranked DV, and the upper bound for the 50 percent CI is the 15,000th ranked DV. That is, the CI are determined simply by ranking the resulting distribution of DVs and the (1-q) percent CI for the mean is the bounds of the center of the data that contains q percentage of the results (i.e., the lower bound is the (q/2) percentile and the upper bound is the (1-q/2) percentile).”* We used the MATLAB function “prctile” to determine the 50 percent CI for the threshold contribution calculation.

Calculation of Contribution Threshold

Based on the definition of contribution threshold, (i.e., the SIL defined in the Technical Basis Document), “the median variability from the 50 percent CI from the entire US ambient monitoring network is used to calculate SIL values” and then “a representative value can be multiplied by the level of that NAAQS to obtain a value in concentration units” where “variability” and “representative value” both refer to the relative variability. Relative variability is defined as “the difference between the bounds of the bootstrapped CI and the actual design value for a single monitoring site, divided by the actual design value for the site”. To develop the contribution threshold for the Basin, CI values from all 17 sites (see Table VI-76) with regulatory monitoring data in the Basin are used. For each DV period, 17 relative variabilities for 17 FRM sites can be obtained, and median value of relative variabilities is chosen to avoid the interference of extreme values in the calculation. The contribution threshold values for the Basin are calculated using three approaches:

1. Take the average of the median relative variability in the three most recent DV periods as recommended by the U.S. EPA, i.e., 2018-2020, 2019-2021 and 2020-2022 for most sites and 2017-2019, 2018-2020, and 2019-2021 for the four sites containing PM_{2.5} monitors that were temporarily or permanently discontinued in 2022.
2. Take the average of the median relative variability for the DV periods used in the 2018 base year, i.e., 2016-2018, 2017-2019, and 2018-2019 in the Basin. Note that in this approach, the 2018-2019 DV period only includes two years due to the unrepresentative and anomalous emissions in 2020.

3. Take the average of all the DV periods from 2015 to 2022.

The mean values from these three methods are multiplied by the annual PM_{2.5} NAAQS (12.0 µg/m³) to obtain a value in concentration units (i.e., µg/m³ for PM_{2.5}), respectively.

Results

Table VI-2 shows the annual relative variability values for all the sites in the Basin which are also depicted in Figure VI-3 along with the national relative variability values. Figure VI-3 shows that the annual median relative variability for all the sites in the Basin are consistently higher than the national relative variability (1.66 percent), which is likely due to the large range (difference between highest and lowest concentration) of PM_{2.5} variation in the Basin. For example, the observed ranges at the Compton and Long Beach-Route 710 Near Road sites – both situated near a major roadways – both exceed 100 µg/m³ (Table VI-32), which may be due to various factors including emissions, meteorological conditions and terrain characteristics in the area. It is also noted that the relative variability for the Big Bear site is much higher with a mean value of 6.9 percent compared with other sites, but it decreases to 5.3 percent for the DV period of 2020-2022. The sampling frequency at Big Bear was one in 6-day sampling until 2021 and changed to everyday sampling in 2022 (Table VI-43). The Technical Basis Document shows the relationship between the sampling frequency and relative variability, suggesting that a low sampling frequency usually leads to high variability. Based on the analysis, the variability pattern at Big Bear may be related to its sampling frequency. The decreasing variability from 4.2 percent to 2.3 percent is also found at the Compton site, corresponding to the change of sampling frequency from one-in-three-day to everyday sampling in 2019.

TABLE VI-2
ANNUAL RELATIVE VARIABILITY FOR ALL THE 17 SITES IN THE JURISDICTION

<u>Station</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>
<u>Anaheim</u>	<u>0.0297</u>	<u>0.0187</u>	<u>0.0280</u>	<u>0.0189</u>	<u>0.0187</u>	<u>0.0275</u>
<u>Azusa</u>	<u>0.0400</u>	<u>0.0385</u>	<u>0.0396</u>	<u>0.0388</u>	<u>0.0377</u>	<u>----*</u>
<u>Big Bear</u>	<u>0.0746</u>	<u>0.0615</u>	<u>0.0806</u>	<u>0.0735</u>	<u>0.0725</u>	<u>0.0526</u>
<u>Compton</u>	<u>0.0417</u>	<u>0.0403</u>	<u>0.0403</u>	<u>0.0320</u>	<u>0.0238</u>	<u>0.0231</u>
<u>Fontana</u>	<u>0.0431</u>	<u>0.0342</u>	<u>0.0354</u>	<u>0.0354</u>	<u>0.0345</u>	<u>0.0431</u>
<u>Long Beach (North)</u>	<u>0.0187</u>	<u>0.0278</u>	<u>0.0286</u>	<u>0.0377</u>	<u>0.0286</u>	<u>----*</u>
<u>Long Beach (South)</u>	<u>0.0194</u>	<u>0.0280</u>	<u>0.0189</u>	<u>0.0187</u>	<u>0.0187</u>	<u>----*</u>
<u>Long Beach-Route 710 Near Road</u>	<u>0.0238</u>	<u>0.0159</u>	<u>0.0244</u>	<u>0.0163</u>	<u>0.0163</u>	<u>0.0159</u>
<u>Los Angeles-North Main Street</u>	<u>0.0250</u>	<u>0.0164</u>	<u>0.0252</u>	<u>0.0167</u>	<u>0.0250</u>	<u>0.0167</u>
<u>Mira Loma (Van Buren)</u>	<u>0.0221</u>	<u>0.0217</u>	<u>0.0224</u>	<u>0.0221</u>	<u>0.0221</u>	<u>0.0150</u>
<u>Mission Viejo</u>	<u>0.0267</u>	<u>0.0250</u>	<u>0.0375</u>	<u>0.0366</u>	<u>0.0357</u>	<u>----*</u>
<u>Ontario-Route 60 Near Road</u>	<u>0.0205</u>	<u>0.0207</u>	<u>0.0217</u>	<u>0.0217</u>	<u>0.0217</u>	<u>0.0219</u>
<u>Pasadena</u>	<u>0.0417</u>	<u>0.0306</u>	<u>0.0417</u>	<u>0.0396</u>	<u>0.0392</u>	<u>0.0388</u>
<u>Pico Rivera #2</u>	<u>0.0342</u>	<u>0.0328</u>	<u>0.0424</u>	<u>0.0413</u>	<u>0.0410</u>	<u>0.0403</u>
<u>Reseda</u>	<u>0.0435</u>	<u>0.0412</u>	<u>0.0412</u>	<u>0.0303</u>	<u>0.0408</u>	<u>0.0412</u>
<u>Rubidoux</u>	<u>0.0246</u>	<u>0.0242</u>	<u>0.0250</u>	<u>0.0246</u>	<u>0.0248</u>	<u>0.0250</u>
<u>San Bernardino</u>	<u>0.0364</u>	<u>0.0360</u>	<u>0.0367</u>	<u>0.0273</u>	<u>0.0357</u>	<u>0.0345</u>

* These stations did not have enough data to determine a design value in 2022

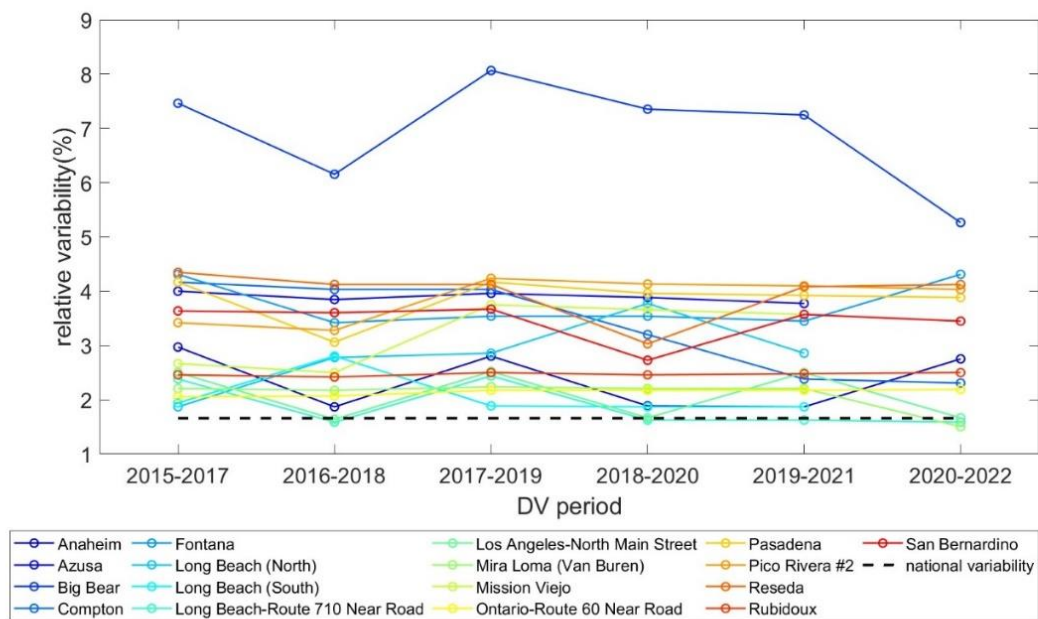


FIGURE VI-3

ANNUAL RELATIVE VARIABILITY FOR ALL THE 17 SITES IN THE JURISDICTION AS WELL AS THE NATIONAL VARIABILITY (1.66 PERCENT) REPORTED IN THE TECHNICAL BASIS DOCUMENT

TABLE VI-3-2
STATISTICAL OVERVIEW OF OBSERVATION FOR 17 SITES (NOT BOOTSTRAPPING RESULTS) IN
THE BASIN

Station	Count	Mean	Std Error*	Std Dev+	Var^	Min	Max	Range
Anaheim	2819	10.5	0.1	6.2	37.9	1.2	63.1	61.9
Azusa	832	10.3	0.2	6.2	38.6	0.7	61.9	61.2
Big Bear	743	7.5	0.2	5.0	25.4	0.3	39.4	39.1
Compton	1824	12.5	0.2	7.5	56.8	1.5	102.1	100.6
Fontana	922	11.4	0.2	6.4	41.4	0.1	55.1	55.0
Long Beach (North)	1778	10.7	0.1	6.2	37.9	1.9	79.6	77.7
Long Beach (South)	2505	10.6	0.1	6.1	37.8	1.1	77.3	76.2
Long Beach-Route 710 Near Road	2868	12.4	0.1	6.7	44.6	1.7	103.8	102.1
Los Angeles-North Main Street	2840	12.0	0.1	6.5	42.6	1.7	61.4	59.7
Mira Loma (Van Buren)	2830	13.4	0.1	7.9	61.6	0.1	86.0	85.9
Mission Viejo	1037	8.4	0.1	4.5	20.1	0.5	38.9	38.4
Ontario-Route 60 Near Road	2856	13.9	0.1	6.8	46.3	0.2	65.4	65.2
Pasadena	953	9.8	0.2	5.6	31.4	1.3	63.6	62.3
Pico Rivera #2	937	11.9	0.2	6.6	43.8	0.1	66.0	65.9
Reseda	916	9.5	0.2	5.4	29.1	0.6	55.5	54.9
Rubidoux	2875	12.0	0.1	6.9	47.9	1.2	82.0	80.8
San Bernardino	903	11.2	0.2	6.1	37.5	1.2	57.9	56.7

*Standard Error

+Standard Deviation

^Variance

TABLE VI-4-3
NUMBER OF CREDIBLE SAMPLES (EXCLUDING LIKELY EXCEPTIONAL EVENTS) FOR EACH
STATION FROM 2015 TO 2022

Station	2015	2016	2017	2018	2019	2020	2021	2022
Anaheim	295	349	364	363	364	355	364	365
Azusa	119	122	115	120	120	116	120	0
Big Bear	58	55	49	54	46	58	59	364
Compton	111	115	119	117	303	353	349	357
Fontana	113	110	118	110	114	117	120	120
Long Beach (North)	338	356	348	344	156	117	119	0
Long Beach (South)	347	350	363	362	362	357	364	0
Long Beach-Route 710 Near Road	336	361	362	359	365	356	365	364
Los Angeles-North Main Street	342	357	358	346	360	353	363	361
Mira Loma (Van Buren)	343	352	358	351	356	353	352	365
Mission Viejo	115	117	113	107	110	119	356	0
Ontario-Route 60 Near Road	338	361	357	358	364	356	362	360
Pasadena	118	119	121	121	118	117	119	120
Pico Rivera #2	117	120	118	114	118	114	122	114
Reseda	113	113	109	106	118	116	120	121
Rubidoux	341	357	364	364	364	357	364	364
San Bernardino	110	113	116	114	97	115	120	118

Figure VI-4 shows the contribution threshold for each DV period, i.e., the median variability $\times 12.0 \mu\text{g}/\text{m}^3$, from 2015 to 2022. A linear regression is applied to the annual values. The coefficient of determination (R^2) of 0.62 and negative slope of -0.02 (not shown here) suggest that the annual variability exhibits a decreasing trend from 2015 to 2022 with relatively high confidence, similar to the national variation reported in the Technical Basis Document, which is also attributed to the change in sampling frequency. Note that this linear regression should not be used to extrapolate the contribution threshold beyond 2022 as there is no way to predict any future changes in sampling schedules, which could heavily influence the future slope.

The calculated contribution threshold is $0.3 \mu\text{g}/\text{m}^3$ for the most recent three DV periods (Approach 1), $0.4 \mu\text{g}/\text{m}^3$ for the 2018 base year (Approach 2) and $0.4 \mu\text{g}/\text{m}^3$ for all the three-year DV periods from 2015 to 2022 (Approach 3). A contribution threshold of $0.4 \mu\text{g}/\text{m}^3$ (Approach 2) is recommended for the PM_{2.5} precursor demonstration as the project is also based on the same DV periods.

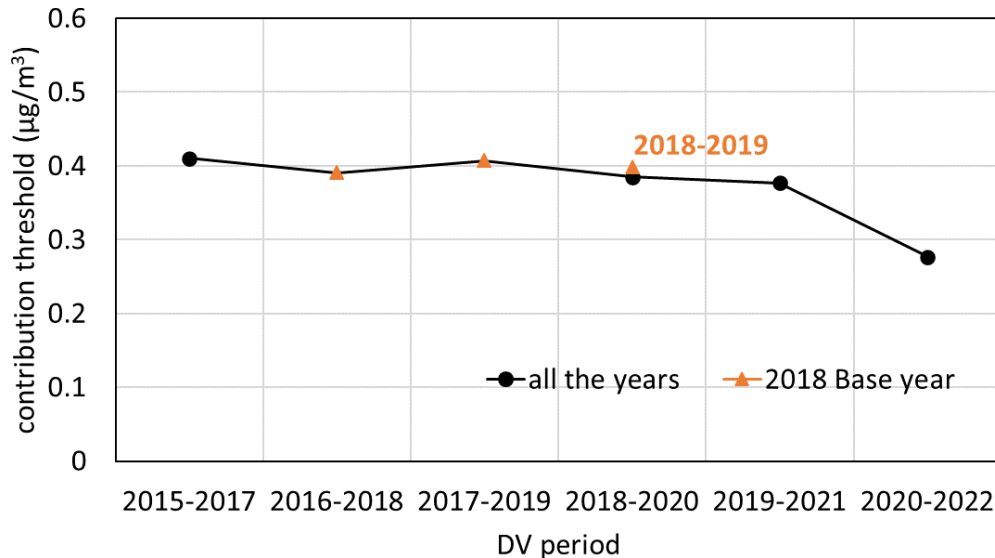


FIGURE VI-4

ANNUAL VARIATION OF THE CONTRIBUTION THRESHOLD ($\mu\text{G}/\text{M}^3$) FOR THE BASIN (17 SITES INCLUDED) FROM 2015 TO 2022. THE PERIODS INCLUDED IN THE 2018 BASE YEAR DESIGN VALUE (I.E., 2016-2018, 2017-2019 AND 2018-2019) ARE MARKED AS ORANGE TRIANGLES

Precursor Demonstration Results

Concentration-based Analysis

The contribution of individual precursor was evaluated with a concentration-based analysis using ambient data to determine whether precursor emissions contribute to total annual PM_{2.5} concentrations. Each precursor's impact on total PM_{2.5} mass is compared to contribution thresholds. As previously noted, the primary use of contribution thresholds is to generate a threshold that matches "the inherent variability in the measured atmospheric conditions." This demonstration defines the alternative contribution threshold for the South Coast Air Basin as $0.4 \mu\text{g}/\text{m}^3$. This is driven from the data collected during 2016 to 2019, the same period used to estimate the weighted design values for the base year 2018, as described previous section.

Table VI-54 shows the speciation fractions of sulfate and organic carbon based on speciation measurements collected between 2017 and 2019. The chemical components are measured at four stations: Anaheim, Central Los Angeles, Riverside and Fontana. Speciation for other stations is interpolated using inverse distance squared weighting. Table VI-65 shows speciated DVs for the base year 2018. The DVs are based on a modified 5-year weighted average from 2016 to 2019 (described in previous section), with speciation data based on measurements and interpolation from 2017 to 2019. Speciated values exceed the Guidance recommended contribution threshold of 0.4 µg/m³. On the rightmost column of Table VI-65, VOC contributions to SOA formation were estimated by multiplying the contribution of organic carbon by 2/3.

TABLE VI-5-4
SPECIATION FRACTIONS FOR SULFATE AND ORGANIC CARBON FROM MEASUREMENTS
DURING THE PERIOD 2017-2019. BASE YEAR DESIGN VALUES ARE IDENTICAL TO THOSE
PRESENTED IN CHAPTER 5 OF THIS PLAN

Site	Sulfate	Organic Carbon	Base Year Design Value
Anaheim	10.2%	38.0%	10.54
Azusa	11.1%	37.1%	10.13
Big Bear	9.0%	34.9%	6.34
Central Los Angeles	10.7%	40.2%	11.96
Compton	9.9%	39.1%	12.25
Fontana	9.8%	33.9%	11.35
Long Beach Near Road	9.9%	38.8%	12.28
Long Beach	10.1%	38.3%	10.53
Mira Loma	9.3%	35.4%	13.52
Mission Viejo	10.4%	36.2%	7.95
Ontario Near Road	9.6%	34.9%	13.98
Pasadena	11.0%	39.3%	9.68
Pico Rivera	10.2%	38.6%	11.87
Reseda	10.7%	38.6%	9.73
Riverside	9.6%	36.9%	12.13
South Long Beach	9.9%	38.2%	10.57
San Bernardino	9.9%	35.5%	10.88

TABLE VI-6-5
DESIGN VALUES SHOWING CONTRIBUTION OF SO_x (CENTER COLUMN) AND VOCs (RIGHT COLUMN) TO PM_{2.5} MASS DESIGN VALUE, BY SITE

Site	SO _x contribution to PM _{2.5} design value (µg/m ³)	VOC contribution to PM _{2.5} design value (µg/m ³)
Anaheim	1.1	2.7
Azusa	1.1	2.5
Big Bear	0.6	1.5
Central Los Angeles	1.3	3.2
Compton	1.2	3.2
Fontana	1.1	2.6
Long Beach Near Road	1.2	3.2
Long Beach	1.1	2.7
Mira Loma	1.3	3.2
Mission Viejo	0.8	1.9
Ontario Near Road	1.3	3.3
Pasadena	1.1	2.5
Pico Rivera	1.2	3.1
Reseda	1.0	2.5
Riverside	1.2	3.0
South Long Beach	1.1	2.7
San Bernardino	1.1	2.6

This concentration-based analysis, however, does not accurately capture the impact of reductions of precursor emissions on PM_{2.5} levels. Since the concentration-based analysis shows the precursors contribute to total PM_{2.5} mass in amounts over U.S. EPA's recommended thresholds, a sensitivity-based analysis is conducted to demonstrate that reductions of SO_x and VOCs would not significantly contribute to PM_{2.5} concentrations, and consequently, that SO_x and VOC can be excluded from SIP planning requirements.

Sensitivity-based Analysis

With regards to the South Coast Air Basin, Table VI-76 lists the monitoring sites in the Basin alongside their baseline 2018 and 2030 DVs. As shown in Table VI-76, five out of 17 sites in the area had DVs over the 12 µg/m³ annual standard. The Guidance suggests focusing on the sites that fail to reach attainment in the precursor demonstrations. Therefore, this sensitivity-based analyses focus strictly on these five sites.

TABLE VI-7-6
BASELINE PM2.5 DESIGN VALUES ($\mu\text{g}/\text{m}^3$) FOR YEARS 2018 AND 2030. THE FIVE SITES
EXCEEDING 12 $\mu\text{g}/\text{m}^3$ IN 2018 ARE BOLDED

Site	2018 DV ($\mu\text{g}/\text{m}^3$)	2030 Reference Scenario DV ($\mu\text{g}/\text{m}^3$)
Anaheim	10.54	9.70
Azusa	10.13	9.03
Big Bear	6.34	5.60
Los Angeles	11.96	10.76
Compton	12.25	11.08
Fontana	11.35	9.77
Long Beach Near Road	12.28	11.11
Long Beach	10.53	9.55
Mira Loma	13.52	11.74
Mission Viejo	7.95	7.18
Ontario Near Road	13.98	12.11
Pasadena	9.68	8.75
Pico Rivera	11.87	10.73
Reseda	9.73	8.56
Riverside	12.13	10.60
South Long Beach	10.57	9.60
San Bernardino	10.88	9.37

Sulfur Dioxide Analysis

SO_x are emitted from stationary and mobile combustion sources, predominantly in the form of SO₂. Petroleum refining, ocean going vessels, aircrafts and on-road vehicles are among the largest contributors. Once emitted into the atmosphere, SO_x compounds are oxidized into sulfuric acid (H₂SO₄), which then forms ammonium sulfate ((NH₄)₂SO₄) after reacting with NH₃. Ammonium sulfate is in particulate form, thus making SO_x a particulate matter precursor.

The contribution of SO_x to annual PM_{2.5} was tested by reducing basin-wide SO_x emissions in 2030 by 30 and 50 percent. Table VI-8A7 lists the DVs projected for 2030, as well as modeled PM_{2.5} DVs under the 30 and 50 percent SO_x reduction scenarios. The difference between the 2030 DV and the two design values (shown in parentheses) represents the modeled impact on PM_{2.5} levels of 30-50 percent reduction in SO_x emissions in 2030. This is the value that is compared to the contribution threshold. As shown in Table VI-87, the difference remains below the Guidance recommended contribution threshold of 0.2 $\mu\text{g}/\text{m}^3$.

TABLE VI-8A
PM_{2.5} DESIGN VALUES FROM 2030 BASE CASE, 30 PERCENT, AND 50 PERCENT SO_x
REDUCTION SCENARIOS

<u>Site</u>	<u>2030 DV</u>	<u>30 percent SO_x reduction (difference)</u>	<u>50 percent SO_x reduction (difference)</u>	<u>Significant Contribution</u>
<u>Compton</u>	<u>11.08</u>	<u>10.98 (0.10)</u>	<u>10.93 (0.15)</u>	<u>No</u>
<u>Long Beach Near Road</u>	<u>11.11</u>	<u>10.98 (0.13)</u>	<u>10.93 (0.18)</u>	<u>No</u>
<u>Mira Loma</u>	<u>11.74</u>	<u>11.77 (-0.03)</u>	<u>11.75 (-0.01)</u>	<u>No</u>
<u>Ontario Near Road</u>	<u>12.11*</u>	<u>12.07 (0.04)</u>	<u>12.04 (0.07)</u>	<u>No</u>
<u>Riverside</u>	<u>10.60</u>	<u>10.64 (-0.04)</u>	<u>10.62 (-0.02)</u>	<u>No</u>

*This value represents RRF adjusted CMAQ predictions, not the final attainment demonstration

The precursor demonstration modeling shows disbenefit from SO_x controls at some sites for annual PM_{2.5} DV (e.g. Mira Loma and Riverside). The nonlinear response of PM_{2.5} mass to SO_x emission reductions in specific locations within South Coast Air Basin may be attributed to the competition of sulfate (SO₄) and nitrate (NO₃) for available ammonium (NH₄) to form particulates of ammonium nitrate (NH₄NO₃) or ammonium sulfate ((NH₄)₂SO₄). Given the one-to-one combination ratio for NH₄NO₃ compared to the two-to-one ratio for (NH₄)₂SO₄, reducing one unit of SO_x would reduce one unit of (NH₄)₂SO₄, but it free two units of ammonium that could form two units of NH₄NO₃, resulting in a net increase of PM_{2.5} mass.¹⁰ The approved precursor demonstration for San Joaquin Valley SIP revision also discusses how the inorganic aerosol thermodynamic equilibrium module ISORROPIA used to model inorganic secondary PM_{2.5} in the CMAQ model may introduce nonlinearity for SO_x reductions.¹¹ Figure VI-5 illustrates the annual mean sulfate (SO₄), nitrate (NO₃), ammonium (NH₄) as well as PM_{2.5} total mass concentration differences spatial patterns for the 30 percent SO_x reduction scenario compared with the 2030 base case. The circles in the figure indicate the five stations that exceed the 12 µg/m³ standard in 2018. CMAQ simulations show the increase of nitrate concentration with the reduction of SO_x emissions, especially over the inland foothill area near Mira Loma and Riverside station.

¹⁰ West, J.J. Ansari, A.S. Pandis, S.N., 1999. Marginal PM_{2.5}: Nonlinear aerosol mass response to sulfate reductions in the eastern United States, Journal of the Air & Waste Management Association, 49, 1415-1424. <http://doi.org/10.1080/10473289.1999.10463973>.

¹¹ San Joaquin Valley Air Pollution Control District 2018 PM_{2.5} SIP Precursor Demonstrations for Ammonia, SO_x, and OG. Available at: <https://www.valleyair.org/pmplans/documents/2018/pm-plan-adopted/G.pdf>. U.S. EPA approved the precursor demonstration for the SJVAPCD 2018 plan (85 FR 44192) and 2021 plan revision (88 FR 86581). Precursor demonstration for the 1997 Annual PM_{2.5} Standard for the San Joaquin Valley, available at: <https://www2.valleyair.org/media/3cme1005/chapter-4-precursor-demonstration.pdf>. U.S. EPA proposed the approval of the precursor demonstration (88 FR 45276).

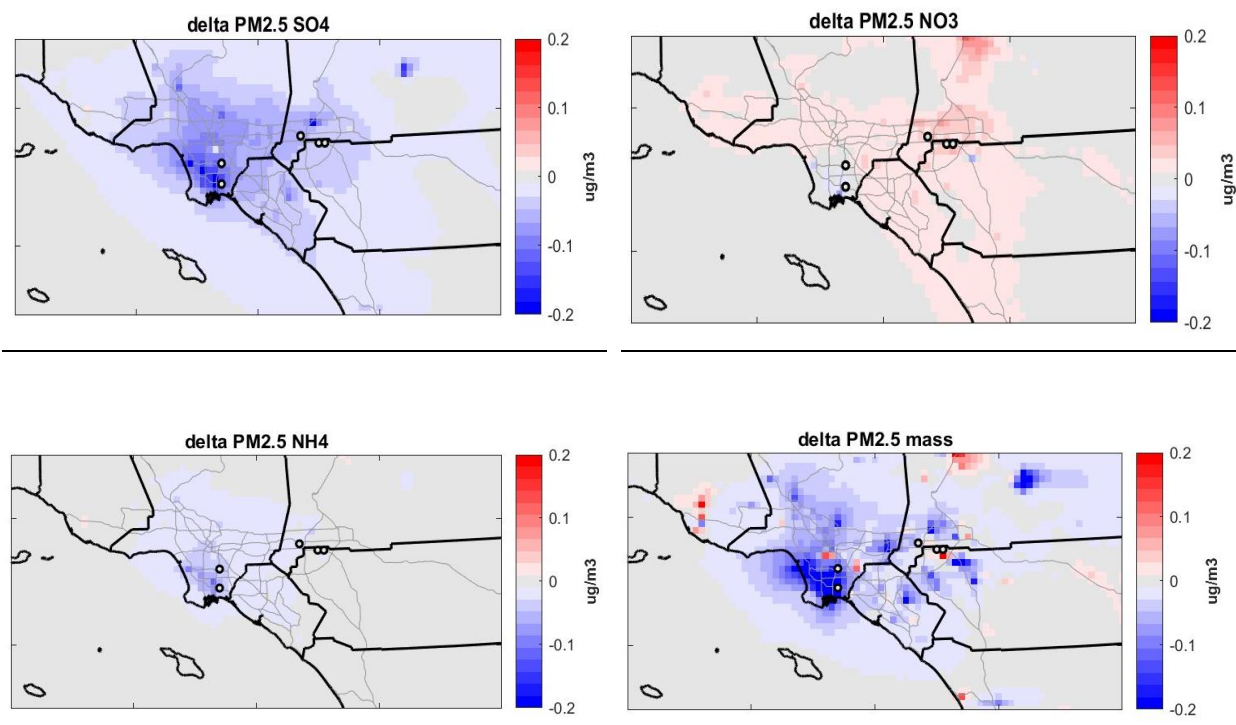


FIGURE VI-5
DELTA ANNUAL MEAN CONCENTRATION SPATIAL PATTERNS FOR NITRATE, SULFATE, AMMONIUM AND PM_{2.5} TOTAL MASS BETWEEN 30 PERCENT SO_X REDUCTION SCENARIO AND 2030 BASE CASE

For reference, Table VI-8B presents the PM_{2.5} sensitivity responses to SO_x for the base year 2018. Reducing SO_x emissions by 30% does not decrease design values significantly, whereas 50% reductions in SO_x decrease design values at Compton and Long Beach by 0.21 µg/m³, only slightly higher than the nationwide threshold but well below the Basin-specific contribution threshold. However, it is important to note that emissions have been changed significantly from 2018 to 2023. Given that the current emissions are closer to those and, considering the shift of emissions closer to the projected for 2030 condition, modeled sensitivity for 2030 was used to determine the significance of PM_{2.5} precursors contributing to the annual PM_{2.5} levels in the Basin. However, it is important to note that emissions have changed significantly from 2018 to 2023.. Given that the current emissions are closer to those projected for 2030, modeled sensitivity for 2030 was used to determine the significance of PM_{2.5} precursors contributing to the annual PM_{2.5} levels in the Basin.

TABLE VI-7
PM_{2.5} DESIGN VALUES FROM 2030 BASE CASE, 30 PERCENT, AND 50 PERCENT SO_X REDUCTION SCENARIOS

Site	2030 DV	30 percent SO _x reduction (difference)	50 percent SO _x reduction (difference)	Significant Contribution
Compton	11.08	10.98 (0.10)	10.93 (0.15)	No
Long Beach Near Road	11.11	10.98 (0.13)	10.93 (0.18)	No
Mira Loma	11.74	11.77 (-0.03)	11.75 (-0.01)	No
Ontario Near Road	12.11*	12.07 (0.04)	12.04 (0.07)	No
Riverside	10.60	10.64 (-0.04)	10.62 (-0.02)	No

*This value represents RRF-adjusted CMAQ predictions, not the final attainment demonstration

TABLE VI-8B
PM_{2.5} DESIGN VALUES FROM 2018 BASE CASE, 30 PERCENT, AND 50 PERCENT SO_x
REDUCTION SCENARIOS

Site	2018 DV	30 percent SO _x reduction (difference)	50 percent SO _x reduction (difference)
Compton	12.25	12.12 (0.13)	12.04 (0.21)
Long Beach Near Road	12.28	12.15 (0.13)	12.07 (0.21)
Mira Loma	13.52	13.46 (0.06)	13.42 (0.1)
Ontario Near Road	13.98	13.89 (0.09)	13.84 (0.14)
Riverside	12.13	12.06 (0.07)	12.03 (0.1)

Consideration of Additional Information

To supplement modeling analysis, the Guidance allows agencies to consider additional information. South Coast AQMD has accordingly evaluated trends in SO_x emissions to support the sensitivity-based analysis. Estimated SO_x emissions (tons/day) by major source between 2018 and 2030, are shown in Figure VI-65. While there are small variations in sources contributing to SO_x emissions, overall SO_x emissions from the base year to 2030 remain flat. With marginal fluctuations in point source emissions, there is no discernable trend in SO_x emissions, and overall, emissions are projected to stay constant.

As SOx requires the presence of NH3 to form secondary PM2.5, we also visualized trends in NH3 emissions across the same time period in Figure VI-76. Like SOx, relative levels of ammonia remain similar through the attainment year. The largest contributor to NH3 is the emissions from human and animal perspiration that is not controllable. However, the strategy to attain the 2015 8-hour ozone in 2037 requires economywide transition to zero emission technology, which will result in substantial reductions in all pollutants including NH3. The SOx and NH3 emissions ensure that no significant changes are expected in their contribution to future annual PM2.5 levels, and therefore, SOx is expected to be insignificant to annual PM2.5 in the South Coast Air Basin.

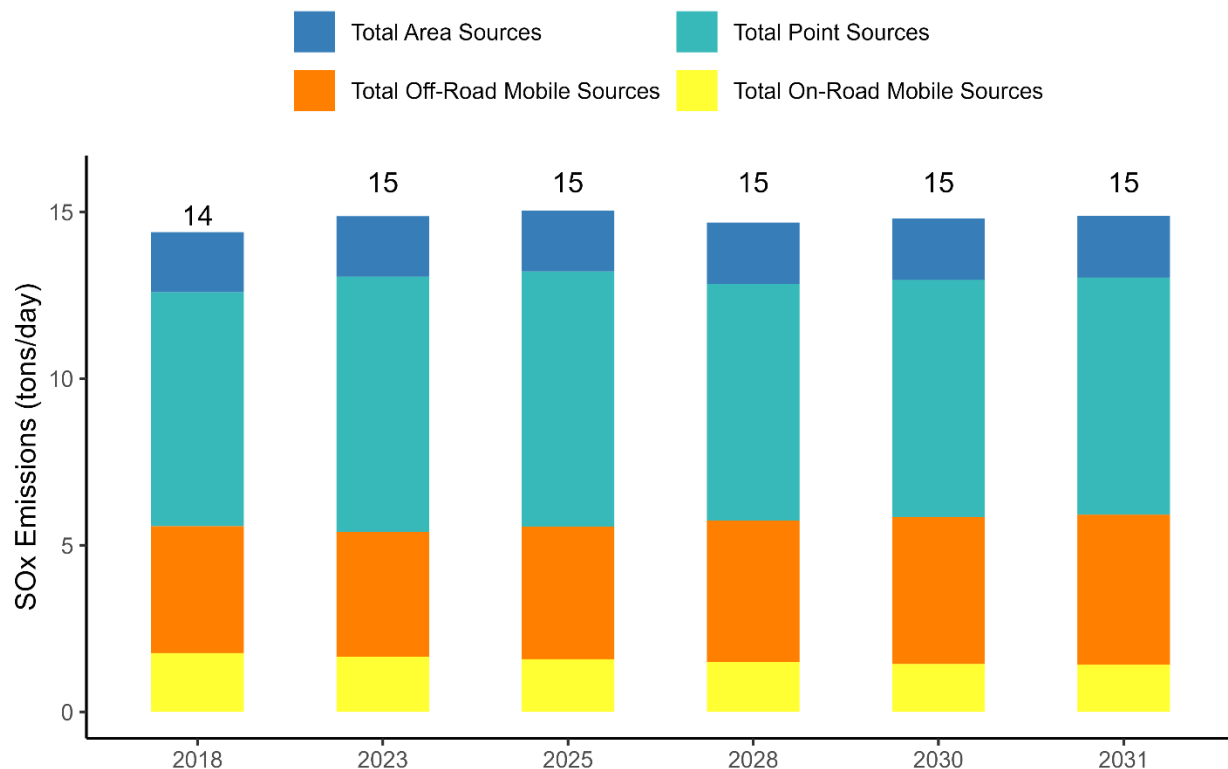
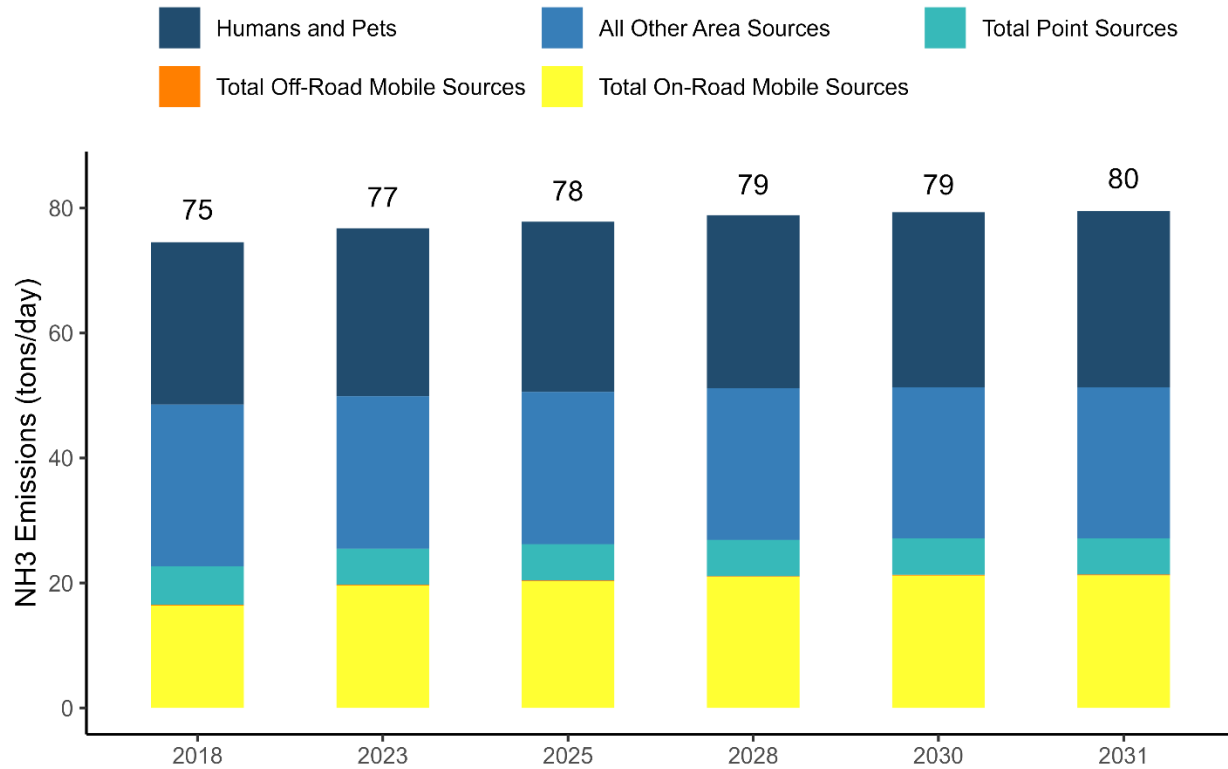


FIGURE VI-6-5
SOX EMISSION (TONS/DAY) TREND, BY SOURCE, IN THE SOUTH COAST AIR BASIN BETWEEN 2018 AND 2031

**FIGURE VI-7-6**

NH₃ EMISSIONS (TONS/DAY) TREND, BY SOURCE, IN THE SOUTH COAST AIR BASIN BETWEEN 2018 AND 2031

Volatile Organic Carbon Analysis

Formation of secondary organic aerosols (SOA) strongly depend on the presence of VOCs, making VOCs a potentially important precursor to PM_{2.5}. VOC contribution to annual PM_{2.5} is tested by reducing basin-wide VOC emissions in 2030 by 30 and 50 percent. Table VI-98 lists the DVs projected for 2030, as well as modeled PM_{2.5} DVs under 30 and 50 percent VOC reduction scenarios. The difference between the 2030 DV and the two design values (shown in parentheses) represents the modeled impact on PM_{2.5} levels of 30-50 percent reduction in VOC emissions in 2030. This is the value that is compared to the contribution threshold. As shown in Table VI-98, the difference remains below the Guidance recommended contribution threshold of 0.2 µg/m³ for most sites, except for the case of a 50 percent reduction in VOCs at the Long Beach Near Road site, where the contribution to the annual DV is 0.22 µg/m³. While this value is slightly above the contribution threshold of 0.2 µg/m³, it is lower than the alternative contribution threshold of 0.4 µg/m³ that is calculated for the South Coast Air Basin (as described in previous section). Even if the contribution threshold is calculated with more recent observational data, this contribution threshold is 0.3 µg/m³ (shown in Figure VI-4), which is higher than the VOC contribution at the Long Beach

Near Road site. Furthermore, the Guidance does not definitively state whether a single monitor recording above the contribution threshold implies significance of the precursor.

Similar to the SO_x demonstration, the CMAQ model shows ~~disbenefit~~^{disbenefit} for VOC controls on annual PM2.5 DV at specific locations (e.g. Mira Loma and Riverside) with 30 percent VOC control across the basin. The reduction of VOCs under different NO_x conditions may trigger various chemical reaction regimes, thus yielding different responses to PM2.5 formation. Decreasing VOC emissions in NO_x-saturated environments reduces oxidant levels, subsequently lowering sulfate and organic aerosols. However, in NO_x lean environments, such as the 2030 attainment year utilized in this analysis, VOC reduction can produce negative feedback, leading to an increase in the OH radical concentration and thus accelerated VOC oxidation. Consequently, due to this negative feedback effect, VOC emission reduction becomes less effective in reducing aerosol mass.^{12 13}

For reference, Table VI-9B presents the PM2.5 sensitivity responses to VOC for the base year 2018. The changes in design values resulting from 30% reductions in VOC are larger than the nationwide contribution threshold but are below the contribution threshold calculated for the Basin. Reducing VOC emissions by 50% with respect to the levels in 2018 decreases design values beyond the Basin-specific contribution threshold of 0.4 µg/m³. As discussed above, the high NO_x environment in 2018 favors a high response of organic aerosol to changes in VOC emissions. However, NO_x emissions are projected to decline through 2024 and beyond. With lowering NO_x emissions, the response of design values to VOC changes are reduced notably, as shown in Table VI-9A. However, as in the case for SO_x, it is important to note that emissions have changed significantly from 2018 to 2023. Given that the current emissions are closer to those projected for 2030, modeled sensitivity for 2030 was used to determine the significance of PM2.5 precursors contributing to the annual PM2.5 levels in the Basin.

¹² Alexandra P. Tsimpidi, Vlassis A. Karydis & Spyros N. Pandis (2008)

Response of Fine Particulate Matter to Emission Changes of Oxides of Nitrogen and Anthropogenic Volatile Organic Compounds in the Eastern United States, Journal of the Air & Waste Management Association, 58:11, 1463-1473, DOI: 10.3155/1047-3289.58.11.1463

¹³ Liao, Kuo-Jen, et al. "Current and Future Linked Responses of Ozone and PM2.5 to Emission Controls." Environmental Science & Technology, vol. 42, no. 13, July 2008, pp. 4670–75. ACS Publications. <https://doi.org/10.1021/es7028685>.

TABLE VI-9A-8
PM_{2.5} DESIGN VALUES FROM 2030 BASE CASE, 30 PERCENT, AND 50 PERCENT VOC
REDUCTION SCENARIO

Site	2030 DV	30 percent VOC reduction (difference)	50 percent VOC reduction (difference)	Significant Contribution
Compton	11.08	10.97 (0.11)	10.89 (0.19)	No
Long Beach Near Road	11.11	10.96 (0.15)	10.89 (0.22)	No (30 percent) Yes (50 percent)
Mira Loma	11.74	11.77 (-0.03)	11.73 (0.01)	No
Ontario Near Road	12.11*	12.08 (0.03)	12.03 (0.08)	No
Riverside	10.60	10.63 (-0.03)	10.60 (0.00)	No

*This value represents RRF adjusted CMAQ predictions, not the final attainment demonstration

TABLE VI-9B
PM_{2.5} DESIGN VALUES FROM 2018 BASE CASE, 30 PERCENT, AND 50 PERCENT VOC
REDUCTION SCENARIO

Site	2018 DV	30 percent VOC reduction (difference)	50 percent VOC reduction (difference)
Compton	12.25	11.96 (0.29)	11.79 (0.46)
Long Beach Near Road	12.28	11.96 (0.32)	11.8 (0.48)
Mira Loma	13.52	13.31 (0.21)	13.13 (0.39)
Ontario Near Road	13.98	13.71 (0.27)	13.5 (0.48)
Riverside	12.13	11.94 (0.19)	11.79 (0.34)

Consideration of Additional Information

As shown in Figure VI-87, VOC emissions are projected to decrease between 2018 and 2030, with major reductions from on-road and off-road emissions. The biggest reductions are projected to occur between 2018 and 2023 driven by the reductions in mobile sources. Area sources such as consumer products are tied with population growth. However, regulations on stationary and mobile sources are expected to compensate the growth, leading to overall reductions in total VOC emissions. VOC emissions are projected to decline from 402 tons per day in 2018 to 344 tons per day in 2030. This reduction represents a decrease of 15 percent in VOC emissions. While the contribution of VOCs to annual PM_{2.5} levels are less than significant, these reductions will further assure improvement of annual PM_{2.5} levels in the Basin.

Another approach to justify that VOC is not a significant precursor is demonstrating reasonable VOC controls would not advance the attainment date for annual PM_{2.5}. The 2030 baseline design value at Mira

Loma is predicted to be 12.5 $\mu\text{g}/\text{m}^3$, necessitating an improvement exceeding 0.45 $\mu\text{g}/\text{m}^3$ for attainment. However, with only a 0.01 $\mu\text{g}/\text{m}^3$ response resulting from a 50 percent VOC reduction, the impact is deemed inconsequential. In addition, achieving a 50 percent reduction in emission~~emission reductions~~ from consumer products, one of the top three categories contributing to VOC emissions~~source categories~~, is not feasible within next six years leading up to~~until~~ 2030. This is because the processes involved in, as the development, production at a commercial scale, and distribution of such products require significant time. In the South Coast Air Basin, the top three sources of VOC emissions are Consumer Products (122 tons per day), Light and medium-duty Vehicles (45 tons per day), and Off-Road Equipment (29 tons per day) in 2030. 50 percent VOC reductions in the mobile source categories are infeasible within the next six years as well. In summary, VOC controls are not expected to advance attainment of the annual PM2.5 standard in the Basin.

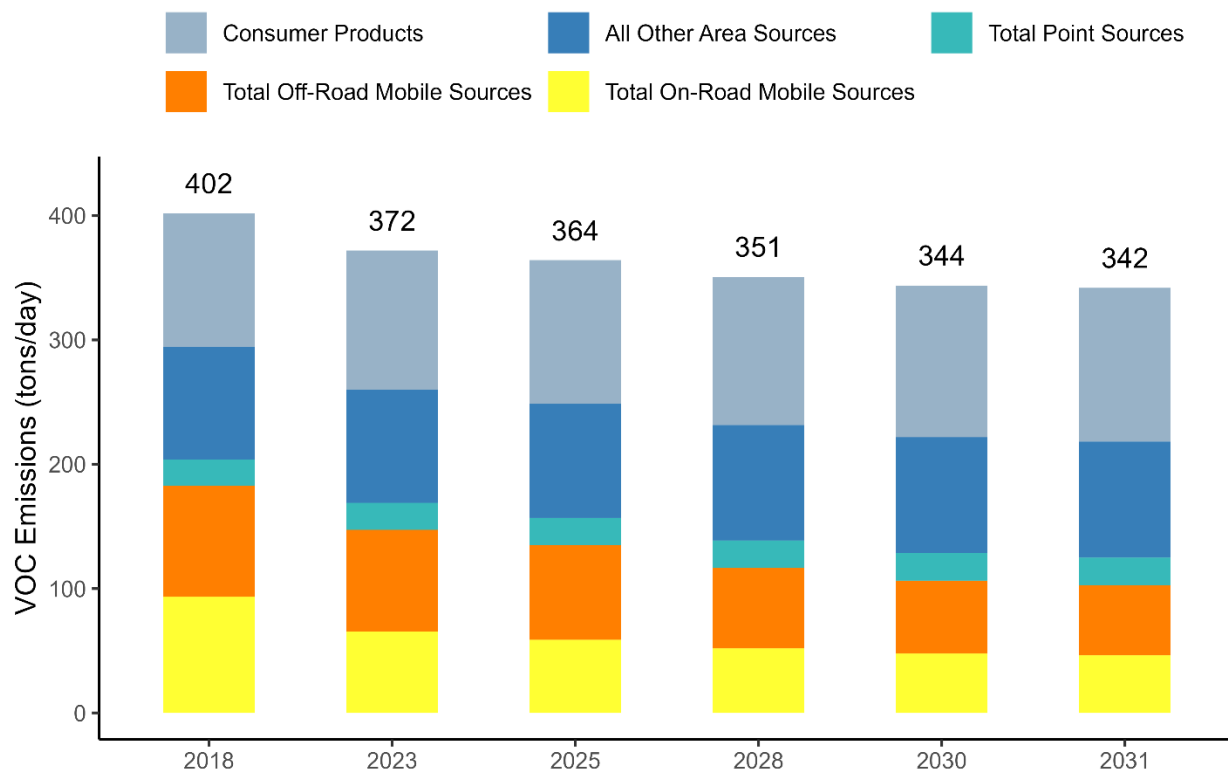


FIGURE VI-8-7
VOC EMISSION TREND, BY SOURCE, IN THE SOUTH COAST AIR BASIN BETWEEN 2018 AND 2031

Conclusion

This precursor analysis evaluated whether VOC and SO_x emissions contribute significantly to annual PM_{2.5} levels that exceed the 12 µg/m³ annual NAAQS following the U.S. EPA precursor demonstration guidance. The methodologies related to modeling and design value calculation are identical to those used in the rest of this Plan. In consideration of emission trends spanning between 2018 and 2030, which include existing regulations, adopted control measures and the control strategy in this PM_{2.5} plan, emissions levels in 2023, the time that this PM_{2.5} plan was under development, are more closely related to projected emissions in 2030 than to 2018. Emissions in the Basin decrease sharply from 2018 to 2023 and marginally slowed down afterwards. This trend is evident in both VOC and NO_x emissions. Consequently, the sensitivity-based analysis included in this precursor demonstration is based on the 2030 emissions, because the chemical regime under the 2030 emissions is expected to be closer to current conditions than to the chemical regime caused by 2018 emissions.

It is noted that the variability in PM_{2.5} observed nationwide may not represent the conditions in the South Coast Air Basin accurately. The Guidance permits air agencies some discretion to develop precursor demonstrations that differ from the guidance on a case-by-case basis. Thus, this precursor demonstration derived a region-specific contribution threshold, applying the same methodology solely to monitors within the South Coast Air Basin. The contribution threshold specific to the Basin is 0.4 µg/m³ if derived using the same years (2016 to 2019) utilized for design value this Plan, and it is 0.3 µg/m³ if derived using more recent data. Thus, the contribution threshold for the Basin is higher than the threshold established nationally. The South Coast Air Basin exhibits distinctive atmospheric conditions owing to its complex terrain and diverse land use, ranging from dense urban clusters to inland residential areas and farmlands, further extending to the Coachella Valley near deserts. ~~Some monitoring sites near coastal areas frequently experience impacts from emissions by ships, while two sites situated near busy major freeways are heavily influenced by on road mobile sources.~~ This suggests that the adoption of the nationwide contribution threshold may overestimate the significance of PM_{2.5} precursors in the basin. Calculating a value specific to the basin may better capture the local variability in PM_{2.5} concentrations.

The contribution of SO_x and VOC emissions to PM_{2.5} concentrations were evaluated using concentration- and sensitivity-based methods. The concentration-based analysis shows that both precursors contribute to PM_{2.5} concentrations, with an impact that exceeds the contribution threshold. However, the concentration-based analysis does not measure the degree to which PM_{2.5} DVs would change in response to changes in precursor emissions. Therefore, the analysis was supplemented with a sensitivity-based analysis. The sensitivity analysis estimated changes in 2030 PM_{2.5} design values using the emissions and air quality modeling platform identical to the one used in the rest of this PM Plan. Precursor sensitivities were tested with 30 and 50 percent reductions of VOCs and SO_x emissions to assess consequent changes to annual PM_{2.5} DVs. The sensitivity-based analysis showed that 30 and 50 percent reductions in SO_x and VOC emissions fail to significantly impact annual PM_{2.5} DVs. Therefore, SO_x and VOC are not significant precursors to annual PM_{2.5} in the South Coast Air Basin.



APPENDIX VII

Socioeconomic Impact Assessment



APPENDIX VII

SOCIOECONOMIC IMPACT ASSESSMENT

Table of Contents

Introduction	1
Costs and Macroeconomic Impacts	1
Projected Emission Reductions and Changes in Pollutant Concentrations	2
Quantified Public Health Benefits	3
<i>Health Effect Estimates</i>	5
<i>Monetized Health Impacts</i>	7
Other Public Welfare Benefits	9
<i>Material Benefit</i>	9
<i>Visibility Benefit</i>	10
Technical Details	10
<i>Methodology</i>	10
<i>Data</i>	12
<i>C-R and Valuation Functions</i>	13
<i>Results</i>	16
<i>Sensitivity and Uncertainty Analyses</i>	18

Introduction

The South Coast Air Basin Attainment Plan for the 2012 Annual PM2.5 Standard (hereafter, referred as PM2.5 Plan) outlines a suite of control strategies that are designed to attain the 2012 annual PM2.5 NAAQS no later than December 31, 2030. PM2.5 is known to cause substantial negative health impacts, including respiratory and cardiovascular disease, worsening asthma symptoms, and premature death. As such, the air quality improvements resulting from the control measures proposed in the PM2.5 Plan are expected to yield meaningful public health benefits. Following a similar methodology to the health benefit analysis performed for the 2022 AQMP, South Coast AQMD staff has worked closely with Industrial Economics, Inc. (IEc) to quantify the public health benefits associated with attainment of the 2012 annual PM2.5 NAAQS by 2030 and discuss the associated uncertainties in estimates. Despite these efforts, a full assessment of all clean air benefits in monetary terms is not possible until further advances occur in human health sciences, physical science, and economic disciplines that will allow monetary estimates to be made for currently unquantifiable areas.

The control strategy outlined in the PM2.5 Plan relies on previously adopted control measures from the 2022 AQMP and 2016 AQMP to reduce emissions of nitrogen oxides (NO_x), ammonia (NH₃), and directly emitted Particulate Matter with a diameter of 2.5 µm or less (PM2.5). The PM2.5 Plan models the impacts of these control strategies in the attainment year of 2030, a year in which emissions reductions and health benefits have not been previously quantified, and also reflects refined air quality modeling procedures¹. As such, the health benefits quantified in this Socioeconomic Impact Assessment should be considered as supplemental to those previously discussed and quantified in the 2022 AQMP and 2016 AQMP, rather than incremental, as they present another data point on how health benefits are expected to accrue over time.

Costs and Macroeconomic Impacts

Because the control measures in the PM2.5 Plan were previously adopted in either the 2022 AQMP or 2016 AQMP, the compliance costs, impacts on small business, and macroeconomic impacts of these control measures have already been analyzed and presented in the Socioeconomic Reports of the respective AQMPs. Since there are no incremental costs associated with the control measures in the PM2.5 Plan relative to the previous analyses, no additional assessment of costs or macroeconomic impacts has been prepared. For detailed discussions of costs and macroeconomic impacts associated with these control measures, please refer to the AQMP Chapters referenced in Table 1. Additional detailed socioeconomic analysis will be conducted as part of rule development for each control measure and presented to the Governing Board prior to its consideration of whether to adopt the rule.

¹ See Appendix II of the PM2.5 Plan for a discussion of the modeling methodology:
<https://www.aqmd.gov/docs/default-source/clean-air-plans/pm2.5-plans/appendix-ii---air-quality-modeling.pdf?sfvrsn=10>

Projected Emission Reductions and Changes in Pollutant Concentrations

Ambient PM_{2.5} levels can be improved by reducing either direct PM_{2.5} emissions or PM_{2.5} precursor emissions. NO_x is a precursor for both ozone and PM_{2.5}. The 2022 AQMP committed to a strategy to reduce NO_x emissions substantially to meet the 2015 8-hour ozone NAAQS. NO_x emission reductions expected from the continued implementation of the 2022 AQMP and 2016 AQMP control measures are expected to contribute substantially to the attainment of the 2012 annual PM_{2.5} standard. Additional limited controls to meet federal Clean Air Act Section 188(e) requirements are proposed in this PM_{2.5} Plan. These include measures to marginally reduce direct PM_{2.5} and NH₃ emissions.

The benefit assessment in this document analyzes the differences in the projected PM_{2.5} concentrations in the Basin between a baseline scenario (without the PM_{2.5} Plan control measures) and the control or policy scenario (with the PM_{2.5} Plan control measures) at the level of a 4km-by-4km grid. The control measures considered in this analysis and expected emissions reductions of PM_{2.5} and its precursors are listed in Table 1.

TABLE 1: PM_{2.5} PLAN CONTROL MEASURES

PM 2.5 Plan Control Measure	Control Measure Name	Cost Previously Analyzed In	Emission Reductions [Pollutant] (2030 tpd)
BCM-05	Emission Reductions from Emergency Standby Engines	2022 AQMP ¹	0.04 [PM _{2.5}]
BCM-06	Emission Reductions from Diesel Electricity Generating Facilities	2022 AQMP ¹	0.16 [NO _x]
BCM-07	Emission Reductions from Incinerators	2022 AQMP ¹	0.81 [NO _x]
BCM-08	Livestock Waste at Confined Animal Facilities (CAFs)	2016 AQMP ²	0.27 [NH ₃]
BCM-10	Chipped and Ground Greenwaste	2016 AQMP ²	0.08 [NH ₃]

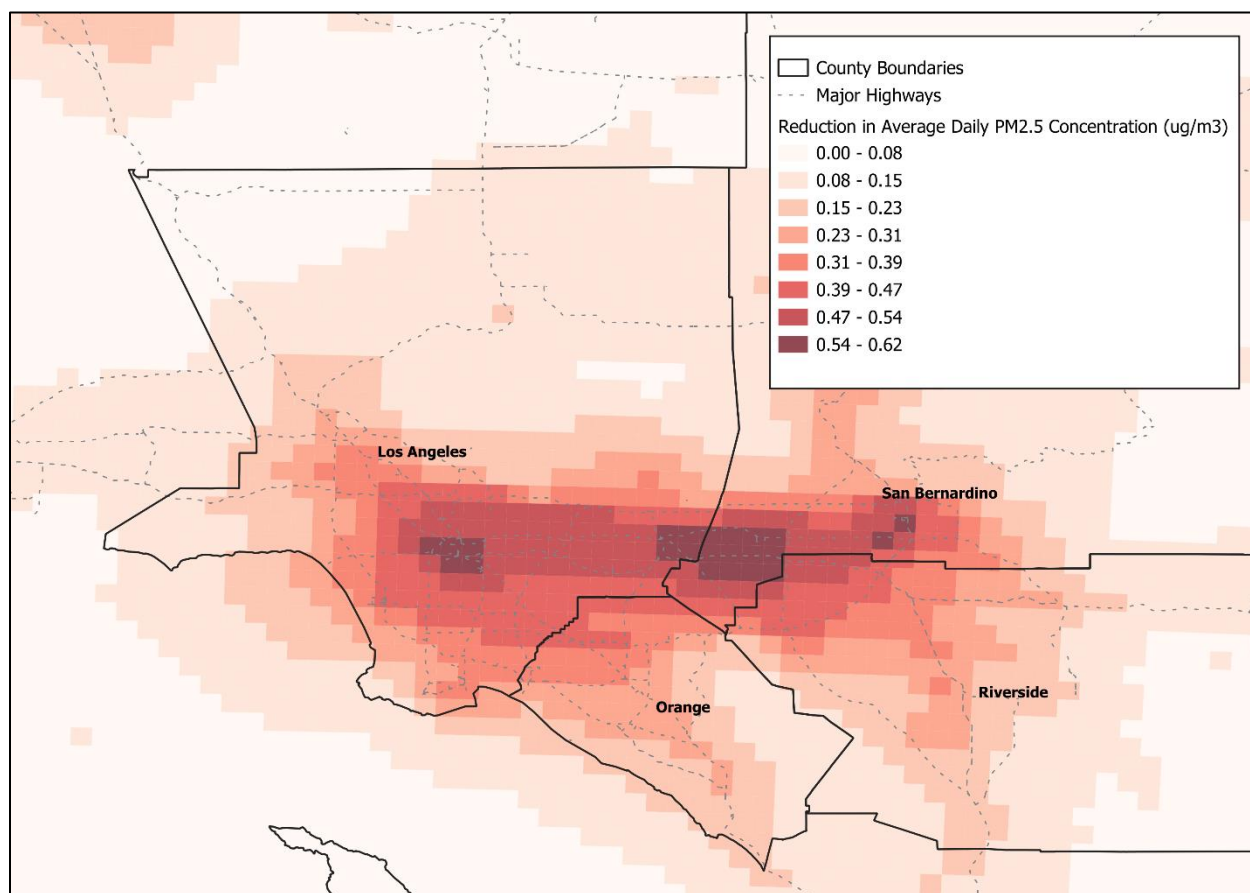
Note: tpd = tons per day

1. Chapters 2 and 4 of the Final Socioeconomic Report for the 2022 AQMP: <https://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/final/aqmp-2022-socioeconomic-report-main-final.pdf>

2. Chapters 2 and 4 of the Final Socioeconomic Report for the 2016 Air Quality Management Plan: https://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/final/sociofinal_030817.pdf

The quantified public health benefits discussed in this Socioeconomic Impact Assessment are based on the projected change in PM_{2.5} concentrations within each grid cell. Figure 1 shows the modeled changes in PM_{2.5} concentrations due to the control measures proposed in the PM_{2.5} Plan. Note that air quality modeling methods in this analysis have already accounted for background concentrations of pollutants and thus concentrations projected in the control scenarios are above background concentration levels.

FIGURE 1: MODELED REDUCTIONS IN PM2.5 CONCENTRATIONS, 2030



Note: PM2.5 concentrations shown in this figure are the annual average of the 24-hour means.

Quantified Public Health Benefits

Numerous epidemiological as well as controlled laboratory studies have demonstrated a positive association between ambient air pollution exposure and increases in illness and other health effects (morbidity endpoints) and increases in death rates from various causes (mortality endpoints) (U.S. EPA 2019). Groups that are most sensitive to the effects of air pollution are children, elderly persons, and people with certain respiratory or heart conditions.

Table 2 summarizes the likelihood of causal relationship between PM2.5 exposure and various health endpoints documented in the U.S. EPA Integrated Science Assessments (ISAs) (U.S. EPA 2019) ². Due to concerns of potentially double counting over the same health endpoint, not all causal or likely causal relationships listed in Table 2 are quantified in this Socioeconomic Impact Assessment.

² Descriptions of the evidence for causal relationships between PM2.5 exposure and various health endpoints can be found in Appendix 3-A of the Final Socioeconomic Report Appendices of the 2022 AQMP, <https://www.aqmd.gov/home/air-quality/air-quality-management-plans/air-quality-mgt-plan/socioeconomic-analysis>

TABLE 2: SUMMARY OF U.S. EPA'S CAUSAL DETERMINATIONS FOR PM2.5 EXPOSURE

Health Category	Causal Determination	Quantified?
<i>Short-Term Exposure to PM2.5</i>		
Mortality	Causal relationship¹	No
Cardiovascular Effects	Causal relationship	Yes
Respiratory Effects	Likely to be a causal relationship	Yes
Central Nervous System Effects	<i>Suggestive of a causal relationship</i>	No
<i>Long-Term Exposure to PM2.5</i>		
Mortality	Causal relationship	Yes
Cardiovascular Effects	Causal relationship²	No
Respiratory Effects	Likely to be a causal relationship	Yes
Central Nervous System Effects	Likely to be a Causal Relationship	Yes
Reproductive and Developmental Effects	<i>Suggestive of a causal relationship</i>	No
Cancer, Mutagenicity, Genotoxicity	<i>Likely to be a causal relationship</i>	Yes

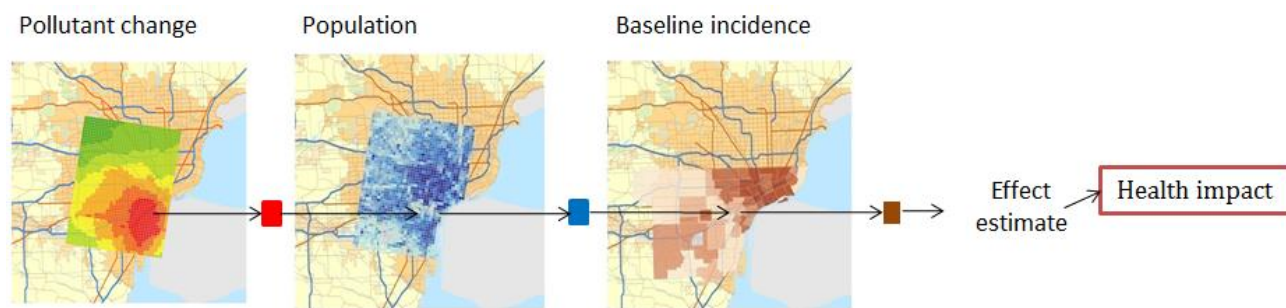
Notes:

1. Mortality due to short-term exposure to PM2.5 is not quantified because mortality due to long-term exposure to PM2.5 is expected to be inclusive of any short-term exposure impacts.
2. Although cardiovascular morbidity effects using risk models with long-term exposure to PM2.5 are not quantified, a number of cardiovascular effects modeled based on short-term exposure to PM2.5 are likely to have chronic impacts following the initial event (e.g., stroke, out-of-hospital cardiac arrest, and AMI). The valuation of the short-term cardiovascular endpoints reflects long-term, multi-year costs-of-illness.

Source: U.S. EPA ISA (2019)

The first step of a public health benefits analysis is the health effects quantification. Appropriate concentration-response (C-R) functions need to be selected, which numerically characterize the causal and likely causal relationships between exposure to a pollutant and various health endpoints. Specifically, as presented in Figure 2, the C-R functions used in this analysis relate changes in ambient air pollution concentration with changes in mortality or morbidity incidence, the magnitude of which also depends on the baseline incidence rate and the population exposed to a specific health risk being analyzed.

FIGURE 2: HEALTH EFFECTS QUANTIFICATION



Source: U.S. EPA BenMAP Community Edition User's Manual.

C-R functions were selected based on a systematic review of the epidemiological literature, where studies were evaluated for quality and applicability according to numerous criteria (See Appendix 3-C of the Final Socioeconomic Report Appendices of the 2022 AQMP; Industrial Economics and Thurston 2016a; Industrial Economics and Thurston 2016b). These criteria include: 1) peer-review; 2) date of the study; 3) geography and population characteristics; and 4) study design. Thus, the C-R functions applied in this analysis are mostly from recent, peer-reviewed articles, and derived from local studies of the Basin or studies that report separate estimates using sub-samples pertaining to the Basin, where feasible. Population projections from the 2020 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) were provided by the Southern California Association of Governments (SCAG) for each air quality modeling grid. When feasible, local health data based on public administrative records were utilized to obtain baseline incidence rates. The Technical Details section of this Appendix describes the input data and methodology used in greater depth, as well as analytical assumptions such as cessation lags for mortality effects associated with long-term PM2.5 exposure, which have implications for monetizing health benefits.

The public health benefit analysis described in this Appendix is implemented using U.S. EPA's Environmental Mapping and Analysis Program – Community Edition (BenMAP-CE) Version 1.5.8.29. BenMAP-CE is a free and open-source application maintained by the U.S. EPA. Earlier editions of BenMAP were used to quantify the public health benefits of the 2007, 2012, and 2016 AQMPs, as well as for numerous other studies.

Health Effect Estimates

Table 3 presents a summary of the health effect estimates for each health endpoint. In total, approximately 665 premature deaths will be avoided in 2030 due to improved air quality by implementing the PM2.5 Plan control measures. Basin residents are also expected to benefit from the avoidance of large numbers of hospital admissions (HA), emergency department (ED) visits, school and work loss days, as well as various respiratory and cardiovascular symptoms.

TABLE 3: HEALTH EFFECT ESTIMATES¹

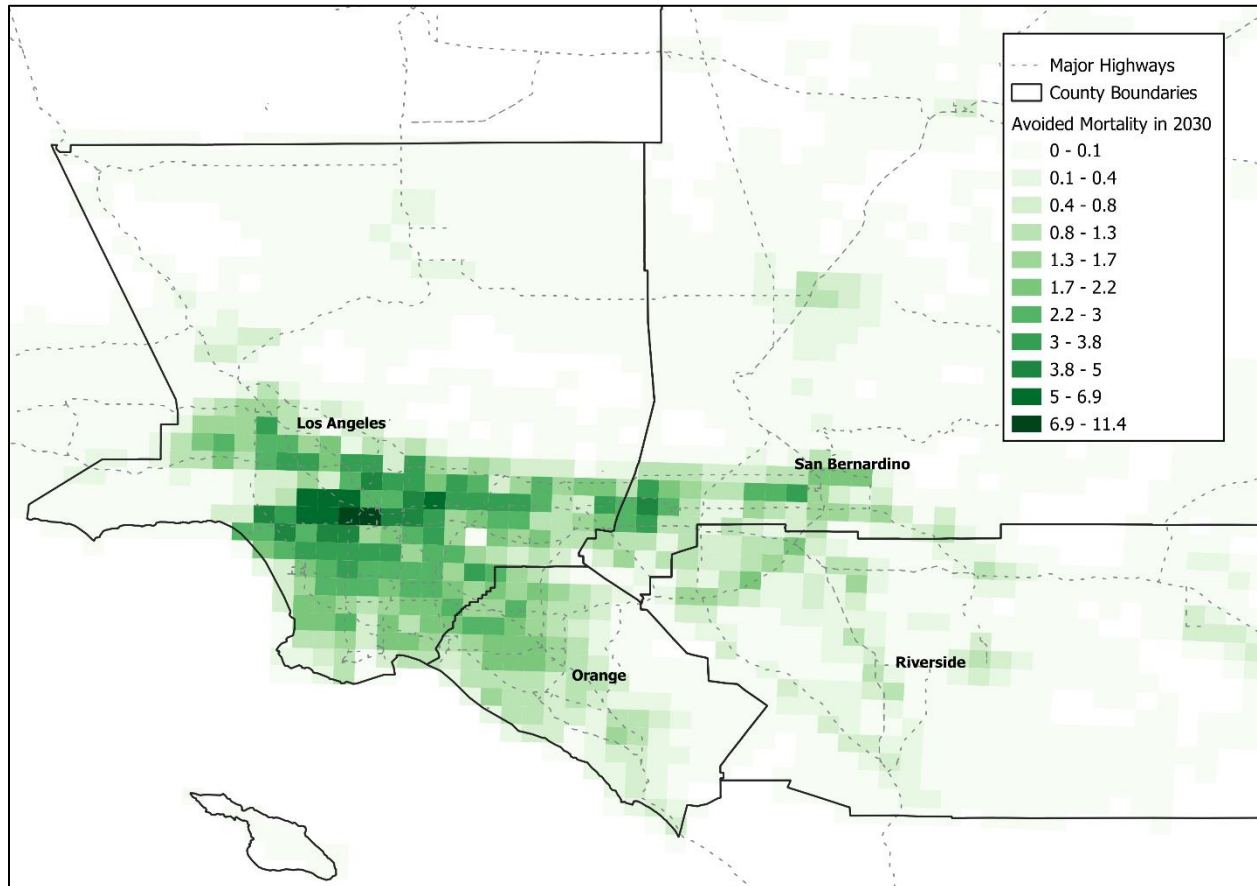
	2030
Premature Deaths Avoided, All cause	
Long-term PM 2.5 Exposure	665
Reduced Morbidity Incidence	
Long term PM 2.5 Exposure	
Asthma, New Onset	1,031
HA, Alzheimer's Disease	70
HA, Parkinson's Disease	28
Incidence, Hay Fever/Rhinitis	4,867
Incidence, Lung Cancer (non-fatal)	57
Short-Term PM 2.5 Exposure	
Acute Myocardial Infarction, Nonfatal	9
Asthma Symptoms, Albuterol use	170,343
ED Visits, Asthma	35
ED Visits All Cardiac Outcomes	72
ED Visits, All Respiratory Minus Asthma	172
Emergency Hospitalizations (EHA, Asthma)	2
HA, All Cardiac Outcomes	24
HA, All Respiratory	69
Incidence, Ischemic Stroke	37
Incidence, Out-of-Hospital Cardiac Arrest	7
Minor Restricted Activity Days	230,393
Work Loss Days ²	39,204

Notes:

1. Each health effect represents the point estimate of a statistical distribution of potential outcomes. Please see the Technical Details section of this Appendix where the 95-percent confidence intervals are reported. The study population of each C-R function utilized can be found on page 3-B-7 of the Final Socioeconomic Report Appendices of the 2022 AQMP: <https://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/final/aqmp-2022-socioeconomic-report-appendices-final.pdf?sfvrsn=6>
2. Expressed in person-days. Minor Restricted Activity (MRAD) refer to days when some normal activities are avoided due to illness

Figure 3 displays the geographic distribution of avoided premature mortalities. Mortality risk will be reduced in each of the four counties, with the largest number of avoided premature deaths concentrated in the densely populated Los Angeles County area.

FIGURE 3: SPATIAL DISTRIBUTION OF ESTIMATED PREMATURE DEATHS AVOIDED (YEAR 2030)



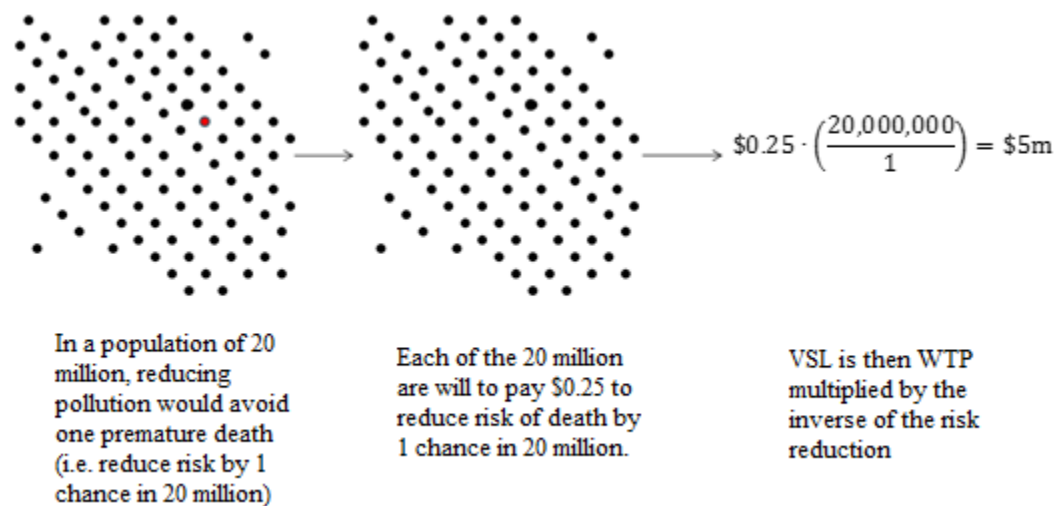
It should be noted that the health effect estimation does not use a concentration threshold below which the affected population would stop benefiting from further reduced exposure to ambient air pollution. In the analysis, health benefits will continue to accrue due to reduced exposure at all levels of pollutant concentration, even at levels below the latest NAAQS. This practice was recommended by Industrial Economics, Inc. and based on the latest scientific evidence, including those summarized in the ISAs (U.S. EPA 2019; U.S. EPA 2020). It is also consistent with the current analytical approach adopted by the U.S. EPA in its regulatory impact analyses (U.S. EPA 2021).

Monetized Health Impacts

After the health effects are quantified, they are then translated into dollar values using two types of valuation methodologies. Benefits associated with avoided premature deaths are monetized based on a population's willingness-to-pay (WTP) for a small reduction of mortality risk in a year and generally expressed as the "value of statistical life (VSL)." As illustrated in Figure 4, the concept of VSL does not place a monetary value on saving a life with certainty; instead, it is an aggregate WTP of a population so that the associated risk reductions across this population are statistically equivalent to one case of

premature death avoided. Then, the total monetized benefits of avoided premature deaths are calculated by multiplying the number of estimated premature mortalities reduced by the VSL.

FIGURE 4: ILLUSTRATIVE EXAMPLE OF VALUE OF STATISTICAL LIFE



Source: U.S. EPA, modified by Industrial Economics, Inc. and South Coast AQMD staff

To monetize reductions in morbidity risk, WTP is the preferred valuation method, but in many cases when such estimates are not yet available or reliable, cost of illness (COI) avoided were used instead. Avoided COI is conceptually regarded as a conservative estimate of monetized health benefits, as it only accounts for avoided resource costs including direct medical costs and indirect productivity losses, but generally cannot fully account for the benefits of preventing pain and suffering associated with health-related issues.

As shown in Table 4, the overall quantifiable and monetized annual public health benefits are estimated to be \$9.0 billion³ in 2030. About 99 percent of these public health benefits are attributable to mortality-related benefits. The estimates are based on a VSL of \$12.4 million in 2023 dollars and the assumption that the WTP for mortality risk reductions will increase as per-capita income grows. Specifically, a one percent increase in income is assumed to raise VSL by 1.1 percent (i.e., an income elasticity of 1.1) (Industrial Economics and Robinson 2016a). Additionally, this estimate includes a cessation lag, which accounts for the timing differences between emission reductions and realized health benefits⁴. A more in-depth discussion, as well as sensitivity and uncertainty analyses regarding these public health benefits estimations, can be found in the Technical Details section of this Appendix.

³ Reported in 2023 US Dollars

⁴ Consistent with South Coast AQMD practices, the cessation lag relies on a discount rate of 4% to discount the value of future benefits resulting from current-year emissions reductions.

TABLE 4: MONETIZED PUBLIC HEALTH BENEFITS in 2030 (BILLIONS OF 2023 DOLLARS)

Endpoint Category	Monetized Benefit
Mortality-Related Benefits	\$8.84
Morbidity-Related Benefits	\$0.13
Total	\$8.97

The analysis is careful in avoiding potentially double counting health effects by using C-R functions that minimize overlapping health endpoints for the same age group or by subtracting health benefits from a health endpoint that could be potentially part of benefits associated with another broader health endpoint (for example, the avoided ED Asthma benefits are deducted from the avoided ED All Respiratory benefits). However, it needs to be emphasized that the health benefits presented here likely underestimate the total actual health benefits. This is because not enough information is currently available in scientific literature to allow for all adverse health effects identified to be measured and valued in dollars, mainly because sufficient data are not available to establish a quantitative relationship between these pollutant levels and some of these health effects.

Moreover, improved public health can generate direct economic benefits other than increased productivity and fewer lost workdays in the short-term. As an example of other health benefits that can occur, but are not quantified here, a 2017 study (Isen et al. 2017) showed that improvement in early childhood health has long-term economic benefits throughout adulthood. Reductions of in-utero and early-infancy exposure to air pollution were found to increase labor participation among the affected individuals 30 years later; that is, working-age adults are more likely to hold a job when they were less exposed to air pollution as an infant.

Other Public Welfare Benefits

NAAQSs for criteria pollutants, set pursuant to the federal CAA, include both primary standards designed to protect public health and secondary standards to protect public welfare, including preventing damage to agriculture, ecology, visibility, buildings, and materials. In the previous section, the estimated public health benefits associated with the PM2.5 Plan for achieving attainment of the 2012 Annual PM2.5 Standard were discussed. The P2.5 Plan is additionally expected to provide benefits protective of public welfare. Although these additional benefits are not specifically quantified in this Appendix, a qualitative description of these public welfare benefits is provided. In addition, a discussion of the benefits estimated for these categories as described in the Socioeconomic Reports of previous AQMPs and the scientific literature that provided the methodological basis for quantification is included.

Material Benefit

Material benefit is the benefit accrued by the reduction of damage to materials from air pollution. Studies have identified the types of damage that can occur from air pollution and estimated their monetary value. For total suspended particulate matter (TSP) in particular, it causes accelerated wear and breakdown of painted wood and stucco surfaces of residential and commercial properties (Murray et al. 1985). In addition, TSP leads to additional household cleaning costs due to soiling damages (Cummings et al. 1985).

In addition to these damages, a link exists between several pollutants (ozone, sulfur dioxide, PM2.5, and

NOx) and ferrous metal corrosion; erosion of cement, marble, brick, tile, and glass; and the fading of fabric and coated surfaces (Cummings et al. 1985; Murray et al. 1985). The damage and conversely the potential benefits from reducing the exposure to these items currently cannot be quantified and valued in dollars.

There will also be benefits of reduced damage to materials as a result of the PM2.5 Plan, which will reduce PM2.5 and correspondingly TSP. However, these material benefits are not quantified in this report. In 2013, South Coast AQMD contracted with Abt Associates Inc. to review the South Coast AQMD socioeconomic assessments for AQMPs with the goal of providing recommendations that could enhance South Coast AQMD's socioeconomic analyses⁵. In this report, Abt Associates recommended against quantifying material benefits until a systematic literature review of current research on this topic could be conducted, as the studies which South Coast AQMD relied upon in previous AQMPs to quantify material benefits were outdated.

Visibility Benefit

Visibility benefits are the benefits individuals place on the ability to see distant vistas, in places where they live, work, and travel. In qualitative terms, an example of this for the Basin is the value people place on being able to see the San Gabriel Mountains, which were designated a National Monument, from much greater distances, more often. Studies have found that individuals place a monetary value on being able to see distant vistas (Smith and Osborne 1996). A local study by Beron et al. (2001), which estimated parameters that could quantify the value of these visibility benefits,⁶ was applied to valuation of the visibility improvements of previous AQMPs. The visibility benefit of the 2007 AQMP was projected to be \$5.2 billion (in 2000 dollars) for the year 2020, and \$649 million (in 2005 dollars) as a result of the 2012 AQMP for the year 2023. The larger benefit from the 2007 AQMP is due to a greater reduction of PM2.5 concentrations than those achieved in the 2012 AQMP.

There will also be benefits to visibility because of the air quality improvements achieved from implementing the PM2.5 Plan. However, quantification of these benefits was not performed in this analysis based on a recommendation in the Abt report which argued that the local study used to monetize the visibility benefits in previous AQMPs had shortcomings and was outdated;⁷ therefore, an updated methodology is needed to accurately estimate these benefits. This methodology update is planned for socioeconomic impact assessments conducted for future AQMPs.

Technical Details

Methodology

The methodology employed to quantify public health benefits consists of several components. The first component is the health impact analysis as presented in Figure 5. This analysis is based on the use of a health impact function to estimate the change in incidence of a particular endpoint which results from a

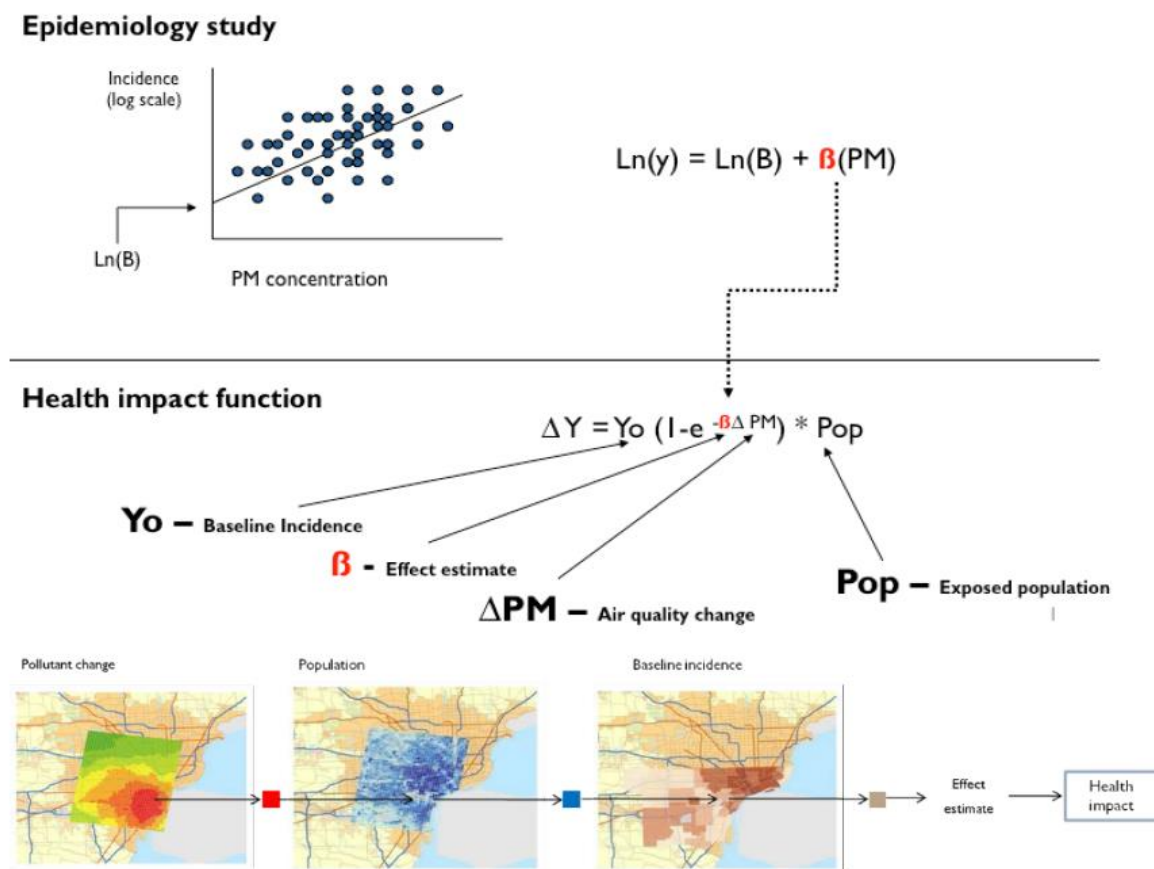
⁵ Abt Associates Inc, August 2014, Review of the SCAQMD Socioeconomic Assessments, <https://www.aqmd.gov/docs/default-source/Agendas/aqmp/scaqmd-report---review-socioeconomic-assessments.pdf>, accessed April 5, 2024.

⁶ This study used a method called hedonic price analysis, which uses property values along with a diverse set of attributes to estimate the implicit prices of attributes that are associated with a good exchanged in the market.

⁷ The methodological improvements since Beron et al. (2001) was published addresses issues such as endogeneity in spatial sorting of communities, choice of functional form for the econometric model, and the difficulty of measuring amenities from available data that are likely present in that research.

change in air quality. The variables in the analysis include: 1) the change in air quality concentrations; 2) baseline incidence rates for each endpoint; 3) population exposed to a particular health risk; and 4) an effect estimate. The effect estimate is derived from epidemiology studies, which use health and air quality data to estimate C-R functions which relate the concentration of PM2.5 to a mortality or morbidity endpoint. With all of these data taken together, the health impact function can be evaluated to estimate the health effect for a given geographic unit. In the case where there are multiple different C-R functions in epidemiology literature that need to be considered, a pooling method can be used. Pooling allows for a calculation of change in incidence of particular endpoint using multiple effect estimates from different epidemiology studies combined together. Once the health impacts have been estimated (pooled or unpooled), a valuation function is applied, which places a monetary value on the change in incidence of a given endpoint which is either a scalar value or a distribution of values for a given type of incidence. The valuation function can also be pooled together to account for differences among valuation studies.

FIGURE 5: HEALTH IMPACT METHODOLOGY



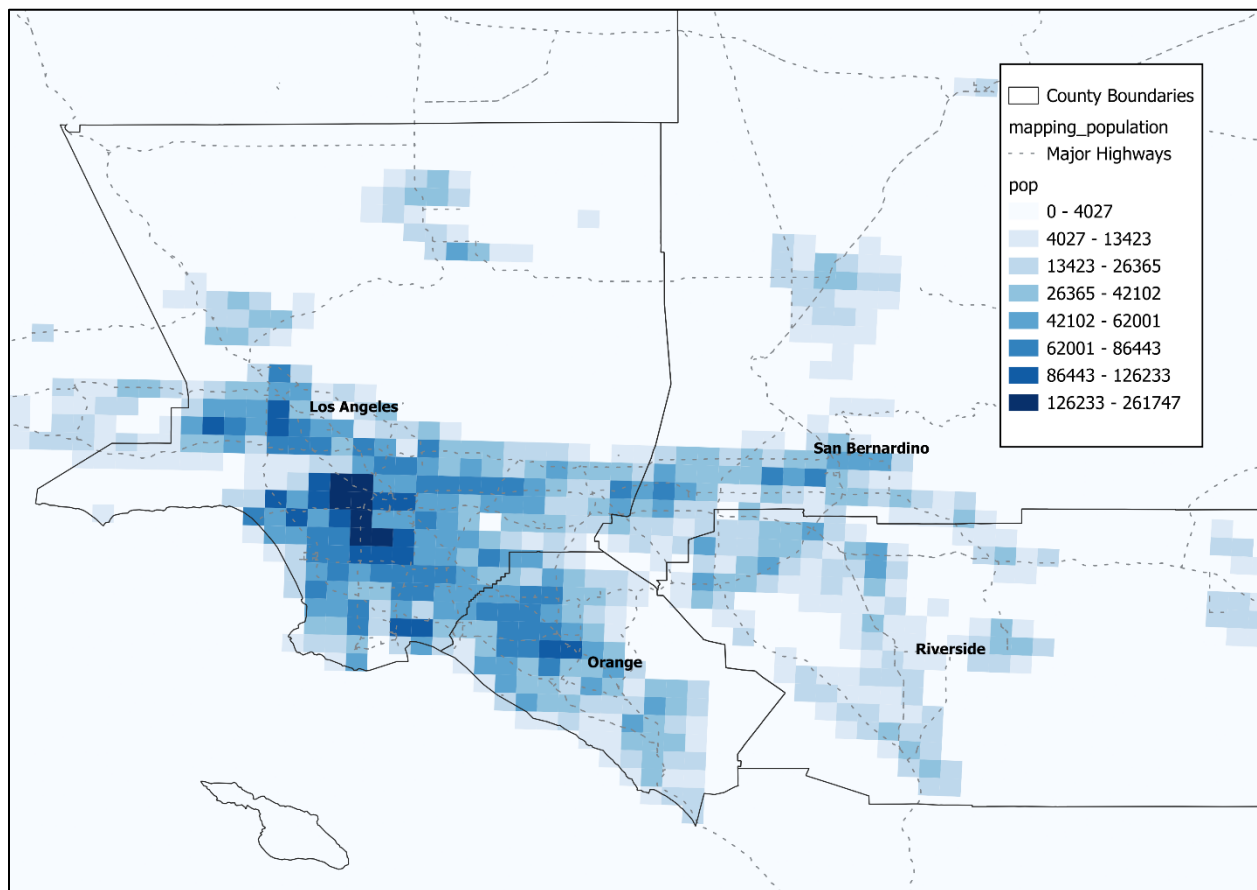
Source: BenMAP CE User's Manual, U.S. EPA

Data

The first input into the health impact calculation is the projected changes in PM_{2.5} concentrations, which are derived from the difference between the “control” and the “baseline” air quality scenarios, or the scenarios with and without the 2024 attainment plan respectively. The projected baseline and control air quality scenarios are the result of emission inventories (see Appendix I of the PM_{2.5} Plan) and air quality simulations developed by South Coast AQMD staff based on these emission inventories and other variables (see Appendix II of the PM_{2.5} Plan). These air quality projections are produced at the level of a 4km x 4km grid for the Basin. The projections are hourly for each modeled year and consist of 365 days for PM_{2.5}. These hourly data are converted into daily metrics of air quality changes for PM_{2.5} (daily 24-hour mean), then loaded into BenMAP-CE for analysis.

The population projections in 2030 as displayed in Figure 6 are based on the 2020 RTP/SCS growth forecast (SCAG 2020) that were provided by SCAG staff at the 4km x 4km grid-cell level. For the purposes of this analysis, SCAG staff converted the population forecast, originally modeled at the level of Transportation Analysis Zones (TAZs), to the 4km x 4km grid-cell used for air quality modeling.

FIGURE 6: PROJECTED POPULATION IN 2030



Due to the substantial amount of time required to produce updated incidence projections at the 4km grid level and the small changes in incidence across multiple years, the analysis relied upon the projected incidence rates for the year 2032 which had been produced for the 2022 AQMP. Since incidence rates for

the health endpoints studied are projected to decline over time, the choice to use rates from 2032 will result in a smaller, and thus more conservative, estimated health effect than if rates from 2030 were used. Baseline all-cause mortality incidence rates are provided by the California Department of Finance (DoF) at the county level, by five-year age group, for the base year 2018 and projected through 2032. Historical baseline respiratory mortality incidence rates are collected from the U.S. Centers for Disease Control and Prevention (CDC)'s WONDER database at the county level, by five-year age group. Historical rates are projected to 2032 using an adjustment factor based on the DoF all-cause mortality projection. Baseline incidence for hospital admissions and emergency department visits are based on incidence rates provided by the California Department of Health Care Access and Information (HCAI) at the zip-code and county-level. County-level estimates of baseline incidence for nonfatal myocardial infarctions and ischemic stroke are obtained from the CDC Interactive Atlas of Heart Disease and Stroke. Baseline incidence rates for new onset of asthma in children are provided by IEc for the Los Angeles area for 2002-2005 from the Children's Health Study cohort (McConnell et al. 2010). Baseline incidence for all other endpoints not discussed here are based on the data included with BenMAP-CE.

C-R and Valuation Functions

The effect estimates for each health impact function are from C-R functions as described in Table 5. Local estimates in the South Coast AQMD four-county region were selected whenever available and meeting other selection criteria recommended by IEc (see Appendix 3C of the 2022 AQMP Final Socioeconomic Report Appendices). The health effect is often estimated as a relative risk (RR), which is the ratio of the probability of an incidence of a particular endpoint in an exposed group to the probability of it occurring in an unexposed group. The RRs from the recommended studies for all-cause mortality from long-term PM_{2.5} exposure are: 1.14 (Jerrett et al. 2005), 1.104 (Jerrett et al. 2013), 1.17 and 1.14 from Krewski et al. (2009)'s Kriging and land-use regression estimates, respectively.

Table 5: C-R FUNCTIONS, STUDY POPULATIONS AND VALUATION FUNCTIONS BY ENDPOINT GROUP

Endpoint	C-R Function	C-R Function Study Population	Valuation Function (\$2015) ¹
<i>Long-Term Exposure to PM_{2.5}</i>			
Mortality, All Cause	Pooling of: LA-specific estimates (Jerrett et al. 2005; Jerrett et al. 2013), Kriging and LUR (Krewski et al. 2009), Woodruff et al. 2008 (infants only, not pooled).	<1 year; > 30 years	VSL (Robinson and Hammitt 2016). \$9.2 million (\$4.3-\$14.2 million)
Incidence, Asthma	Pooling of: Tetreault et al. (2016); Garcia et al. (2019)	0-17 years	\$17,232 (Belova et al. 2020)
Incidence, Hay Fever/Rhinitis	Parker et al. (2009)	3-17 years	\$600 (Soni 2008)
Incidence, Lung Cancer	Gharibvand et al. (2016)	> 30 years	\$33,809 (Kaye et al. 2018)

Endpoint	C-R Function	C-R Function Study Population	Valuation Function (\$2015) ¹
Hospital Admissions, Alzheimer's Disease	Kioumourtzoglou et al. (2016)	> 65 years	Average of: \$156,920 (Alzheimer's Association 2020); \$184,500 (Jutkowitz et al., 2017)
Hospital Admissions, Parkinson's Disease	Kioumourtzoglou et al. (2016)	> 65 years	\$567,285 (Yang et al. 2020)
Short-Term Exposure to PM_{2.5}			
Minor Restricted Activity Days	B. D. Ostro and Rothschild (1989)	18-64 years	\$70/day (Tolley et al. 1986)
Hospital Admissions, All Cardiac Outcomes	Pooling of: 7 study location-specific risk estimates (all from Talbott et al. 2014)	All ages	\$16,045 (HCUP 2016)
Hospital Admissions, All Respiratory	Zanobetti et al. (2009); Ostro et al. (2009)	0-17 years; > 64 years	\$9,075 to \$35,402 depending on age (HCUP 2016, Chestnut et al. 2006)
Emergency Room Visits, All Cardiac Outcomes	Ostro et al. (2016)	All ages	\$1,161 (HCUP 2016)
Emergency Room Visits, All Respiratory	Ostro et al. (2016)	All ages	\$875 (HCUP 2016)
Incidence, Ischemic Stroke	Shin et al. (2014)	> 65 years	\$33,962 (Mu et al. 2017)
Incidence, Out of Hospital Cardiac Arrest	Ensor et al. (2013)	> 18 years	\$35,753 (O'Sullivan et al. 2011)
Emergency Hospital Admissions, Asthma	Delfino et al. (2014)	0-17 years	\$6,564 (HCUP 2014)

Endpoint	C-R Function	C-R Function Study Population	Valuation Function (\$2015) ¹
Emergency Room Visits, Asthma	Ostro et al. (2016)	All ages	Average of: \$447/visit (Standford et al. 1999); \$534/visit (Smith et al. 1997)
Asthma Symptoms, Albuterol Use	Rabinovitch et al. (2006)	6-17 years	\$0.35/inhaler use (derived from Epocrates.com and goodrx.com)
Work Loss Days	Ostro (1987)	18-64 years	\$167/day (BLS, 2015)
Acute Myocardial Infarction, Nonfatal	Wei et al. (2019)	> 65 years	\$48,796 to \$162,112 depending on age (Sullivan et al. 2011)

Notes:

The values presented in this table are in 2015 dollars, consistent with the current base year / dollar year in BenMAP-CE. As such, the VSL estimates reported in this table appear to differ from the VSL estimates reported in earlier tables (in 2023 dollars). The built-in functionality in BenMAP-CE was relied upon to adjust all benefits estimates to 2023 dollars.

The valuation functions associated with each endpoint are also described in Table 5. The highest valued endpoint is premature mortality. Avoided premature deaths are valued using the concept of the Value of Statistical Life (VSL). VSL is a measure of the willingness-to-pay (WTP) of a society to reduce the risk of a mortality, aggregated up to the amount of risk reduction required to avoid one statistical death over the population. A range of VSL is recommended by IEc (2016) from \$4.3 to \$14.2 million, with a midpoint of \$9.3 million, all of which are expressed in 2015 dollars and reflect 2013 income levels. These are subsequently adjusted to reflect growth in real income through 2030. This range is found in Robinson and Hammitt (2016) and falls within the range of Viscusi (2015). Avoided morbidity conditions are valued primarily based on the concept of cost of illness (COI) avoided, which includes the cost of healthcare and the cost of lost productivity, though a few endpoints do include a WTP component. The COI and WTP valuations functions for morbidity endpoints are based on recommendations from the IEc Report (2016). It is also recommended that WTP valuations be adjusted for income growth, based on the concept that the income elasticity (ϵ_i) of VSL is positive. The recommended income elasticity for VSL is 1.1 based on Viscusi (2015), with alternatives of 0 and 1.4 presented for sensitivity analyses. An income elasticity of 0.5 is recommended for WTP portions of morbidity endpoints.

Per-capita income growth data for historical years 2013-2022 and projections for 2023-2025 are from the California Department of Finance (DOF). The DOF publishes forecasts of total personal (nominal) income

growth, a forecast of the consumer-product index (CPI-U), and a population forecast. Using the inflation forecast to adjust the nominal income forecast and the population forecast, a forecast of real per-capita income growth to 2025 was derived. The post-2025 per-capita income growth is estimated based on the forecasted 2025 total income growth rate and the DOF's population forecast, resulting in an average annual growth rate of per capita income of 1.4 percent.

Results

Health impacts are categorized into two different types of exposure: short-term PM2.5 exposure, and long-term PM2.5 exposure. Annual health impacts from short-term PM2.5 exposure are calculated as the sum of daily impacts for 365 days of a year. Annual health impacts for long-term PM2.5 exposure are calculated based on the annual average of the mean daily concentrations.

Annual health impacts for all endpoints are estimated with no threshold effects for all types of PM2.5 exposure. This practice is recommended by Industrial Economics, Inc. and based on the latest scientific evidence, including those summarized in the Integrated Science Assessments (U.S. EPA 2019; U.S. EPA 2020).

Pooling methods are used to calculate the annual health impact from pollutant exposure for endpoints where multiple C-R functions are recommended as described in Table 5. The pooling method used in this analysis for overlapping C-R functions is either Fixed Effects or Random Effects as implemented in BenMAP-CE. The choice between using Fixed Effects or Random Effects for pooling is made automatically by BenMAP-CE based on a statistical test evaluated at an alpha of 5% (RTI International, 2015). The independent sum pooling method is used for C-R functions with non-overlapping age-groups.

The mortality and morbidity health impacts and 95% confidence intervals (CIs) based on the recommended C-R functions are shown in Table 6. The lower and upper bounds of the 95% CI are presented in parentheses in Table 6. Reduced long-term PM2.5 levels result in an estimated reduction of 665 premature deaths per year in 2030, as well as fewer school loss days, fewer hospital admissions related to all respiratory causes, and fewer asthma-related emergency room visits.

The valuation of reduced mortality and morbidity incidence is based on the valuation functions described in Table 5, along with an income elasticity and cessation lag. The valuation of avoided premature deaths is based on the recommended VSL and income elasticity as described above, along with a 20-year cessation lag for long-term PM2.5 exposure as recommended by IEc (2016a). Cessation lag describes how the avoided premature deaths from annual exposure are lagged over time, as some health impacts are not fully realized in the same year in which emission reductions occur. For a given emission year, the 20-year cessation lag assigns 30% of the total estimated mortality reduction to that emission year, an additional 13% in each of years two through five, and an additional 1% in each of the following years until the total estimated health benefit is fully realized. Using the estimated health impacts from Table 6, valuations were estimated by multiplying the number of avoided health outcomes in each endpoint by the associated monetized value per occurrence. The total monetized benefit attributed to avoided premature mortalities is \$8.8 billion dollars. The monetized value of the various morbidity endpoints is summarized in Table 7, totaling \$120.7 million.

TABLE 6: ANNUAL MORTALITY AND MORBIDITY HEALTH EFFECT ESTIMATES

Endpoint	Health Benefit in 2030 (95% CI)
Premature Deaths Avoided, All causes	
Long-term PM 2.5 Exposure	665 (104; 1,237)
Reduced Morbidity Incidence	
Long term PM 2.5 Exposure	
Asthma, New Onset	1031 (991; 1,073)
HA, Alzheimer's Disease	70 (52; 86)
HA, Parkinson's Disease	28 (14; 41)
Incidence, Hay Fever/Rhinitis	4867 (1,177; 8,405)
Incidence, Lung Cancer (non-fatal)	57 (17; 94)
Short-Term PM 2.5 Exposure	
Acute Myocardial Infarction, Nonfatal	9 (6; 13)
Asthma Symptoms, Albuterol use	170,343 (-83,009; 413,656)
ED Visits, Asthma	35 (6; 63)
ED Visits All Cardiac Outcomes	72 (-28; 167)
ED Visits, All Respiratory Minus Asthma	172 (4; 296)
Emergency Hospitalizations (EHA, Asthma)	2 (0; 4)
HA, All Cardiac Outcomes	24 (-167; 120)
HA, All Respiratory	69 (37; 99)
Incidence, Ischemic Stroke	37 (11; 67)
Incidence, Out-of-Hospital Cardiac Arrest	7 (1; 12)
Minor Restricted Activity Days	230,393 (186,818; 272,312)
Work Loss Days	39,204 (33,054; 45,124)

TABLE 7: MONETIZED ANNUAL MORBIDITY BENEFITS

Monetized Benefits (Millions of 2023 Dollars)	
Morbidity Endpoint	
Long term PM 2.5 Exposure (Total)	\$87.0
Asthma, New Onset	\$51.4
HA, Alzheimer's Disease	\$13.3
HA, Parkinson's Disease	\$17.8
Incidence, Hay Fever/Rhinitis	\$3.3
Incidence, Lung Cancer (non-fatal)	\$1.3
Short-Term PM 2.5 Exposure (Total)	\$33.8
Acute Myocardial Infarction, Nonfatal	\$0.6
Asthma Symptoms, Albuterol use	\$0.1
ED Visits, Asthma	\$0.02
ED Visits All Cardiac Outcomes	\$0.1
ED Visits, All Respiratory Minus Asthma	\$0.2
Emergency Hospitalizations (EHA, Asthma)	\$0.01
HA, All Cardiac Outcomes	\$0.5
HA, All Respiratory	\$2.3
Incidence, Ischemic Stroke	\$1.4
Incidence, Out-of-Hospital Cardiac Arrest	\$0.3
Minor Restricted Activity Days	\$21.2
Work Loss Days	\$7.2
Total Morbidity Benefits	\$120.7

Note: Totals may not sum due to rounding

Sensitivity and Uncertainty Analyses

It should be emphasized that, as with all scientific studies and evaluations, there are various sources of uncertainty surrounding the estimated public health benefits, including the uncertainty embedded in data inputs, uncertainty of the C-R functions chosen, and uncertainty of valuation. Given the substantial contribution of mortality-related benefits, two sensitivity and uncertainty analyses were conducted for three major sources of uncertainties in public health benefits estimations.

The first sensitivity analysis considers two sources of uncertainty: alternative VSL and income elasticities. The base VSL of \$12.4 million represents the mid-point of the recommended VSL range of \$5.8 million to \$18.8 million, adjusted for inflation (Industrial Economics and Robinson 2016a). This VSL range is based on a review of peer-reviewed studies on the value of mortality risk reductions and is considered to be reasonable for conducting a regulatory analysis (Robinson and Hammitt 2016). In addition, a lower income elasticity of 0 (i.e., VSL does not change with income level) and a higher income elasticity of 1.4 (i.e., a one percent income growth increases VSL by 1.4 percent) were also recommended to be used in the sensitivity analysis, based on a study by Viscusi (2015). Table 8 shows the range of monetized public health benefits broken down by county, where the lower bound assumes a VSL of \$5.8 million and an income elasticity of 0 while the upper bound assumes a VSL of \$18.8 million and an income elasticity of 1.4. In 2030, the range

of benefits is from \$2.8 to \$14.9 billion. The lower bound is about 32 percent of the midpoint benefits, while the upper bound is about 169 percent of the midpoint estimate.

TABLE 8: SENSITIVITY OF MONETIZED PUBLIC HEALTH BENEFITS (BILLIONS OF 2023 DOLLARS)

	VSL = \$5.8M	VSL = \$12.4 M	VSL = \$18.8M
Mortality, All Causes	$\epsilon_i = 0.0$	$\epsilon_i = 1.1$	$\epsilon_i = 1.4$
By County	\$2.8	\$8.8	\$14.9
Los Angeles	\$1.8	\$5.6	\$9.5
Orange	\$0.4	\$1.2	\$2.1
Riverside	\$0.3	\$0.9	\$1.4
San Bernardino	\$0.4	\$1.1	\$1.9

Note: Totals may not sum due to rounding

Mortality-related health benefit estimates are also sensitive to the C-R function selected, as this determines the magnitude of the health impact for a given change in air quality. To test the sensitivity of mortality-related health benefits to the recommended C-R functions for long-term exposure to PM2.5, two alternative sets of C-R functions are used to estimate the number of avoided premature deaths. These alternative C-R functions are estimated based on data from larger study populations that are not confined to the South Coast region. Specifically, the analysis includes two different sets of C-R functions as a sensitivity test: the first which pools studies using data from the entire state of California (Thurston et al 2016; Jerrett et al 2013) and the second which pools studies based on nationwide data (Wu et al. 2020, Pope et al. 2019). The two California studies have RRs of 1.03 and 1.01, respectively, and the two National study estimates have RRs of 1.07 and 1.13, respectively. The two sets of C-R functions consider studies conducted at progressively larger geographic scales, generally with larger sample sizes.

Table 9 shows the results of the sensitivity analysis for health impacts using the two different sets of C-R functions, and monetized benefits based on the midpoint VSL and income elasticity in the year 2030. The quantified public health benefits are lower under both alternative sets of C-R functions, ranging from about 61 percent of the main scenario for the national estimates to 19 percent for the California estimates. The key difference between the main estimates and the sensitivity analysis stems from the estimated magnitude of how mortality risk responds to a change in PM2.5 concentration, which is lower in the national and California-wide studies used.

**TABLE 9: SENSITIVITY ANALYSIS OF PREMATURE DEATHS AVOIDED AND MONETIZED BENEFITS
ASSOCIATED WITH REDUCED LONG-TERM EXPOSURE TO PM2.5**

Scenarios	Health Impacts (premature deaths avoided in 2030)	Monetized Benefit (Billions of 2023 Dollars)
Main Scenario (Los Angeles Studies)	665	\$8.8
California Studies	123	\$1.6
National Studies	406	\$5.4



APPENDIX VIII

California Environmental Quality Act



Table of Contents

Introduction	1
Comparison of Proposed Control Measures in the PM2.5 Plan with Control Measures in the 2022 AQMP and 2016 AQMP	5
Summary of Environmental Impact Analysis from the Final Program EIRs for the 2022 AQMP and the 2016 AQMP	13
<i>Air Quality and Greenhouse Gas Emissions</i>	28
<i>Energy</i>	47
<i>Hazards and Hazardous Materials</i>	55
<i>Hydrology and Water Quality</i>	63
<i>Noise</i>	70
<i>Solid and Hazardous Waste</i>	79
<i>Transportation</i>	91
<i>Other Environmental Topic Areas</i>	95
Environmental Impact Analysis of Additional Physical Changes from Control Measure BCM-12 of the PM2.5 Plan	96
<i>Air Quality and Greenhouse Gas Emissions</i>	99
<i>Energy</i>	100
<i>Hazards and Hazardous Materials</i>	101
<i>Hydrology and Water Quality</i>	101
<i>Noise</i>	102
<i>Solid and Hazardous Waste</i>	103
<i>Transportation</i>	104
<i>Other Environmental Topic Areas</i>	104
Conclusion.....	105
References.....	109

Introduction

The California Environmental Quality Act (CEQA) is comprised of Public Resources Code Section 21000 *et seq.* and the CEQA Guidelines which are codified at Title 14 California Code of Regulations, Section 15000 *et seq.* CEQA requires the evaluation of all potential adverse environmental impacts of proposed projects and the identification and implementation of methods to reduce or avoid significant adverse environmental impacts of these projects, if feasible. [Public Resources Code Section 21061.1 and CEQA Guidelines Section 15364]. The purpose of the CEQA process is to inform decision makers, public agencies, and interested parties of potential adverse environmental impacts that could result from implementing a proposed project and to identify feasible mitigation measures or alternatives, when an impact is significant.

The South Coast Air Basin Attainment Plan for the 2012 Annual PM_{2.5} Standard (hereafter, referred as PM_{2.5} Plan) provides the strategy for how the region will meet the 2012 annual PM_{2.5} NAAQS in the South Coast Air Basin (Basin) as expeditiously as practicable, but no later than December 31, 2030, by relying on previously adopted control measures from the 2022 AQMP¹ and the 2016 AQMP² to reduce emissions of nitrogen oxides (NO_x), ammonia (NH₃) and directly emitted Particulate Matter of which diameter is 2.5 µm or less (PM_{2.5}).

At the time the 2022 AQMP and 2016 AQMP were developed, each was considered a “project” as defined by CEQA Guidelines Section 15378 and the South Coast AQMD was lead agency under CEQA because it was the “public agency that has the principal responsibility for carrying out or approving a project that may have a significant effect upon the environment.” [Public Resources Code Section 21067]. Further, since the South Coast AQMD Governing Board had the primary responsibility for approving the entirety of both projects, the South Coast AQMD was the most appropriate public agency to act as lead agency for the projects. [CEQA Guidelines Section 15051(b)].

The 2022 AQMP and 2016 AQMP each: 1) had environmental impacts which were evaluated in a Final Program Environmental Impact Report (Program EIR); and 2) were discretionary actions which were individually considered and approved by the South Coast AQMD Governing Board.

Therefore, the proposed project, the PM_{2.5} Plan, is integrally related to the 2022 AQMP and the 2016 AQMP for which two previous environmental analyses have been prepared: 1) the Final Program EIR for 2022 AQMP which was certified by the South Coast AQMD Governing Board on December 2, 2022³; and

¹ South Coast AQMD, 2022 Air Quality Management Plan, December 2022. <https://www.aqmd.gov/home/air-quality/air-quality-management-plans/air-quality-mgt-plan>

² South Coast AQMD, 2016 Air Quality Management Plan, March 2017. <https://www.aqmd.gov/home/air-quality/air-quality-management-plans/final-2016-aqmp>

³ South Coast AQMD, Final Program Environmental Impact Report for the 2022 Air Quality Management Plan, December 2022. <https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2022/2022-aqmp-final-peir.pdf>

2) the Final Program EIR for 2016 AQMP which was certified by the South Coast AQMD Governing Board on March 3, 2017⁴.

The Final Program EIRs for the 2022 AQMP and the 2016 AQMP identified potentially significant impacts, mitigation measures were made a condition of approval of the 2022 AQMP and the 2016 AQMP and were adopted. Further, since mitigation measures were adopted for the 2022 AQMP and the 2016 AQMP, a Mitigation, Monitoring, and Reporting Plan for the 2022 AQMP and the 2016 AQMP, pursuant to Public Resources Code Section 21081.6 and CEQA Guidelines 15097 was also required and adopted.

Further, because the Final Program EIRs concluded that the 2022 AQMP and the 2016 AQMP will each have potentially significant and unavoidable adverse impacts on the environment, Findings were made pursuant to CEQA Guidelines Section 15091, and a Statement of Overriding Considerations pursuant to CEQA Guidelines Section 15093 was adopted.

The 2022 AQMP, along with the December 2022 Final Program EIR for the 2022 AQMP (State Clearinghouse No. 2022050287) and its corresponding Findings, Statement of Overriding Considerations, and Mitigation, Monitoring, and Reporting Plan, and the 2016 AQMP along with the March 2017 Final Program EIR for the 2016 AQMP (State Clearinghouse No. 2016071006) and its corresponding with Findings, Statement of Overriding Considerations, and Mitigation, Monitoring, and Reporting Plan, upon which the analysis of the PM_{2.5} Plan relies, are incorporated by reference pursuant to CEQA Guidelines Section 15150 and are available from the South Coast AQMD's website at:

December 2022 Final Program EIR for the 2022 AQMP

Master webpage: <https://www.aqmd.gov/home/research/documents-reports/lead-agency-scaqmd-projects/south-coast-aqmd-projects---year-2022>

December 2022 Final Program EIR for the 2022 AQMP (including Appendices)

<https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2022/2022-aqmp-final-peir.pdf>

Findings, Statement of Overriding Considerations, and Mitigation Monitoring and Reporting Plan: <https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2022/2022-aqmp-attachment1toresolution.pdf>

2022 AQMP: <https://www.aqmd.gov/home/air-quality/air-quality-management-plans/air-quality-mgt-plan>

March 2017 Final Program EIR for the 2016 AQMP

Master webpage: <http://www.aqmd.gov/home/research/documents-reports/lead-agency-scaqmdprojects/scaqmd-projects---year-2017>

⁴ South Coast AQMD, Final Program Environmental Impact Report for the 2016 Air Quality Management Plan, March 2017. <https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2016/2016aqmpfpeir.pdf>

March 2017 Final Program EIR for the 2016 AQMP (without Appendices)

<https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2016/2016aqmpfeir.pdf>

Appendices A through C: https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2016/2016aqmpfeir_appendicesac.pdf

Appendices D through E: https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2016/2016aqmpfeir_appendicesde.pdf

Findings, Statement of Overriding Considerations, and Mitigation Monitoring and Reporting Plan: <https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2017/att2toresolutionfor-2016aqmp.pdf>

2016 AQMP: <https://www.aqmd.gov/home/air-quality/air-quality-management-plans/final-2016-aqmp>

Copies of these documents may also be obtained from:

Derrick Alatorre, Deputy Executive Officer/Public Advisor
South Coast AQMD 21865 Copley Drive, Diamond Bar, CA 91765
Phone: (909) 396-2432
Email: publicadvisor@aqmd.gov

For both of these projects, a Program EIR was considered to be the appropriate document for each AQMP pursuant to CEQA Guidelines Section 15168(a)(3) because each AQMP constituted a series of actions that can be characterized as one large project in connection with the issuance of rules, regulations, plans, or other general criteria required to govern the conduct of a continuing program. In addition, the use of a Program EIR had the following advantages by:

- Providing an occasion for a more exhaustive consideration of effects and alternatives than would be practical in an EIR on an individual action;
- Ensuring a consideration of cumulative impacts that might be slighted in a case-by-case analysis;
- Avoiding duplicative reconsideration of basic policy considerations;
- Allowing consideration of broad policy alternatives and program-wide mitigation measures at an early time when the Lead Agency has greater flexibility to deal with basic problems of cumulative impacts; and
- Allowing its use with a later activity if the later activity is within the scope of the project analyzed in the Program EIR without requiring further environmental documents.

Because the PM2.5 Plan relies on several previously adopted control measures from the 2022 AQMP and the 2016 AQMP, this appendix examines whether the PM2.5 Plan qualifies as a later activity within the

scope of the analyses in the Final Program EIRs for the 2022 AQMP and the 2016 AQMP pursuant to CEQA Guidelines 15168(c) – Use with Later Activities. As such, this appendix: 1) compares the proposed control measures in the PM2.5 Plan with the applicable control measures adopted in the 2022 AQMP and 2016 AQMP; 2) summarizes the environmental impacts analyzed in the Final Program EIRs for the 2022 AQMP and the 2016 AQMP for each control measure applicable to the PM2.5 Plan; 3) identifies the differences in environmental impacts, if any, between the analyses in the Final Program EIRs for 2022 AQMP and 2016 AQMP for the applicable control measures upon which the PM2.5 Plan relies and as needed, identifies any other impact areas which may require further analysis; 4) considers the evidence and determines whether: a) the PM2.5 Plan is a later activity within the scope of the program approved earlier for the 2022 AQMP and 2016 AQMP; and b) the Final Program EIRs for the 2022 AQMP and the 2016 AQMP adequately describe the activities of the PM2.5 Plan for the purposes of CEQA such that no new environmental document will be required.

Comparison of Proposed Control Measures in the PM2.5 Plan with Control Measures in the 2022 AQMP and 2016 AQMP

The PM2.5 Plan proposes a total of 38 control measures with:

- 23 measures targeting reductions from stationary sources; and
- 15 measures targeting reductions from mobile sources.

The stationary source control measures are grouped into the following categories:

- NOx measures
- Direct PM2.5 measures
- Ammonia (NH3) measures
- Co-benefits from energy and climate change programs
- Other measures

The mobile source control measures are grouped into the following categories:

- Emission growth management measures
- Facility-based mobile source measures
- On-road and off-road measures
- Incentive-based measures
- Other measures

Overall, between 2018 and 2030, implementation of the PM2.5 Plan is expected to result in emission reductions of 34.94 tons per day of NOx and 1.36 tons per day of PM2.5 that are beyond the emission reductions anticipated from the implementation of already adopted rules and regulations by the South Coast AQMD and CARB.

Table VIII-1 lists the control measures which are proposed in the PM2.5 Plan, lists the equivalent applicable control measure which was previously adopted in either the 2022 AQMP or 2016 AQMP, and describes the proposed method of control and effects of implementing the control measures as adopted in the 2022 AQMP or 2016 AQMP. If a control measure in the PM2.5 Plan proposes a different control method that what was contemplated for the previously adopted control measures in the 2022 AQMP or 2016 AQMP, additional details are provided.

TABLE VIII-1
COMPARISON OF PROPOSED CONTROL MEASURES IN PM2.5 PLAN WITH APPLICABLE CONTROL
MEASURES ADOPTED IN EITHER 2022 AQMP OR 2016 AQMP

Proposed Control Measure in PM2.5 Plan	Equivalent Applicable Adopted AQMP Control Measure	Proposed Method of Control and Effect of Implementation as Adopted in the AQMP
Stationary Source NOx Measures		
BCM-01: Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Water Heating	R-CMB-01 in 2022 AQMP	Installation of zero emission water heaters and low NOx technologies (when zero emission is infeasible) in new and existing residences.
BCM-02: Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Space Heating	R-CMB-02 in 2022 AQMP	Installation of zero emission space heaters and low NOx technologies (when zero emission is infeasible) in new and existing residences.
BCM-03: Emission Reductions from Residential Cooking Devices	R-CMB-03 in 2022 AQMP	Installation of electric cooking devices, induction cooktops, or low NOx burners in new and existing residences.
BCM-04: Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Other Combustion Sources	R-CMB-04 in 2022 AQMP	Installation of zero emission or low NOx technologies in new and existing residences to replace equipment such as pool heaters, dryers, grills, etc.
BCM-05: Emission Reductions from Emergency Standby Engines	L-CMB-04 in 2022 AQMP	Installation of zero emission and low NOx technology alternatives to emergency ICEs, and requiring the use of renewable diesel for emergency standby ICEs.
BCM-06: Emission Reductions from Diesel Electricity Generating Facilities	L-CMB-06 in 2022 AQMP	Replacement of boilers with lower-emitting turbines, installation of zero emission and low NOx emissions technologies, and the application of stricter emission requirements for diesel internal combustion engines.
BCM-07: Emission Reductions from Incinerators	L-CMB-09 in 2022 AQMP	Installation of low NOx and ultra-low NOx burners for incinerators and other associated equipment.

TABLE VIII-1 (continued)
COMPARISON OF PROPOSED CONTROL MEASURES IN PM2.5 PLAN WITH APPLICABLE CONTROL
MEASURES ADOPTED IN EITHER 2022 AQMP OR 2016 AQMP

Proposed Control Measure in PM2.5 Plan	Equivalent Applicable Adopted AQMP Control Measure	Proposed Method of Control and Effect of Implementation as Adopted in the AQMP
Co-Benefits from Energy and Climate Change Programs		
ECC-01: Co-benefits from Existing and Future Greenhouse Gas Programs, Policies, and Incentives	ECC-01 in 2022 AQMP	Evaluation of renewable energy targets with existing and further greenhouse gas (GHG) emission reduction mechanisms, including market, incentive and rebate programs, and promotion of implementation and development of new technologies.
ECC-02: Co-benefits from Existing and Future Residential and Commercial Building Energy Efficiency Measures	ECC-02 in 2022 AQMP	Quantification of the criteria air pollutant and GHG emission reduction benefits from existing and future energy efficiency programs adopted by other regulatory authorities.
ECC-03: Additional Enhancements in Reducing Existing Residential Building Energy Use	ECC-03 in 2022 AQMP	Incentivization of additional reductions in energy use associated with space heating, water heating, and other large residential energy sources through facilitating weatherization, replacing older appliances with highly efficient technologies and encouraging renewable energy adoption such as solar thermal and photovoltaics.
Ammonia Measures		
BCM-08: Emission Reductions from Livestock Waste at Confined Animal Facilities	BCM-04 in 2016 AQMP	Acidifier application, incorporation of manure into soil, and lowering applicability thresholds for Rule 223 – Emission Reduction Permits for Large Confined Animal Facilities.
BCM-09: Ammonia Emission Reductions from NOx Controls	BCM-05 in 2016 AQMP	Reduction of ammonia slip by upgrading the SCR systems by tuning and optimizing to achieve the NOx limits specified in each rule.
BCM-10: Emission Reductions from Direct Land Application of Chipped and Ground Uncomposted Greenwaste	BCM-10 in 2016 AQMP	Composting of chipped and ground greenwaste.

TABLE VIII-1 (continued)
COMPARISON OF PROPOSED CONTROL MEASURES IN PM_{2.5} PLAN WITH APPLICABLE CONTROL MEASURES ADOPTED IN EITHER 2022 AQMP OR 2016 AQMP

Proposed Control Measure in PM _{2.5} Plan	Equivalent Applicable Adopted AQMP Control Measure	Proposed Method of Control and Effect of Implementation as Adopted in the AQMP
BCM-11: Emission Reductions from Organic Waste Composting	BCM-10 in 2016 AQMP	Emerging organic waste processing technology such as the co-digestion of food waste with biosolids, and increased anaerobic digestion such as through the integration of food waste digestate with greenwaste composting.
Direct PM_{2.5} Measures		
BCM-12: Further Emission Reductions from Commercial Cooking	BCM-01 in 2016 AQMP	<p>BCM-01 in the 2016 AQMP identified PM control equipment for under-fired charbroilers, such as electrostatic precipitators (ESPs), filters, centrifugal separators, and misters.</p> <p>BCM-12 in the proposed PM_{2.5} Plan proposes PM control equipment for chain-driven charbroilers, such as catalytic oxidizers.</p>
BCM-13: Emission Reductions from Cooling Towers	BCM-02 in 2016 AQMP	Phased-in use of drift eliminators with 0.001 percent drift rate for existing cooling towers. This could be achieved by retrofitting older cooling towers with modification to the cooling fans to accompany the drift eliminators, which will also result in water conservation. Newly constructed cooling towers have demonstrated ultra-low drift rates down to 0.0005 percent.
BCM-14: Further Emission Reductions from Paved Road Dust Sources	BCM-03 in 2016 AQMP	Increased street sweeping.
BCM-15: Emission Reductions from Abrasive Blasting Operations	BCM-06 in 2016 AQMP	Incentivization of portable blasting enclosures/booths with dust collection systems, primarily focusing on dry abrasive blasting operations conducted in open areas using portable blasting equipment.
BCM-16: Emission Reductions from Stone Grinding, Cutting and Polishing Operations	BCM-07 in 2016 AQMP	Dry and wet dust control options to control PM including silica particles.
BCM-17: Emission Reductions from Prescribed Burning for Wildfire Prevention	MCS-02 in 2022 AQMP	Mechanical thinning and chipping activities.

TABLE VIII-1 (continued)
COMPARISON OF PROPOSED CONTROL MEASURES IN PM2.5 PLAN WITH APPLICABLE CONTROL
MEASURES ADOPTED IN EITHER 2022 AQMP OR 2016 AQMP

Proposed Control Measure in PM2.5 Plan	Equivalent Applicable Adopted AQMP Control Measure	Proposed Method of Control and Effect of Implementation as Adopted in the AQMP
BCM-18: Further Emission Reductions from Wood-Burning Fireplaces and Wood Stoves	BCM-09 in 2016 AQMP	Removal of the low-income exemption allowing wood burning on no-burn days (but retaining the sole-source of heat exemption).
BCM-19: Emission Reductions from Unpaved Road Dust Sources	N/A	BCM-19 was not previously adopted in either the 2022 AQMP or the 2016 AQMP. BCM-19 in the PM2.5 Plan seeks to develop an inventory of unpaved roads and parking lots within urban areas in the Basin for the purpose of assessing their suitability for paving.
Other Measures		
BCM-20: Application of All Feasible Measures	MCS-01 in 2022 AQMP	Retrofit existing equipment and install newer, lower-emitting equipment to replace older, higher-emitting equipment for sources as a result of new emission limits introduced through federal, state, or local regulations.
Emission Growth Management Measures		
EGM-01: Emission Reductions from New Development and Redevelopment	EGM-01 in 2022 AQMP	Replacement or upgrade of off-road construction equipment as part of development/redevelopment efforts may result in the use of zero-emission technologies in construction, the installation of charging and alternative fueling infrastructure, the use of alternative fuels, and the use of construction equipment with low-emitting engines fitted with diesel PM filters.
EGM-02: Emission Reductions from Clean Construction Policy	EGM-03 in 2022 AQMP	Incentivization of the use of zero emission and low NOx equipment by adopting a voluntary measure for municipalities and public agencies to reduce emissions generated by construction activities may include use of zero emission and low NOx construction equipment, dust control, alternative fuels, diesel PM filtration, low-emitting engines, and low VOC materials.
Facility-Based Measures		
MOB-01: Emission Reductions at Commercial Marine Ports	MOB-01 in 2022 AQMP	Development of cleaner technologies at commercial marine ports (e.g., from on-road heavy-duty vehicles, ocean-going vessels, cargo handling equipment, locomotives, and harbor craft) along with corresponding infrastructure development.

TABLE VIII-1 (continued)
COMPARISON OF PROPOSED CONTROL MEASURES IN PM_{2.5} PLAN WITH APPLICABLE CONTROL MEASURES ADOPTED IN EITHER 2022 AQMP OR 2016 AQMP

Proposed Control Measure in PM _{2.5} Plan	Equivalent Applicable Adopted AQMP Control Measure	Proposed Method of Control and Effect of Implementation as Adopted in the AQMP
MOB-02: Emission Reductions at New and Existing Rail Yards	MOB-02A and MOB-02B in 2022 AQMP	Development of cleaner technologies at rail yards and intermodal facilities (e.g., from on-road heavy-duty vehicles, off-road equipment, and locomotives) along with corresponding infrastructure development.
MOB-03: Emission Reductions at Warehouse Distribution Centers	MOB-03 in 2022 AQMP	Reducing emissions and exposure of mobile sources associated with warehouse distribution centers by requiring actions or investments to offset the emissions of the mobile sources (trucks) attracted to the warehouses is being implemented via Rule 2305 which was adopted by the South Coast AQMD Governing Board on May 7, 2021.
MOB-04: Emission Reductions at Commercial Airports	MOB-04 in 2022 AQMP	Deployment of additional cleaner technologies, such as increasing efficiencies, implementing air quality improvement options or by deploying zero emission and low NO _x technologies, alternative fuels, diesel PM filters, and low-emitting engines for additional equipment beyond the commitments made in the existing Memoranda of Understanding with the commercial airports.
On-Road and Off-Road Measures		
MOB-05: Accelerated Retirement of Light-Duty and Medium-Duty Vehicles	MOB-05 in 2022 AQMP	Acceleration of the retirement of light- and medium-duty vehicles per year through the Replace Your Ride Program and accelerating the penetration of zero and near-zero emission vehicles.
MOB-06: Accelerated Retirement of On-Road Heavy-Duty Vehicles	MOB-06 in 2022 AQMP	Retirement of older, heavy-duty vehicles and replacing them with low-NO _x vehicles fueled with CNG or other alternative fuels (e.g., battery electric and hydrogen fuel cells).
MOB-07: On-Road Mobile Source Emission Reduction Credit Generation Program	MOB-07 in 2022 AQMP	Incentivization of the early deployment of zero emission and low NO _x emission heavy-duty trucks through the generation of mobile source emission credits.

TABLE VIII-1 (concluded)
COMPARISON OF PROPOSED CONTROL MEASURES IN PM2.5 PLAN WITH APPLICABLE CONTROL
MEASURES ADOPTED IN EITHER 2022 AQMP OR 2016 AQMP

Proposed Control Measure in PM2.5 Plan	Equivalent Applicable Adopted AQMP Control Measure	Proposed Method of Control and Effect of Implementation as Adopted in the AQMP
MOB-08: Small Off-Road Engine Equipment Exchange Program	MOB-08 in 2022 AQMP	Promotion of the accelerated turn-over of in-use small off-road engines and other engines, such as gasoline- and diesel-powered commercial lawn and garden equipment through expanded voluntary exchange programs.
MOB-09: Further Emission Reductions from Passenger Locomotives	MOB-09 in 2022 AQMP	Promotion of earlier and cleaner replacement or upgrade of existing passenger locomotives capable of achieving Tier 4 emission standards and supporting the development of zero emission or low NOx technologies (e.g., battery electric and hydrogen fuel cells).
MOB-10: Off-Road Mobile Source Emission Reduction Credit Generation Program	MOB-10 in 2022 AQMP	Acceleration of the deployment of zero (e.g. battery-electric or fuel cell powered equipment) and low NOx emission off-road mobile equipment (e.g., 90 percent cleaner than Tier 5) that do not receive public funding.
Incentive-Based Measures		
MOB-11: Emission Reductions from Incentive Programs	MOB-11 in 2022 AQMP	Allows the South Coast AQMD to take credit for emission reductions for SIP purposes achieved through past and future projects funded by incentive programs (e.g., replacing heavy-duty vehicle/equipment, installing retrofit units, and repowering engines for marine vessels, locomotives, trucks, school buses, agricultural equipment, construction equipment, commercial harbor craft, airport support equipment, and oil drilling equipment).
MOB-12: Pacific Rim Initiative for Maritime Emission Reductions	MOB-12 in 2022 AQMP	Allows the South Coast AQMD to recognize ocean-going vessel emission reductions that are the result of voluntary actions and may be considered surplus to the emission reduction commitments of the State SIP Strategy "Federal Action: Cleaner fuel and Vessel Requirements for Ocean-Gong-Vessels."
Other Mobile Source Measures		
MOB-13: Rule 2202 – On-Road Motor Vehicle Mitigation Options	MOB-14 in 2022 AQMP	Amendment of Rule 2202 to take into account emission reductions due to telecommuting strategies such as allowing employees to work from home.

As summarized in Table VIII-1, the PM2.5 Plan proposes to expand the methods of control and effects of implementation for only one control measure, BCM-12, when compared to the previous control measure it relies on, BCM-01 in the 2016 AQMP. In addition, the PM2.5 Plan proposes one new control measure, BCM-19, which does not rely on any previously adopted control measure in either the 2022 AQMP or 2016 AQMP.

- 1) Proposed control measure BCM-12 in the PM2.5 Plan proposes a future amendment to South Coast AQMD Rule 1138 – Control of Emissions From Restaurant Operations to make the exemption criteria applicable to chain-driven charbroilers in paragraph (e)(1), more stringent by providing an option for the owner or operator to either accept a permit condition limiting the amount of meat cooked per week from 875 pounds to 400 pounds or install integrated catalytic oxidizer technology. By comparison, control measure BCM-01 of the 2016 AQMP contemplated the reliance on add-on air pollution control equipment and devices such as ESPs, filters, centrifugal separators, and misters for under-fired charbroilers in order to achieve reductions in PM.

The potential for increased deployment of PM control equipment for under-fired charbroilers and the potential environmental impacts associated with the installation and operation of the aforementioned PM control equipment were analyzed in the Final Program EIR for the 2016 AQMP.

Implementation of BCM-12 of the PM2.5 Plan is expected to result in the potential installation and operation of catalytic oxidizers for certain chain-driven charbroilers that were either not originally manufactured with a catalytic oxidizer or equivalent or more stringent PM control equipment or device. Therefore, the potential retrofit of chain-driven charbroilers with catalytic oxidizers is the only new physical change anticipated from implementing control measure BCM-12 of the PM2.5 Plan that was not previously contemplated or analyzed in the Final Program EIR for the 2016 AQMP.

- 2) Control measure BCM-19 is a new control measure which proposes to develop an inventory of unpaved roads and parking lots within urban areas in the Basin, and assess their suitability for paving.

Implementation of control measure BCM-19 of the PM2.5 Plan is an administrative exercise that will not require physical changes. Therefore, no potential adverse environmental impacts are expected from implementation of this control measure.

Except for control measures BCM-12 and BCM-19, all of the other control measures proposed in the PM2.5 Plan are essentially equivalent to the applicable adopted control measure either in the 2022 AQMP or the 2016 AQMP such that their implementation is not expected to result in new physical changes and new or worsened environmental impacts relative to what was previously analyzed in the Final Program EIRs for the 2022 AQMP and the 2016 AQMP. The following section, “Summary of Environmental Impact Analysis from Final Program EIRs for the 2022 AQMP and the 2016 AQMP” will detail the potential adverse

environmental impacts, conclusions of significance, mitigation measures, and cumulative impacts resulting from physical changes of all AQMP control measures on which the PM2.5 Plan relies.

Summary of Environmental Impact Analysis from the Final Program EIRs for the 2022 AQMP and the 2016 AQMP

The CEQA Guidelines require environmental documents to identify significant environmental effects that may result from a proposed project. [CEQA Guidelines Section 15126.2(a)]. Direct and indirect significant effects of a project on the environment should be identified and described, with consideration given to both short- and long-term impacts. The discussion of environmental impacts may include, but is not limited to, the resources involved; physical changes; alterations of ecological systems; health and safety impacts caused by physical changes; and other aspects of the resources involved including water, scenic quality, and public services. If significant adverse environmental impacts are identified, the CEQA Guidelines require a discussion of measures that could either avoid or substantially reduce any adverse environmental impacts to the greatest extent feasible. [CEQA Guidelines Section 15126.4].

The categories of environmental impacts to be studied in a CEQA document are established by CEQA (Public Resources Code Section 21000 et seq.) and the CEQA Guidelines (codified in Title 14 California Code of Regulations Section 15000 et seq). Under the CEQA Guidelines Appendix G: Environmental Checklist Form, there are 20 environmental topic areas categories in which potential adverse impacts from a project are evaluated. The South Coast AQMD, as lead agency, has taken into consideration the environmental checklist questions in Appendix G, but has reorganized the contents to consolidate the environmental topic areas to avoid repetition. For example, South Coast AQMD's customized the environmental checklist by: 1) combining the topics of "air quality" and "greenhouse gas emissions" into one section; 2) combining the topics of "cultural resources" and "tribal cultural resources" into one section; 3) separating the "hazards and hazardous materials" topic into two sections: "hazards and hazardous materials" and "solid and hazardous waste;" and 4) distributing the questions from the topic of "utilities/service systems" into other more specific environmental areas such as "energy," "hydrology and water quality," and "solid and hazardous waste." For each environmental topic area, per CEQA Guidelines Section 15064.7(a), "[a] threshold of significance is an identifiable quantitative, qualitative, or performance level of a particular environmental effect, noncompliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant." The South Coast AQMD has developed unique thresholds of significance for the determination of significance in accordance with CEQA Guidelines Section 15064.7(b).

The CEQA Guidelines indicate that the degree of specificity required in a CEQA document depends on the type of project being proposed. [CEQA Guidelines Section 15146]. The detail of the environmental analysis for certain types of projects cannot be as great as for others. For example, an EIR for a project, such as the adoption or amendment of a comprehensive zoning ordinance or a local general plan, should focus on the

secondary effects that can be expected to subsequently occur as a result of the adoption or amendment, but the analysis need not be as detailed as the analysis of any specific construction project(s) that may also occur.

The CEQA Guidelines also includes provisions for the preparation of Program EIRs in connection with the issuance of plans, such as the 2022 AQMP and 2016 AQMP, to govern the conduct of a continuing program, including adoptions of broad policy programs as distinguished from those prepared for specific types of projects such as land use projects, for example. [CEQA Guidelines Section 15168]. A Program EIR also allows for the consideration of broad policy alternatives and program-wide mitigation measures at an early time when an agency has greater flexibility to deal with basic problems or cumulative impacts. [CEQA Guidelines Section 15168 (b)(4)]. Lastly, a Program EIR also plays an important role in establishing a structure within which a CEQA review of future related actions can be effectively conducted. A Program EIR, by design, provides the basis for future environmental analyses and will allow future project-specific CEQA documents, if necessary, to focus solely on the new effects or detailed environmental issues not previously considered. If an agency finds that no new effects could occur, or no new mitigation measures would be required, the agency can approve the activity as being within the scope of the project covered by the Program EIR and no new environmental document would be required. [CEQA Guidelines Section 15168(c)(2)].

The Final Program EIR for the 2016 AQMP analyzed the impacts of the 2016 AQMP project on 18 environmental topic areas: aesthetics, agriculture and forestry resources, air quality and greenhouse gas emissions, biological resources, cultural resources, energy, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, solid and hazardous waste, transportation and traffic, and mandatory findings of significance. In 2019, the CEQA Guidelines were amended to add the environmental topic areas of tribal cultural resources and wildfires, and the transportation analysis was changed from Level of Service (LOS) to Vehicle Miles Traveled (VMT) with a corresponding update to the name of the environmental topic area from “transportation and traffic” to “transportation.” Thus, the Final Program EIR for the 2022 AQMP analyzed the impacts of implementing the various control measures in the 2022 AQMP on 19 environmental topic areas: aesthetics, agriculture and forestry resources, air quality and greenhouse gas emissions, biological resources, cultural and tribal cultural resources, energy, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, solid and hazardous waste, transportation, wildfire, and mandatory findings of significance.

The Final Program EIR for the 2022 AQMP concluded that the implementation of all of the control measures in the 2022 AQMP would result in potentially significant impacts for the following environmental topic areas: air quality and GHG, energy, hazards and hazardous materials, hydrology and water quality, noise, and solid and hazardous waste. All other environmental topic areas were either concluded to have less than significant impacts or no impact. Mitigation measures to minimize significant impacts from implementation of the 2022 AQMP were adopted in the Mitigation, Monitoring, and Reporting Plan which

can be found in Attachment 1 to the Governing Board Resolution for the Final Program EIR for the 2022 AQMP.⁵

The Final Program EIR for the 2016 AQMP concluded that the implementation of all of the control measures in the 2016 AQMP would result in potentially significant impacts for the following environmental topic areas: aesthetics, air quality and greenhouse gas emissions, energy, hazards and hazardous materials, hydrology and water quality, noise, solid and hazardous waste, and transportation and traffic. All other environmental topic areas were either concluded to have less than significant impacts or no impact. Mitigation measures to minimize significant impacts from implementation of the 2016 AQMP were adopted in the Mitigation, Monitoring, and Reporting Plan which can be found in Attachment 2 to the Governing Board Resolution for the Final Program EIR for the 2016 AQMP.⁶

While the Final Program EIR for the 2016 AQMP concluded potentially significant aesthetics impacts from implementation of the 2016 AQMP, the 2016 AQMP control measures that the PM2.5 Plan relies on: control measures BCM-01 through BCM-07, and BCM-09 through BCM-10, were concluded to have no potential adverse aesthetics impacts. Because no 2022 AQMP control measures were concluded to have potential adverse aesthetics impacts either, implementation of the PM2.5 Plan will not have potential adverse aesthetics impacts. For this reason, this analysis of environmental impacts from implementation of the PM2.5 Plan will not discuss aesthetics as a potential adverse impact.

Table VIII-2 summarizes the 2022 AQMP and 2016 AQMP control measures upon which the PM2.5 Plan control measures rely, their effect of implementation and nature of potential impact(s), and which of the environmental topic areas are potentially adversely impacted by implementation of a specific control measure. The control measures are presented and organized in the same manner as in Table VIII-1.

⁵ South Coast AQMD, Attachment 1 to the Governing Board Resolution for the Final Program Environmental Impact Report for the 2022 Air Quality Management Plan, December 2022. <https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2022/2022-aqmp-attachment1toresolution.pdf>

⁶ South Coast AQMD, Attachment 2 to the Governing Board Resolution for the Final Program Environmental Impact Report for the 2016 Air Quality Management Plan, March 2017. <https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2017/att2toresolutionfor-2016aqmp.pdf>

**TABLE VIII-2
ENVIRONMENTAL TOPIC AREAS ADVERSELY IMPACTED BY AQMP CONTROL MEASURES**

Control Measure Number	Title	Effect of Implementation and Nature of Potential Impact(s)	Potential Adverse Impact(s)							
			No Impact	Air Quality/ GHG	Energy	Hazards/ Hazardous Materials	Hydrology/ Water Quality	Noise	Solid/ Hazardous Waste	Transportation
R-CMB-01 in 2022 AQMP	Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Water Heating	Installation of zero emission water heaters and low NOx technologies (when zero emission is infeasible) in new and existing residences may cause impacts to: 1) air quality and GHGs during minor construction activities and from utilities producing more electricity; 2) energy due to a potential increased demand for electricity which may be produced from natural gas; and 3) noise and solid waste during minor construction activities.		X	X			X	X	
R-CMB-02 in 2022 AQMP	Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Space Heating	Installation of zero emission space heaters and low NOx technologies (when zero emission is infeasible) in new and existing residences may cause impacts to: 1) air quality and GHGs during minor construction activities and from utilities producing more electricity; 2) energy due to a potential increased demand for electricity which may be produced from natural gas; and 3) noise and solid waste during minor construction activities.		X	X			X	X	
R-CMB-03 in 2022 AQMP	Emission Reductions from Residential Cooking Devices	Installation of electric cooking devices, induction cooktops, or low-NOx burners in new and existing residences may cause impacts to: 1) air quality and GHGs during minor construction activities and from utilities producing more electricity; 2) energy due to a potential increased demand for electricity which may be produced from natural gas; and 3) noise and solid waste during minor construction activities.		X	X			X	X	
R-CMB-04 in 2022 AQMP	Emission Reductions from Replacement with Zero Emission or Low NOx Appliances – Residential Other Combustion Sources	Installation of zero emission or low NOx technologies in new and existing residences to replace equipment such as pool heaters, dryers, grills, etc. may cause impacts to: 1) air quality and GHGs during minor construction activities and from utilities producing more electricity; 2) energy due to a potential increased demand for electricity which may be produced by natural gas; and 3) noise and solid waste during minor construction activities.		X	X			X	X	

TABLE VIII-2 (continued)
ENVIRONMENTAL TOPIC AREAS ADVERSELY IMPACTED BY AQMP CONTROL MEASURES

			Potential Adverse Impact(s)							
Control Measure Number	Title	Effect of Implementation and Nature of Potential Impact(s)	No Impact	Air Quality/ GHG	Energy	Hazards/ Hazardous Materials	Hydrology/ Water Quality	Noise	Solid/ Hazardous Waste	Transportation
L-CMB-04 in 2022 AQMP	Emission Reductions from Emergency Standby Engines	Installation of zero emission and low NOx technology alternatives to emergency ICEs may cause impacts to: 1) air quality and GHGs during minor construction, and from utilities producing more electricity and hydrogen; 2) energy due to a potential increased demand for electricity and hydrogen which may be produced by natural gas and natural gas to operate new equipment; 3) hazards associated with the increased production of hydrogen; and 4) noise and solid waste during minor construction activities.		X	X	X		X	X	
L-CMB-06 in 2022 AQMP	NOx Emission Reductions from Electricity Generating Facilities	Replacement of boilers with lower-emitting turbines, installation of zero emission and low NOx emissions technologies, and the application of stricter emission requirements for diesel internal combustion engines may result in the installation and operation of additional NOx pollution control equipment, including SCRs which may cause impacts to: 1) air quality and GHGs during construction, due to the potential use of ammonia during operation of SCR equipment, if installed, and the periodic replacement of catalyst and from utilities producing more electricity and hydrogen; 2) energy due to a potential increased demand for electricity which may be produced by natural gas and hydrogen and natural gas to operate new equipment; 3) hazards and hazardous materials due to the potential use of ammonia during operation of SCR equipment, if installed, and increased hydrogen production; 4) hydrology and water quality if new steam turbines are installed; 5) noise during construction; and 6) solid waste due to disposal of replaced equipment and spent SCR catalyst during operation.		X	X	X	X	X	X	
L-CMB-09 in 2022 AQMP	NOx Reductions from Incinerators	Installation of low NOx and ultra low NOx burners for incinerators and other associated equipment may cause impacts to: 1) air quality and GHGs during minor construction activities; and 2) noise and solid waste during minor construction activities.		X				X	X	

TABLE VIII-2 (continued)
ENVIRONMENTAL TOPIC AREAS ADVERSELY IMPACTED BY AQMP CONTROL MEASURES

			Potential Adverse Impact(s)							
Control Measure Number	Title	Effect of Implementation and Nature of Potential Impact(s)	No Impact	Air Quality/ GHG	Energy	Hazards/ Hazardous Materials	Hydrology/ Water Quality	Noise	Solid/ Hazardous Waste	Transportation
ECC-01 in 2022 AQMP	Co-Benefits from Existing and Future Greenhouse Gas Programs, Policies, and Incentives	Evaluating renewable energy targets with existing and further GHG emission reduction mechanisms, including market, incentive and rebate programs, and promoting the implementation and development of new technologies, which may involve the use of electricity in order to reduce emissions of criteria air pollutants and GHGs, may cause impacts to energy due to potential increased demand for electricity.			X					
ECC-02 in 2022 AQMP	Co-Benefits from Existing and Future Residential and Commercial Building Energy Efficiency Measures	Quantifying the criteria air pollutant and GHG emission reduction benefits from existing and future energy efficiency programs adopted by other regulatory authorities (e.g., improving weatherization and energy efficiency) is an administrative exercise with no impacts.	X							
ECC-03 in 2022 AQMP	Additional Enhancements in Reducing Existing Residential Building Energy Use	Incentivizing additional reductions in energy use associated with space heating, water heating, and other large residential energy sources through facilitating weatherization, replacing older appliances with highly efficient technologies and encouraging renewable energy adoption such as solar thermal and photovoltaics may reduce emissions of criteria air pollutants and GHGs but may also cause impacts to air quality and GHGs, noise, and solid waste during construction.		X				X	X	
BCM-04 in 2016 AQMP	Emission Reductions from Manure Management Strategies	Hazard, water, and waste impacts associated with acidifier application, manure removal, and manure slurry injection. Air and energy impacts associated with poultry manure thermal gasification. No impacts associated with dietary manipulation/feed additives.		X	X	X	X		X	X
BCM-05 in 2016 AQMP	Ammonia Emission Reduction from NOx Controls	Air, energy, hazard, and waste impacts associated with the use SCR control equipment. Air, noise, and traffic impacts associated with construction activities.		X	X	X		X	X	X

TABLE VIII-2 (continued)
ENVIRONMENTAL TOPIC AREAS ADVERSELY IMPACTED BY AQMP CONTROL MEASURES

			Potential Adverse Impact(s)							
Control Measure Number	Title	Effect of Implementation and Nature of Potential Impact(s)	No Impact	Air Quality/ GHG	Energy	Hazards/ Hazardous Materials	Hydrology/ Water Quality	Noise	Solid/ Hazardous Waste	Transportation
BCM-10 in 2016 AQMP	Emission Reductions from Greenwaste Composting	Air, energy, hazard, water, and waste impacts associated with controls such as anaerobic digestion and organic processing technology. No impacts associated with improved emissions characterization or restrictions for direct applications of un-composted waste to public lands.		X	X		X		X	
BCM-01 in 2016 AQMP	Further Emission Reductions from Commercial Cooking	Air, water, and waste impacts associated with installation and operation of control equipment, such as ESPs, filters, centrifugal separators, and misters. Energy impacts associated with electricity used to operate equipment.		X	X		X		X	
BCM-02 in 2016 AQMP	Emission Reductions from Cooling Towers	Air impacts associated with installation of drift elimination technologies. Waste impacts associated with disposal of deconstructed equipment and replacement. Water savings.		X					X	
BCM-03 in 2016 AQMP	Further Emission Reductions from Paved Road Dust Sources	Water impacts associated with required wheel washing systems. Potential noise, traffic, and waste impacts associated with minimum street sweeping frequencies and enhanced street cleaning or enhanced best management practices.					X	X	X	X
BCM-06 in 2016 AQMP	Emission Reductions from Abrasive Blasting Operations	Air, noise, and traffic impacts associated with construction of exhaust ventilation to a fabric filter for permanent in-building abrasive blasting activities. Energy and waste impacts associated with the use of additional portable control equipment, such as negative air machines, portable fume extractors and portable dust collectors with HEPA filters.		X	X			X	X	X
BCM-07 in 2016 AQMP	Emission Reductions from Stone Grinding, Cutting and Polishing Operations	Air, noise, and traffic impacts associated with construction of engineering controls, such as exhaust ventilation with dust collectors. Energy impacts associated with the use of engineering controls. Water impacts associated with wet methods to prevent dust release. Waste impacts associated with housekeeping measures, such as vacuuming with HEPA filter, wet-wiping, or wet sweeping.		X	X		X	X	X	X

TABLE VIII-2 (continued)
ENVIRONMENTAL TOPIC AREAS ADVERSELY IMPACTED BY AQMP CONTROL MEASURES

			Potential Adverse Impact(s)							
Control Measure Number	Title	Effect of Implementation and Nature of Potential Impact(s)	No Impact	Air Quality/ GHG	Energy	Hazards/ Hazardous Materials	Hydrology/ Water Quality	Noise	Solid/ Hazardous Waste	Transportation
MCS-02 in 2022 AQMP	Wildfire Prevention	Mechanical thinning and chipping activities during fuel reduction and removal efforts may cause impacts to: 1) air quality and GHGs associated with decomposition of greenwaste/woodwaste; 2) hazards (potential fire hazard during chipping and grinding activities); 3) hydrology (increased water use for composting); 4) noise due to chipping and grinding; and 5) solid waste (collected greenwaste/woodwaste).		X		X	X	X	X	
BCM-09 in 2016 AQMP	Further Emission Reductions from Wood-Burning Fireplaces and Wood Stoves	Air and waste impacts associated with the construction/upgrading of wood-burning hearths to cleaner hearths. Energy impacts associated with cleaner hearths, such as natural gas or electric hearths. No impacts associated with increasing the stringency of the curtailment program or with education.		X	X				X	X
MCS-01 in 2022 AQMP	Application of All Feasible Measures	Retrofitting existing equipment and installation of newer, lower-emitting equipment to replace older, higher-emitting equipment for sources as a result of new emission limits introduced through federal, state, or local regulations may cause impacts to: 1) air quality and GHGs during construction and due to the potential use of ammonia during operation of SCR equipment, if installed, and the periodic replacement of catalyst; 2) energy due to a potential increased demand in electricity to operate new equipment; 3) hazards and hazardous materials due to the potential use of ammonia during operation of SCR equipment, if installed; 4) noise during construction; and 5) solid and hazardous waste due to potential replacement of burners during construction and spent SCR catalyst during operation.		X	X	X		X	X	

TABLE VIII-2 (continued)
ENVIRONMENTAL TOPIC AREAS ADVERSELY IMPACTED BY AQMP CONTROL MEASURES

			Potential Adverse Impact(s)							
Control Measure Number	Title	Effect of Implementation and Nature of Potential Impact(s)	No Impact	Air Quality/ GHG	Energy	Hazards/ Hazardous Materials	Hydrology/ Water Quality	Noise	Solid/ Hazardous Waste	Transportation
EGM-01 in 2022 AQMP	Emission Reductions from New Development and Redevelopment (NOTE: Potential Indirect Source Rule and ports affected).	Replacing or upgrading off-road construction equipment as part of development/redevelopment efforts may result in the use of zero-emission technologies in construction, the installation of charging and alternative fueling infrastructure, the use of alternative fuels; and the use construction equipment with low-emitting engines fitted with diesel PM filters, may cause impacts to: 1) air quality and GHGs during construction and the periodic replacement of diesel PM filters; 2) energy due to a potential increased demand in electricity to operate vehicles, rail, or new equipment; 3) hazards associated with the increased alternative fuels production (e.g., hydrogen); 4) noise during construction; and 5) solid waste due to potential replacement of diesel PM filters.		X	X	X		X	X	
EGM-03 in 2022 AQMP	Emission Reductions from Clean Construction Policy	Incentivizing the use of zero emission and low NOx equipment by adopting a voluntary measure for municipalities and public agencies to reduce emissions generated by construction activities may include use of zero emission and low NOx construction equipment, dust control, alternative fuels, diesel PM filtration, low-emitting engines, and low VOC materials. Implementation of this control measure may cause impacts to: 1) air quality and GHGs from installing electricity charging infrastructure and utilities producing more electricity; 2) energy due to a potential increased demand for electricity which may be produced from natural gas; and 3) noise and solid waste during minor construction activities.		X	X	X		X	X	

TABLE VIII-2 (continued)
ENVIRONMENTAL TOPIC AREAS ADVERSELY IMPACTED BY AQMP CONTROL MEASURES

Control Measure Number	Title	Effect of Implementation and Nature of Potential Impact(s)	Potential Adverse Impact(s)							
			No Impact	Air Quality/ GHG	Energy	Hazards/ Hazardous Materials	Hydrology/ Water Quality	Noise	Solid/ Hazardous Waste	Transportation
MOB-01 in 2022 AQMP	Emission Reductions at Commercial Marine Ports	Infrastructure development required to achieve emission reductions at commercial marine ports from on-road heavy-duty vehicles, ocean-going vessels, cargo handling equipment, locomotives, and harbor craft may cause impacts to: 1) air quality and GHGs from construction activities and the combustion of alternative fuels; 2) energy due to increased demand for electricity (for vehicles, rail, and equipment) and natural gas; 3) hazards and hazardous materials associated with engine replacements; 4) noise during construction; and 5) solid and hazardous waste associated with engine replacements.		X	X	X		X	X	
MOB-02A in 2022 AQMP	Emission Reductions at New Rail Yards and Intermodal Facilities	Infrastructure development required to achieve emission reductions at new rail yards and intermodal facilities from on-road heavy-duty vehicles, off-road equipment, and locomotives may cause impacts to: 1) air quality and GHGs from construction activities and the combustion of alternative fuels; 2) energy due to increased demand for electricity (for vehicles, rail, and equipment) and natural gas; 3) hazards and hazardous materials associated with engine replacements; 4) noise during construction; and 5) solid and hazardous waste associated with engine replacements.		X	X	X		X	X	
MOB-02B in 2022 AQMP	Emission Reductions at Existing Rail Yards and Intermodal Facilities	Infrastructure development required to achieve emission reductions at existing rail yards and intermodal facilities from on-road heavy-duty vehicles, off-road equipment, and locomotives may cause impacts to: 1) air quality and GHGs from construction activities and the combustion of alternative fuels; 2) energy due to increased demand for electricity (for vehicles, rail, and equipment) and natural gas; 3) hazards and hazardous materials associated with engine replacements; 4) noise during construction; and 5) solid and hazardous waste associated with engine replacements.		X	X	X		X	X	

TABLE VIII-2 (continued)
ENVIRONMENTAL TOPIC AREAS ADVERSELY IMPACTED BY AQMP CONTROL MEASURES

			Potential Adverse Impact(s)							
Control Measure Number	Title	Effect of Implementation and Nature of Potential Impact(s)	No Impact	Air Quality/ GHG	Energy	Hazards/ Hazardous Materials	Hydrology/ Water Quality	Noise	Solid/ Hazardous Waste	Transportation
MOB-03 in 2022 AQMP	Emission Reductions at Warehouse Distribution Centers	Reducing emissions and exposure of mobile sources associated with warehouse distribution centers by requiring actions or investments to offset the emissions of the mobile sources (trucks) attracted to the warehouses has been executed in Rule 2305 which was adopted by the South Coast AQMD Governing Board on May 7, 2021. The environmental effects from implementing Rule 2305 were previously analyzed in the certified Final Environmental Assessment. ⁷ Since this control measure does not propose any additional elements for achieving emission reductions at warehouse distribution centers, no new impact areas have been identified.	X							
MOB-04 in 2022 AQMP	Emission Reductions at Commercial Airports	Deploying additional cleaner technologies, such as increasing efficiencies, implementing air quality improvement options or by deploying zero emission and low NOx technologies, alternative fuels, diesel PM filters, and low-emitting engines for additional equipment beyond the commitments made in the existing Memoranda of Understanding with the commercial airports may cause impacts to: 1) air quality and GHGs during minor construction activities and from utilities producing more electricity and hydrogen; 2) energy due to a potential increased demand for electricity and hydrogen; 3) hazards and hazardous materials associated with increased production of alternative fuels (e.g., hydrogen); and 4) noise and solid waste during construction.		X	X	X		X	X	

⁷ South Coast AQMD, Final Environmental Assessment for Proposed Rule 2305 – Warehouse Indirect Source Rule – Warehouse Actions and Investments To Reduce Emissions (WAIRE) Program and Proposed Rule 316 – Fees for Rule 2305, May 2021. https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2021/attachment_j_pr2305_finalea.pdf

TABLE VIII-2 (continued)
ENVIRONMENTAL TOPIC AREAS ADVERSELY IMPACTED BY AQMP CONTROL MEASURES

			Potential Adverse Impact(s)							
Control Measure Number	Title	Effect of Implementation and Nature of Potential Impact(s)	No Impact	Air Quality/ GHG	Energy	Hazards/ Hazardous Materials	Hydrology/ Water Quality	Noise	Solid/ Hazardous Waste	Transportation
MOB-05 in 2022 AQMP	Accelerated Retirement of Older Light-Duty and Medium-duty Vehicles	Accelerating the retirement of up to 2,000 light- and medium-duty vehicles per year through the Replace Your Ride Program and accelerating the penetration of zero and near-zero emission vehicles may cause impacts to: 1) air quality and GHGs during construction of infrastructure, from scrapping retired vehicles, and from utilities producing more electricity and refineries manufacturing more hydrogen; 2) energy due to potential increased demand for electricity produced by, natural gas, and hydrogen; 3) hazards and hazardous materials from the use of alternative fuels and fuel additives and scrapping retired vehicles; 4) hydrology and water quality(surface and ground water) from accidental spills; 5) noise during construction; and 6) solid and hazardous waste from scrapping retired vehicles and disposal of batteries and fluids.		X	X	X	X	X	X	
MOB-06 in 2022 AQMP	Accelerated Retirement of Older On-Road Heavy-duty Vehicles	Retiring older, heavy-duty vehicles and replacing them with low-NOx vehicles fueled with CNG or other alternative fuels (e.g., battery electric and hydrogen fuel cells) may cause impacts to: 1) air quality and GHGs from construction activities associated with installing electric charging infrastructure, scrapping retired vehicles, combusting alternative fuels, and refineries manufacturing more hydrogen and other alternative fuels; 2) energy due to potential increased demand for electricity produced from, natural gas, and hydrogen; 3) hazards and hazardous materials from scrapping retired vehicles and disposal of batteries and fluids and increased production of alternative fuels; 4) hydrology and water quality (surface and ground water) from disposal of batteries and fluids and accidental spills; 5) noise during construction; and 6) solid and hazardous waste from scrapping retired vehicles and disposal of batteries and fluids.		X	X	X	X	X	X	

TABLE VIII-2 (continued)
ENVIRONMENTAL TOPIC AREAS ADVERSELY IMPACTED BY AQMP CONTROL MEASURES

			Potential Adverse Impact(s)							
Control Measure Number	Title	Effect of Implementation and Nature of Potential Impact(s)	No Impact	Air Quality/ GHG	Energy	Hazards/ Hazardous Materials	Hydrology/ Water Quality	Noise	Solid/ Hazardous Waste	Transportation
MOB-07 in 2022 AQMP	On-Road Mobile Source Emission Reduction Credit Generating Program	Incentivizing the early deployment of zero emission and low NOx emission heavy-duty trucks through the generation of mobile source emission credits may cause impacts to: 1) air quality and GHGs from construction activities associated with installing electric charging infrastructure, scrapping retired vehicles, combusting alternative fuels, and refineries manufacturing more hydrogen and other alternative fuels; and 2) energy due to potential increased demand for electricity, natural gas and hydrogen; 3) hazards and hazardous materials from scrapping retired vehicles and disposal of batteries and fluids and increased production of alternative fuels (e.g., hydrogen); 4) hydrology and water quality (surface and ground water) from disposal of batteries and fluids and accidental spills; 5) noise during construction ; and 6) solid and hazardous waste from scrapping retired vehicles and disposal of batteries and fluids.		X	X	X	X	X	X	
MOB-08 in 2022 AQMP	Small Off-Road Engine Equipment Exchange Program	Promoting the accelerated turn-over of in-use small off-road engines and other engines, such as gasoline- and diesel-powered commercial lawn and garden equipment through expanded voluntary exchange programs will contribute to the retirement of older off-road engines which may cause impacts to: 1) air quality and GHGs from scrapping retired equipment; 2) energy due to potential increased demand for electricity; 3) hazards and hazardous materials from scrapping retired equipment and disposal of batteries and fluids; 4) hydrology and water quality (surface and ground water) from disposal of batteries and fluids and accidental spills; and 5) solid and hazardous waste from scrapping retired equipment and disposal of batteries and fluids.		X	X	X	X		X	

TABLE VIII-2 (continued)
ENVIRONMENTAL TOPIC AREAS ADVERSELY IMPACTED BY AQMP CONTROL MEASURES

			Potential Adverse Impact(s)							
Control Measure Number	Title	Effect of Implementation and Nature of Potential Impact(s)	No Impact	Air Quality/ GHG	Energy	Hazards/ Hazardous Materials	Hydrology/ Water Quality	Noise	Solid/ Hazardous Waste	Transportation
MOB-09 in 2022 AQMP	Further Emission Reductions from Passenger Locomotives	Promoting earlier and cleaner replacement or upgrade of existing passenger locomotives capable of achieving Tier 4 emission standards and supporting the development of zero emission or low NOx technologies (e.g., battery electric and hydrogen fuel cells) may cause impacts to: 1) air quality and GHGs from construction activities installing electric charging infrastructure and the combustion of alternative fuels, and refineries manufacturing more hydrogen and other alternative fuels; 2) energy due to potential increased demand for electricity produced from natural gas, and hydrogen; 3) hazards and hazardous materials from scrapping retired locomotives and increased production and use of alternative fuels; 4) noise during construction; and 5) solid and hazardous waste from scrapping retired locomotives.		X	X	X		X	X	
MOB-10 in 2022 AQMP	Off-Road Mobile Source Emission Reduction Credit Generation Program	Accelerating the deployment of zero (e.g. battery-electric or fuel cell powered equipment) and low NOx emission off-road mobile equipment (e.g., 90 percent cleaner than Tier 5) that do not receive public funding may cause impacts to: 1) air quality and GHGs from construction activities installing electric charging infrastructure and the combustion of alternative fuels, and refineries manufacturing more hydrogen and other alternative fuels; 2) energy due to potential increased demand for electricity, produced from natural gas, and hydrogen; 3) hazards and hazardous materials associated with the increased production and use of alternative fuels and fuel additives; 4) noise during construction; and 5) solid and hazardous waste from scrapping retired equipment.		X	X	X		X	X	

TABLE VIII-2 (concluded)
ENVIRONMENTAL TOPIC AREAS ADVERSELY IMPACTED BY AQMP CONTROL MEASURES

Control Measure Number	Title	Effect of Implementation and Nature of Potential Impact(s)	Potential Adverse Impact(s)							
			No Impact	Air Quality/ GHG	Energy	Hazards/ Hazardous Materials	Hydrology/ Water Quality	Noise	Solid/ Hazardous Waste	Transportation
MOB-11 in 2022 AQMP	Emission Reductions from Incentive Programs	Allowing the South Coast AQMD to take credit for emission reductions for SIP purposes achieved through past and future projects (e.g., replacing heavy-duty vehicle/equipment, installing retrofit units, and repowering engines for marine vessels, locomotives, trucks, school buses, agricultural equipment, construction equipment, commercial harbor craft, airport support equipment, and oil drilling equipment) is an administrative exercise which is not expected to cause any environmental impacts.	X							
MOB-12 in 2022 AQMP	Pacific Rim Initiative for Maritime Emission Reductions	This measure seeks to recognize ocean-going vessel emission reductions that are the result of voluntary actions and may be considered surplus to the emission reduction commitments of the State SIP Strategy "Federal Action: Cleaner fuel and Vessel Requirements for Ocean-Gong-Vessels." Allowing the South Coast AQMD to take credit for emission reductions achieved through this SIP measure is an administrative exercise which is not expected to cause any environmental impacts.	X							
MOB-14 in 2022 AQMP	Rule 2202 – On-Road Motor Vehicle Mitigation Options	Amending Rule 2202 to take into account emission reductions due to telecommuting strategies such as allowing employees to work from home is expected to provide a benefit to air quality and GHGs without causing any adverse environmental impacts.	X							

Implementation of control measures ECC-02, MOB-03, MOB-11, MOB-12, and MOB-14 of the 2022 AQMP were determined to have no impacts that required analysis under the Final Program EIR for the 2022 AQMP. More specifically, control measures ECC-02, MOB-11, MOB-12, and MOB-14 are administrative exercises with no impacts on the environment while control measure MOB-03, at the time of writing the Final Program EIR for the 2022 AQMP, was already implemented by Rule 2305 which was adopted by the South Coast AQMD Governing Board on May 7, 2021. The environmental effects from implementing Rule 2305 were previously analyzed in the certified Final Environmental Assessment. Since control measure MOB-03 did not propose any additional elements for achieving emission reductions at warehouse distribution centers, no new impact areas have been identified.

Air Quality and Greenhouse Gas Emissions

This section summarizes the potentially significant air quality and greenhouse gas emissions impacts from implementing the proposed PM_{2.5} Plan control measures which rely on previously adopted control measures in the 2022 AQMP and 2016 AQMP. The air quality and greenhouse gas emissions impacts for the 2022 AQMP and 2016 AQMP control measures were previously analyzed in the Final Program EIRs for the 2022 AQMP and the 2016 AQMP.

Significance Criteria

A threshold of significance is an identifiable quantitative, qualitative, or performance level of a particular environmental effect. Proposed projects that do not exceed the significance threshold for the effect under evaluation normally will be determined to be less than significant. Exceeding any significance threshold means the effect will normally be determined to be significant by the lead agency. [CEQA Guidelines Sections 15064(a) and (b)(2)].

To determine whether air quality and GHG emissions impacts from the 2022 AQMP and the 2016 AQMP were significant, the Final Program EIRs for the 2022 AQMP and the 2016 AQMP estimated the potential emissions of criteria pollutants, toxic air contaminants, and GHGs and compared those estimates to the significance criteria in Table VIII-3.

**TABLE VIII-3
SOUTH COAST AQMD AIR QUALITY SIGNIFICANCE THRESHOLDS**

Mass Daily Thresholds ^(a)		
Pollutant	Construction	Operation
NOx	100 lb/day	55 lb/day
VOC	75 lb/day	55 lb/day
PM10	150 lb/day	150 lb/day
PM2.5	55 lb/day	55 lb/day
SOx	150 lb/day	150 lb/day
CO	550 lb/day	550 lb/day
Lead	3 lb/day	3 lb/day
Toxic Air Contaminants, Odor, and GHG Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden ≥ 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic and Acute Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to South Coast AQMD Rule 402	
GHG	10,000 MT/yr CO ₂ eq for industrial facilities	
Ambient Air Quality for Criteria Pollutants ^(b)		
NO2 1-hour average annual arithmetic mean	South Coast AQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.03 ppm (state) and 0.0534 ppm (federal)	
PM10 24-hour average annual average	10.4 µg/m ³ (construction) ^(c) and 2.5 µg/m ³ (operation) 1.0 µg/m ³	
PM2.5 24-hour average	10.4 µg/m ³ (construction) ^(c) and 2.5 µg/m ³ (operation)	
SO2 1-hour average 24-hour average	0.25 ppm (state) and 0.075 ppm (federal – 99th percentile) 0.04 ppm (state)	
Sulfate 24-hour average	25 µg/m ³ (state)	
CO 1-hour average 8-hour average	South Coast AQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)	
Lead 30-day average Rolling 3-month average	1.5 µg/m ³ (state) 0.15 µg/m ³ (federal)	

a) Source: South Coast AQMD CEQA Handbook (South Coast AQMD, 1993)

b) Ambient air quality thresholds for criteria pollutants based on South Coast AQMD Rule 1303, Table A-2 unless otherwise stated.

c) Ambient air quality threshold based on South Coast AQMD Rule 403.

KEY: lb/day = pounds per day ppm = parts per million µg/m³ = microgram per cubic meter \geq = greater than or equal to
MT/yr CO₂eq = metric tons per year of CO₂ equivalent $>$ = greater than

Potential Air Quality and Greenhouse Gas Emissions Impacts

The Final Program EIRs for the 2022 AQMP and the 2016 AQMP identified and evaluated the control measures that have the potential to generate air quality impacts. Table VIII-4 summarizes the 2022 AQMP and 2016 AQMP control measures upon which the PM_{2.5} Plan control measures rely, the control methodology, and the nature of the potential adverse impacts to air quality and greenhouse gas emissions. The control measures are presented and organized in the same manner as in Table VIII-2.

TABLE VIII-4
AQMP CONTROL MEASURES WITH POTENTIAL AIR QUALITY AND GHG IMPACTS

Control Measure Number	Control Methodology	Potential Air Quality Impact	Potential GHG Impact
R-CMB-01 in 2022 AQMP	Installation of zero emission water heaters and low NO _x technologies (when zero emission is infeasible) in new and existing residences.	Potential air quality impacts associated with construction; and producing and using more electricity.	+ (construction emissions; increase electricity usage) - (reduce GHG emissions; reduction in conventional fuel combustion emissions; increase energy efficiency)
R-CMB-02 in 2022 AQMP	Installation of zero emission space heaters and low NO _x technologies (when zero emission is infeasible) in new and existing residences.	Potential air quality impacts associated with construction; and producing and using more electricity.	+ (construction emissions; increase electricity usage) - (reduce GHG emissions; reduction in conventional fuel combustion emissions; increase energy efficiency)
R-CMB-03 in 2022 AQMP	Installation of electric cooking devices, induction cooktops, or low NO _x burners in new and existing residences.	Potential air quality impacts associated with construction; and producing and using more electricity.	+ (construction emissions; increase electricity usage) - (reduce GHG emissions; reduction in conventional fuel combustion emissions; increase energy efficiency)
R-CMB-04 in 2022 AQMP	Installation of zero emission or low NO _x technologies in new and existing residences to replace equipment such as pool heaters, dryers, grills, etc.	Potential air quality impacts associated with construction; and producing and using more electricity.	+ (construction emissions; increase electricity usage) - (reduce GHG emissions reduction in conventional fuel combustion emissions; increase energy efficiency)
L-CMB-04 in 2022 AQMP	Installation of zero emission and low NO _x technology alternatives to emergency ICEs, and requiring the use of renewable diesel for emergency standby ICEs.	Potential air quality impacts associated with construction; and producing and using more electricity and alternative fuels.	+ (construction emissions; increase electricity usage) - (reduce GHG emissions; conversion to alternative fuels; reduction in conventional fuel combustion emissions) + (increase GHG emissions if emergency ICEs are replaced with new low NO _x emergency ICEs) = (equivalent GHG emissions if existing emergency ICEs are retrofitted with low NO _x technologies) - (reduce GHG emissions if existing emergency ICEs are replaced with zero emission technologies)

TABLE VIII-4 (continued)
AQMP CONTROL MEASURES WITH POTENTIAL AIR QUALITY AND GHG IMPACTS

Control Measure Number	Control Methodology	Potential Air Quality Impact	Potential GHG Impact
L-CMB-06 in 2022 AQMP	Replacement of boilers with lower-emitting turbines, installation of zero emission and low NO _x emissions technologies, and the application of stricter emission requirements for diesel internal combustion engines.	Potential air quality impacts associated with construction; ammonia use in SCRs; periodic catalyst replacement; and producing and using more electricity and alternative fuels.	+ (construction emissions; increase electricity usage) - (reduce GHG emissions; conversion to alternative fuels; reduction in conventional fuel combustion emissions) + (increase GHG emissions if existing boilers are replaced with low NO _x turbines) = (equivalent GHG emissions if existing boilers are retrofitted with low NO _x technologies) - (reduce GHG emissions if existing boilers are replaced with zero emission technologies)
L-CMB-09 in 2022 AQMP	Installation of low NO _x and ultra-low NO _x burners for incinerators and other associated equipment.	Potential air quality impacts associated with construction.	+ (construction emissions) = (equivalent GHG emissions if existing turbines are retrofitted with low NO _x technologies)
ECC-03 in 2022 AQMP	Incentivization of additional reductions in energy use associated with space heating, water heating, and other large residential energy sources through facilitating weatherization, replacing older appliances with highly efficient technologies and encouraging renewable energy adoption such as solar thermal and photovoltaics.	Potential air quality impacts associated with construction.	+ (construction emissions) - (reduce GHG emissions; reduction in conventional fuel combustion emissions; increase energy efficiency)
BCM-04 in 2016 AQMP	Acidifier application, manure removal, manure slurry injection, manure thermal gasification, and dietary manipulation/feed additives.	Potential air quality impacts from thermal gasification and vehicle trips.	+ (construction emissions, control equipment)
BCM-05 in 2016 AQMP	Installation and use of advanced catalyst technology for the conversion of ammonia.	Potential air quality impacts associated with construction.	+ (construction emissions)

TABLE VIII-4 (continued)
AQMP CONTROL MEASURES WITH POTENTIAL AIR QUALITY AND GHG IMPACTS

Control Measure Number	Control Methodology	Potential Air Quality Impact	Potential GHG Impact
BCM-10 in 2016 AQMP	Controls such as anaerobic digestion and organic processing technology, and restrictions for direct applications of un-composted waste to public lands.	Potential air quality impacts associated with construction.	None contemplated in the Final Program EIR for the 2016 AQMP
BCM-01 in 2016 AQMP	Installation of control equipment such as ESPs, filters, centrifugal separators, and misters.	Potential air quality impacts associated with construction; and producing and using more electricity.	+ (construction emissions; increase electricity usage)
BCM-02 in 2016 AQMP	Phased-in use of drift eliminators with 0.001 percent drift rate for existing cooling towers.	Potential air quality impacts associated with construction.	+ (construction emissions)
BCM-06 in 2016 AQMP	Exhaust ventilation to a fabric filter for permanent in-building abrasive blasting activities, and use of additional portable control equipment, such as negative air machines, portable fume extractors and portable dust collectors with HEPA filters.	Potential air quality impacts associated with construction; and producing and using more electricity.	+ (construction emissions; increase electricity usage)
BCM-07 in 2016 AQMP	Dry and wet dust control options to control PM including silica particles.	Potential air quality impacts associated with construction; and producing and using more electricity.	+ (construction emissions; increase electricity usage)
MCS-02 in 2022 AQMP	Mechanical thinning and chipping and grinding activities during fuel reduction and removal efforts.	Potential air quality impacts associated with decomposition of wood and greenwaste.	+ (increase GHG from gasoline- or diesel-fueled chipping and grinding equipment is used and from decomposition of wood and greenwaste) = (no GHG emissions if zero emission chipping and grinding equipment is used) - (reduce GHG emissions from preventing or reducing potential for intense wildfires)
BCM-09 in 2016 AQMP	Construction/upgrading of wood burning hearths to cleaner hearth as well as an increase in the stringency of the curtailment program and education.	Potential air quality impacts associated with construction.	None contemplated in the Final Program EIR for the 2016 AQMP

TABLE VIII-4 (continued)
AQMP CONTROL MEASURES WITH POTENTIAL AIR QUALITY AND GHG IMPACTS

Control Measure Number	Control Methodology	Potential Air Quality Impact	Potential GHG Impact
MCS-01 in 2022 AQMP	Retrofitting existing equipment and installation of newer, lower-emitting equipment to replace older, higher-emitting equipment for sources as a result of new emission limits introduced through federal, state, or local regulations.	Potential air quality impacts associated with construction; ammonia use in SCR's; and periodic catalyst replacement.	<ul style="list-style-type: none"> + (construction emissions) + (increase GHG emissions if existing equipment is replaced with low NOx equipment) = (equivalent GHG emissions if existing equipment are retrofitted with low NOx technologies) - (reduce GHG emissions if existing equipment are replaced with zero emission technologies)
EGM-01 in 2022 AQMP	Replacing or upgrading off-road construction equipment as part of development/redevelopment efforts may result in the use of zero emission technologies in construction, the installation of electrical and alternative fuel infrastructure, the use of alternative fuels; and the use construction equipment with low-emitting engines fitted with diesel particulate filters (DPFs).	Potential air quality impacts associated with construction; and the periodic replacement of diesel particulate filters (DPF); and producing and using more electricity and alternative fuels.	<ul style="list-style-type: none"> + (construction emissions; increase electricity usage) + (increase GHG emissions if existing equipment is replaced with low NOx equipment) = (equivalent GHG emissions if existing equipment are retrofitted with low NOx technologies) - (reduce GHG emissions if existing equipment are replaced with zero emission technologies)
EGM-03 in 2022 AQMP	Incentivizing the use of zero emission and low NOx equipment by adopting a voluntary measure for municipalities and public agencies to reduce emissions generated by construction activities may include use of zero emission and low NOx construction equipment, dust control, alternative fuels, DPF, low-emitting engines, and low VOC materials.	Potential air quality impacts associated with construction of electrical and alternative fuel infrastructure; and producing and using more electricity and alternative fuels.	<ul style="list-style-type: none"> + (construction emissions; increase electricity usage) - (reduce GHG emissions; conversion to alternative fuels; reduction in conventional fuel combustion emissions)
MOB-01 in 2022 AQMP	Infrastructure development required to achieve emission reductions at commercial marine ports from on-road heavy-duty vehicles, ocean-going vessels, cargo handling equipment, locomotives, and harbor craft.	Potential air quality impacts associated with construction; and the combustion of alternative fuels.	<ul style="list-style-type: none"> + (construction emissions; increase electricity usage) - (reduce GHG emissions; conversion to alternative fuels; reduction in conventional fuel combustion emissions)

TABLE VIII-4 (continued)
AQMP CONTROL MEASURES WITH POTENTIAL AIR QUALITY AND GHG IMPACTS

Control Measure Number	Control Methodology	Potential Air Quality Impact	Potential GHG Impact
MOB-2A in 2022 AQMP	Infrastructure development required to achieve emission reductions at new rail yards and intermodal facilities from on-road heavy-duty vehicles, off-road equipment, and locomotives; and deploying the cleanest locomotives, switchers, on-road heavy-duty trucks, cargo-handling equipment, transportation refrigeration units available.	Potential air quality impacts associated with construction; and the combustion of alternative fuels.	+ (construction emissions; increase electricity usage) - (reduce GHG emissions; conversion to alternative fuels; reduction in conventional fuel combustion emissions)
MOB-2B in 2022 AQMP	Infrastructure development required to achieve emission reductions at existing rail yards and intermodal facilities from on-road heavy-duty vehicles, off-road equipment, and locomotives; and deploying the cleanest locomotives, switchers, on-road heavy-duty trucks, cargo-handling equipment, transportation refrigeration units available.	Potential air quality impacts associated with construction; and the combustion of alternative fuels.	+ (construction emissions; increase electricity usage) - (reduce GHG emissions; conversion to alternative fuels; reduction in conventional fuel combustion emissions)
MOB-04 in 2022 AQMP	Deploying additional cleaner technologies, such as increasing efficiencies, implementing air quality improvement options or by deploying zero emission and low NOx technologies, alternative fuels, DPFs, and low-emitting engines for additional equipment beyond the commitments made in the existing Memoranda of Understanding with the commercial airports.	Potential air quality impacts associated with construction; and producing and using more electricity and alternative fuels.	+ (construction emissions; increase electricity usage) - (reduce GHG emissions; conversion to alternative fuels; reduction in conventional fuel combustion emissions)

TABLE VIII-4 (continued)
AQMP CONTROL MEASURES WITH POTENTIAL AIR QUALITY AND GHG IMPACTS

Control Measure Number	Control Methodology	Potential Air Quality Impact	Potential GHG Impact
MOB-05 in 2022 AQMP	Accelerating the retirement of up to 2,000 light- and medium-duty vehicles per year through the Replace Your Ride Program and accelerating the penetration of zero and near-zero emission vehicles.	Potential air quality impacts during construction of infrastructure, from scrapping retired vehicles, and from utilities producing and using more electricity and alternative fuels.	+ (construction emissions; increase electricity usage) - (reduce GHG emissions; conversion to alternative fuels; reduction in conventional fuel combustion emissions)
MOB-06 in 2022 AQMP	Retiring older, heavy-duty vehicles and replacing them with low NOx vehicles fueled with CNG or other alternative fuels (e.g., battery electric and hydrogen fuel cells).	Potential air quality impacts from construction activities associated with installing electrical and alternative fuel infrastructure, scrapping retired vehicles; and producing and using more alternative fuels.	+ (construction emissions; increase electricity usage) - (reduce GHG emissions; conversion to alternative fuels; reduction in conventional fuel combustion emissions)
MOB-07 in 2022 AQMP	Incentivizing the early deployment of zero emission and low NOx emission heavy-duty trucks through the generation of mobile source emission credits.	Potential air quality impacts from construction activities associated with installing electrical and alternative fuel infrastructure; scrapping retired vehicles and producing and using more alternative fuels.	+ (construction emissions; increase electricity usage) - (reduce GHG emissions; conversion to alternative fuels; reduction in conventional fuel combustion emissions)
MOB-08 in 2022 AQMP	Promoting the accelerated turn-over of in-use small off-road engines and other engines, such as gasoline- and diesel-powered commercial lawn and garden equipment through expanded voluntary exchange programs will contribute to the retirement of older off-road engines.	Potential air quality impacts from scrapping retired equipment.	+ (increased electricity usage from scrapping equipment) - (reduce GHG emissions; conversion to alternative fuels; reduction in conventional fuel combustion emissions)

TABLE VIII-4 (concluded)
AQMP CONTROL MEASURES WITH POTENTIAL AIR QUALITY AND GHG IMPACTS

Control Measure Number	Control Methodology	Potential Air Quality Impact	Potential GHG Impact
MOB-09 in 2022 AQMP	Promoting earlier and cleaner replacement or upgrade of existing passenger locomotives capable of achieving Tier 4 emission standards and supporting the development of zero emission or low NOx technologies (e.g., battery electric and hydrogen fuel cells).	Potential air quality impacts from construction activities associated with installing electrical and alternative fuel infrastructure; and producing and using more alternative fuels,	+ (construction emissions; increase electricity usage) - (reduce GHG emissions; conversion to alternative fuels; reduction in conventional fuel combustion emissions)
MOB-10 in 2022 AQMP	Accelerating the deployment of zero (e.g., battery-electric or fuel cell powered equipment) and low NOx emission off-road mobile equipment (e.g., 90 percent cleaner than Tier 5) that do not receive public funding.	Potential air quality from construction activities associated with installing electrical and alternative fuel infrastructure; and producing and using more alternative fuels.	+ (construction emissions; increase electricity usage) - (reduce GHG emissions; conversion to alternative fuels; reduction in conventional fuel combustion emissions)

Analysis in the Final Program EIR for the 2022 AQMP

The Final Program EIR for the 2022 AQMP determined that the 2022 AQMP control measures presented in Table VIII-4 have the following potential impacts to: 1) air quality during construction impacts; 2) operational air quality impacts associated with producing and using more electricity and alternative fuels, ammonia use in SCRs, decomposition of wood and greenwaste, periodic replacement of catalyst, periodic replacement of DPF, and scrapping retired vehicles and equipment; and 3) greenhouse gas emissions impacts associated with construction, increased electricity usage, and replacement of existing equipment with low NOx equipment.

Summary of Construction Air Quality Impacts

The Final Program EIR for the 2022 AQMP presented construction emissions associated with burner replacements, installation of a new SCR with an ammonia storage tank, upgrade to an SCR, and conversion of an alternative fuels facility. While individually, most components of the construction activities would not have emissions exceeding the South Coast AQMD's air quality significance thresholds, it is foreseeable and likely that on any given day, construction activities associated with one or more new or existing air pollution control devices overlapping with other types of construction activities associated with producing alternative fuels in order to comply with the 2022 AQMP could occur at more than one facility. Therefore, the Final Program EIR for the 2022 AQMP concluded that construction air quality impacts are potentially

significant, mitigation measures AQ-1 to AQ-26 should be implemented to minimize significant air quality impacts, but overall construction air quality impacts after mitigation is applied would remain significant.

Summary of Operational Air Quality Impacts

Table VIII-5 summarizes the nature of the operational air quality emission impacts analyzed in the Final Program EIR for the 2022 AQMP by category, and lists the significance determination for each.

**TABLE VIII-5
SUMMARY OF OPERATIONAL AIR QUALITY IMPACTS**

Category	Nature of Emission Impacts	Significance Determination
Air Quality Impacts from Increased Electricity Demand		
Electrification of Residential and Commercial Equipment	Increase in electricity use but a decrease in natural gas use with overall net reduction in combustion emissions	Less than Significant
Large Industrial Combustion Equipment including Hydrogen Production	Increase in electricity use	Potentially Significant
Mobile Source Conversion	Increase in electricity use but a decrease in diesel and gasoline combustion emissions with overall net reduction in combustion emissions	Less than Significant
Air Quality Impacts from Control of Stationary and Area Sources		
SCR Technology	Increase in ammonia slip emissions but with an overall reduction in PM _{2.5} regionwide concentration	Less than Significant
Alternative Fuels Production	Conversions of existing facilities to produce renewable fuels could result in emission reductions, but the actual outcome will vary depending on site-specific conditions. Since the current supplies of hydrogen production for the purposes of producing renewable fuels are limited, assumed additional hydrogen production facilities would need to be built and operating.	Potentially Significant if new hydrogen production facilities are built and operating
Air Quality Impacts from Mobile Sources		
Alternative Fuels Use	Alternative fuel use would reduce emissions (alternative fuels production impacts presented separately above).	Less than Significant
Zero Emission Technology Deployment	Emission reduction (electricity production impacts presented separately above).	Less than Significant
Add-on Controls	Reduced fuel economy results in increase in emissions.	Less than Significant
Vehicle Scrapping	Increase in PM ₁₀ and PM _{2.5} emissions.	Less than Significant

TABLE VIII-5 (concluded)
SUMMARY OF OPERATIONAL AIR QUALITY IMPACTS

Category	Nature of Emission Impacts	Significance Determination
Air Quality Impacts from Miscellaneous Sources		
Chipping and Grinding for Wildfire Control	Increase in combustion emissions from chipping and grinding equipment	Less than Significant

The analysis in the Final Program EIR for the 2022 AQMP indicated that the air quality impacts from criteria pollutants were expected from producing electricity needed to meet the increased demand, operating air pollution control equipment installed on various stationary and area sources, proposed emission reduction methods for mobile sources, and proposed control of miscellaneous sources. Use of electric-powered equipment (for short-term construction use or in long-term residential and commercial, large, and mobile sources) would cause associated emissions from increased electricity demand, but these replace combustion emissions that would otherwise occur with use of diesel- or gasoline-powered equipment, ultimately expected to provide an emissions benefit. The identified air pollution control options for stationary and area sources include SCR technology, and alternative fuels production (based on the three renewable fuels projects approved in California, has the potential to decrease mobile source emissions and increase facility emissions). The identified air pollution control options for mobile sources will have air quality impacts relating to electricity demand, alternative fuels production, vehicle scrapping, and add-on air pollution control equipment; but these air quality impacts would be less than significant. Lastly, the control measures focusing on achieving emission reductions from miscellaneous sources, such as from increased chipping and grinding operations in control measure MCS-02 of the 2022 AQMP, were not expected to generate significant adverse air quality impacts.

The South Coast AQMD air quality significance thresholds for mass daily emissions of criteria pollutants are in units of pounds per day. The 2022 AQMP quantifies NO_x reductions in tons per day (2,000 pounds = 1 ton). The 2022 AQMP is designed to attain the 8-hour ozone standard by reducing NO_x and to a lesser degree VOC emissions. Other emissions of criteria pollutants (i.e., CO, SO_x, PM₁₀, and PM_{2.5}) are also expected to be reduced. While most of the activities associated with the adopted control measures were individually projected to have air quality impacts that are less than significant, activities associated with implementation of some individual control measures (i.e., increased electricity demand for large combustion equipment including hydrogen production, alternative fuels production, and product reformulation) may result in potentially significant impacts. The precise magnitude of those emission increases is dependent on the type and size of projects designed to comply with the control measures, and the quantification of the emissions impacts was not known at the time the 2022 AQMP was adopted and is not currently known because implementation of the control measures are in the early stages. Nonetheless, when the effects of all of the control measures were considered together, a net NO_x emission reduction of 124 tons per day was expected, which is an order of magnitude greater than any of the adverse air quality impacts from some of the individual control measures. Thus, the 2022 AQMP was expected to achieve an overall air quality benefit. Therefore, the Final Program EIR for the 2022 AQMP concluded that operational air quality impacts are less than significant. Since no significant air quality

impacts relating to operational activities were identified, no mitigation measures were necessary or required.

Summary of Other Air Quality Impacts

Implementing the control measures were concluded to be capable of reducing emissions of carcinogenic diesel PM from engine exhaust, as well as toxic components of gasoline such as benzene and 1,3-butadiene through the replacement of existing vehicles or equipment with more efficient, zero emission, or alternative fueled vehicles or equipment. Therefore, the Final Program EIR for the 2022 AQMP concluded no significant air quality impacts relating to toxic air contaminants. Since no significant air quality impacts relating to toxic air contaminants were identified, no mitigation measures were necessary or required.

Construction activities and increased ammonia use have the potential to create odors; however, construction odors were anticipated to be low in concentration, temporary, and not expected to affect a substantial amount of people. Ammonia emissions from SCR exhaust stacks are required to comply with BACT and are limited by permit condition to 5 ppm. Due to the low concentration, elevated release height, elevated temperature, and buoyancy, ammonia slip emissions were concluded to not have the potential to cause an odor nuisance. Therefore, the Final Program EIR for the 2022 AQMP concluded less than significant air quality impacts relating to odor. Since no significant air quality impacts relating to odor were identified, no mitigation measures were necessary or required.

Summary of Greenhouse Gas Emissions Impacts

Many control measures were concluded to have GHG emissions associated with construction over the short-term; however, construction GHG emissions are amortized over 30 years and are much less than the overall potential operational emissions reductions of GHGs over the long-term. Intermixed with the short-term GHG impacts and long-term GHG emission reductions are the potentially significant GHG increases that may occur if existing combustion equipment is replaced with new lower NOx emitting combustion equipment. Further, GHG emissions from the generation and use of additional electricity and alternative fuels, are not expected to be significant because there will be concurrent decreases in the use of diesel- and gasoline-fueled equipment over time as more electric and alternative fuel vehicles are deployed. Finally, electricity generation is required to transition to 100 percent renewables by 2045 as required by Senate Bill 100. Thus, implementation of the 2022 AQMP was concluded to result in potentially significant GHG operational emissions over the short-term and less than significant GHG emission impacts over the long-term. Since less than significant greenhouse gas impacts overall were identified, no mitigation measures were necessary or required.

Analysis in the Final Program EIR for the 2016 AQMP

The analysis in the Final Program EIR for the 2016 AQMP indicated that the 2016 AQMP control measures presented in Table VIII-4 have the following potential impacts to: 1) air quality during construction; 2) operational air quality impacts associated with producing and using more electricity, and thermal

gasification; and 3) greenhouse gas emissions impacts associated with construction and increased electricity usage.

Summary of Construction Air Quality Impacts

The Final Program EIR for the 2016 AQMP identified construction emissions associated with grading/site preparation, paving, and installing/constructing air pollution control devices. Although the construction emissions at each individual facility might not exceed the South Coast AQMD's air quality significance thresholds, the analysis concluded that it is foreseeable and likely that on any given day, construction of one or more control devices in order to comply with the 2016 AQMP could occur at more than one facility. If more than four facilities or more than four control devices were concurrently constructed on any given day, the emissions would exceed the South Coast AQMD's air quality significance thresholds. Therefore, the Final Program EIR for the 2016 AQMP concluded that construction air quality impacts are potentially significant and mitigation measures AQ-1 to AQ-23 were crafted and adopted with the intent of minimizing the significant air quality impacts. However, the analysis concluded that the overall construction air quality impacts would remain significant after mitigation is applied.

Summary of Operational Air Quality Impacts

Control measures BCM-01, BCM-06, and BCM-07 of the 2016 AQMP seek further control of PM emissions through control devices or technologies which typically require electricity to operate. The 2016 AQMP concluded that increased electricity demand would occur; however, the existing and future air quality and GHG rules and regulations were expected to minimize operational emissions associated with increased electrical generation because electricity providers committed to meeting the increased demand while complying with applicable regulations, and future sources of electricity were increasingly being generated by renewable resources. Therefore, implementation of the 2016 AQMP control measures was concluded not to generate significant adverse air quality impacts due to increased demand for electricity.

The goal of control measure BCM-04 of the 2016 AQMP is to reduce ammonia emissions from livestock waste, with an emphasis on reducing emissions from dairy manure. A number of control approaches could be implemented to achieve these reductions, but only thermal gasification was identified as having the potential to generate air quality impacts from control equipment operation. Thermal gasification, as applied to chicken manure generated during egg-laying, for example, requires a reduction in the manure moisture content by approximately 20 percent. To achieve this reduction in moisture content, the chicken manure is fed into a thermal gasifier where moisture is evaporated, organic solids are converted into "syngas," and mineral-rich ash is produced. Because thermal gasification requires a combustion source, combustion emissions, including NO_x, are generated. Thermal gasification related to manure management was in the testing stages, so the technology was not expected to be widespread and any air quality impacts were considered to be minimal. Two other methods of control would be to apply sodium bisulfate (SBS) which reduces the pH level in manure and thus reduces ammonia spiking, or increasing the manure cleaning frequency. Because the application of sodium bisulfate may only be needed for eight weeks out of the year, and manure haul truck trips would not occur on the same day as haul truck trips that were

then currently occurring, implementation of control measure BCM-04 of the 2016 AQMP was not expected to generate a substantial number of new vehicle trips on a peak day, if any, related to control requirements.

The Final Program EIR for the 2016 AQMP concluded that operational air quality impacts were less than significant. Since no significant air quality impacts relating to operational activities were identified, no mitigation measures were necessary or required.

Summary of Greenhouse Gas Emissions Impacts

The analysis in the Final Program EIR of the 2016 AQMP control measures BCM-01, BCM-02, BCM-04, BCM-05, BCM-06, and BCM-07 concluded that while GHG emissions associated with construction would occur over the short-term, because construction GHG emissions are amortized over 30 years, the net GHG emissions during construction would be much less than the overall potential reductions of operational GHGs over the long-term.

The analysis in the Final Program EIR of the 2016 AQMP control measures BCM-01, BCM-06, and BCM-07 concluded that the project would have the potential to increase energy demand using electricity to power control devices. The electricity needed to power these control measures was expected to be provided by public utility companies subject to AB-32 and required to reduce GHG emissions by 2020, and any future power generating stations would be subject to stringent emission control requirements, including GHG emissions. Therefore, the need for additional electricity generation in order to provide power to operate the projected add-on control devices was not expected to generate significant adverse GHG emissions, after taking into account the reductions expected to result from the decreased use of gasoline and diesel fuels from the 2016 AQMP's other control measures.

The Final Program EIR for the 2016 AQMP concluded that greenhouse gas emissions impacts were less than significant. Since no significant greenhouse gas emissions impacts were identified, no mitigation measures were necessary or required.

Mitigation Measures

The Final Program EIRs for the 2022 AQMP and the 2016 AQMP developed targeted mitigation measures based on project-specific impacts related to air quality which were adopted in the Mitigation, Monitoring, and Reporting Plan which can be found in Attachment 1 to the Governing Board Resolution for the Final Program EIR for the 2022 AQMP and the Mitigation, Monitoring, and Reporting Plan which can be found in Attachment 2 to the Governing Board Resolution for the Final Program EIR for the 2016 AQMP, respectively, and are applicable to the proposed PM2.5 Plan control measures. These measures were crafted to reduce particulate emissions, including diesel PM, as well as certain NOx and VOC emissions. However, only a portion of the mitigation measures adopted for the 2022 AQMP and the 2016 AQMP are applicable to PM2.5 Plan control measures, as follows:

Construction Air Quality Mitigation Measures in the Final Program EIR for the 2022 AQMP

- AQ-1 Develop a Construction Emission Management Plan to minimize emissions from vehicles including, but not limited to: consolidating truck deliveries so as to minimize the number of trucks on a peak day; scheduling deliveries to avoid peak hour traffic conditions; describing truck routing; describing deliveries including logging delivery times; describing entry/exit points; identifying locations of parking; identifying construction schedule; and prohibiting truck idling in excess of five consecutive minutes or another time-frame as allowed by the California Code of Regulations, Title 13 Section 2485 - CARB's Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling. The Construction Emission Management Plan shall be submitted to South Coast AQMD – PRDI/CEQA for approval prior to the start of construction. At a minimum, the Construction Emission Management Plan would include the following types of mitigation measures and Best Management Practices.
- AQ-2 Tune and maintain all construction equipment to be in compliance with the manufacturer's recommended maintenance schedule and specifications that optimize emissions without nullifying engine warranties. All maintenance records for each equipment and their construction contractor(s) shall be made available for inspection and remain onsite for a period of at least two years from completion of construction.
- AQ-3 Survey and document the construction areas and identify all construction areas that are served by electricity. Onsite electricity, rather than temporary power generators, shall be used in all construction areas that are demonstrated to be served by electricity. This documentation shall be provided as part of the Construction Emissions Management Plan.
- AQ-4 Require the use of electric or alternative-fueled (i.e., renewable combustion fuels and hydrogen) construction equipment, if available, including but not limited to, concrete/industrial saws, pumps, aerial lifts, material hoist, air compressors, forklifts, excavator, wheel loader, and soil compactors.
- AQ-5 Require all off-road diesel-powered construction equipment rated greater than 50 hp to meet Tier-4 off-road emission standards at a minimum. In addition, if not already supplied with a factory-equipped diesel particulate filter, all construction equipment shall be outfitted with Best Available Control Technology (BACT) devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. Construction equipment shall incorporate, where feasible, emissions-reducing technology such as hybrid drives and specific fuel economy standards. In the event that any equipment required under this mitigation measure is not available, the project proponent shall provide documentation in the Construction Emissions Management Plan or associated subsequent status reports as information becomes available.
- AQ-6 Require the use of zero-emission (ZE) or near-zero emission (NZE) on-road haul trucks such as heavy-duty trucks with natural gas engines that meet CARB'S adopted optional NO_x emissions standard.

- AQ-7 Provide electric vehicle (EV) charging stations or at a minimum, provide the electrical infrastructure and electrical panels which shall be appropriately sized. Electrical hookups should be provided for trucks to plug in any onboard auxiliary equipment.
- AQ-8 Provide temporary traffic controls such as a flag person, during all phases of significant construction activity to maintain smooth traffic flow, where necessary.
- AQ-9 Provide dedicated turn lanes for the movement of construction trucks and equipment on- and off-site, where applicable.
- AQ-10 Clearly identify truck routes with trailblazer signs to guide and ensure that the route shall avoid congested streets and sensitive land uses (e.g., residences, schools, day care centers, etc.), where applicable
- AQ-11 Improve traffic flow by signal synchronization, where applicable and ensure that check-in point for trucks is inside the project site.
- AQ-12 Ensure that vehicle traffic inside the project site is as far away as feasible from sensitive receptors.
- AQ- 13 Restrict overnight truck parking in sensitive land uses by providing overnight truck parking inside the project site.
- AQ-14 Design the project such that truck entrances and exits are not facing sensitive receptors and trucks will not travel past sensitive land uses to enter or leave the project site.
- AQ-15 Reduce traffic speeds on all unpaved roads to 15 miles per hour (mph) or less.
- AQ-16 Prohibit truck idling in excess of five minutes, on- and off-site.
- AQ-17 Schedule construction activities that affect traffic flow on the arterial system to off-peak hours to the extent practicable.
- AQ-18 Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 mph.
- AQ-19 Suspend use of all construction activities that generate air pollutant emissions during first stage smog alerts.
- AQ-20 Configure construction parking to minimize traffic interference.
- AQ-21 Require covering of all trucks hauling dirt, sand, soil, or other loose materials.
- AQ-22 Install wheel washers where vehicles enter and exit the construction site onto paved roads or wash off trucks and any equipment leaving the site for each trip.
- AQ-23 Apply non-toxic soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for ten days or more).
- AQ-24 Replace ground cover in disturbed areas as quickly as possible to minimize dust.
- AQ-25 Pave road and road shoulders, where applicable.

- AQ-26 Sweep streets at the end of the day with sweepers compliant with South Coast AQMD Rules 1186 and 1186.1 if visible soil is carried onto adjacent public paved roads (recommend water sweepers that utilize reclaimed water).

Construction Air Quality Mitigation Measures in the Final Program EIR for the 2016 AQMP

- AQ-1 During construction, require the use of 2010 and newer diesel haul trucks (e.g., material delivery trucks and soil import/export). If the Lead Agency determines that 2010 model year or newer diesel trucks cannot be obtained, the Lead Agency shall instead requires the use of trucks that meet EPA 2007 model year NOx emissions requirements.
- AQ-2 Require all on-site construction equipment to meet the following:
- All off road diesel-powered construction equipment greater than 50 hp shall meet the Tier 4 emission standards, where available. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.
 - A copy of each unit's certified tier specification, BACT documentation, and CARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment.
 - Encourage construction contractors to apply for SCAQMD "SOON" funding incentives. The "SOON" program provides funds to accelerate the clean up of off-road diesel vehicles, such as heavy duty construction equipment. More information on this program can be found at the following website: <http://www.aqmd.gov/tao/Implementation/SOONProgram.htm>.
- AQ-3 Prohibit vehicles and construction equipment from idling longer than five minutes at the construction site by including these restrictions in the construction company contract(s) and by posting signs on-site, unless the exceptions in the CARB regulations which pertain to idling requirements are applicable.
- AQ-4 All on-road heavy-duty diesel trucks or equipment with a gross vehicle weight rating (GVWR) of 19,500 pounds or greater shall comply with EPA 2007 on-road emission standards for PM and NOx (0.01 gram per brake horsepower - hour (g/bhp-hr) and at least 0.2 g/bhp-hr, respectively).
- AQ-5 Maintain construction equipment tuned up and with two to four-degree retard diesel engine timing or tuned to manufacturer's recommended specifications that optimize emissions without nullifying engine warranties.
- AQ-6 The project proponent shall survey and document the proposed project's construction areas and identify all construction areas that are served by electricity. Onsite electricity, rather than temporary power generators, shall be used in all construction areas that are demonstrated to be served by electricity.

- AQ-7 Provide temporary traffic controls such as a flag person, during all phases of significant construction activity to maintain smooth traffic flow.
- AQ-8 Provide dedicated turn lanes for the movement of construction trucks and equipment on- and off-site.
- AQ-9 Re-route construction trucks away from congested streets or sensitive receptor areas.
- AQ-10 Improve traffic flow by signal synchronization.
- AQ-11 Reduce traffic speeds on all unpaved roads to 15 mph or less.
- AQ-12 Prohibit truck idling in excess of five minutes, on- and off-site.
- AQ-13 Schedule construction activities that affect traffic flow on the arterial system to off-peak hours to the extent practicable.
- AQ-14 Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 mph.
- AQ-15 Suspend all construction activities that generate air pollutant emissions during first stage smog alerts.
- AQ-16 Configure construction parking to minimize traffic interference.
- AQ-17 Use alternative clean fueled off-road equipment or give extra points in the bidding process for contractors committing to use such equipment.
- AQ-18 Require covering of all trucks hauling dirt, sand, soil, or other loose materials.
- AQ-19 Install wheel washers where vehicles enter and exit the construction site onto paved roads or wash off trucks and any equipment leaving the site for each trip.
- AQ-20 Apply non-toxic soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for ten days or more).
- AQ-21 Replace ground cover in disturbed areas as quickly as possible to minimize dust.
- AQ-22 Pave road and road shoulders.
- AQ-23 Sweep streets at the end of the day with SCAQMD Rule 1186 and 1186.1 compliant sweepers if visible soil is carried onto adjacent public paved roads (recommend water sweepers with reclaimed water).

Cumulative Impacts

Analysis in the Final Program EIR for the 2022 AQMP

The Final Program EIR for the 2022 AQMP concluded that implementation of the 2022 AQMP control measures would result in significant adverse air quality impacts during construction and, when combined with past, present, and reasonably foreseeable activities, in particular with transportation projects

projected in the SCAG Connect SoCal Plan⁸ and the CARB Proposed 2022 State SIP Strategy,⁹ would contribute to cumulatively considerable impacts to air quality related to criteria pollutant emissions during construction, a significant, unavoidable cumulative impact.

Emission increases would be expected from implementation of the 2022 AQMP; however, the overall emission reductions associated with implementation of the 2022 AQMP, as well as the SIP measures developed by CARB and the Regional Transportation Strategy and Transportation Control Measures developed by SCAG, were expected to result in a substantial reduction in criteria pollutant emissions. Therefore, the overall emission reductions were expected to outweigh any emission increases and provide an overall benefit. Therefore, the cumulative air quality impacts were concluded to be less than significant.

Implementation of the control measures in the 2022 AQMP was expected to result in substantial GHG emission reductions from replacing diesel- and gasoline-fueled equipment with electric-powered and alternative-fueled equipment which would offset potential increases in GHG emissions from construction projects and additional electricity use and generation, resulting in a net benefit overall anticipated. The Proposed 2022 State Strategy also considered GHG emissions reductions to be beneficial. However, the GHG emissions reductions in the SCAG Connect SoCal Plan were considered significant because they did not reach the mandated target. The 2022 AQMP was not cumulatively considerable to the significant impact and in fact, was expected to improve the goal towards the mandated GHG reduction target. Therefore, the cumulative GHG impacts were considered beneficial and less than significant.

Mitigation measures for construction impacts resulting from the 2022 AQMP are listed in the previous section titled “Construction Air Quality Mitigation Measures in the Final Program EIR for the 2022 AQMP,” and mitigation measures were identified in the environmental assessments for the Connect SoCal Plan and the Proposed 2022 State Strategy; however, no mitigation measures to reduce the significant cumulative impacts to air quality related to construction activities were identified. Operational air quality impacts for criteria pollutants, toxic air contaminants, and GHG emissions were considered beneficial both for the project and cumulatively. Therefore, mitigation measures were not required.

Cumulative impacts to air quality for past, present, and reasonably foreseeable future projects would remain significant and unavoidable for construction. Cumulative air quality impacts for past, present, and reasonably foreseeable future projects may show quantitatively that the emissions benefit of implementing the 2022 AQMP is greater than the expected emissions increases. Therefore, the cumulative operational air quality and GHG impacts were expected to be less than significant.

⁸ Southern California Association of Governments, Connect SoCal (2020–2045 Regional Transportation Plan/Sustainable Communities Strategy), May 2020. <https://scag.ca.gov/read-plan-adopted-final-connect-socal-2020>

⁹ California Air Resources Board, 2022 State Strategy for the State Implementation Plan (2022 State SIP Strategy), September 2022. <https://ww2.arb.ca.gov/resources/documents/2022-state-strategy-state-implementation-plan-2022-state-sip-strategy>

Analysis in the Final Program EIR for the 2016 AQMP

The Final Program EIR for 2016 AQMP concluded that implementation of the 2016 AQMP control measures would result in significant adverse construction air quality impacts because emissions associated with construction activities would have the potential to exceed the South Coast AQMD's significance thresholds. Mitigation measures were identified, but air quality impacts from construction would remain significant. The analysis in the Final Program EIR concluded that the 2016 AQMP control measures would result in significant adverse air quality impacts during construction and when combined with past, present, and reasonably foreseeable activities, and in particular with transportation projects projected in the SCAG 2016 Regional Transportation Plan/Sustainable Communities Strategy (2016 RTP/SCS),¹⁰ would contribute to cumulatively considerable impacts to air quality identified in the 2016 RTP/SCS. No additional mitigation measures to reduce the significant cumulative impacts to air quality were identified. Cumulative impacts to air quality from implementation of the 2016 AQMP would remain significant and unavoidable.

Energy

This section summarizes the potentially significant energy impacts from implementing the proposed the proposed PM2.5 Plan control measures which rely on previously adopted control measures in the 2022 AQMP and 2016 AQMP. The energy impacts for the 2022 AQMP and 2016 AQMP control measures were previously analyzed in the Final Program EIRs for the 2022 AQMP and the 2016 AQMP.

Significance Criteria

Energy impacts are significant if any of the following conditions occur:

- The project conflicts with adopted energy conservation plans or standards.
- The project results in substantial depletion of existing energy resource supplies.
- An increase in demand for utilities impacts the current capacities of the electric and natural gas utilities.
- The project uses non-renewable energy resources in a wasteful and/or inefficient manner.

Potential Impacts

The Final Program EIRs for the 2022 AQMP and the 2016 AQMP identified and evaluated the control measures that have the potential to generate energy impacts. Table VIII-6 summarizes the control methodologies and potential adverse impacts to energy for the 2022 AQMP and 2016 AQMP control

¹⁰ Southern California Association of Governments, Connect SoCal (2016–2040 Regional Transportation Plan/Sustainable Communities Strategy), April 2016. <https://scag.ca.gov/sites/main/files/file-attachments/f2016rtpscs.pdf>

measures upon which the PM_{2.5} Plan relies. The control measures are presented and organized in the same manner as in Table VIII-2.

TABLE VIII-6
AQMP CONTROL MEASURES WITH POTENTIAL ENERGY IMPACTS

Control Measure Number	Control Methodology	Potential Energy Impact
R-CMB-01 in 2022 AQMP	Installation of zero emission water heaters and low NO _x technologies (when zero emission is infeasible) in new and existing residences.	Potential energy impacts due to potential increased demand for electricity which may be produced from natural gas.
R-CMB-02 in 2022 AQMP	Installation of zero emission space heaters and low NO _x technologies (when zero emission is infeasible) in new and existing residences.	Potential energy impacts due to potential increased demand for electricity which may be produced from natural gas.
R-CMB-03 in 2022 AQMP	Installation of electric cooking devices, induction cooktops, or low-NO _x burners in new and existing residences.	Potential energy impacts due to potential increased demand for electricity which may be produced from natural gas.
R-CMB-04 in 2022 AQMP	Installation of zero emission or low NO _x technologies in new and existing residences to replace equipment such as pool heaters, dryers, grills, etc.	Potential energy impacts due to potential increased demand for electricity which may be produced from natural gas.
L-CMB-04 in 2022 AQMP	Installation of zero emission and low NO _x technology alternatives to emergency ICEs.	Potential energy impacts due to increased demand for electricity and hydrogen which may be produced by natural gas; and natural gas to operate new equipment.
L-CMB-06 in 2022 AQMP	Replacement of boilers with lower-emitting turbines, installation of zero emission and low NO _x emissions technologies, and the application of stricter emission requirements for diesel internal combustion engines.	Potential energy impacts due to increased demand for electricity and hydrogen which may be produced by natural gas; and natural gas to operate new equipment.
ECC-01 in 2022 AQMP	Evaluating renewable energy targets with existing and further GHG emission reduction mechanisms, including market, incentive and rebate programs, and promoting the implementation and development of new technologies, which may involve the use of electricity in order to reduce emissions of criteria air pollutants and GHGs.	Potential energy impacts due to potential increased demand for electricity.
BCM-04 in 2016 AQMP	Acidifier application, manure removal, manure slurry injection, and dietary manipulation and feed additives to reduce ammonia in manure.	Potential increased demand for fuel used and fuel generated by thermal gasification.
BCM-05 in 2016 AQMP	Installation and use of advanced catalyst technology for the conversion of ammonia.	Potential increased demand for electricity to operate the control equipment.

TABLE VIII-6 (continued)
AQMP CONTROL MEASURES WITH POTENTIAL ENERGY IMPACTS

Control Measure Number	Control Methodology	Potential Energy Impact
BCM-10 in 2016 AQMP	Controls such as anaerobic digestion and organic processing technology, and restrictions for direct applications of un-composted waste to public lands.	Potential increased demand for natural gas needed for anaerobic digestion.
BCM-01 in 2016 AQMP	Installation of control equipment such as ESPs, filters, centrifugal separators, and misters.	Potential increased demand for electricity to operate the new control equipment.
BCM-06 in 2016 AQMP	Exhaust ventilation to a fabric filter for permanent in-building abrasive blasting activities, and use of additional portable control equipment, such as negative air machines, portable fume extractors and portable dust collectors with HEPA filters.	Potential increased demand for electricity to operate the control equipment.
BCM-07 in 2016 AQMP	Dry and wet dust control options to control PM including silica particles.	Potential increased demand for electricity due to the use of engineering controls.
BCM-09 in 2016 AQMP	Construction/upgrading of wood burning hearths to cleaner hearth as well as an increase in the stringency of the curtailment program and education.	Potential increased demand for natural gas or electricity needed due to converting wood burning hearths to natural gas or electric hearths.
MCS-01 in 2022 AQMP	Retrofitting existing equipment and installation of newer, lower-emitting equipment to replace older, higher-emitting equipment for sources as a result of new emission limits introduced through federal, state, or local regulations.	Potential energy impacts due to increased demand for electricity to operate new equipment.
EGM-01 in 2022 AQMP	Replacing or upgrading off-road construction equipment as part of development/redevelopment efforts may result in the use of zero emission technologies in construction, the installation of charging and alternative fueling infrastructure, the use of alternative fuels; and the use construction equipment with low-emitting engines fitted with diesel PM filters.	Potential energy impacts due to increased demand for electricity to operate vehicles, rail, or new equipment.
EGM-03 in 2022 AQMP	Incentivizing the use of zero emission and low NOx equipment by adopting a voluntary measure for municipalities and public agencies to reduce emissions generated by construction activities may include use of zero emission and low NOx construction equipment, dust control, alternative fuels, diesel PM filtration, low-emitting engines, and low VOC materials.	Potential energy impacts due to increased demand for electricity which may be produced from natural gas.
MOB-01 in 2022 AQMP	Infrastructure development required to achieve emission reductions at commercial marine ports from on-road heavy-duty vehicles, ocean-going vessels, cargo handling equipment, locomotives, and harbor craft.	Potential energy impacts due to increased demand for electricity (for vehicles, rail, and equipment) and natural gas.

TABLE VIII-6 (continued)
AQMP CONTROL MEASURES WITH POTENTIAL ENERGY IMPACTS

Control Measure Number	Control Methodology	Potential Energy Impact
MOB-2A in 2022 AQMP	Infrastructure development required to achieve emission reductions at new rail yards and intermodal facilities from on-road heavy-duty vehicles, off-road equipment, and locomotives; and deploying the cleanest locomotives, switchers, on-road heavy-duty trucks, cargo-handling equipment, transportation refrigeration units available.	Potential energy impacts due to increased demand for electricity (for vehicles, rail, and equipment) and natural gas.
MOB-2B in 2022 AQMP	Infrastructure development required to achieve emission reductions at existing rail yards and intermodal facilities from on-road heavy-duty vehicles, off-road equipment, and locomotives; and deploying the cleanest locomotives, switchers, on-road heavy-duty trucks, cargo-handling equipment, transportation refrigeration units available	Potential energy impacts due to increased demand for electricity (for vehicles, rail, and equipment) and natural gas.
MOB-04 in 2022 AQMP	Deploying additional cleaner technologies, such as increasing efficiencies, implementing air quality improvement options or by deploying zero emission and low NOx technologies, alternative fuels, diesel PM filters, and low-emitting engines for additional equipment beyond the commitments made in the existing Memoranda of Understanding with the commercial airports.	Potential energy impacts due to increased demand for electricity and hydrogen.
MOB-05 in 2022 AQMP	Accelerating the retirement of up to 2,000 light- and medium-duty vehicles per year through the Replace Your Ride Program and accelerating the penetration of zero and near-zero emission vehicles.	Potential energy impacts due to increased demand for electricity (produced by natural gas) and hydrogen.
MOB-06 in 2022 AQMP	Retiring older, heavy-duty vehicles and replacing them with low NOx vehicles fueled with CNG or other alternative fuels (e.g., battery electric and hydrogen fuel cells).	Potential energy impacts due to increased demand for electricity (produced by natural gas) and hydrogen.
MOB-07 in 2022 AQMP	Incentivizing the early deployment of zero emission and low NOx emission heavy-duty trucks through the generation of mobile source emission credits.	Potential energy impacts due to increased demand for electricity, natural gas, and hydrogen.
MOB-08 in 2022 AQMP	Promoting the accelerated turn-over of in-use small off-road engines and other engines, such as gasoline- and diesel-powered commercial lawn and garden equipment through expanded voluntary exchange programs will contribute to the retirement of older off-road engines.	Potential energy impacts due to increased demand for electricity.
MOB-09 in 2022 AQMP	Promoting earlier and cleaner replacement or upgrade of existing passenger locomotives capable of achieving Tier 4 emission standards and supporting the development of zero emission or low NOx technologies (e.g., battery electric and hydrogen fuel cells).	Potential energy impacts due to increased demand for electricity produced from natural gas, and hydrogen.

TABLE VIII-6 (concluded)
AQMP CONTROL MEASURES WITH POTENTIAL ENERGY IMPACTS

Control Measure Number	Control Methodology	Potential Energy Impact
MOB-10 in 2022 AQMP	Accelerating the deployment of zero (e.g., battery-electric or fuel cell powered equipment) and low NOx emission off-road mobile equipment (e.g., 90 percent cleaner than Tier 5) that do not receive public funding.	Potential energy impacts due to increased demand for electricity produced from natural gas, and hydrogen.

Analysis in the Final Program EIR for the 2022 AQMP

The Final Program EIR for the 2022 AQMP determined that the 2022 AQMP control measures listed in Table VIII-6 have potential energy impacts due to increased demand for electricity, natural gas, and hydrogen.

The Final Program EIR for the 2022 AQMP discussed increases in electricity demand according to types of sources. Control measures affecting residential and commercial sources (R-CMB-01 through R-CMB-04, and also C-CMB-01 through C-CMB-05 which the PM2.5 Plan is not relying on) were estimated to increase annual electricity use by 12,960 Gigawatt hours (GWh) per year. Estimates could not be made for control measures affecting large stationary sources (L-CMB-01 through L-CMB-08), but the installation of air pollution control technology, replacement of existing equipment with higher tier equipment, and replacement of equipment with zero emission technology would result in potentially significant increases in the amount of electricity needed. Similarly, estimates could not be made for control measures affecting other sources (such as ECC-01 and MCS-01), but electricity demand was expected to increase. Lastly, control measures affecting mobile sources (EGM-01 through EGM-03, and MOB-01 through MOB-10) were estimated to increase annual electricity use by 319.1 GWh per year. Therefore, the Final Program EIR for the 2022 AQMP concluded that energy impacts due to increased electricity demand were potentially significant and mitigation measures E-1 to E-7 were crafted and adopted with the intent of minimizing the significant electricity demand impacts. However, the overall energy impacts due to increased electricity demand was concluded to remain significant after mitigation is applied.

Control measures in the 2022 AQMP were determined to have the potential to result in: 1) an increase in demand for natural gas primarily associated with the production of electricity in the short term, the production of hydrogen in the short-term, and fueling vehicles; and 2) a decreased demand for natural gas appliances in commercial and residential setting. The combined increase in natural gas demand needed for producing electricity and hydrogen and for fueling vehicles may be somewhat offset over the long-term by a decrease in demand for natural gas appliances in commercial and residential setting. However, over the short-term, the natural gas demand is expected to increase. Therefore, the Final Program EIR for the 2022 AQMP concluded that energy impacts due to increased natural gas demand were potentially significant and mitigation measures E-8 and E-9 were crafted and adopted with the intent of minimizing the significant natural gas demand impacts. However, the overall energy impacts due to increased natural gas demand was concluded to remain significant after mitigation is applied.

One of the goals of the 2022 AQMP was to shift from conventional petroleum fuels to low NOx or zero emission technologies, including hydrogen. The 2022 AQMP does not mandate hydrogen fuel use by fleet operators, and hydrogen fuels need further technology demonstration and deployment for vehicles larger than passenger cars (i.e., medium- and heavy-duty vehicles). The hybrid and electric vehicle technologies and deployment are much further developed than the hydrogen fuel cell vehicles for industrial and commercial uses (i.e., heavy-duty truck uses). Therefore, early advancement of light-duty fuel cell electric vehicles (FCEVs) along with the further development of heavy-duty FCEVs is expected to increase hydrogen demand for mobile sources. Little excess hydrogen capacity is available to meet the increase in hydrogen demand and additional hydrogen production facilities will be necessary. Thus, the increased demand impacts for hydrogen fuel are expected to be significant. Therefore, the Final Program EIR for the 2022 AQMP concluded that energy impacts due to increased hydrogen demand were potentially significant and mitigation measures E-10 to E-12 were crafted and adopted with the intent of minimizing the significant hydrogen demand impacts. However, the overall energy impacts due to increased hydrogen demand was concluded to remain significant after mitigation is applied.

Analysis in the Final Program EIR for the 2016 AQMP

The Final Program EIR for the 2016 AQMP determined that the 2016 AQMP control measures listed in Table VIII-6 have potential energy impacts due to increased demand for electricity, natural gas, and fuel use and fuel generated by thermal gasification.

The analysis in the Final Program EIR for the 2016 AQMP indicated that implementation of control measures BCM-01, BCM-05, BCM-06, BCM-07, and BCM-10 could result in the installation of air pollution control equipment which generally require electricity to operate. The analysis also identified a potential increase in electricity demand and use associated with the electrification of stationary sources through control measure BCM-09. Because the estimated 2024 electricity usage increase would exceed baseline electricity consumption by 7.8 to 12.7 percent, the projected increases to electricity demand were concluded to be potentially significant. Mitigation measures E-1 to E-7 were crafted and adopted with the intent of minimizing the significant electricity demand impacts. However, the overall energy impacts due to increased electricity demand was concluded to remain significant after mitigation is applied.

The analysis in the Final Program EIR for the 2016 AQMP also indicated that implementation of control measures BCM-01, BCM-05, BCM-06, BCM-07, and BCM-10 could result in an increased demand for natural gas associated with stationary sources due to the need for additional emission controls. In addition, the projected increased demand for electricity will also require additional natural gas since most of the power plants in California generate electricity from equipment that uses natural gas. Nonetheless, an overall decline in the demand for natural gas in the power generation sector in California was expected to occur over the next decade as more renewable generation and efficiency measures would reduce the need for natural gas-fired electricity generation. In addition, natural gas supplies were considered abundant as a result of technological innovations; the natural gas outlook in 2007 predicted that 700 trillion cubic feet of natural gas would be economically recoverable, but that outlook at the time of writing the Final Program EIR for the 2016 AQMP, increased to nearly 1,400 trillion cubic feet of natural gas, a 100 percent increase.

Therefore, the Final Program EIR for the 2016 AQMP concluded that energy impacts due to increased natural gas demand were less than significant.

Finally, the analysis in the Final Program EIR for the 2016 AQMP indicated that implementation of control measure BCM-04 could result in the thermal gasification of manure which would potentially generate a biogas (e.g., methane gas similar to natural gas) for use in other processes such as electricity production. Added into the discussion of renewable energy impacts from other control measures from the 2016 AQMP, the Final Program EIR for the 2016 AQMP concluded that energy impacts due to renewable energy were less than significant.

Mitigation Measures

The Final Program EIRs for the 2022 AQMP and the 2016 AQMP developed targeted mitigation measures based on project-specific impacts related to energy which were adopted in the Mitigation, Monitoring, and Reporting Plan which can be found in Attachment 1 to the Governing Board Resolution for the Final Program EIR for the 2022 AQMP and in the Mitigation, Monitoring, and Reporting Plan which can be found in Attachment 2 to the Governing Board Resolution for the Final Program EIR for the 2016 AQMP, respectively, and are applicable to the proposed PM_{2.5} Plan control measures. The following mitigation measures adopted for the 2022 AQMP and the 2016 AQMP, respectively are applicable to the implementation of PM_{2.5} Plan control measures:

Energy Mitigation Measures in the Final Program EIR for the 2022 AQMP

- E-1 Project sponsors should pursue incentives to encourage the use of energy efficient equipment and vehicles and promote energy conservation during electricity generation.
- E-2 Utilities should increase capacity of existing transmission lines to meet forecast demand that supports sustainable growth where feasible and appropriate in coordination with local planning agencies.
- E-3 Project sponsors should submit projected electricity calculations to the local electricity provider for any project anticipated to require substantial electricity consumption. Any infrastructure improvements necessary should be completed according to the specifications of the electricity provider.
- E-4 Project sponsors should include energy analyses in environmental documentation with the goal of conserving energy through the wise and efficient use of energy.
- E-5 Project sponsors should evaluate the potential for reducing peak energy demand by encouraging charging of electrical vehicles and other mobile sources during off-peak hours.
- E-6 Project sponsors should evaluate the potential for reducing peak energy demand by encouraging the use of catenary or way-side electrical systems developed for transportation systems to operate during off-peak hours.

- E-7 Project sponsors should evaluate the potential for reducing peak energy demand by encouraging the use of electrified stationary sources during off-peak hours.
- E-8 Projects that require a substantial increase in natural gas demand should consider the use of renewable gas, where available and feasible, including biofuel landfill gas and gas produced from renewable fuels projects.
- E-9 Project sponsors should submit projected natural gas demand use to the local natural gas provider for any project anticipated to require substantial natural gas consumption. Any infrastructure improvements necessary should be completed according to the specifications of the natural gas provider.
- E-10 Project sponsors should pursue incentives to encourage the use of energy efficient equipment and vehicles, and promote energy conservation associated with hydrogen production.
- E-11 Project sponsors should site new facilities in areas where infrastructure exists to reduce the amount of energy necessary to build new hydrogen production facilities.
- E-12 Project sponsors should pursue hydrogen production and delivery through the most energy efficient, least environmentally impactful methods, where feasible.

Energy Mitigation Measures in the Final Program EIR for the 2016 AQMP

- E-1 Project sponsors should pursue incentives to encourage the use of energy efficient equipment and vehicles and promote energy conservation.
- E-2 Utilities should increase the capacity of existing transmission lines to meet forecast demand that supports sustainable growth, where feasible and appropriate, in coordination with local planning agencies.
- E-3 Project sponsors should submit projected electricity calculations to the local electricity provider for any project anticipated to require substantial electricity consumption. Any infrastructure improvements necessary should be completed according to the specifications of the electricity provider.
- E-4 Project sponsors should include energy analyses in environmental documentation (e.g., CEQA document) with the goal of conserving energy through the wise and efficient use of energy.
- E-5 Project sponsors should evaluate the potential for reducing peak energy demand by encouraging the charging of electrical vehicles and other mobile sources during off-peak hours.
- E-6 Project sponsors should evaluate the potential for reducing peak energy demand by encouraging the use of catenary or way-side electrical systems developed for transportation systems to operate during off-peak hours.

- E-7 Project sponsors should evaluate the potential for reducing peak energy demand by encouraging the use of electrified stationary sources during off-peak hours (e.g., cargo handling equipment).

Cumulative Impacts

Analysis in the Final Program EIR for the 2022 AQMP

The Final Program EIR for the 2022 AQMP concluded that implementation of the 2022 AQMP could result in significant adverse electricity consumption impacts because the potential electricity usage increase would exceed baseline electricity consumption by an estimated 11 percent. Significant impacts were also concluded for natural gas and hydrogen demand. When combined with the Connect SoCal Plan, the SIP strategies, state policies, and other past, present, and reasonably foreseeable activities, the 2022 AQMP would result in a significant increase in electricity, natural gas, and hydrogen demand which may not currently be available, and would contribute to cumulatively considerable impacts. No additional mitigation measures to reduce the significant cumulative impacts to energy were identified. Cumulative impacts to energy demand for past, present, and reasonably foreseeable future projects would remain significant and unavoidable for electricity, natural gas, and hydrogen demand.

Analysis in the Final Program EIR for the 2016 AQMP

The Final Program EIR for 2016 AQMP concluded that implementation of the 2016 AQMP control measures would result in significant adverse electricity consumption impacts because the potential electricity usage increase would exceed baseline electricity consumption by 7.8 to 12.7 percent. No significant impacts on natural gas supplies and petroleum fuels associated with the 2016 AQMP were identified because of the anticipated reduction in future demand and wide availability of natural gas. The 2016 AQMP control measures would result in significant adverse energy demand impacts and, when combined with past, present, and reasonably foreseeable activities, and in particular with transportation projects projected in the 2016 RTP/SCS, would contribute to cumulatively considerable impacts to energy identified in the 2016 RTP/SCS, therefore resulting in a significant cumulative impact. No additional mitigation measures to reduce the significant cumulative impacts to energy were identified. Cumulative impacts to energy from implementation of the 2016 AQMP would remain significant and unavoidable.

Hazards and Hazardous Materials

This section summarizes the potentially significant hazards and hazardous materials impacts from implementing the proposed PM_{2.5} Plan control measures which rely on previously adopted control measures in the 2022 AQMP and 2016 AQMP. The hazards and hazardous materials impacts for the 2022 AQMP and 2016 AQMP control measures were previously analyzed in the Final Program EIRs for the 2022 AQMP and the 2016 AQMP.

Significance Criteria

Hazards and hazardous materials impacts are significant if any of the following conditions occur:

- Non-compliance with any applicable design code or regulation.
- Non-conformance to National Fire Protection Association standards.
- Non-conformance to regulations or generally accepted industry practices related to operating policy and procedures concerning the design, construction, security, leak detection, spill containment, or fire protection.
- Exposure to hazardous chemicals in concentrations equal to or greater than the Emergency Response Planning Guideline (ERPG) 2 levels.

Potential Impacts

The Final Program EIRs for the 2022 AQMP and the 2016 AQMP identified and evaluated the control measures that have the potential to generate hazards and hazardous materials impacts. Table VIII-7 lists the 2022 AQMP and 2016 AQMP control measures with potential adverse impacts to hazards and hazardous materials, control methodology, and potential impacts. The control measures are presented and organized in the same manner as in Table VIII-2.

TABLE VIII-7
AQMP CONTROL MEASURES WITH POTENTIAL HAZARDS AND HAZARDOUS MATERIALS
IMPACTS

Control Measure Number	Control Methodology	Potential Hazards and Hazardous Materials Impact
L-CMB-04 in 2022 AQMP	Installation of zero emission and low NOx technology alternatives to emergency ICEs.	Potential hazard impacts associated with the increased production and use of hydrogen.
L-CMB-06 in 2022 AQMP	Replacement of boilers with lower-emitting turbines, installation of zero emission and low NOx emissions technologies, and the application of stricter emission requirements for diesel internal combustion engines.	Potential hazard impacts associated with ammonia use in SCRs, if installed, and the increased production and use of hydrogen.
BCM-04 in 2016 AQMP	Acidifier application, manure removal, manure slurry injection, and feed additives to reduce ammonia in manure.	Potential hazards generated by acidifier application, manure removal, and manure slurry injection.
BCM-05 in 2016 AQMP	Installation and use of advanced catalyst technology for the conversion of ammonia.	Use of new catalysts could generate potential hazards.
MCS-02 in 2022 AQMP	Mechanical thinning and chipping activities during fuel reduction and removal efforts.	Potential fire hazards associated with chipping and grinding activities.

TABLE VIII-7 (continued)
AQMP CONTROL MEASURES WITH POTENTIAL HAZARDS AND HAZARDOUS MATERIALS
IMPACTS

Control Measure Number	Control Methodology	Potential Hazards and Hazardous Materials Impact
MCS-01 in 2022 AQMP	Retrofitting existing equipment and installation of newer, lower-emitting equipment to replace older, higher-emitting equipment for sources as a result of new emission limits introduced through federal, state, or local regulations.	Potential hazard impacts associated with ammonia use in SCRs, if installed.
EGM-01 in 2022 AQMP	Replacing or upgrading off-road construction equipment as part of development/redevelopment efforts may result in the use of zero-emission technologies in construction, the installation of electrical and alternative fuel infrastructure, the use of alternative fuels; and the use construction equipment with low-emitting engines fitted with DPFs.	Potential hazard impacts associated with the increased alternative fuels production and use (e.g., hydrogen).
EGM-03 in 2022 AQMP	Incentivizing the use of zero emission and low NO _x equipment by adopting a voluntary measure for municipalities and public agencies to reduce emissions generated by construction activities may include use of zero emission and low NO _x construction equipment, dust control, alternative fuels, DPFs, low-emitting engines, and low VOC materials.	Potential hazard impacts associated with the increased alternative fuels production and use (e.g., hydrogen).
MOB-01 in 2022 AQMP	Infrastructure development required to achieve emission reductions at commercial marine ports from on-road heavy-duty vehicles, ocean-going vessels, cargo handling equipment, locomotives, and harbor craft.	Potential hazard impacts associated with engine replacements.
MOB-2A in 2022 AQMP	Infrastructure development required to achieve emission reductions at new rail yards and intermodal facilities from on-road heavy-duty vehicles, off-road equipment, and locomotives; and deploying the cleanest locomotives, switchers, on-road heavy-duty trucks, cargo-handling equipment, transportation refrigeration units available.	Potential hazard impacts associated with engine replacements and with the increased production and use of alternative fuels (e.g., hydrogen).
MOB-2B in 2022 AQMP	Infrastructure development required to achieve emission reductions at existing rail yards and intermodal facilities from on-road heavy-duty vehicles, off-road equipment, and locomotives; and deploying the cleanest on-road heavy-duty vehicles, off-road equipment including cargo handling equipment and transportation refrigeration units, and both line-haul and switcher locomotives.	Potential hazard impacts associated with engine replacements and with the increased production and use of alternative fuels (e.g., hydrogen).

TABLE VIII-7 (concluded)
AQMP CONTROL MEASURES WITH POTENTIAL HAZARDS AND HAZARDOUS MATERIALS
IMPACTS

Control Measure Number	Control Methodology	Potential Hazards and Hazardous Materials Impact
MOB-04 in 2022 AQMP	Deploying additional cleaner technologies, such as increasing efficiencies, implementing air quality improvement options or by deploying zero emission and low NOx technologies, alternative fuels, diesel PM filters, and low-emitting engines for additional equipment beyond the commitments made in the existing Memoranda of Understanding with the commercial airports.	Potential hazard impacts associated with engine replacements and with the increased production and use of alternative fuels (e.g., hydrogen).
MOB-05 in 2022 AQMP	Accelerating the retirement of up to 2,000 light- and medium-duty vehicles per year through the Replace Your Ride Program and accelerating the penetration of zero and near-zero emission vehicles.	Potential hazard impacts associated with the production and use of alternative fuels and fuel additives, and scrapping retired vehicles.
MOB-06 in 2022 AQMP	Retiring older, heavy-duty vehicles and replacing them with low NOx vehicles fueled with CNG or other alternative fuels (e.g., battery electric and hydrogen fuel cells).	Potential hazard impacts associated with scrapping retired vehicles and disposal of batteries and fluids, and increased production and use of alternative fuels.
MOB-07 in 2022 AQMP	Incentivizing the early deployment of zero emission and low NOx emission heavy-duty trucks through the generation of mobile source emission credits.	Potential hazard impacts associated with scrapping retired vehicles and disposal of batteries and fluids, and increased production and use of alternative fuels (e.g., hydrogen).
MOB-08 in 2022 AQMP	Promoting the accelerated turn-over of in-use small off-road engines and other engines, such as gasoline- and diesel-powered commercial lawn and garden equipment through expanded voluntary exchange programs will contribute to the retirement of older off-road engines.	Potential hazard impacts associated with scrapping retired vehicles and disposal of batteries and fluids.
MOB-09 in 2022 AQMP	Promoting earlier and cleaner replacement or upgrade of existing passenger locomotives capable of achieving Tier 4 emission standards and supporting the development of zero emission or low NOx technologies (e.g., battery electric and hydrogen fuel cells).	Potential hazard impacts associated with scrapping retired locomotives and increased production and use of alternative fuels.
MOB-10 in 2022 AQMP	Accelerating the deployment of zero (e.g., battery-electric or fuel cell powered equipment) and low NOx emission off-road mobile equipment (e.g., 90 percent cleaner than Tier 5) that do not receive public funding.	Potential hazard impacts associated with the increased production and use of alternative fuels and fuel additives (e.g., natural gas and hydrogen).

Analysis in the Final Program EIR for the 2022 AQMP

The Final Program EIR for the 2022 AQMP determined that the 2022 AQMP control measures listed in Table VIII-7 have potential hazards and hazardous materials impacts due to use of ammonia in SCR, increased use of alternative fuels including increased use of electric and hybrid vehicles, increased use and production of hydrogen, and fire hazards associated with chipping and grinding activities.

Operation of SCR technology requires transport and use of ammonia and SCR catalyst. Three accidental release scenarios for ammonia were evaluated for: 1) routine transport; 2) use at non-RECLAIM facilities; and 3) use at RECLAIM facilities. Each scenario was concluded to generate significant adverse hazards impacts. However, the routine transport, use, or disposal of fresh and spent catalyst was determined to generate less than significant hazards impacts. Therefore, the Final Program EIR for the 2022 AQMP concluded that hazards and hazardous materials impacts due to increased ammonia use were potentially significant and mitigation measures HZ-1 to HZ-6 were crafted and adopted with the intent of minimizing the significant hazards and hazardous materials impacts. However, the overall hazards and hazardous materials impacts due to increased ammonia use was concluded to remain significant after mitigation is applied.

Use of alternative fuels requires additional knowledge and training of owners/operators of fueling stations regarding maintaining and operating alternative fuel refueling stations and emergency responders. Further, as use of alternative fuels increases within the South Coast AQMD's jurisdiction, use of conventional fuels such as gasoline and diesel will decline. As a result, explosion and flammability hazards associated with conventional fuels will also decline. In addition, hazards and hazardous clean-up associated with accidental releases of conventional fuels, especially diesel, will be reduced as the use of alternative fuels increases. For the storage and dispensing of alternative fuels, compliance with existing regulations and recommended safety procedures will ensure that any potential hazards impacts associated with alternative clean-fuels are expected to be the same or less than those of conventional fuels. Accordingly, the Final Program EIR concluded that the hazards impacts from the increased use of alternative fuels would be similar to or less than hazards associated with conventional fuels. Therefore, the analysis concluded that no significant hazard impacts would be expected from the increased storage and use of alternative fuels and so no mitigation measures were required.

The majority of the 2022 AQMP control measures focused on maximizing the implementation of zero emission and low NO_x technologies which are expected to include electrification of mobile sources (light-duty vehicles, medium-duty vehicles, and heavy-duty vehicles). Since gasoline is a conventional fuel, any difference in hazards associated with hybrid and electric vehicles would be from the batteries. The likelihood to overheat or ignite is increased if the batteries are poorly packaged, damaged, or exposed to a fire or a heat source; however, internal combustion engines also can result in fires and other hazards so switching to battery power would not likely result in an increased fire risk. Thus, the Final Program EIR concluded that the hazard impacts associated with using batteries in electric vehicles were expected to be less than the hazards associated with gasoline-powered vehicles. Thus, no remaining hazard impacts associated with using batteries for these types of vehicles were expected.

When comparing the use of diesel fuel and gasoline to hydrogen, the Final Program EIR for the 2022 AQMP presented various characteristics such as that diesel fuel and gasoline are toxic to the skin and lungs while hydrogen is non-toxic and non-reactive, so if released, it does not present a health hazard to humans; and hydrogen has a lower radiant heat when compared to gasoline, meaning the air around the hydrogen flame is not as hot as around a gasoline flame. Therefore, the risk of hydrogen secondary fires is lower. Hazards associated with hydrogen are approximately equivalent or less when compared to conventional fuels. In addition, fire hazards associated with hydrogen when compared to fires involving conventional fuels are equivalent but will require different firefighting protocols due to the nature of hydrogen. Therefore, the Final Program EIR concluded that no significant increase in hazards would be expected from using hydrogen in mobile sources when compared to conventional fuels.

In evaluating the hazards impacts from production of hydrogen, the Final Program EIR for the 2022 AQMP referenced a recent hazard analysis completed for a proposed new hydrogen plant at a renewable fuels facility in Southern California. The results of the analysis indicated that the worst-case hazard zones associated with an upset of the hydrogen plant and related pipelines were related to a torch fire and would create hazards to surrounding areas within approximately 90 feet of the fire. The hazards associated with the rupture of the related natural gas pipeline that would feed the hydrogen plant was also identified as a potential torch fire risk which could create hazards to surrounding areas within approximately 183 feet of a release. Therefore, the Final Program EIR concluded that the hazards associated with the potential increase in transmission of natural gas via pipeline to service hydrogen plants would be considered potentially significant.

Control measure MCS-02 of the 2022 AQMP would result in thinning and chipping to reduce excess fuel at properties located in the residential urban wild-interface areas of the San Bernardino National Forest. These thinning activities would reduce flammable materials from the urban wild-interface by removing dead, dying, and decaying material. Further the practice of thinning and use of chips as ground cover can facilitate defensible space modification by removing excess surface and ladder fuels and enhance the resiliency of underlying soil through increased water retention, complementing home hardening efforts. Therefore, the Final Program EIR concluded that control measure MCS-02 would be expected to provide a beneficial impact by reducing the potential spread and impacts from wildfires.

Analysis in the Final Program EIR for the 2016 AQMP

The Final Program EIR for the 2016 AQMP determined that the 2016 AQMP control measures listed in Table VIII-7 have potential hazards and hazardous materials impacts due to acidifier application, manure removal, and manure slurry injection; and the use of new catalysts in SCR.

Implementation of control measure BCM-04 of the 2016 AQMP would control ammonia emissions from livestock operations through the application of the acidifier sodium bisulfate. Because sodium bisulfate is a salt, the transportation and flammability risks are very low. In a worst case-scenario if a spill was to occur, the hazards impacts would be negligible. Therefore, the Final Program EIR for the 2016 AQMP concluded that the routine use of acidifiers would create a less than significant hazard impact.

Implementation of control measure BCM-05 of the 2016 AQMP could result in the increased use of catalysts as well as an increase in the quantity of catalyst disposed of as hazardous materials. With a projected increase in the frequency of truck transportation trips to remove the spent catalyst as hazardous materials or hazardous waste from each affected facility, facility operators may choose to either dispose of the spent catalyst in a landfill or recycle it, which may be the more popular (and potentially lucrative) consideration since catalyst contains recoverable and valuable precious metals. The composition and type of the catalyst will determine the type of landfill that would be eligible to handle the disposal. It is likely that spent catalysts would be considered a “designated waste,” which is characterized as a non-hazardous waste consisting of, or containing pollutants that, under ambient environmental conditions, could be released at concentrations in excess of applicable water objectives, or which could cause degradation of the waters of the state. Depending on its actual waste designation, spent catalysts would likely be disposed of in a Class II landfill or a Class III landfill that is fitted with liners. Therefore, the Final Program EIR for the 2016 AQMP concluded that the routine use of catalysts would create a less than significant hazard impact.

Mitigation Measures

The Final Program EIR for the 2022 AQMP developed targeted mitigation measures based on project-specific impacts related to hazards and hazardous materials which were adopted in the in the Mitigation, Monitoring, and Reporting Plan which can be found in Attachment 1 to the Governing Board Resolution for the Final Program EIR for the 2022 AQMP and in the Mitigation, Monitoring, and Reporting Plan which can be found in Attachment 2 to the Governing Board Resolution for the Final Program EIR for the 2016 AQMP, respectively, and are applicable to the proposed PM2.5 Plan control measures. However, no hazards and hazardous materials mitigation measures were proposed for the 2016 AQMP control measures upon which the PM2.5 Plan relies.

Thus, only the following mitigation measures adopted for the 2022 AQMP are applicable to the implementation of PM2.5 Plan control measures.

Hazards and Hazardous Materials Mitigation Measures in the Final Program EIR for the 2022 AQMP

- | | |
|------|---|
| HZ-1 | Use of aqueous ammonia at concentrations less than 19 percent by weight. |
| HZ-2 | Install safety devices, including but not limited to: continuous tank level monitors (e.g., high and low level), temperature and pressure monitors, leak monitoring and detection system, alarms, check valves, and emergency block valves. |
| HZ-3 | Install secondary containment such as dikes and/or berms to capture 110 percent of the storage tank volume in the event of a spill. |
| HZ-4 | Install a grating-covered trench around the perimeter of the delivery bay to passively contain potential spills from the tanker truck during the transfer of aqueous ammonia from the delivery truck to the storage tank. |

- HZ-5 Equip the truck loading/unloading area with an underground gravity drain that flows to a large on-site retention basin to provide sufficient ammonia dilution to minimize the offsite hazards impacts to the maximum extent feasible in the event of an accidental release during transfer of aqueous ammonia.
- HZ-6 Install tertiary containment that is capable of evacuating 110 percent of the storage tank volume from the secondary containment area.

Cumulative Impacts

Analysis in the Final Program EIR for the 2022 AQMP

The Final Program EIR for the 2022 AQMP concluded that implementation of the 2022 AQMP could result in the following significant adverse hazards and hazardous materials impacts:

- 1) Increased usage of ammonia due to implementation of control measures in the 2022 AQMP could generate significant adverse hazard impacts during routine transport as a result of an accidental release of delivered aqueous ammonia.
- 2) The hazards impact from a catastrophic rupture of an ammonia tank is considered a potentially significant adverse hazards impact since off-site receptors could be exposed to concentrations that would exceed the ERPG-2 toxic endpoint concentration for ammonia.
- 3) Hazards impacts from the construction of new natural gas pipeline to service new hydrogen plants would be considered potentially significant.

Mitigation Measures HZ-1 through HZ-6 pertaining to the storage of aqueous ammonia were identified as having the potential to reduce impacts; however, these mitigation measures were not expected to reduce impacts to less than significant levels. Therefore, the remaining hazardous and hazardous materials impacts from exposure to aqueous ammonia due to tank rupture were considered to be significant after mitigation. No mitigation measures were identified for construction of a new natural gas pipeline. When combined with the Connect SoCal Plan, the SIP strategies, state policies, and other past, present, and reasonably foreseeable activities, the 2022 AQMP would result in a significant increase in the use of hazards and hazardous materials, and would contribute to cumulatively considerable impacts. No additional mitigation measures to reduce the significant cumulative impacts to hazards and hazardous materials were identified. Therefore, the Final Program EIR concluded that cumulative impacts to hazards and hazardous materials for past, present, and reasonably foreseeable future projects would remain significant and unavoidable.

Analysis in the Final Program EIR for the 2016 AQMP

The Final Program EIR for 2016 AQMP concluded that implementation of the 2016 AQMP control measures would result in significant adverse hazards and hazardous materials impacts; however, for the specific subset of 2016 AQMP control measures upon which the PM2.5 Plan relies, the Final Program EIR

concluded less than significant adverse hazards and hazardous materials impacts. Other 2016 AQMP control measures would result in significant adverse hazards and hazardous materials impacts and, when combined with past, present, and reasonably foreseeable activities, and in particular with transportation projects projected in the 2016 RTP/SCS, would contribute to cumulatively considerable impacts to hazards and hazardous materials identified in the 2016 RTP/SCS, therefore resulting in a significant cumulative impact. No additional mitigation measures to reduce the significant cumulative impacts to hazards and hazardous materials were identified. Cumulative impacts to hazards and hazardous materials from implementation of the 2016 AQMP would remain significant and unavoidable.

Hydrology and Water Quality

This section summarizes the potentially significant hydrology and water quality impacts from implementing the proposed PM_{2.5} Plan control measures which rely on previously adopted control measures in the 2022 AQMP and 2016 AQMP. The hydrology and water quality impacts for the 2022 AQMP and 2016 AQMP control measures were previously analyzed in the Final Program EIRs for the 2022 AQMP and the 2016 AQMP.

Significance Criteria

Hydrology and water quality impacts are significant if any of the following conditions occur:

Water Demand

- The existing water supply does not have the capacity to meet the increased demands of the project, or the project would use more than 262,820 gallons per day of potable water.
- The project increases demand for total water by more than five million gallons per day.

Water Quality

- The project will cause degradation or depletion of ground water resources substantially affecting current or future uses.
- The project will cause the degradation of surface water substantially affecting current or future uses.
- The project will result in a violation of National Pollutant Discharge Elimination System (NPDES) permit requirements.
- The capacities of existing or proposed wastewater treatment facilities and the sanitary sewer system are not sufficient to meet the needs of the project.
- The project results in substantial increases in the area of impervious surfaces, such that interference with groundwater recharge efforts occurs.
- The project results in alterations to the course or flow of floodwaters.

Potential Impacts

The Final Program EIRs for the 2022 AQMP and the 2016 AQMP identified and evaluated the control measures that have the potential to hydrology and water quality impacts. Table VIII-8 lists the 2022 AQMP and 2016 AQMP control measures with potential adverse impacts to hydrology and water quality, control methodology, and potential impacts. The control measures are presented and organized in the same manner as in Table VIII-2.

TABLE VIII-8

AQMP CONTROL MEASURES WITH POTENTIAL HYDROLOGY AND WATER QUALITY IMPACTS

Control Measure Number	Control Methodology	Potential Hydrology and Water Quality Impact
L-CMB-06 in 2022 AQMP	Replacement of boilers with lower-emitting turbines, installation of zero emission and low NOx emissions technologies, and the application of stricter emission requirements for diesel internal combustion engines.	Potential hydrology and water quality impacts if new steam turbines are installed.
BCM-04 in 2016 AQMP	Acidifier application, manure removal, manure slurry injection, manure thermal gasification, and dietary manipulation/feed additives.	Potential increase in water use associated with the acidifier application process and slurry injections.
BCM-10 in 2016 AQMP	Controls such as anaerobic digestion and organic processing technology, and restrictions for direct applications of un-composted waste to public lands.	Potential increase in water use associated with waste treatment processes.
BCM-01 in 2016 AQMP	Installation of control equipment such as ESPs, filters, centrifugal separators, and misters.	Potential increases in water use to operate wet ESPs and misters.
BCM-03 in 2016 AQMP	Reduction of track out from stationary sources by specifying street sweeping methods and frequency.	Potential increase in water use associated with wheel washing systems for dust suppression.
BCM-07 in 2016 AQMP	Dry and wet dust control options to control PM including silica particles.	Potential increase in water use from applying wet methods to prevent dust.
MCS-02 in 2022 AQMP	Mechanical thinning and chipping and grinding activities during fuel reduction and removal efforts.	Potential hydrology impacts (increased water use) associated with composting activities.
MOB-05 in 2022 AQMP	Accelerating the retirement of up to 2,000 light- and medium-duty vehicles per year through the Replace Your Ride Program and accelerating the penetration of zero and near-zero emission vehicles.	Potential hydrology and water quality impacts (surface and ground water) from disposal of batteries and fluids, and accidental spills.
MOB-06 in 2022 AQMP	Retiring older, heavy-duty vehicles and replacing them with low NOx vehicles fueled with CNG or other alternative fuels (e.g., battery electric and hydrogen fuel cells).	Potential hydrology and water quality impacts (surface and ground water) from disposal of batteries and fluids, and accidental spills.

TABLE VIII-8 (concluded)

AQMP CONTROL MEASURES WITH POTENTIAL HYDROLOGY AND WATER QUALITY IMPACTS

Control Measure Number	Control Methodology	Potential Hydrology and Water Quality Impact
MOB-07 in 2022 AQMP	Incentivizing the early deployment of zero emission and low NOx emission heavy-duty trucks through the generation of mobile source emission credits.	Potential hydrology and water quality impacts (surface and ground water) from disposal of batteries and fluids, and accidental spills.
MOB-08 in 2022 AQMP	Promoting the accelerated turn-over of in-use small off-road engines and other engines, such as gasoline- and diesel-powered commercial lawn and garden equipment through expanded voluntary exchange programs will contribute to the retirement of older off-road engines.	Potential hydrology and water quality impacts (surface and ground water) from disposal of batteries and fluids, and accidental spills.

Analysis in the Final Program EIR for the 2022 AQMP

The Final Program EIR for the 2022 AQMP determined that the 2022 AQMP control measures listed in Table VIII-8 have potential hydrology and water quality impacts due to construction and operation of new steam turbines, composting activities, and disposal of batteries and fluids, and accidental spills.

Summary of Water Demand and Supply Impacts

Implementing the 2022 AQMP was expected to result in construction activities related to the installation of air pollution control equipment (e.g., low NOx burners, SCR systems, and gas scrubbers) and replacement of existing equipment with low NOx and zero emission equipment such as fuel cells and electrified equipment. Modifications to existing industrial and commercial facilities were expected to require minimal site preparation/excavation and grading activities as the facilities were already developed, graded and paved for safety reasons. Therefore, while water could be applied to soil as a dust suppressant during site preparation/excavation and grading, since none to minimal grading was expected, minimal water, if any, would be needed for dust suppression activities during construction. Further, there are other types of dust suppressants, such as soil stabilizers, that may be used in lieu of water as set forth in South Coast AQMD Rule 403 – Fugitive Dust. For the previously discussed reasons, the Final Program EIR for the 2022 AQMP concluded that impact to water demand relating to construction activities was less than significant.

Control measure L-CMB-06 of the 2022 AQMP sought further NOx emission reductions from electric generating units using near-zero and zero emission technologies through a regulatory approach under South Coast AQMD Rule 1135 - Emissions of Oxides of Nitrogen from Electricity Generating Facilities. Gas-fired boilers operating at electricity generating facilities can be repowered with lower NOx-emitting

turbines. Similarly, gas-fired turbines or diesel engines operating at electricity generating facilities can be transitioned to electrified units, units fueled by non-fossil energy sources (e.g., hydrogen-fueled turbines), fuel cells for power generation, or gas-fired units that meet CARB's Distributed Generation Certification Regulation standards. While none of these technologies would require the use of steam or additional water resources, fuel cells generate wastewater at a rate of 1.1 gallons of wastewater for every pound of hydrogen fuel used.

Control measure MCS-02 of the 2022 AQMP was designed to mitigate PM emissions and bolster fuel reduction efforts within the residential urban-wild-interface areas of the San Bernardino National Forest. This entails employing techniques like hand-thinning, mechanical thinning, and the utilization of chipping and grinding equipment to clear wood and green waste. The wood and green waste collected and processed through chipping and grinding can be repurposed as organic mulch, offering multifaceted benefits such as moisture retention, soil insulation, erosion control, and weed suppression. The most cost-effective strategy involves distributing the generated mulch at or near the collection site, minimizing the necessity for additional water. However, if the mulch is transported to offsite compost facilities, water may be required for proper decomposition and fire prevention. These composting facilities operate under the regulatory framework established by South Coast AQMD Rule 1133.1 – Chipping and Grinding Activities and Rule 1133.3 – Emission Reductions from Green waste Composting Operations. These rules mandate water irrigation to maintain adequate moisture levels in compost piles, ensuring compliance and fire prevention. Based on estimates, composting 20,000 tons of wood and green waste would necessitate approximately 4,870 gallons of water per day. It is important to note that this estimate is conservative, as some mulch is anticipated to be utilized on-site, reducing the quantity hauled to offsite facilities.

The Final Program EIR for 2022 AQMP concluded that for control measures where water demand could be estimated, the increase in daily water demand ranged from 338,137 to 438,137 gallons. This increased water demand does not exceed the South Coast AQMD's significance threshold of 5,000,000 gallons per day of total water (comprised of potable, recycled and groundwater) demand, but it exceeded the 262,820 gallons per day significance threshold for potable water. Due to the extreme drought conditions and uncertainty about future water supplies, even though each county has various projects for providing recycled water, most of the recycled water projects, except for those in Los Angeles and Orange Counties, are to provide recycled water for landscape purposes. Therefore, the Final Program EIR for the 2022 AQMP concluded that implementation of the control measures in the 2022 AQMP as a whole may have a significant impact on both water demand and water supplies. Mitigation measures HWQ-1 to HWQ-4 were crafted and adopted with the intent of minimizing significant water demand impacts. However, while generally the mitigation measures could help minimize some of the water demand and water supply impacts on an individual facility-basis, the availability of water supplies varies throughout the region. Thus, not all mitigation measures would be applied in all situations. For this reason, the mitigation measures were not expected to fully eliminate the significant water demand and water supply impacts. Therefore, the Final Program EIR concluded that the water demand and water supply impacts that may result from implementing the 2022 AQMP were expected to remain significant.

Summary of Water Quality Impacts

The Final Program EIR for the 2022 AQMP discussed the potential water quality impacts due to increased generation of wastewater from installation and operation of new fuel cells and steam turbines per control measure L-CMB-06, and increased production of and potential for accidental spills of alternative fuels, increased scrapping of vehicles, increased use of electric vehicles, and increased potential for accidental spills associated with handling and recycling electric vehicle batteries per control measures MOB-05, MOB-06, MOB-07, and MOB-08. In the absence of facility-specific information regarding the potential increased amounts of wastewater that could be generated in order to determine whether a revision to an Industrial Waste Discharge Permit and/or a NPDES permit would be needed and whether a relocation or construction of new or expanded wastewater or storm water treatment facility would be needed, out of an abundance of caution, the analysis in this Program EIR concluded that implementation of the 2022 AQMP had the potential for one or more facilities to increase the amount of wastewater to be discharged by 25 percent above the current discharge permit limit such that permit revision would be necessary. For the same reasons, the analysis in the Final Program EIR for the 2022 AQMP also concluded that implementation of the 2022 AQMP had the potential to require or result in the relocation or construction of new or expanded wastewater treatment or storm water drainage facilities. Thus, the 2022 AQMP would result in significant adverse wastewater impacts associated with the quantity of effluent to be treated and discharged and the potential lack of existing capacity in the existing wastewater and stormwater treatment systems to handle the potential increases. Mitigation measure HWQ-5 was crafted and adopted with the intent of minimizing the significant water quality impacts. However, the overall water quality impacts would remain significant after mitigation is applied.

Analysis in the Final Program EIR for the 2016 AQMP

The Final Program EIR for the 2022 AQMP determined that the 2016 AQMP control measures listed in Table VIII-8 have potential hydrology and water quality impacts due to water use in emissions control, from acidifier application and slurry injections to dust suppression.

Implementation of control measure BCM-01 of the 2016 AQMP may result in the use of add-on air pollution control equipment such as wet ESPs which require water to operate and would generate wastewater. The potential increase in the volume of wastewater estimated as a result of implementing all of the control measures in the 2016 AQMP identified as having potential wastewater impacts was estimated to be 2.1 million gallons per day, which represents about a 0.1 percent increase in wastewater generated within the Basin. Further, the increase in wastewater was well within the capacity of the existing wastewater treatment plants of about 1,911 million gallons. Therefore, the wastewater impacts pertaining to the existing capacity of wastewater treatment plants were expected to be less than significant.

Implementation of control measure BCM-04 of the 2016 AQMP would control ammonia emissions from livestock operations through the application of sodium bisulfate. While sodium bisulfate is considered an irritant because of its low pH, it is safe for use in water treatment. In particular, sodium bisulfate has been used as a disinfectant to prevent damage of the membrane used in reverse osmosis during water

treatment. Sodium bisulfate is certified for treating drinking water (e.g., for chlorine removal, corrosion and scale control, and pH adjustment) and is used to lower the pH of water for effective chlorination, including water in swimming pools. The Final Program EIR for the 2016 AQMP concluded that implementation of the 2016 AQMP control measures, including increased use of sodium bisulfate, would have less than significant impact on hydrology and water quality impacts.

Implementation of control measure BCM-01 of the 2016 AQMP may result in the use of add-on air pollution control equipment such as wet ESPs that could result in an increased water demand. Other control measures, such as control measures BCM-03 and BCM-07, encourage the use of wet methods to prevent dust release. The overall water demand from the 2016 AQMP was estimated to be between 8,834,094 and 8,868,594 gallons per day, exceeding the significance threshold of 262,820 gallons per day for potable water demand and five million gallons per day of total water demand. Therefore, the Final Program EIR for the 2016 AQMP concluded that water demand impacts were potentially significant and mitigation measures WQ-1 to WQ-4 were crafted and adopted with the intent of reducing the significant water demand impacts. However, the overall water impacts would remain significant after mitigation is applied.

Mitigation Measures

The Final Program EIRs for the 2022 AQMP and the 2016 AQMP developed targeted mitigation measures based on project-specific impacts related to hydrology and water quality which were adopted in the Mitigation, Monitoring, and Reporting Plan which can be found in Attachment 1 to the Governing Board Resolution for the Final Program EIR for the 2022 AQMP and in the in the Mitigation, Monitoring, and Reporting Plan which can be found in Attachment 2 to the Governing Board Resolution for the Final Program EIR for the 2016 AQMP, respectively, and are applicable to the proposed PM2.5 Plan control measures. The following mitigation measures for the 2022 AQMP and the 2016 AQMP, respectively are applicable to the implementation of PM2.5 Plan control measures:.

Hydrology and Water Quality Mitigation Measures in the Final Program EIR for the 2022 AQMP

- HWQ-1 Local water agencies should continue to evaluate future water demand and establish the necessary supply and infrastructure to meet that demand, as documented in their Urban Water Management Plans.
- HWQ-2 Project sponsors should coordinate with the local water provider to ensure that existing or planned water supply and water conveyance facilities are capable of meeting water demand/pressure requirements. In accordance with California law, a Water Supply Assessment should be required for projects that meet the size requirements specified in the regulations. In coordination with the local water provider, each project sponsor will identify specific on- and off-site improvements needed to ensure that impacts related to water supply and conveyance demand/pressure requirements are addressed prior to issuance of a certificate of occupancy. Water supply and conveyance demand/pressure clearance from the local water provider will be required at the time that a water connection permit application is submitted.

- HWQ-3 Project sponsors should implement water conservation measures and use recycled or reclaimed water for appropriate end uses.
- HWQ-4 Project sponsors should consult with the local water provider to identify feasible and reasonable measures to reduce water consumption.
- HWQ-5 For any project that would increase the generation of wastewater, the facility must review diversion options for reusing the treated wastewater on-site, in lieu of discharge, where applicable and feasible.

Hydrology and Water Quality Mitigation Measures in the Final Program EIR for the 2016 AQMP

- WQ-1 Local water agencies should continue to evaluate future water demand and establish the necessary supply and infrastructure to meet that demand, as documented in their Urban Water Management Plans.
- WQ-2 Project sponsors should coordinate with the local water provider to ensure that existing or planned water supply and water conveyance facilities are capable of meeting water demand/pressure requirements. In accordance with State Law, a Water Supply Assessment should be required for projects that meet the size requirements specified in the regulations. In coordination with the local water provider, each project sponsor will identify specific on- and off-site improvements needed to ensure that impacts related to water supply and conveyance demand/pressure requirements are addressed prior to issuance of a certificate of occupancy. Water supply and conveyance demand/pressure clearance from the local water provider will be required at the time that a water connection permit application is submitted.
- WQ-3 Project sponsors should implement water conservation measures and prioritize the use recycled water over potable or groundwater whenever available and appropriate for end uses.
- WQ-4 Project sponsors should consult with the local water provider to identify feasible and reasonable measures to reduce water consumptions.

Cumulative Impacts

Analysis in the Final Program EIR for the 2022 AQMP

The Final Program EIR for the 2022 AQMP concluded that implementation of the 2022 AQMP could result in significant adverse water demand, water supply, and water quality impacts. While industrial facilities that may be impacted by the 2022 AQMP have industrial waste discharge permits and NPDES that may require modification, these permits include requirements for treatment, monitoring, and sampling, prior to discharge, to prevent significant water quality impacts. However, if any facility's existing wastewater treatment capacity is not sufficient such that physical modifications would need to be made, then based on the significance criteria, potentially significant water quality impacts would be expected. Therefore, while actions required to implement the 2022 AQMP were expected to result in additional pollutant

loading over what is currently discharged because of permit limits, physical modifications to wastewater treatment and stormwater collection systems may be needed and therefore, would be expected to contribute to cumulative water quality impacts. When combined with the Connect SoCal Plan, the SIP strategies, state policies, and other past, present, and reasonably foreseeable activities, the 2022 AQMP would result in significant adverse water demand, water supply, and water quality impacts, and would contribute to cumulatively considerable impacts. No additional mitigation measures to reduce the significant cumulative impacts to water demand, water supply, and water quality were identified. Cumulative impacts to water demand, water supply, and water quality demand for past, present, and reasonably foreseeable future projects would remain significant and unavoidable.

Analysis in the Final Program EIR for the 2016 AQMP

The Final Program EIR for 2016 AQMP concluded that implementation of the 2016 AQMP control measures would result in significant adverse water demand impacts because the overall water demand would exceed the significance threshold of 262,820 gallons per day for potable water demand and five million gallons per day of total water demand. The 2016 AQMP control measures would result in significant adverse water demand impacts and, when combined with past, present, and reasonably foreseeable activities, and in particular with transportation projects projected in the 2016 RTP/SCS, would contribute to cumulatively considerable impacts to water demand identified in the 2016 RTP/SCS, therefore resulting in a significant cumulative impact. No additional mitigation measures to reduce the significant cumulative impacts to hydrology and water quality were identified. Cumulative impacts to hydrology and water quality from implementation of the 2016 AQMP would remain significant and unavoidable.

Noise

This section summarizes the potentially significant noise impacts from implementing the proposed PM2.5 Plan control measures which rely on previously adopted control measures in the 2022 AQMP and 2016 AQMP. The noise impacts for the 2022 AQMP and 2016 AQMP control measures were previously analyzed in the Final Program EIRs for the 2022 AQMP and the 2016 AQMP.

Significance Criteria

Noise impacts are significant if any of the following conditions occur:

- Construction noise levels exceed the local noise ordinances or, if the noise threshold is currently exceeded, project noise sources increase ambient noise levels by more than three decibels (dBA) at the site boundary. Construction noise levels will be considered significant if they exceed federal Occupational Safety and Health Administration (OSHA) noise standards for workers.
- The proposed project operational noise levels exceed any of the local noise ordinances at the site boundary or, if the noise threshold is currently exceeded, project noise sources increase ambient noise levels by more than three dBA at the site boundary.

Potential Impacts

The Final Program EIRs for the 2022 AQMP and the 2016 AQMP identified and evaluated the control measures that have the potential to generate noise impacts. Table VIII-9 lists the 2022 AQMP and 2016 AQMP control measures with potential adverse impacts to noise, control methodology, and potential impacts. The control measures are presented and organized in the same manner as in Table VIII-2.

TABLE VIII-9
AQMP CONTROL MEASURES WITH POTENTIAL NOISE IMPACTS

Control Measure Number	Control Methodology	Potential Noise Impact
R-CMB-01 in 2022 AQMP	Installation of zero emission water heaters and low NOx technologies (when zero emission is infeasible) in new and existing residences.	Removing older water heaters and installing zero emission water heaters and low NOx technologies (when zero emission is infeasible) in new and existing residences.
R-CMB-02 in 2022 AQMP	Installation of zero emission space heaters and low NOx technologies (when zero emission is infeasible) in new and existing residences.	Removing older residential space heaters and installing zero emission space heaters and low NOx technologies (when zero emission is infeasible) in new and existing residences.
R-CMB-03 in 2022 AQMP	Installation of electric cooking devices, induction cooktops, or low NOx burners in new and existing residences.	Removing older residential cooking devices and installing electric cooking devices, or induction cooktops, in new and existing residences.
R-CMB-04 in 2022 AQMP	Installation of zero emission or low NOx technologies in new and existing residences to replace equipment such as pool heaters, dryers, grills, etc.	Removing older pool heaters, dryers, grills etc. and installing zero emission or low NOx technologies in new and existing residences
L-CMB-04 in 2022 AQMP	Installation of zero emission and low NOx technology alternatives to emergency ICEs, and requiring the use of renewable diesel for emergency standby ICEs.	Removing older, emergency standby engines and installing zero emission and low NOx technology alternatives to emergency standby engines.
L-CMB-06 in 2022 AQMP	Replacement of boilers with lower-emitting turbines, installation of zero emission and low NOx emissions technologies, and the application of stricter emission requirements for diesel internal combustion engines.	Removing or decommissioning older boilers and installing lower-emitting turbines, or zero emission and low NOx emissions technologies
L-CMB-09 in 2022 AQMP	Installation of low NOx and ultra-low NOx burners for incinerators and other associated equipment.	Installing low NOx and ultra-low NOx burners for incinerators and other associated equipment.

TABLE VIII-9 (continued)
AQMP CONTROL MEASURES WITH POTENTIAL NOISE IMPACTS

Control Measure Number	Control Methodology	Potential Noise Impact
ECC-03 in 2022 AQMP	Incentivization of additional reductions in energy use associated with space heating, water heating, and other large residential energy sources through facilitating weatherization, replacing older appliances with highly efficient technologies and encouraging renewable energy adoption such as solar thermal and photovoltaics.	Removing older appliances and installing highly efficient technologies such as solar thermal heating and photovoltaic panels.
BCM-05 in 2016 AQMP	Installation and use of advanced catalyst technology for the conversion of ammonia	Potential temporary changes in noise volume due to construction activities needed for installation of equipment.
BCM-03 in 2016 AQMP	Reduction of track out from stationary sources by specifying street sweeping methods and frequency.	Increased street sweeping frequencies have the potential to increase noise frequency/volume.
BCM-06 in 2016 AQMP	Construction of exhaust ventilation to a fabric filter for permanent in building abrasive blasting activities and the use of additional portable equipment like negative air machines, fume extractors, and dust collectors with HEPA filters.	Potential temporary changes in noise volume due to construction activities needed for installation of equipment.
BCM-07 in 2016 AQMP	Installation of engineering controls, such as exhaust ventilation with dust collectors, the use of wet methods like wet-wiping or wet sweeping and vacuuming with a HEPA filter.	Potential temporary changes in noise volume due to construction activities needed for installation of equipment.
MCS-02 in 2022 AQMP	Mechanical thinning and chipping and grinding activities during fuel reduction and removal efforts.	Conducting mechanical thinning and chipping and grinding activities during fuel reduction and removal efforts.
MSC-01 in 2022 AQMP	Retrofitting existing equipment and installation of newer, lower-emitting equipment to replace older, higher-emitting equipment for sources as a result of new emission limits introduced through federal, state, or local regulations.	Retrofitting existing equipment and removing older, higher-emitting equipment and installing newer, lower-emitting equipment to for sources.

TABLE VIII-9 (continued)
AQMP CONTROL MEASURES WITH POTENTIAL NOISE IMPACTS

Control Measure Number	Control Methodology	Potential Noise Impact
EGM-01 in 2022 AQMP	Replacing or upgrading off-road construction equipment as part of development/redevelopment efforts may result in the use of zero emission technologies in construction, the installation of electrical and alternative fuel infrastructure, the use of alternative fuels; and the use construction equipment with low-emitting engines fitted with diesel particulate filters (DPFs).	Installing charging and alternative fueling infrastructure for the storage and dispensing of alternative fuels for use in replaced or upgraded offroad construction equipment.
EGM-03 in 2022 AQMP	Incentivizing the use of zero emission and low NOx equipment by adopting a voluntary measure for municipalities and public agencies to reduce emissions generated by construction activities may include use of zero emission and low NOx construction equipment, dust control, alternative fuels, DPF, low-emitting engines, and low VOC materials.	Installing charging and alternative fueling infrastructure for the storage and dispensing of alternative fuels for use in replaced or upgraded offroad construction equipment.
MOB-01 in 2022 AQMP	Infrastructure development required to achieve emission reductions at commercial marine ports from on-road heavy-duty vehicles, ocean-going vessels, cargo handling equipment, locomotives, and harbor craft.	Installing charging and alternative fueling infrastructure for the storage and dispensing of alternative fuels for use in on-road heavy-duty vehicles, ocean-going vessels, cargo handling equipment, locomotives, and harbor craft operating at commercial marine ports.
MOB-02A in 2022 AQMP	Infrastructure development required to achieve emission reductions at new rail yards and intermodal facilities from on-road heavy-duty vehicles, off-road equipment, and locomotives; and deploying the cleanest locomotives, switchers, on-road heavy-duty trucks, cargo-handling equipment, transportation refrigeration units available.	installing charging and alternative fueling infrastructure for the storage and dispensing of alternative fuels for use in on-road heavy-duty vehicles, off-road equipment, and locomotives. operating at new rail yards and intermodal facilities; and deploying the cleanest locomotives, switchers, on-road heavy-duty trucks, cargo-handling equipment, transportation refrigeration units available.

TABLE VIII-9 (continued)
AQMP CONTROL MEASURES WITH POTENTIAL NOISE IMPACTS

Control Measure Number	Control Methodology	Potential Noise Impact
MOB-02B in 2022 AQMP	Infrastructure development required to achieve emission reductions at existing rail yards and intermodal facilities from on-road heavy-duty vehicles, off-road equipment, and locomotives; and deploying the cleanest locomotives, switchers, on-road heavy-duty trucks, cargo-handling equipment, transportation refrigeration units available.	installing charging and alternative fueling infrastructure for the storage and dispensing of alternative fuels for use in on-road heavy-duty vehicles, off-road equipment, and locomotives. operating at new rail yards and intermodal facilities; and deploying the cleanest locomotives, switchers, on-road heavy-duty trucks, cargo-handling equipment, transportation refrigeration units available.
MOB-04 in 2022 AQMP	Deploying additional cleaner technologies, such as increasing efficiencies, implementing air quality improvement options or by deploying zero emission and low NOx technologies, alternative fuels, DPFs, and low-emitting engines for additional equipment beyond the commitments made in the existing Memoranda of Understanding with the commercial airports.	Installing charging and alternative fueling infrastructure for the storage and dispensing of alternative fuels for use in on-road heavy-duty vehicles, off-road equipment at commercial airports.
MOB-05 in 2022 AQMP	Accelerating the retirement of up to 2,000 light- and medium-duty vehicles per year through the Replace Your Ride Program and accelerating the penetration of zero and near-zero emission vehicles.	Retiring and scrapping up to 2,000 light- and medium-duty vehicles per year; and installing charging and alternative fueling infrastructure for the storage and dispensing of alternative fuels for use in zero and near-zero emission vehicles.
MOB-06 in 2022 AQMP	Retiring older, heavy-duty vehicles and replacing them with low NOx vehicles fueled with CNG or other alternative fuels (e.g., battery electric and hydrogen fuel cells).	Retiring and scrapping older, heavy-duty vehicles and installing charging and alternative fueling infrastructure for the storage and dispensing of alternative fuels for use in low NOx vehicles fueled with CNG or other alternative fuels (e.g., battery electric and hydrogen fuel cells).
MOB-07 in 2022 AQMP	Incentivizing the early deployment of zero emission and low NOx emission heavy-duty trucks through the generation of mobile source emission credits.	Retiring and scrapping older, heavy-duty vehicles and installing charging and alternative fueling infrastructure for the storage and dispensing of alternative fuels for use in low NOx vehicles fueled with CNG or other alternative fuels (e.g., battery electric and hydrogen fuel cells).

TABLE VIII-9 (concluded)
AQMP CONTROL MEASURES WITH POTENTIAL NOISE IMPACTS

Control Measure Number	Control Methodology	Potential Noise Impact
MOB-09 in 2022 AQMP	Promoting earlier and cleaner replacement or upgrade of existing passenger locomotives capable of achieving Tier 4 emission standards and supporting the development of zero emission or low NOx technologies (e.g., battery electric and hydrogen fuel cells).	Retiring and scrapping or retrofitting existing passenger locomotives so that they are capable of achieving Tier 4 emission standards; and installing charging and alternative fueling infrastructure for the storage and dispensing of alternative fuels for use zero emission or low NOx technologies (e.g., battery electric and hydrogen fuel cells).
MOB-10 in 2022 AQMP	Accelerating the deployment of zero (e.g., battery-electric or fuel cell powered equipment) and low NOx emission off-road mobile equipment (e.g., 90 percent cleaner than Tier 5) that do not receive public funding.	Retiring and scrapping off-road mobile equipment and installing charging and alternative fueling infrastructure for the storage and dispensing of alternative fuels for use in zero (e.g. battery-electric or fuel cell powered equipment) and low NOx emission off-road mobile equipment (e.g., 90 percent cleaner than Tier 5).

Analysis in the Final Program EIR for the 2022 AQMP

The Final Program EIR for the 2022 AQMP determined that the 2022 AQMP control measures list in Table VIII-9 have potential noise impacts due to construction and conducting mechanical thinning and chipping and grinding activities during fuel reduction and removal efforts.

Implementing the 2022 AQMP was expected to require construction activities that include: 1) installation of new equipment or devices; 2) removal of older equipment or devices; 3) modification or retrofit of existing equipment and facilities; and 4) modification of existing roadways to install new equipment and roadway infrastructure. The potential noise impact of construction activities would vary depending on the existing noise levels in the environment and the location of sensitive receptors (e.g., residences, hotels, hospitals, etc.) with respect to construction activities. Because no specific projects were proposed, the noise impacts were speculative. Potential modifications would occur at facilities typically located in appropriately zoned industrial or commercial areas, so construction noise impacts at stationary sources on sensitive receptors were expected to be less than significant. In addition, some of the control measures could result in minor construction activities that could create some minimal noise associated with replacing appliances such as water heaters, space heaters, cooking equipment, and pool heaters located in residential settings. Sources of noise for appliance replacement activities would be relatively brief and comprised of trucks delivering new appliances and hauling away old appliances, electronic hand trucks to maneuver the appliances to/from the truck to the residential location, and hand-tools to disconnect the old appliance and connect new appliance to the necessary electronic and plumbing components, as applicable. For these reasons, the Final Program EIR concluded that the construction noise impacts at residences would be less than significant.

The construction of roadway infrastructure would result in additional construction noise sources near transportation corridors, and it is not uncommon for residences and other sensitive receptors to be located within several hundred feet of the existing roadways, so noise levels associated with construction activities could increase three dBA or greater and generate potentially significant noise impacts, although temporary. Vibration from construction activities could exceed the 72 vibration decibels (VdB) threshold for structures and sensitive receptors within 200 feet of construction activities if certain types of construction equipment were used and so was considered potentially significant. Therefore, the Final Program EIR for the 2022 AQMP concluded that noise and vibration impacts during construction activities were potentially significant and mitigation measures NS-1 to NS-14 were crafted and adopted with the intent of minimizing these significant noise and vibration impacts. However, the overall noise and vibration impacts during construction activities would remain significant after mitigation is applied.

Control measure MCS-02 of the 2022 AQMP was designed as a preventative measure to thin out forestland by chipping and grinding greenwaste and wood waste to reduce the amount of fuel available for wildfires. Once the chipping and grinding work is completed for the season, no new sources of permanent operational noise are expected. Thinning and chipping activities typically require the use of chainsaws, dozers, and chippers/grinders. The noise levels for this type of equipment ranging from 85 to 110 dBA (forestryequipmentguide.com, 2019). The thinning and chipping activities should not require blasting, pile driving, and heavy earthmoving, therefore should not generate significant vibrations. Further, the areas that are most likely to require additional thinning and chipping are in San Bernardino Urban Wildland Interface where there are few sensitive receptors. For areas in forestlands where sensitive receptors are present, the areas surrounding existing structures are already required to be periodically cleared of woodwaste and greenwaste in order to maintain a defensible space around any structures. Therefore, the Final Program EIR for the 2016 AQMP concluded that operational noise impacts due to chipping and grinding greenwaste and wood waste were less than significant.

Analysis in the Final Program EIR for the 2016 AQMP

The Final Program EIR for the 2016 AQMP determined that the 2016 AQMP control measures in Table VIII-9 would create potential noise impacts due to construction and the increased occurrence of street sweeping activities.

Potential noise impacts associated with control measures BCM-05, BCM-06, and BCM-07 of the 2016 AQMP relate primarily to construction activities which could include the construction related to the installation of air pollution control equipment (e.g., enclosures and filtration systems). Because no specific projects were proposed, the noise impacts were speculative. Nonetheless, construction activities associated with control measures in the 2016 AQMP could occur throughout the Basin. The 2016 AQMP may require existing commercial or industrial owners/operators of affected facilities to install air pollution control equipment or modify their existing operations to reduce stationary source emissions. Potential modifications would occur at facilities typically located in appropriately zoned industrial or commercial areas. Installing air pollution control equipment could generate noise impacts, but virtually all of the

control equipment would be installed within industrial and commercial facilities, so that construction noise impacts at stationary sources on sensitive receptors were expected to be less than significant.

Street sweepers generally travel at slow speeds; so as to minimize traffic impacts, they are often used in the early morning or after peak hour traffic. The nominal operating speed for a street sweeper is about five miles per hour to ensure a thorough pickup of debris. In residential areas, street sweepers would likely be used during normal work hours as residential streets generally have less parking during these hours so the use of street sweepers on residential areas is generally conducted during the daytime. Street sweeping in commercial and industrial areas is generally conducted during off-peak hours to avoid traffic conflicts. Control measure BCM-03 of the 2016 AQMP was not expected to require new street sweeping in areas where there was no current street sweeping program in place. Instead, in areas that street sweeping was already conducted, the frequency when roads are swept may increase. The roads that were most likely to require additional sweeping are those located in industrial and commercial areas where sensitive receptors were typically not located. Therefore, because additional street sweeping was not expected to be required in residential or other noise-sensitive areas, additional street sweeping activities that may be required under control measure BCM-03 were not expected to result in significant noise impacts.

Mitigation Measures

The Final Program EIRs for the 2022 AQMP and the 2016 AQMP developed targeted mitigation measures based on project-specific impacts related to noise which were adopted in the Mitigation, Monitoring, and Reporting Plan which can be found in Attachment 1 to the Governing Board Resolution for the Final Program EIR for the 2022 AQMP and in the Mitigation, Monitoring, and Reporting Plan which can be found in Attachment 2 to the Governing Board Resolution for the Final Program EIR for the 2016 AQMP, respectively, and are applicable to the proposed PM2.5 Plan control measures. The following mitigation measures for the 2022 AQMP and the 2016 AQMP, respectively are applicable to the PM2.5 Plan control measures.

Noise Mitigation Measures in the Final Program EIR for the 2022 AQMP

- NS-1 Install temporary noise barriers to protect sensitive receptors from excessive noise levels during construction.
- NS-2 Schedule construction activities consistent within the allowable hours pursuant to the applicable general plan noise element or noise ordinance. For construction activities located near sensitive receptors, ensure noise-generating construction activities (including truck deliveries, pile driving, and blasting) are limited to the least noise-sensitive times of day (e.g., weekdays during the daytime hours). Where construction activities are authorized to occur outside of the limits established by the noise element of the general plan or noise ordinance, notify affected sensitive receptors and all parties who will experience noise levels in excess of the allowable limits for the specified land use, of the anticipated level of exceedance and duration of exceedance; and provide a list of protective measures that can

- be undertaken by the individual, including temporary relocation or use of hearing protective devices.
- NS-3 Prohibit idling of construction equipment for extended periods of time in the vicinity of sensitive receptors.
- NS-4 Post procedures and phone numbers at the construction site for notifying the Lead Agency staff, local Police Department, and construction contractor (during regular construction hours and off-hours), along with permitted construction days and hours, complaint procedures, and who to notify in the event of a problem.
- NS-5 Notify neighbors and occupants within 300 feet of the project construction area at least 30 days in advance of anticipated times when noise levels are expected to exceed limits established in the noise element of the general plan or noise ordinance.
- NS-6 Hold a preconstruction meeting with job inspectors and the general contractor/onsite project manager to confirm that noise measures and practices (including construction hours, neighborhood notification, posted signs, etc.) are completed.
- NS-7 Designate an on-site construction complaint and enforcement manager for the project.
- NS-8 Ensure that construction equipment is properly maintained per manufacturers' specifications and fitted with the best available noise suppression devices (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds silencers, wraps). All intake and exhaust ports on power equipment shall be muffled or shielded.
- NS-9 Use hydraulically or electrically powered tools (e.g., jack hammers, pavement breakers, and rock drills) for project construction to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust should be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves should be used, if such jackets are commercially available, and this could achieve a further reduction of 5 dBA. Quieter procedures should be used, such as drills rather than impact equipment, whenever such procedures are available and consistent with construction procedures.
- NS-10 Locate fixed/stationary equipment (such as generators, compressors, rock crushers, and cement mixers) as far as possible from noise-sensitive receptors.
- NS-11 Consider using flashing lights instead of audible back-up alarms on mobile equipment.
- NS-12 For construction activities that require pile driving or other techniques that result in excessive noise or vibration, such as blasting, develop site-specific noise/vibration attenuation measures under the supervision of a qualified acoustical consultant.
- NS-13 For construction activities at locations that require pile driving due to geological conditions, utilize quiet pile driving techniques such as predrilling the piles to the maximum feasible depth, where feasible. Predrilling pile holes will reduce the number of blows required to

completely seat the pile and will concentrate the pile driving activity closer to the ground where pile driving noise can be shielded more effectively by a noise barrier/curtain.

- NS-14 Monitor the effectiveness of noise reduction measures by taking noise measurements and installing adaptive mitigation measures to achieve the standards for ambient noise levels established by the noise element of the general plan or noise ordinance.

Cumulative Impacts

Analysis in the Final Program EIR for the 2022 AQMP

The Final Program EIR for the 2022 AQMP concluded that implementation of the 2022 AQMP could result in significant adverse noise and vibration impacts during construction because vibration from construction activities could exceed the 72 vibration decibels (VdB) threshold for structures and sensitive receptors within 200 feet of construction activities if certain types of construction equipment were used. When combined with the Connect SoCal Plan, the SIP strategies, state policies, and other past, present, and reasonably foreseeable activities, the 2022 AQMP would result in a significant increase to noise and vibration impacts during construction, and would contribute to cumulatively considerable impacts. No additional mitigation measures to reduce the significant cumulative impacts to noise and vibration during construction have been identified. Cumulative impacts to noise and vibration during construction for past, present, and reasonably foreseeable future projects would remain significant and unavoidable for noise and vibration.

Analysis in the Final Program EIR for the 2016 AQMP

The Final Program EIR for 2016 AQMP concluded that implementation of the 2016 AQMP control measures would result in significant adverse noise and vibration impacts; however, the specific 2016 AQMP control measures upon which the PM2.5 Plan relies would not cause significant adverse noise and vibration impacts. The Final Program EIR concluded that there are other 2016 AQMP control measures which would result in significant adverse noise and vibration impacts, however, and, when combined with past, present, and reasonably foreseeable activities, and in particular with transportation projects projected in the 2016 RTP/SCS, would contribute to cumulatively considerable impacts to noise and vibration impacts identified in the 2016 RTP/SCS, therefore resulting in a significant cumulative impact. No additional mitigation measures to reduce the significant cumulative impacts to noise were identified. Cumulative impacts to noise from implementation of the 2016 AQMP would remain significant and unavoidable.

Solid and Hazardous Waste

This section summarizes the potentially significant solid and hazardous waste impacts from implementing the proposed PM2.5 Plan control measures which rely on previously adopted control measures in the 2022 AQMP and 2016 AQMP. The solid and hazardous waste impacts for the 2022 AQMP and 2016 AQMP control measures were previously analyzed in the Final Program EIRs for the 2022 AQMP and the 2016 AQMP.

Significance Criteria

Solid and hazardous waste impacts are significant if the generation and disposal of hazardous and non-hazardous waste exceeds the capacity of designated landfills.

Potential Impacts

The Final Program EIRs for the 2022 AQMP and the 2016 AQMP identified and evaluated the control measures that have the potential to generate solid and hazardous waste impacts. Table VIII-10 lists the 2022 AQMP and 2016 AQMP control measures with potential adverse impacts to solid and hazardous waste, control methodology, and potential impacts. The control measures are presented and organized in the same manner as in Table VIII-2.

TABLE VIII-10
AQMP CONTROL MEASURES WITH POTENTIAL SOLID AND HAZARDOUS WASTE IMPACTS

Control Measure Number	Control Methodology	Potential Solid and Hazardous Waste Impact
R-CMB-01 in 2022 AQMP	Installation of zero emission water heaters and low NOx technologies (when zero emission is infeasible) in new and existing residences.	Generation of waste from construction activities and disposal of old equipment.
R-CMB-02 in 2022 AQMP	Installation of zero emission space heaters and low NOx technologies (when zero emission is infeasible) in new and existing residences.	Generation of waste from construction activities and disposal of old equipment.
R-CMB-03 in 2022 AQMP	Installation of electric cooking devices, induction cooktops, or low-NOx burners in new and existing residences.	Generation of waste from construction activities and disposal of old equipment.
R-CMB-04 in 2022 AQMP	Installation of zero emission or low NOx technologies in new and existing residences to replace equipment such as pool heaters, dryers, grills, etc.	Generation of waste from construction activities and disposal of old equipment.
L-CMB-04 in 2022 AQMP	Installation of zero emission and low NOx technology alternatives to emergency ICEs.	Generation of waste from construction activities and disposal of old equipment.
L-CMB-06 in 2022 AQMP	Replacement of boilers with lower-emitting turbines, installation of zero emission and low NOx emissions technologies, and the application of stricter emission requirements for diesel internal combustion engines.	Generation of waste from construction activities, installation and operation of new catalyst technologies, and disposal of any replaced machinery.

TABLE VIII-10 (continued)

AQMP CONTROL MEASURES WITH POTENTIAL SOLID AND HAZARDOUS WASTE IMPACTS

Control Measure Number	Control Methodology	Potential Solid and Hazardous Waste Impact
L-CMB-09 in 2022 AQMP	Installation of low NO _x and ultra-low NO _x burners for incinerators and other associated equipment.	Generation of waste from construction activities and disposal of old equipment.
ECC-03 in 2022 AQMP	Incentivization of additional reductions in energy use associated with space heating, water heating, and other large residential energy sources through facilitating weatherization, replacing older appliances with highly efficient technologies and encouraging renewable energy adoption such as solar thermal and photovoltaics.	Generation of waste from construction activities and disposal of old equipment.
BCM-04 in 2016 AQMP	Acidifier application, manure removal, manure slurry injection, manure thermal gasification, and dietary manipulation/feed additives.	Generation of additional waste matter from use of acidifiers and removal of manure.
BCM-05 in 2016 AQMP	Installation and use of advanced catalyst technology for the conversion of ammonia.	Generation of waste from installing and maintaining new catalyst technologies and disposal of any replaced machinery.
BCM-10 in 2016 AQMP	Controls such as anaerobic digestion and organic processing technology, and restrictions for direct applications of un-composted waste to public lands.	Generation of additional waste due to restrictions on application of uncomposted greenwaste.
BCM-01 in 2016 AQMP	Installation of control equipment such as ESPs, filters, centrifugal separators, and misters.	Generation of solid waste from disposal of old equipment.
BCM-02 in 2016 AQMP	Phased-in use of drift eliminators with 0.001 percent drift rate for existing cooling towers.	Generation of solid waste from disposal of old equipment.
BCM-03 in 2016 AQMP	Reduction of track out from stationary sources by specifying street sweeping methods and frequency.	Generation of waste from additional street sweeping activities.
BCM-06 in 2016 AQMP	Exhaust ventilation to a fabric filter for permanent in-building abrasive blasting activities, and use of additional portable control equipment, such as negative air machines, portable fume extractors and portable dust collectors with HEPA filters.	Generation of waste from portable control equipment such as dust collectors.
BCM-07 in 2016 AQMP	Dry and wet dust control options to control PM including silica particles.	Generation of waste from dust collection measures.

TABLE VIII-10 (continued)**AQMP CONTROL MEASURES WITH POTENTIAL SOLID AND HAZARDOUS WASTE IMPACTS**

Control Measure Number	Control Methodology	Potential Solid and Hazardous Waste Impact
MCS-02 in 2022 AQMP	Mechanical thinning and chipping and grinding activities during fuel reduction and removal efforts.	Generation of additional mulch from chipping and grinding wood and greenwaste due to wildfire prevention.
BCM-09 in 2016 AQMP	Construction/upgrading of wood burning hearths to cleaner hearth as well as an increase in the stringency of the curtailment program and education.	Generation of waste from disposal of old hearths and additional limitations on wood burning.
MCS-01 in 2022 AQMP	Retrofitting existing equipment and installation of newer, lower-emitting equipment to replace older, higher-emitting equipment for sources as a result of new emission limits introduced through federal, state, or local regulations.	Generation of waste from construction activities, installation and operation of new catalyst technologies, and disposal of any replaced machinery.
EGM-01 in 2022 AQMP	Replacing or upgrading off-road construction equipment as part of development/redevelopment efforts may result in the use of zero emission technologies in construction, the installation of electrical and alternative fuel infrastructure, the use of alternative fuels; and the use construction equipment with low-emitting engines fitted with diesel particulate filters (DPFs).	Generation of solid waste from disposal of old equipment and DPFs.
EGM-03 in 2022 AQMP	Incentivizing the use of zero emission and low NOx equipment by adopting a voluntary measure for municipalities and public agencies to reduce emissions generated by construction activities may include use of zero emission and low NOx construction equipment, dust control, alternative fuels, DPF, low-emitting engines, and low VOC materials.	Generation of solid waste from disposal of old equipment and DPFs.
MOB-01 in 2022 AQMP	Infrastructure development required to achieve emission reductions at commercial marine ports from on-road heavy-duty vehicles, ocean-going vessels, cargo handling equipment, locomotives, and harbor craft.	Generation of waste from construction activities and disposal of old equipment and DPFs.

TABLE VIII-10 (continued)

AQMP CONTROL MEASURES WITH POTENTIAL SOLID AND HAZARDOUS WASTE IMPACTS

Control Measure Number	Control Methodology	Potential Solid and Hazardous Waste Impact
MOB-2A in 2022 AQMP	Infrastructure development required to achieve emission reductions at new rail yards and intermodal facilities from on-road heavy-duty vehicles, off-road equipment, and locomotives; and deploying the cleanest locomotives, switchers, on-road heavy-duty trucks, cargo-handling equipment, transportation refrigeration units available.	Generation of waste from construction activities and disposal of old equipment and DPFs.
MOB-2B in 2022 AQMP	Infrastructure development required to achieve emission reductions at existing rail yards and intermodal facilities from on-road heavy-duty vehicles, off-road equipment, and locomotives; and deploying the cleanest locomotives, switchers, on-road heavy-duty trucks, cargo-handling equipment, transportation refrigeration units available.	Generation of waste from construction activities and disposal of old equipment and DPFs.
MOB-04 in 2022 AQMP	Deploying additional cleaner technologies, such as increasing efficiencies, implementing air quality improvement options or by deploying zero emission and low NOx technologies, alternative fuels, DPFs, and low-emitting engines for additional equipment beyond the commitments made in the existing Memoranda of Understanding with the commercial airports.	Generation of waste from construction activities and disposal of old equipment and DPFs.
MOB-05 in 2022 AQMP	Accelerating the retirement of up to 2,000 light- and medium-duty vehicles per year through the Replace Your Ride Program and accelerating the penetration of zero and near-zero emission vehicles.	Generation of waste disposal of batteries and vehicle scrapping.
MOB-06 in 2022 AQMP	Retiring older, heavy-duty vehicles and replacing them with low NOx vehicles fueled with CNG or other alternative fuels (e.g., battery electric and hydrogen fuel cells).	Generation of waste disposal of batteries and vehicle scrapping.

TABLE VIII-10 (concluded)
AQMP CONTROL MEASURES WITH POTENTIAL SOLID AND HAZARDOUS WASTE IMPACTS

Control Measure Number	Control Methodology	Potential Solid and Hazardous Waste Impact
MOB-07 in 2022 AQMP	Incentivizing the early deployment of zero emission and low NOx emission heavy-duty trucks through the generation of mobile source emission credits.	Generation of waste disposal of batteries and vehicle scrapping.
MOB-08 in 2022 AQMP	Promoting the accelerated turn-over of in-use small off-road engines and other engines, such as gasoline- and diesel-powered commercial lawn and garden equipment through expanded voluntary exchange programs will contribute to the retirement of older off-road engines.	Generation of waste disposal of batteries and vehicle scrapping.
MOB-09 in 2022 AQMP	Promoting earlier and cleaner replacement or upgrade of existing passenger locomotives capable of achieving Tier 4 emission standards and supporting the development of zero emission or low NOx technologies (e.g., battery electric and hydrogen fuel cells).	Generation of waste disposal of batteries and vehicle scrapping.
MOB-10 in 2022 AQMP	Accelerating the deployment of zero (e.g., battery-electric or fuel cell powered equipment) and low NOx emission off-road mobile equipment (e.g., 90 percent cleaner than Tier 5) that do not receive public funding.	Generation of waste disposal of batteries and vehicle scrapping.

Analysis in the Final Program EIR for the 2022 AQMP

The Final Program EIR for the 2022 AQMP determined that the 2022 AQMP control measures listed in Table VIII-10 have potential solid and hazardous waste impacts due to the: 1) generation of waste from construction activities (including disposal of old equipment); 2) generation of waste from operational activities such as disposal of spent batteries and DPFs, and the installation and operation of new catalyst technologies; and 3) generation of mulch from chipping and grinding wood, and greenwaste.

Summary of Construction Solid and Hazardous Waste Impacts

In general, construction activities associated with installing air pollution control equipment and new industrial equipment (especially large equipment) could generate solid waste due to demolition and site preparation, grading, and excavating. Specifically, demolition activities could generate demolition waste while site preparation, grading, and excavating could uncover contaminated soils since the facilities

affected by the proposed project that would require additional air pollution control equipment are located in existing industrial or commercial areas. Excavated soil, if found to be contaminated, would need to be characterized, treated, and disposed of offsite in accordance with applicable regulations. Where appropriate, the soil can be recycled for reuse if it is considered or classified as non-hazardous waste, or it can be disposed of at a landfill that accepts non-hazardous waste. Otherwise, the material will need to be disposed of at a hazardous waste facility.

Residential and commercial control measures identified as requiring construction activities will entail a combination of: 1) swapping out old appliances or equipment that rely on natural gas (e.g., water heaters, space heaters, cooking devices, clothes dryers, pool heaters, small I.C. engines and other small combustion devices) and replacing them with new, electrified or low NOx appliances or equipment at existing residential and commercial land uses; and 2) installing new, electrified or low NOx appliances as part of new residential and commercial developments. In general, the motivation for replacing existing appliances and equipment with new zero emission or low NOx technology which will be more energy efficient is due to the existing equipment having reached the end of its useful life and/or the cost of repairs exceeding the cost for a replacement. The motivation is stimulated further if financial incentives are offered, such as those offered by local utilities to install more energy efficient appliances; an existing appliance may be replaced sooner than the end of its useful life. For any appliance or equipment that is removed and replaced with new zero emission or low NOx technology, the removed appliance or equipment will either be dismantled with the metals sold as scrap, or if the removed appliance or equipment still works, it may be sold for re-use outside of the South Coast AQMD jurisdiction. Based upon these considerations, the residential and commercial control measures are expected to generate minimal quantities of construction waste that would need to be sent to a landfill.

Due to the uncertainty of the future capacity of the landfills within South Coast AQMD's jurisdiction and the broad scope of equipment that could undergo modifications or replacement, the solid and hazardous waste impacts from construction were concluded to be potentially significant and mitigation measures were required. Since the project-specific mitigation for solid and hazardous waste impacts are the same for waste generated during construction and operation, the mitigation measures follow the discussion of operational impacts.

Summary of Operational Solid and Hazardous Waste Impacts

An increased use of fuel cell and electric hybrid vehicles is correspondingly expected to reduce the use of conventional vehicles within California and the South Coast AQMD jurisdiction. Conventional vehicles use lead-acid batteries; therefore, a reduction in the use of conventional vehicles would lead to a reduction in use of lead-acid batteries. The increased operation of electric vehicles associated with the implementation of the 2022 AQMP may actually result in a reduction of the amount of solid and hazardous waste generated in the South Coast AQMD's jurisdiction, as Li-ion batteries have a much longer life span than conventional lead-acid batteries. The recycling of batteries is also required under law. Further some manufacturers pay for used electric vehicle batteries. The value, size, and length of life of Li-ion batteries are such that recycling is expected to be more predominant than with lead acid batteries. Therefore, the use of electric

vehicles is not expected to result in an increase in the illegal or improper disposal of electric batteries. Further, batteries associated with electric cars are required to be diverted from landfills. Therefore, no significant increase in the disposal of hazardous or solid waste is expected due to increased use of electric vehicles.

A DPF is an exhaust aftertreatment device that traps diesel particulate matter as ash which are by-products of combustion engines that use diesel fuel. In order to reduce emissions from diesel engines, a DPF captures and stores exhaust soot, which must be periodically burned off to regenerate the filter media. The lifespan of a DPF varies based on the application and type of engine but can last from five to ten years or 10,000 or more hours of operation. During the regenerative process, no solid waste is generated. However, during the periodic cleaning of the DPF, the process involves manually removing the filter element from the housing and placing it in a cleaning station designed for this purpose. The ash is collected in the cleaning station and sent for disposal as solid waste. DPF ash is not specifically listed in the Federal Code of Regulations as a hazardous materials, but there may be metallic oxides in the ash which are hazardous to the environment and public health. Waste generators that operate DPF cleaning stations can either dispose of the DPF ash as hazardous waste or can have the waste tested using the Toxicity Characteristic Leaching Procedure (TCLP) which is a process that replicates the leaching process that would naturally occur when waste is buried in a municipal landfill. If the leachate contains any of the regulated contaminants at concentrations that are equal to or greater than the regulatory levels, then the DPF ash is considered hazardous waste. There are no hazardous waste landfills within the South Coast AQMD's jurisdiction. If the DPF ash is determined to be hazardous, the waste can be transported to permitted facilities located within and outside of California. There are two hazardous waste landfills in California: Clean Harbors landfill located in Buttonwillow and CWMI Kettleman Hills landfill in Kings County. The permitted capacity of Clean Harbors is in excess of 13 million cubic yards of waste material and the permitted capacity of CWMI Kettleman Hills is over 33 million cubic yards. Therefore, these two hazardous materials landfills would have sufficient capacity to handle the small amounts of waste that could be generated by ash collected from DPFs employed on equipment as part of implementing the proposed control measures. Therefore, the use of DPFs will generate less than significant levels of solid and hazardous waste in the form DPF ash which will need to be disposed of in either a municipal or hazardous waste landfill.

Selective catalytic reduction (SCR) technology is used to reduce NOx emissions from certain combustion sources, and requires periodic regeneration or replacement of the catalyst bed. Reuse and regeneration of catalyst is preferred due to the presence of precious metals in a variety of SCR catalysts and the cost of new catalyst; however, if the catalyst cannot be regenerated, the facilities are likely to haul the spent catalyst to a local cement manufacturing facility for recycling in lieu of disposal. The use of SCRs is expected to be limited to heavy industrial processes and not wide-spread. Therefore, due to the regeneration and recycling of catalysts used in SCRs and the fact that this technology is not expected to be widely used, less than significant impacts on solid and hazardous waste are expected.

The primary solid waste impact from retiring more vehicles as part of implementing the control measures is the accelerated replacement and disposal of equipment and parts earlier than the end of their useful

life. It is important to note that control measures do not mandate that older vehicle, engines, or other equipment be scrapped. The control measures allow for a number of different control methods to achieve the desired emission reductions, and the most cost-effective methods would be expected to be implemented. Control measures that would foster a transition to putting new equipment into service will also generally result in the concurrent retirement of the older equipment. Alternatively, some measures may encourage the advanced deployment of cleaner technologies without waiting for an equipment's end of useful life which will result in an air quality benefit. Scrap metal from vehicle replacements is expected to be recycled; however, some amount of waste scrapped vehicles and parts may be sent to landfills for disposal. Although the recycling and diversion activities will reduce the amount of waste entering landfills, it is difficult to quantify the waste that will be generated from the early retirement of equipment or the salvageable amount that would be recycled. Therefore, the early retirement of equipment is to have significant solid and hazardous waste impacts since available landfill space is limited to approximately 100,000 tons per day and only four of the solid waste landfills within the South Coast AQMD's jurisdiction have capacity past 2039.

Wood and greenwaste that is collected, chipped, and ground is a class of organic mulch that may be spread at or near the site where the wood and greenwaste is collected, spread on private or governmental properties, or delivered to processing facilities for composting. Mulch is natural wildfire preventative because it helps retain moisture whereby reducing water consumption for adjacent plants, enhances soil temperature insulation, reduces invasive weed propagation, improves erosion and dust control, and mitigates soil compaction. The most cost-effective approach to implementing control measure MCS-02 is if the mulch generated from chipping and grinding greenwaste and woodwaste is spread at or near the location where the greenwaste and woodwaste was originally collected. Under this scenario, the chipped and ground greenwaste and woodwaste would not need to be transported via heavy-duty trucks to offsite compost facilities for processing. In the unlikely event that the site location or other unique circumstances makes the spreading of the mulch at its source infeasible, the chipped and ground greenwaste and woodwaste would need to be transported to a compost facility for processing. Within the South Coast AQMD jurisdiction, approximately 70 composting facilities are currently operating. Based upon these considerations, the volume of chipped and ground greenwaste and woodwaste that would need to be taken to an offsite compost facility is likely to be minimal and less than significant.

Construction waste from the installation of air pollution control equipment and operational waste from the early retirement of equipment were identified as having potentially significant impacts. Therefore, the Final Program EIR for the 2022 AQMP concluded that solid and hazardous waste impacts are potentially significant and mitigation measures SHW-1 to SHW-3 were crafted and adopted with the intent of minimizing the significant solid and hazardous waste impacts. However, the overall solid and hazardous waste would remain significant after mitigation is applied.

Analysis in the Final Program EIR for the 2016 AQMP

The Final Program EIR for the 2016 AQMP determined that the 2016 AQMP control measures listed in Table VIII-10 have potential solid and hazardous waste impacts due to use of air pollution technologies and retirement of equipment.

Implementation of control measures BCM-01, BCM-03, BCM-04, BCM-06, and BCM-07 of the 2016 AQMP could require the collection and disposal of additional particulate matter. While it is speculative to identify the number of facilities and the quantity of equipment that would utilize filters, particulate traps, and precipitators, the quantity of particulate matter collected on filters and from electrostatic precipitators is expected to be small. In some cases, waste generated will be hazardous (e.g., the collection of toxic emissions). The increase in the amount of waste generated from the use of filters and the collection of additional particulate matter are expected to be small, because filtration control equipment is already used in practice or required by existing rules, especially for stationary sources. Control measures that may include filtration control equipment will generally require increased control efficiencies and/or better housekeeping and maintenance requirements for the filtration devices. As a result, the incremental amount of material collected by filters is expected to be small. Further, the larger filters used in baghouses are cleaned and reused so minimal additional waste would be expected from filters themselves. Non-hazardous waste can be disposed of at a number of landfills in southern California. At the time of writing the Final Program EIR for the 2016 AQMP, the permitted capacity of the landfills in Los Angeles, Orange, Riverside, and San Bernardino counties was about 112,592 tons per day and have sufficient capacity to handle the small increase in waste. There are no hazardous waste landfills within the Southern California area. Hazardous waste would be transported to permitted facilities both within and outside of California. Hazardous waste was expected to be transported to Clean Harbors in Buttonwillow, California. The permitted capacity at the Buttonwillow landfill was in excess of 10 million cubic yards so it would have sufficient capacity to handle any small amounts of hazardous waste that could be collected by the filters, baghouses, or ESPs (Clean Harbors, 2015). The nearest out-of-state hazardous waste landfills are U.S. Ecology, Inc., located in Beatty, Nevada and Clean Harbors in Grassy Mountain, Utah. U.S. Ecology, Inc. was receiving waste and in the process of extending the operational capacity for an additional 35 years (U.S. Ecology, 2015). Clean Harbors was receiving waste and expected to continue to receive waste for an additional 70 years (Clean Harbors, 2015).

Implementation of control measure BCM-05 of the 2016 AQMP could result in the use of SCR units to control emissions. SCRs require periodic regeneration or replacement of the catalyst bed. Regeneration of catalyst is preferred, due to the high cost to purchase new catalyst; however, if the catalyst cannot be regenerated, precious metals contained in the catalyst can be recovered. These metals could then be recycled and the remaining material would most likely need to be disposed of at a landfill. The use of SCRs was expected to be limited to stationary sources such as refineries and electric generation facilities, or other heavy industrial uses (e.g., ports) so that SCR use was not expected to be widespread. Due to the regeneration of catalysts used in SCRs and the fact that this technology was not expected to be widely used because of cost, the Final Program EIR concluded that no significant impacts relative to waste disposal activities would be expected.

Implementation of control measures BCM-01, BCM-02, and BCM-09 of the 2016 AQMP could result in solid waste impacts from older equipment being taken out of service in the Basin and scrapped and disposed of in landfills. During the scrapping process, recoverable materials (e.g. metal components) are removed and then sent for recovery of metal content. The amount of solid waste landfilled as a result of the proposed control measures would be relatively small since most of the parts being replaced have commercial value as scrap metal. Any small increase that may occur from miscellaneous parts is expected to be within the permitted landfill capacity so that no significant impacts would be expected.

Based on the preceding discussion, the Final Program EIR for the 2016 AQMP concluded that solid and hazardous waste impacts were less than significant. Since no significant solid and hazardous waste impacts were identified, no mitigation measures were necessary or required.

Mitigation Measures

Only the Final Program EIR for the 2022 AQMP developed targeted mitigation measures based on project-specific impacts related to solid and hazardous waste which were adopted in the Mitigation, Monitoring, and Reporting Plan which can be found in Attachment 1 to the Governing Board Resolution for the Final Program EIR for the 2022 AQMP and in the Mitigation, Monitoring, and Reporting Plan which can be found in Attachment 2 to the Governing Board Resolution for the Final Program EIR for the 2016 AQMP, respectively, and are applicable to the proposed PM2.5 Plan control measures. The following mitigation measures for the 2022 AQMP are applicable to the PM2.5 Plan control measures.

Solid and Hazardous Waste Mitigation Measures in the Final Program EIR for the 2022 AQMP

- SHW-1 During the planning, design, and project-level CEQA review process for individual development projects, lead agencies shall coordinate with waste management agencies and the appropriate local and regional jurisdictions to facilitate the development of measures and to encourage diversion of solid waste such as recycling and composting programs, as needed. This includes discouraging siting of new landfills unless all other waste reduction and prevention actions have been fully explored to minimize impacts to neighborhoods.
- SHW-2 The lead agency should coordinate with waste management agencies, and the appropriate local and regional jurisdictions, to develop measures to facilitate and encourage diversion of solid waste such as recycling and composting programs.
- SHW-3 In accordance with CEQA Guidelines Sections 15091(a)(2) and 15126.4(a)(1)(B), a Lead Agency for a project should consider mitigation measures to reduce the generation of solid waste, as applicable and feasible. These may include the integration of green building measures consistent with CALGreen (California Building Code Title 24) into project design including, but not limited to the following:
 - 1) Reuse and minimization of construction and demolition (C&D) debris and diversion of C&D waste from landfills to recycling facilities.

- 2) Include a waste management plan that promotes maximum C&D diversion.
- 3) Pursue source reduction through: a) the use of materials that are more durable and easier to repair and maintain; b) design to generate less scrap material through dimensional planning; c) increased recycled content; d) the use of reclaimed materials; and e) the use of structural materials in a dual role as finish material (e.g., stained concrete flooring, unfinished ceilings, etc.).
- 4) Reuse existing structure and shell in renovation projects.
- 5) Develop indoor recycling program and space.
- 6) Discourage the siting of new landfills unless all other waste reduction and prevention actions have been fully explored. If landfill siting or expansion is necessary, site landfills with an adequate landfill-owned, undeveloped land buffer to minimize the potential adverse impacts of the landfill in neighboring communities.
- 7) Discourage exporting locally generated waste outside of the southern California region during the construction and implementation of a project. Encourage disposal within the county where the waste originates as much as possible. Promote green technologies for long-distance transport of waste (e.g., clean engines and clean locomotives or electric rail for waste-by-rail disposal systems) and consistency with South Coast AQMD and Connect SoCal policies can and should be required.
- 8) Encourage waste reduction goals and practices and look for opportunities for voluntary actions to exceed the 80 percent waste diversion target.
- 9) Encourage the development of local markets for waste prevention, reduction, and recycling practices by supporting recycled content and green procurement policies, as well as other waste prevention, reduction and recycling practices.
- 10) Develop ordinances that promote waste prevention and recycling activities such as requiring waste prevention and recycling efforts at all large events and venues, implementing recycled content procurement programs, and developing opportunities to divert food waste away from landfills and toward food banks and composting facilities;
- 11) Develop and site composting, recycling, and conversion technology facilities that have minimum environmental and health impacts
- 12) Integrate reuse and recycling into residential industrial, institutional and commercial projects.
- 13) Provide education and publicity about reducing waste and available recycling services.
- 14) Implement or expand city or county-wide recycling and composting programs for residents and businesses. This could include extending the types of recycling services offered (e.g., to include food and green waste recycling) and providing public education and publicity about recycling services.

Cumulative Impacts

Analysis in the Final Program EIR for the 2022 AQMP

The Final Program EIR for the 2022 AQMP concluded that implementation of the 2022 AQMP could result in significant adverse solid and hazardous waste impacts because of potential increases in waste produced during construction and operation activities. When combined with the Connect SoCal Plan, the SIP strategies, state policies, and other past, present, and reasonably foreseeable activities, the 2022 AQMP would result in a significant increase in solid and hazardous waste, and would contribute to cumulatively considerable impacts. No additional mitigation measures to reduce the significant cumulative impacts to solid and hazardous waste have been identified. Cumulative impacts to solid and hazardous waste for past, present, and reasonably foreseeable future projects would remain significant and unavoidable for solid and hazardous waste.

Analysis in the Final Program EIR for the 2016 AQMP

The Final Program EIR for 2016 AQMP concluded that implementation of the 2016 AQMP control measures would result in less than significant impacts to solid and hazardous waste. However, when combined with past, present, and reasonably foreseeable activities, and in particular with transportation projects projected in the 2016 RTP/SCS, the 2016 AQMP would contribute to cumulatively considerable impacts to solid and hazardous waste identified in the 2016 RTP/SCS, therefore resulting in a significant cumulative impact. No additional mitigation measures to reduce the significant cumulative impacts to solid and hazardous waste were identified. Cumulative impacts to solid and hazardous waste from implementation of the 2016 AQMP would remain significant and unavoidable.

Transportation

This section summarizes the potentially significant transportation impacts from implementing the proposed PM_{2.5} Plan control measures which rely on previously adopted control measures in the 2022 AQMP and 2016 AQMP. The transportation impacts for the 2022 AQMP and 2016 AQMP control measures were previously analyzed in the Final Program EIRs for the 2022 AQMP and the 2016 AQMP.

Significance Criteria

Transportation impacts are significant if any of the following criteria apply:

- A major roadway is closed to all through traffic, and no alternate route is available.
- The project conflicts with applicable policies, plans or programs establishing measures of effectiveness, thereby decreasing the performance or safety of any mode of transportation or contributes to changes in overall vehicle miles traveled.
- There is an increase in vehicle miles traveled that is substantial in relation to the existing travel activity.

- Water borne, rail car or air traffic is substantially altered.
- Traffic hazards to motor vehicles, bicyclists or pedestrians are substantially increased.
- The need for more than 350 employees.
- An increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round trips per day.
- Increase customer traffic by more than 700 visits per day.

It is important to note that the significance criteria for transportation impacts was revised in 2019, after the 2016 AQMP was adopted. The revisions were made in accordance with the 2019 update to the CEQA Guidelines which migrated the focus of the transportation analysis from relying on a congestion-based metric referred to as Level of Service (LOS) to instead rely on a distance-based metric referred to Vehicle Miles Traveled (VMT). Prior to 2019, the following significance criteria were applied to transportation analyses, including the transportation analysis conducted in the Final Program EIR for the 2016 AQMP.

- Peak period levels on major arterials are disrupted to a point where level of service (LOS) is reduced to D, E, or F for more than one month.
- An intersection's volume to capacity ratio increase by 0.02 (two percent) or more when the LOS is already D, E or F.

Potential Impacts

The Notice of Preparation of a Draft Program EIR and Initial Study for the 2022 AQMP concluded that significant transportation impacts during construction or operation were not expected to occur due to implementation of the 2022 AQMP because the control measures were not expected to result in an increase in VMT. Because none of the 2022 AQMP control measures would cause a potentially significant impact to transportation, the discussion on transportation impacts only focuses on the effects of the 2016 AQMP control measures. Table VIII-11 lists the 2016 AQMP control measures with potential adverse impacts to transportation, control methodology, and potential impacts. The control measures are presented and organized in the same manner as in Table VIII-2.

TABLE VIII-11
AQMP CONTROL MEASURES WITH POTENTIAL TRANSPORTATION IMPACTS

Control Measure Number	Control Methodology	Potential Transportation Impact
BCM-04 in 2016 AQMP	Acidifier application, manure removal, manure slurry injection, manure thermal gasification, and dietary manipulation/feed additives.	Potential temporary changes in traffic pattern/volume due to operational impacts due to deliveries of sodium bisulfate and increased waste disposal.
BCM-05 in 2016 AQMP	Installation and use of advanced catalyst technology for the conversion of ammonia.	Potential temporary changes in traffic pattern/volume due to construction activities and operational impacts due to deliveries of catalyst and increased waste disposal.

TABLE VIII-11 (concluded)
AQMP CONTROL MEASURES WITH POTENTIAL TRANSPORTATION IMPACTS

Control Measure Number	Control Methodology	Potential Transportation Impact
BCM-03 in 2016 AQMP	Reduction of track out from stationary sources by specifying street sweeping methods and frequency.	Potential changes in traffic due to change in frequency of street sweeping activities.
BCM-06 in 2016 AQMP	Exhaust ventilation to a fabric filter for permanent in-building abrasive blasting activities, and use of additional portable control equipment, such as negative air machines, portable fume extractors and portable dust collectors with HEPA filters.	Potential temporary changes in traffic pattern/volume due to construction activities and operational impacts due to increased waste disposal.
BCM-07 in 2016 AQMP	Dry and wet dust control options to control PM including silica particles.	Potential temporary changes in traffic pattern/volume due to construction activities and operational impacts due to increased waste disposal.
BCM-09 in 2016 AQMP	Construction/upgrading of wood burning hearths to cleaner hearth as well as an increase in the stringency of the curtailment program and education.	Potential temporary changes in traffic pattern/volume due to construction activities and operational impacts due to increased waste disposal.

Analysis in the Final Program EIR for the 2016 AQMP

The Final Program EIR for the 2016 AQMP determined that the above 2016 AQMP control measures will cause potential temporary changes in traffic due to construction activities, and operational impacts due to deliveries of sodium bisulfate and catalyst, and increased waste disposal. There are also potential changes in traffic due to change in frequency of street sweeping activities.

Construction activities would generate traffic associated with construction worker vehicles and trucks delivering equipment, and materials and supplies to the project site during the duration of the construction activities. Additional traffic will be generated by the 2016 AQMP due to the need to transport increased waste for disposal (e.g., construction debris). Heavy construction equipment such as backhoes, cranes, cherry pickers, front end loaders, and other types of equipment would be used to carry out the construction activities. Construction activities would be expected to occur within or adjacent to existing roadways which could require lane closures to protect construction workers and avoid traffic conflicts. Therefore, the Final Program EIR for the 2022 AQMP concluded that traffic and transportation impacts due to construction, though temporary in nature, were potentially significant, mitigation measure TR-1 should be implemented to minimize significant traffic and transportation impacts, but overall traffic and transportation impacts due to construction after mitigation is applied would remain significant.

Additional traffic will be generated by the 2016 AQMP due to the need to transport increased waste for disposal (e.g., waste from air pollution control equipment, such as filters), and increased waste material

for recycling (e.g., catalysts), increased use of products (e.g., ammonia, catalysts, sodium bisulfate). At the time of writing the Final Program EIR for the 2016 AQMP, it was not known what control strategies may be applied, which facilities may require additional trips, or how often these trips may be necessary. Therefore, no traffic estimates could be prepared. The impacts of the proposed project on traffic and transportation were expected to be significant prior to mitigation. While mitigation measures could help minimize some of the impacts, the South Coast AQMD cannot predict how a future lead agency might choose to mitigate a particular significant traffic and transportation impact. Thus, the future traffic and transportation impacts were considered to be significant due to implementation of the 2016 AQMP control measures.

Mitigation Measure

The Final Program EIR for the 2016 AQMP developed a targeted mitigation measure based on project-specific impacts related to transportation.

Transportation Mitigation Measure in the Final Program EIR for the 2016 AQMP

- TR-1 Develop a construction management plan that includes at least the following items and requirements, if determined to be feasible by the Lead Agency:
- A set of comprehensive traffic control measures, including scheduling of major truck trips and deliveries to avoid peak traffic hours, detour signs if required, lane closure procedures, signs, cones for drivers, and designated construction access routes;
 - Notification procedures for adjacent property owners and public safety personnel regarding when major deliveries, detours, and lane closures will occur;
 - Location of construction staging areas for materials, equipment, and vehicles at an approved location;
 - A process for responding to and tracking complaints pertaining to construction activity, including identification of an onsite complaint manager. The manager shall determine the cause of the complaints and shall take prompt action to correct the problem. The Lead Agency shall be informed who the Manager is prior to the issuance of the first permit;
 - Provision for accommodation of pedestrian flow;
 - As necessary, provision for parking management and spaces for all construction workers to ensure that construction workers do not park in street spaces;
 - Any damage to the street caused by heavy equipment, or as a result of this construction, shall be repaired, at the project sponsor's expense, within one week of the occurrence of the damage (or excessive wear), unless further damage/excessive wear may continue; in such case, repair shall occur prior to issuance of a final inspection of the building permit. All damage that is a threat to public health or safety shall be repaired immediately. The street shall be restored to its condition prior to the new construction as established by the Lead Agency (or other appropriate government agency) and/or photo

documentation, at the sponsor's expense, before the issuance of a Certificate of Occupancy;

- Any heavy equipment brought to the construction site shall be transported by truck, where feasible;
- No materials or equipment shall be stored on the traveled roadway at any time;
- Prior to construction, a portable toilet facility and a debris box shall be installed on the site, and properly maintained through project completion;
- All equipment shall be equipped with mufflers;
- Prior to the end of each work-day during construction, the contractor or contractors shall pick up and properly dispose of all litter resulting from or related to the project, whether located on the property, within the public rights-of-way, or properties of adjacent or nearby neighbors; and
- Promote “least polluting” ways to connect people and goods to their destinations.

Cumulative Impacts

Analysis in the Final Program EIR for the 2016 AQMP

The Final Program EIR for 2016 AQMP concluded that implementation of the 2016 AQMP control measures would result in significant adverse transportation impacts due to construction activities and operational impacts due to deliveries of sodium bisulfate and catalyst, and increased waste disposal. Mitigation measure TR-1 was crafted and adopted with the intention of reducing the transportation impacts during construction. However, the transportation impacts during construction would remain significant after mitigation is applied. No mitigation measures were identified for operational transportation impacts. The 2016 AQMP control measures would result in significant adverse transportation impacts and when combined with past, present, and reasonably foreseeable activities, and in particular with transportation projects projected in the SCAG 2016 RTP/SCS, would contribute to cumulatively considerable impacts to air quality identified in the 2016 RTP/SCS. No additional mitigation measures to reduce the significant cumulative impacts to transportation were identified. Cumulative impacts to transportation from implementation of the 2016 AQMP would remain significant and unavoidable.

Other Environmental Topic Areas

The Final Program EIR for the 2022 AQMP concluded that implementation of the 2022 AQMP control measures would either have no impacts or less than significant impacts for the following environmental topic areas: aesthetics, agriculture and forestry resources, biological resources, cultural and tribal cultural resources, geology and soils, land use and planning, mineral resources, population and housing, public services, recreation, transportation, and wildfire. Implementation of the PM2.5 Plan control measures whose proposed methods of control are the same as the corresponding 2022 AQMP control measures

they rely on, will similarly have no impacts or less than significant impacts on the aforementioned environmental topic areas.

The Final Program EIR for the 2016 AQMP concluded that implementation of the 2016 AQMP control measures would either have no impacts or less than significant impacts for the following environmental topic areas: agriculture and forestry resources, biological resources, cultural resources; energy; geology and soils; land use and planning; mineral resources; population and housing; public services and recreation. Implementation of the PM_{2.5} Plan control measures whose proposed methods of control are the same as the corresponding 2016 AQMP control measures they rely on, will similarly have no impacts or less than significant impacts on the aforementioned environmental topic areas.

The Final Program EIR for the 2016 AQMP analyzed potential impacts to aesthetics from 2016 AQMP control measures that the PM_{2.5} Plan is not relying on. Aesthetics impacts during construction and operation were concluded to be potentially significant and mitigation measures were adopted. While mitigation was intended to minimize significant aesthetics impacts during construction and operation, the analysis concluded that the overall aesthetics impacts would remain significant after mitigation is applied.

Environmental Impact Analysis of Additional Physical Changes from Control Measure BCM-12 of the PM_{2.5} Plan

Proposed control measure BCM-12 in the PM_{2.5} Plan proposes a future amendment to South Coast AQMD Rule 1138 – Control of Emissions From Restaurant Operations to make the exemption criteria applicable to chain-driven charbroilers in paragraph (e)(1), more stringent by providing an option for the owner or operator to either accept a permit condition limiting the amount of meat cooked per week from 875 pounds to 400 pounds or install integrated catalytic oxidizer technology. By comparison, control measure BCM-01 of the 2016 AQMP contemplated reliance on add-on air pollution control equipment and devices such as ESPs, filters, centrifugal separators, and misters for under-fired charbroilers in order to achieve reductions in PM.

The potential for increased deployment of PM control equipment for under-fired charbroilers and the potential environmental impacts associated with the installation and operation of the aforementioned PM control equipment were analyzed in the Final Program EIR for the 2016 AQMP.

Implementation of BCM-12 of the PM_{2.5} Plan is expected to result in the potential installation and operation of catalytic oxidizers for certain chain-driven charbroilers that were either not originally manufactured with a catalytic oxidizer or equivalent or more stringent PM control equipment or device. Therefore, the potential retrofit of chain-driven charbroilers with catalytic oxidizers is the only new physical change anticipated from implementing control measure BCM-12 of the PM_{2.5} Plan that was not previously contemplated or analyzed in the Final Program EIR for the 2016 AQMP.

Rule 1138 requires that no person shall operate an existing or new chain-driven charbroiler unless it is equipped and operated with a catalytic oxidizer control device or other control device or method if found

to be as or more effective than the catalytic oxidizer in reducing PM and VOC emissions. South Coast AQMD therefore certifies charbroilers with integrated catalytic oxidizers.¹¹ The two most common catalysts available are the BASF CHARCat™ and Nieco Incendalyst™.

The BASF CHARCat™ 900 and 910 catalyst beds sit atop the charbroiler unit, and are no more than 25 inches long by 25 inches wide by four inches high. The catalyst is encased in a food grade stainless steel frame with heavy duty stainless steel protective screens on both faces. No utility hookup is required as the broiler exhaust heat directs the PM emissions through the catalytic oxidizer. Cleaning and maintenance involves soaking the catalyst in warm water to remove built-up residue, but other manufacturer-specified cleaning materials may be used as well.¹² Because the catalytic oxidizer is small in size and connected to the charbroiler unit itself, and catalyst bed is removed regularly for maintenance, installation of the catalytic oxidizer is not expected to require construction equipment other than hand tools.

The Nieco Incendalyst™ catalyst bed also sits directly on top of the charbroiler unit. The catalyst is encased in a stainless steel frame. No utility hookup is required as the broiler exhaust heat directs the PM emissions through the catalytic oxidizer. Maintenance is minimal and includes daily rinsing with hot water and no chemicals. No special tools are required for detaching the catalyst bed from the charbroiler; when cool to the touch, it can be manually lifted and removed.^{13,14} Similar to the BASF CHARCat™, installation of Nieco Incendalyst™ catalyst is minimal and not expected to require construction equipment other than hand tools.

¹¹ South Coast AQMD, South Coast AQMD Certified Charbroilers with Integrated Catalysts, May 2023.

<https://www.aqmd.gov/docs/default-source/permitting/product-certification/charbroilerscatalysts.pdf>

¹² BASF, Technical data sheets for catalyst technology, 2007.

www.icac.com/resource/resmgr/greenhouse_gas_controls/basf_products_overview_07270.pdf

¹³ Nieco, The Incendalyst™, Accessed on March 18, 2024. <https://nieco.com/wp-content/uploads/2015/12/Incendalyst2019.pdf>

¹⁴ Nieco, Simple Tips on How to Maintain Your Nieco Broiler's Incendalyst™, February 2018. <https://nieco.com/blog/your-broilers-incendalyst-maintenance/>

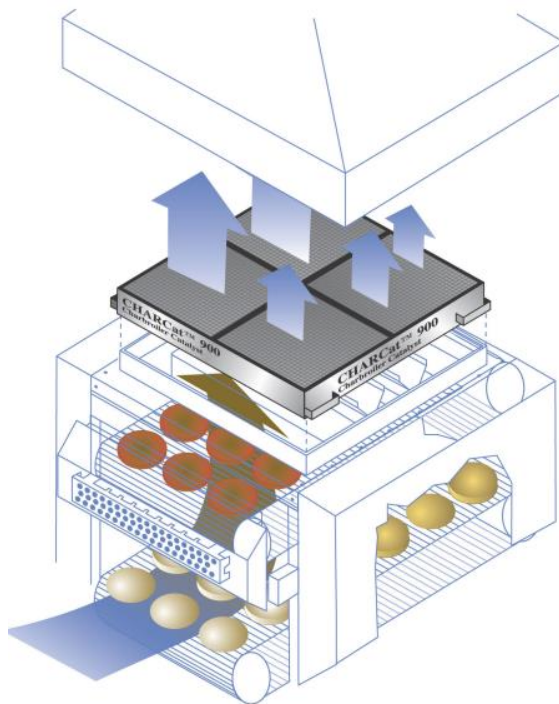


Figure VIII-1
BASF CHARCat™ 900



Figure VIII-2
Nieco Incendalyst™

Other chain-driven charbroiler catalytic oxidizers are expected to be installed and operated in a similar manner as the BASF CHARCat™ and Nieco Incendalyst™, resulting in similar physical changes and minimal environmental impacts.

The following sections examine the potential environmental impacts from installing and operating catalytic oxidizers on chain-driven charbroilers, and identify whether any changes are necessary to the prior analysis and conclusion of the impacts relating to control measure BCM-01 of the 2016 AQMP upon which the PM2.5 Plan relies for control measure BCM-12.

Air Quality and Greenhouse Gas Emissions

Summary of Construction Air Quality Impacts

Catalytic oxidizers can be installed primarily with hand tools so little to no construction emissions are expected. In addition, the installation is expected to be accomplished by existing restaurant staff such that no additional worker trips are generated. Therefore, implementation of control measure BCM-12 of the PM2.5 Plan will have no air quality impacts during construction. For this reason, the conclusion in the Final Program EIR for the 2016 AQMP that construction air quality impacts are potentially significant, will remain unchanged if control measure BCM-12 is implemented.

Summary of Operational Air Quality Impacts

Catalytic oxidizers sit on top of charbroiler units such that exhaust heat from the charbroilers will direct PM through the catalyst bed. Since the functionality of the catalytic oxidizers solely rely on the natural air draft instead of blowers, for example, no electrical connections would be needed. Since no electricity would be utilized, no air emissions associated with electricity generation would be expected. Maintenance of the catalyst beds requires manually rinsing or soaking with water so no impacts to air quality would be expected. For these reasons, no adverse operational air quality impacts are expected. Further, because the catalytic oxidizers will reduce PM and VOC emissions from chain-driven charbroiler units (though the PM2.5 Plan is only claiming credits for PM reductions for this control measure), an air quality benefit will be expected if control measure BCM-12 of the PM2.5 Plan is implemented. Thus, the overall conclusion in the Final Program EIR for the 2016 AQMP that operational air quality impacts are less than significant would not be adversely affected if control measure BCM-12 of the PM2.5 Plan is implemented.

Summary of Greenhouse Gas Emissions Impacts

As explained in the preceding summary of construction air quality impacts, catalytic oxidizers can be installed primarily with hand tools so little to no construction emissions, including GHG emissions, are expected. Since a catalytic oxidizer is sited atop of the charbroiler, its functionality solely relies on the natural air draft instead of blowers, for example; thus, no electrical connections would be needed. Since no electricity would be utilized, no emissions of air pollutants, including GHGs, emissions, that would ordinarily be associated with electricity generation would be expected if control measure BCM-12 of the

PM2.5 Plan is implemented. Further, while catalytic oxidizers are capable of reducing PM and VOC emissions, this technology is not capable of controlling or reducing GHG emissions. Therefore, no benefit of reducing GHG emissions would be expected. Thus, the overall conclusion in the Final Program EIR for the 2016 AQMP that GHG impacts are less than significant would not be adversely affected by the implementation of control measure BCM-12.

The overall conclusion in the Final Program EIR for the 2016 AQMP that air quality impacts during construction would be significant and unavoidable would not be adversely affected by the implementation of control measure BCM-12. Because installation and operation of catalytic oxidizers will not contribute to any new air quality and GHG impacts, or make existing air quality and GHG impacts more severe, no additional mitigation measures will be required. Nonetheless, the overall conclusion of significant air quality and GHG impacts in Final Program EIR for the 2016 AQMP will remain unchanged if BCM-12 is implemented.

Relative to cumulative impacts, the Final Program EIR for the 2016 AQMP concluded that implementation of the 2016 AQMP, when combined with past, present, and reasonably foreseeable activities, and in particular with transportation projects projected in the 2016 RTP/SCS, would contribute to air quality during construction, but would not contribute to cumulatively considerable impacts to air quality during operation or GHG emissions.

However, since implementation of control measure BCM-12 of the PM2.5 Plan is expected to have no air quality impacts during construction and GHG emissions, and a net benefit to air quality during operation, there are no new impacts which would change the previous conclusions of the Final Program EIR for the 2016 AQMP regarding cumulatively considerable impacts to air quality. Further, no new mitigation measures would be required. Therefore, the cumulative impacts to air quality would remain significant and unavoidable.

Energy

As explained in the preceding section which discussed air quality and GHG impacts, a catalytic oxidizer sits atop of the charbroiler such that the natural draft caused by the heat of the exhaust will direct PM generated from charbroiling meat through the catalyst bed without the use of electricity. Therefore, implementation of control measure BCM-12 of the PM2.5 Plan will not cause any adverse energy impacts.

Thus, the overall conclusion in the Final Program EIR for the 2016 AQMP that energy impacts would be potentially significant would not be adversely affected by the implementation of control measure BCM-12. Because installation and operation of catalytic oxidizers will not contribute to any new energy impacts or make existing energy impacts more severe, no additional mitigation measures will be required. Nonetheless, the overall conclusion of significant energy impacts in Final Program EIR for the 2016 AQMP will remain unchanged if BCM-12 is implemented.

Relative to cumulative impacts, the Final Program EIR for the 2016 AQMP concluded that implementation of the 2016 AQMP, when combined with past, present, and reasonably foreseeable activities, and in

particular with transportation projects projected in the 2016 RTP/SCS, would contribute to cumulatively considerable impacts to energy demand.

However, since implementation of control measure BCM-12 of the PM_{2.5} Plan is expected to have no impact to energy demand, there are no new impacts which would change the previous conclusions of the Final Program EIR for the 2016 AQMP regarding cumulatively considerable impacts to energy. Further, no new mitigation measures would be required. Therefore, the cumulative impacts to energy remain significant and unavoidable.

Hazards and Hazardous Materials

Catalytic oxidizers are designed for use in the restaurant setting; their operation and use are not expected to cause non-compliance with any safety standard nor expose people to hazardous chemicals. The catalyst is encased in a stainless-steel frame and is not intended to be removed from its casing. Maintenance is minimal and includes daily rinsing with water. No special tools are required for detaching the catalyst bed from the charbroiler; when cool to the touch, it can be manually lifted and removed. Therefore, implementation of control measure BCM-12 of the PM_{2.5} Plan will have no impact to hazards and hazardous materials.

Thus, the overall conclusion in the Final Program EIR for the 2016 AQMP that hazards and hazardous materials impacts would be potentially significant would not be adversely affected by the implementation of control measure BCM-12. Because installation and operation of catalytic oxidizers will not contribute to any new hazards and hazardous materials impacts, additional mitigation measures will not be required. Nonetheless, the overall conclusion of significant hazards and hazardous materials impacts in the in Final Program EIR for the 2016 AQMP will remain unchanged if BCM-12 is implemented.

Relative to cumulative impacts, the Final Program EIR for the 2016 AQMP concluded that implementation of the 2016 AQMP, when combined with past, present, and reasonably foreseeable activities, and in particular with transportation projects projected in the 2016 RTP/SCS, would contribute to cumulatively considerable impacts to hazards and hazardous materials due to fire hazards, use of liquified natural gas and ammonia, and use of hazardous materials near sensitive receptors.

However, since implementation of control measure BCM-12 of the PM_{2.5} Plan is expected to have no impacts to hazards and hazardous materials, there are no new impacts which would change the previous conclusions of the Final Program EIR for the 2016 AQMP regarding cumulatively considerable impacts to hazards and hazardous materials. Further, no new mitigation measures would be required. Therefore, the cumulative impacts to hazards and hazardous materials remain significant and unavoidable.

Hydrology and Water Quality

Similar to the end-of-day cleaning of the charbroiler unit itself, maintenance of the catalytic oxidizer unit requires soaking or daily rinsing of the catalyst with warm water. For context, the size of the catalyst is

relatively small at approximately 25 inches long by 25 inches wide by four inches high, which is equivalent to 1.4 cubic feet and is capable of fitting inside a 10-gallon capacity wash bucket. If the catalyst is soaked in the bucket, approximately 10 gallons of additional water per day per restaurant would be needed for cleaning purposes. It is more likely that the catalyst bed will be rinsed in the same manner that dishes are rinsed, and this method uses less water. For these reasons, the quantity of additional wastewater generated from cleaning the catalyst is expected to be minimal with little impact on the capacity of existing wastewater treatment facilities. The composition of the wastewater from cleaning the catalyst is also expected to contain fats and oils from the cooked meats which will be the same or similar composition as the wastewater from cleaning the charbroiler itself, which is typical from existing restaurants operating charbroilers. Since the wastewater from cleaning the catalyst is expected to be similar to other wastewater already generated at charbroiler restaurants as part of their daily hygienic cleaning routines, no modification to industrial wastewater permits would be expected. Future rule development and amendments to Rule 1138 will provide more details regarding the number of catalytic oxidizers that would be installed and operated, and corresponding impact to hydrology and water quality. Nonetheless, operation of catalytic oxidizers is expected to have less than significant impact to hydrology and water quality. Hence, implementation of control measure BCM-12 of the PM2.5 Plan is not expected to cause any adverse hydrology and water quality impacts.

Thus, the overall conclusion in the Final Program EIR for the 2016 AQMP that hydrology and water quality impacts would be potentially significant would not be adversely affected by the implementation of control measure BCM-12. Because installation and operation of catalytic oxidizers will not make hydrology and water quality impacts significantly worse, no additional mitigation measures will be required. Nonetheless, the overall conclusion of significant hydrology and water quality impacts in Final Program EIR for the 2016 AQMP will remain unchanged if BCM-12 is implemented.

Relative to cumulative impacts, the Final Program EIR for the 2016 AQMP concluded that implementation of the 2016 AQMP, when combined with past, present, and reasonably foreseeable activities, and in particular with transportation projects projected in the 2016 RTP/SCS, would contribute to cumulatively considerable impacts to water demand.

However, since implementation of control measure BCM-12 of the PM2.5 Plan is expected to have minimal to no impact to water demand, there are no new impacts which would change the previous conclusions of the Final Program EIR for the 2016 AQMP regarding cumulatively considerable impacts to hydrology and water quality. Further, no new mitigation measures would be required. Therefore, the cumulative impacts to hydrology and water quality remain significant and unavoidable.

Noise

Installation of catalytic oxidizers is expected to be accomplished with hand tools which could generate additional minimal, temporary noise inside the restaurant; however, any such noise is not expected to be noticeable outside of the restaurant and will likely be indistinguishable from the background noise levels. Since catalytic oxidizers operate passively by only relying on the natural draft of the exhaust from the

charbroiler, no noise is expected from the catalytic oxidizer after it is installed and operational. Therefore, implementation of control measure BCM-12 of the PM2.5 Plan will have minimal to no impact on noise.

Thus, the overall conclusion in the Final Program EIR for the 2016 AQMP that noise impacts would be potentially significant would not be adversely affected by the implementation of control measure BCM-12. Because installation and operation of catalytic oxidizers will not contribute to any new noise impacts or make existing noise impacts more severe, no additional mitigation measures will be required. Nonetheless, the overall conclusion of significant noise impacts in Final Program EIR for the 2016 AQMP will remain unchanged if BCM-12 is implemented.

Relative to cumulative impacts, the Final Program EIR for the 2016 AQMP concluded that implementation of the 2016 AQMP, when combined with past, present, and reasonably foreseeable activities, and in particular with transportation projects projected in the 2016 RTP/SCS, would contribute to cumulatively considerable impacts to noise and vibration during construction and noise during operation.

However, since implementation of control measure BCM-12 of the PM2.5 Plan is expected to have no impact to noise, there are no new impacts which would change the previous conclusions of the Final Program EIR for the 2016 AQMP regarding cumulatively considerable impacts to noise. Further, no new mitigation measures would be required. Therefore, the cumulative impacts to noise remain significant and unavoidable.

Solid and Hazardous Waste

Maintenance of the catalyst requires rinsing or soaking with water; no additional solid or hazardous waste is expected to be generated with operation of the catalytic oxidizers. At the end of useful life, catalytic oxidizer parts are expected to be sold and repurposed: the stainless-steel metal housing of the catalyst bed will likely be sold as recycled scrap metal, and the catalyst recycled due to containing precious metals. Minimal to no waste is expected to be sent to a landfill. Therefore, implementation of control measure BCM-12 of the PM2.5 Plan will have no impact to solid and hazardous waste.

Thus, the overall conclusion in the Final Program EIR for the 2016 AQMP that solid and hazardous waste impacts would be potentially significant would not be adversely affected by the implementation of control measure BCM-12. Because installation and operation of catalytic oxidizers will not contribute to any new solid and hazardous waste impacts or make existing solid and hazardous waste impacts more severe, no additional mitigation measures will be required. Nonetheless, the overall conclusion of significant solid and hazardous waste impacts in Final Program EIR for the 2016 AQMP will remain unchanged if BCM-12 is implemented.

Relative to cumulative impacts, the Final Program EIR for the 2016 AQMP concluded that implementation of the 2016 AQMP, when combined with past, present, and reasonably foreseeable activities, and in particular with transportation projects projected in the 2016 RTP/SCS, would contribute to cumulatively considerable impacts to solid and hazardous waste from construction and vehicle scrapping.

However, since implementation of control measure BCM-12 of the PM2.5 Plan is expected to generate minimal to no waste that will be sent to landfills, there are no new impacts which would change the previous conclusions of the Final Program EIR for the 2016 AQMP regarding cumulatively considerable impacts to solid and hazardous waste. Further, no new mitigation measures would be required. Therefore, the cumulative impacts to solid and hazardous waste remain significant and unavoidable.

Transportation

As explained in the preceding section about the air quality impacts during construction, aside from the initial, one-time delivery of the catalytic oxidizer to the restaurant, the installation of the catalytic oxidizer is expected to be accomplished by existing restaurant staff onsite such that no additional worker trips are expected. Further, once installed and operational, no additional trips associated with maintenance will be expected. Therefore, implementation of control measure BCM-12 of the PM2.5 Plan will have minimal to no impact on transportation.

Thus, the overall conclusion in the Final Program EIR for the 2016 AQMP that transportation impacts would be potentially significant would not be adversely affected by the implementation of control measure BCM-12. Because installation and operation of catalytic oxidizers will not contribute to transportation impacts, no additional mitigation measures will be required. Nonetheless, the overall conclusion of significant transportation impacts in Final Program EIR for the 2016 AQMP will remain unchanged if BCM-12 is implemented.

Relative to cumulative impacts, the Final Program EIR for the 2016 AQMP concluded that implementation of the 2016 AQMP, when combined with past, present, and reasonably foreseeable activities, and in particular with transportation projects projected in the 2016 RTP/SCS, would contribute to cumulatively considerable impacts to transportation.

However, since implementation of control measure BCM-12 of the PM2.5 Plan is expected to have minimal to no impact to transportation, there are no new impacts which would change the previous conclusions of the Final Program EIR for the 2016 AQMP regarding cumulatively considerable impacts to transportation. Further, no new mitigation measures would be required. Therefore, the cumulative impacts to transportation remain significant and unavoidable.

Other Environmental Topic Areas

Catalytic oxidizers sit atop of the charbroiler units within restaurants, and no major physical changes are expected to the restaurants nor the land the restaurants are located on. Therefore, implementation of control measure BCM-12 of the PM2.5 Plan will have no impact to aesthetics, agriculture and forestry resources, biological resources, cultural and tribal cultural resources, geology and soils, land use and planning, mineral resources or wildfires. Use of catalytic oxidizers at restaurants is designed to reduce air pollutants and as such is not expected to adversely affect the population nor the resources impacting

quality of life. Therefore, implementation of control measure BCM-12 of the PM2.5 Plan will have no impact to population and housing, public services, and recreation.

Thus, the overall conclusions in the Final Program EIR for the 2016 AQMP that aesthetics impacts would be potentially significant and impacts to all other environmental topic areas listed above, excepting tribal cultural resources and wildfire because they were added to CEQA Guidelines in 2019, would be less than significant, would not be adversely affected by the implementation of control measure BCM-12. Because installation and operation of catalytic oxidizers would not contribute to any new impacts in these environmental topic areas or make existing impacts more severe, no additional mitigation measures are required. The overall conclusions of significance for these environmental topic areas in Final Program EIR for the 2016 AQMP will remain unchanged if BCM-12 is implemented.

Relative to cumulative impacts, the Final Program EIR for the 2016 AQMP concluded that implementation of the 2016 AQMP, when combined with past, present, and reasonably foreseeable activities, and in particular with transportation projects projected in the 2016 RTP/SCS, would contribute to cumulatively considerable impacts to aesthetics, but would not contribute to cumulative considerable impacts to the other environmental topic areas.

Since implementation of control measure BCM-12 of the PM2.5 Plan is expected to have no impact on any of the above environmental topic areas, there are no new impacts which would change the previous conclusions of the Final Program EIR for the 2016 AQMP regarding cumulatively considerable impacts. Further, no new mitigation measures would be required. Therefore, the cumulative impacts to aesthetics remain significant and unavoidable, and there are no cumulative impacts to the environmental topic areas of agriculture and forestry resources, biological resources, cultural and tribal cultural resources, geology and soils, land use and planning, mineral resources, population and housing, public services, recreation, or wildfire.

Conclusion

The majority of the PM2.5 Plan relies on control measures that were previously adopted in the 2022 AQMP and the 2016 AQMP, and proposes to expand the methods of control and effects of implementation for only one control measure, BCM-12, when compared to the previous 2016 AQMP control measure on which it relies, BCM-01 of the 2016 AQMP. In addition, the PM2.5 Plan proposes one new control measure, BCM-19, which does not rely on any previously adopted control measure in either the 2022 AQMP or 2016 AQMP.

New control measure BCM-19 proposes to develop an inventory of unpaved roads and parking lots within urban areas in the Basin, and assess the suitability for paving. Implementation of control measure BCM-19 of the PM2.5 Plan is an administrative exercise that will not result in physical changes. Therefore, no potential adverse environmental impacts are expected from implementation of control measure BCM-19.

Proposed control measure BCM-12 in the PM2.5 Plan proposes a future amendment to South Coast AQMD Rule 1138 – Control of Emissions From Restaurant Operations to make the exemption criteria applicable to chain-driven charbroilers in paragraph (e)(1), more stringent by providing an option for the owner or operator to either accept a permit condition limiting the amount of meat cooked per week from 875 pounds to 400 pounds or install integrated catalytic oxidizer technology. By comparison, control measure BCM-01 of the 2016 AQMP contemplated the reliance on add-on air pollution control equipment and devices such as ESPs, filters, centrifugal separators, and misters for under-fired charbroilers in order to achieve reductions in PM. The potential for increased deployment of PM control equipment for under-fired charbroilers and the potential environmental impacts associated with the installation and operation of the aforementioned PM control equipment were analyzed in the Final Program EIR for the 2016 AQMP. Implementation of BCM-12 of the PM2.5 Plan is expected to result in the potential installation and operation of catalytic oxidizers for certain chain-driven charbroilers that were either not originally manufactured with a catalytic oxidizer or equivalent or more stringent PM control equipment or device. Therefore, the potential retrofit of chain-driven charbroilers with catalytic oxidizers is the only new physical change anticipated from implementing control measure BCM-12 of the PM2.5 Plan that was not previously contemplated or analyzed in the Final Program EIR for the 2016 AQMP.

All other control measures proposed in the PM2.5 Plan are similar to their equivalent applicable adopted control measure in the 2022 AQMP and 2016 AQMP, as applicable, such that implementation of these PM2.5 Plan control measures is not expected to result in physical changes not previously analyzed in the Final Program EIRs for the 2022 AQMP and the 2016 AQMP. The Final Program EIR for the 2022 AQMP concluded potentially significant impacts to the environmental topic areas of air quality and greenhouse gas emissions, energy, hazards and hazardous materials, hydrology and water quality, noise, and solid and hazardous waste. As discussed in the “Summary of Environmental Impact Analysis from the Final Program EIRs for the 2022 AQMP and the 2016 AQMP,” mitigation measures were adopted for certain environmental topic areas which had conclusions of potentially significant impacts. Nonetheless, no environmental topic area identified as having a potentially significant impact in Final Program EIRs for the 2022 AQMP and the 2016 AQMP was capable of being mitigated to less than significant levels. When combined with the Connect SoCal Plan, the SIP strategies, state policies, and other past, present, and reasonably foreseeable activities, implementation of the 2022 AQMP would result in significant environmental impacts. No additional mitigation measures to reduce the significant cumulative impacts were identified, and cumulative impacts to the environmental topic areas of air quality and greenhouse gas emissions, energy, hazards and hazardous materials, hydrology and water quality, noise, and solid and hazardous waste remained significant and unavoidable.

The Final Program EIR for 2016 AQMP concluded potential significant impacts to the environmental topic areas of aesthetics, air quality and greenhouse gas emissions, energy, hazards and hazardous materials, hydrology and water quality, noise, solid and hazardous waste, and transportation and traffic. As explained in the “Summary of Environmental Impact Analysis from the Final Program EIRs for the 2022 AQMP and the 2016 AQMP,” mitigation measures were adopted for certain environmental topic areas which had conclusions of potentially significant impacts. Nonetheless, no environmental topic area identified as having a potentially significant impact was capable of being mitigated to less than significant levels. When

combined with the other past, present, and reasonably foreseeable activities, in particular the transportation projects projected in the 2016 RTP/SCS, implementation of the 2016 AQMP would result in significant environmental impacts. No additional mitigation measures to reduce the significant cumulative impacts were identified, and cumulative impacts to the environmental topic areas of air quality and greenhouse gas emissions, energy, hazards and hazardous materials, hydrology and water quality, noise, solid and hazardous waste, and transportation and traffic remained significant and unavoidable.

The installation and operation of catalytic oxidizers was determined to have no impact to air quality due to construction, a net air quality benefit due to operation, and no impact on greenhouse gas emissions. Because maintenance and cleaning the catalytic oxidizer requires soaking or rinsing the catalyst bed, operation of the catalytic oxidizer is expected to have a less than significant impact to hydrology and water quality. Because the Final Program EIR for the 2016 AQMP analyzed much greater wastewater generation, water quality impacts, and water demand impacts from PM control for under-fired charbroilers such as ESPs, centrifugal separators, and misters, maintenance and cleaning of the catalytic oxidizers is not expected to make the previous significance determinations, more severe. Lastly, installation and operation of catalytic oxidizers was determined to have no impact on all other environmental topic areas.

Therefore, the environmental impacts associated with installing catalytic oxidizers on chain-driven charbroilers in control measure BCM-12 of the PM2.5 Plan are not substantially different from what was previously analyzed in the Final Program EIR for the 2016 AQMP for BCM-01. Thus, no new Initial Study would need to be prepared leading to either an EIR or a Negative Declaration pursuant to CEQA Guidelines Section 15168(c)(1). No substantial changes are proposed to the previously adopted control measures in the 2022 AQMP and the 2016 AQMP which are being relied upon in the PM2.5 Plan. Further, there is no new information of substantial importance to control measures that were previously adopted in the 2022 AQMP and 2016 AQMP, and the new information is not comprised of new significant effects or substantially worsened or more severe significant effects that were not previously analyzed in the Final Program EIRs for the 2022 AQMP and 2016 AQMP. There is no change to the mitigation measures or alternatives previously considered in the Final Program EIRs for the 2022 AQMP and the 2016 AQMP. Thus, in accordance with CEQA Guidelines Section 15168(c)(2), a subsequent EIR would not be required pursuant to CEQA Guidelines Section 15162.

Based on the preceding analysis, pursuant to CEQA Guidelines Section 15168(c)(2), the PM2.5 Plan is considered a later activity within the scope of the 2022 AQMP and 2016 AQMP projects covered by the Final Program EIRs for the 2022 AQMP and the 2016 AQMP. The mitigation measures developed in the Final Program EIRs for the 2022 AQMP and the 2016 AQMP for the previously adopted control measures in the 2022 AQMP and the 2016 AQMP upon which the proposed control measures in the PM2.5 Plan rely are also applicable to the implementation of the PM2.5 Plan and will remain in effect. [CEQA Guidelines Section 15168(c)(3)].

Therefore, the South Coast Air Basin Attainment Plan for the 2012 Annual PM2.5 Standard (PM2.5 Plan) is considered a later activity within the scope of the Final Program EIRs for the 2022 AQMP and the 2016

AQMP and the Final Program EIRs for the 2022 AQMP and the 2016 AQMP adequately describe the later activity for the purposes of CEQA such that no new environmental document will be required.

References

The 2022 AQMP, along with the December 2022 Final Program EIR for the 2022 AQMP (State Clearinghouse No. 2022050287) and its corresponding Findings, Statement of Overriding Considerations, and Mitigation, Monitoring, and Reporting Plan, and the 2016 AQMP along with the March 2017 Final Program EIR for the 2016 AQMP (State Clearinghouse No. 2016071006) and its corresponding with Findings, Statement of Overriding Considerations, and Mitigation, Monitoring, and Reporting Plan, upon which the analysis of the PM2.5 Plan relies, are incorporated by reference pursuant to CEQA Guidelines Section 15150 and are available from the South Coast AQMD's website at:

December 2022 Final Program EIR for the 2022 AQMP

Master webpage: <https://www.aqmd.gov/home/research/documents-reports/lead-agency-scaqmd-projects/south-coast-aqmd-projects---year-2022>

December 2022 Final Program EIR for the 2022 AQMP (including Appendices)

<https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2022/2022-aqmp-final-peir.pdf>

Findings, Statement of Overriding Considerations, and Mitigation Monitoring and Reporting Plan: <https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2022/2022-aqmp-attachment1toresolution.pdf>

2022 AQMP: <https://www.aqmd.gov/home/air-quality/air-quality-management-plans/air-quality-mgt-plan>

March 2017 Final Program EIR for the 2016 AQMP

Master webpage: <http://www.aqmd.gov/home/research/documents-reports/lead-agency-scaqmdprojects/scaqmd-projects---year-2017>

March 2017 Final Program EIR for the 2016 AQMP (without Appendices)

<https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2016/2016aqmpfpeir.pdf>

Appendices A through C: https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2016/2016aqmpfpeir_appendicesac.pdf

Appendices D through E: https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2016/2016aqmpfpeir_appendicesde.pdf

Findings, Statement of Overriding Considerations, and Mitigation Monitoring and Reporting Plan: <https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2017/att2toresolutionfor-2016aqmp.pdf>

2016 AQMP: <https://www.aqmd.gov/home/air-quality/air-quality-management-plans/final-2016-aqmp>

Introduction

1. South Coast AQMD, 2022 Air Quality Management Plan, December 2022. <https://www.aqmd.gov/home/air-quality/air-quality-management-plans/air-quality-mgt-plan>
2. South Coast AQMD, 2016 Air Quality Management Plan, March 2017. <https://www.aqmd.gov/home/air-quality/air-quality-management-plans/final-2016-aqmp>
3. South Coast AQMD, Final Program Environmental Impact Report for the 2022 Air Quality Management Plan, December 2022. <https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2022/2022-aqmp-final-peir.pdf>
4. South Coast AQMD, Final Program Environmental Impact Report for the 2016 Air Quality Management Plan, March 2017. <https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2016/2016aqmpfpeir.pdf>

Summary of Environmental Impact Analysis from the Final Program EIRs for the 2022 AQMP and the 2016 AQMP

5. South Coast AQMD, Attachment 1 to the Governing Board Resolution for the Final Program Environmental Impact Report for the 2022 Air Quality Management Plan, December 2022. <https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2022/2022-aqmp-attachment1toresolution.pdf>
6. South Coast AQMD, Attachment 2 to the Governing Board Resolution for the Final Program Environmental Impact Report for the 2016 Air Quality Management Plan, March 2017. <https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2017/att2toresolutionfor-2016aqmp.pdf>
7. South Coast AQMD, Final Environmental Assessment for Proposed Rule 2305 – Warehouse Indirect Source Rule – Warehouse Actions and Investments To Reduce Emissions (WAIRE) Program and Proposed Rule 316 – Fees for Rule 2305, May 2021. https://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2021/attachment_j_pr2305_finalea.pdf
8. Southern California Association of Governments, Connect SoCal (2020–2045 Regional Transportation Plan/Sustainable Communities Strategy), May 2020. <https://scag.ca.gov/read-plan-adopted-final-connect-socal-2020>
9. California Air Resources Board, 2022 State Strategy for the State Implementation Plan (2022 State SIP Strategy), September 2022. <https://ww2.arb.ca.gov/resources/documents/2022-state-strategy-state-implementation-plan-2022-state-sip-strategy>
10. Southern California Association of Governments, Connect SoCal (2016–2040 Regional Transportation Plan/Sustainable Communities Strategy), April 2016. <https://scag.ca.gov/sites/main/files/file-attachments/f2016rtppscs.pdf>

Environmental Impact Analysis of Additional Physical Changes from Control Measure BCM-12 of the PM2.5 Plan

11. South Coast AQMD, South Coast AQMD Certified Charbroilers with Integrated Catalysts, May 2023. <https://www.aqmd.gov/docs/default-source/permitting/product-certification/charbroilerscatalysts.pdf>
12. BASF, Technical data sheets for catalyst technology, 2007. www.icac.com/resource/resmgr/greenhouse_gas_controls/basf_products_overview_07270.pdf
13. Nieco, The Incendalyst™, Accessed on March 18, 2024. <https://nieco.com/wp-content/uploads/2015/12/Incendalyst2019.pdf>
14. Nieco, Simple Tips on How to Maintain Your Nieco Broiler's Incendalyst™, February 2018. <https://nieco.com/blog/your-broilers-incendalyst-maintenance/>

Staff Recommendations

7

Adopt Resolution:

- Certifying the Final Environmental Impact Assessment for PAR 463
- Amending Rule 463