South Coast Air Quality Management District

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

QMD

AGENDA

HYBRID GOVERNING BOARD MEETING MARCH 3, 2023

A meeting of the South Coast Air Quality Management District Board will be held at 9:00 a.m. on Friday, March 3, 2023 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.

Given health and safety concerns, the meeting format may be changed to full remote via webcast. Please refer to South Coast AQMD's website for information regarding the format of the meeting, updates if the meeting is changed to a full remote via webcast format, and details on how to participate:

http://www.aqmd.gov/home/news-events/meeting-agendas-minutes

Face Coverings	In accordance with state and local public health department guidelines, wearing a mask is based on personal preference for people attending the meeting at South Coast AQMD Headquarters.
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. 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, <u>any</u> <u>item</u> may be considered in <u>any order</u> .
	•	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
- Swearing in of Chair and Vice Chair for Terms February 2023 January 2024
- Swearing in of Newly Appointed Board Members Curt Hagman and José Luis Solache

			Staff/Phone (909) 396-
Note: Co	nse	AND BOARD CALENDAR (Items 1 through 22) ent and Board Calendar items held for discussion will be moved to Item No. 23	
		Items 1 and 2 – Action Items/No Fiscal Impact	
	1.	Approve Minutes of February 3, 2023	Thomas/3268
:	2.	Set Public Hearing April 7, 2023 to Consider Adoption of and/or Amendments to South Coast AQMD Rules and Regulations:	Nastri/3131
		Determine That Proposed Rule 1110.3 – Emissions from Linear Generators and Proposed Amended Rule 1110.2 – Emissions from Gaseous- and Liquid Fueled Engines, Are Exempt from CEQA; and Adopt Rule 1110.3 and Amend Rule 1110.2	Krause/2706
		Proposed Rule 1110.3 will establish NOx, CO and VOC emission limits for linear generators, as well as provisions for monitoring, reporting and recordkeeping. Proposed Amended Rule 1110.2 will exclude linear generators from applicability and remove provisions currently applicable to linear generators. This action is to adopt the Resolution: 1) Determining that Proposed Rule 1110.3 – Emissions from Linear Generators and Proposed Amended Rule 1110.2 – Emissions from Gaseous- and Liquid- Fueled Engines, are exempt from the requirements of the California Environmental Quality Act; 2) Adopting Rule 1110.3; and 3) Amending Rule 1110.2. (Reviewed: Stationary Source Committee, February 17, 2023)	

Item 3 through 6 – Budget/Fiscal Impact

3.	Authorize Purchase of Maintenance and Support Services for Servers and Storage Devices	Moskowitz/3329
	The servers and storage devices are used by enterprise-level software applications that currently support the Clean Air Support System for all South Coast AQMD core activities. Maintenance support for these systems will expire on April 30, 2023. This action is to obtain approval for the sole source purchase of hardware and software maintenance and support services for servers and storage devices from Hewlett Packard Enterprise Company for one year, in an amount not to exceed \$190,000. Funds for these purchases are included in Information Management's FY 2022-23 Budget. (Reviewed: Administrative Committee, February 10, 2023; Recommended for Approval)	
4.	Authorize Purchase of Servers and Storage Devices	Moskowitz/3329
	The servers and storage devices are used by enterprise-level software applications that currently support the Clean Air Support System for all South Coast AQMD core business activities and air quality modeling applications that support Planning and development of AQMPs. Upgrades of these equipment are required to support these activities. This action is to obtain approval for the purchase of server and storage upgrades in an amount not to exceed \$430,000. Funds for these purchases are included in Information Management's FY 2022-23 Budget and Planning, Rule Development & Implementation's FY 2022-23 Budget. (Reviewed: Administrative Committee, February 10, 2023; Recommended for Approval)	
5.	Transfer Funds for Voucher Incentive Program and Appropriate Funds for Development of Carl Moyer Program Grant Management System	Katzenstein/2219
	In 2022, projects were approved under the Voucher Incentive Program (VIP) and a transfer of \$4 million is needed to fund truck projects under VIP Fund (59). Additionally, in September 2021, the Board approved funds for the development of the Carl Moyer Program Grant Management System (GMS) to support the online application process for participants as well as streamline the application review process. The next phase in the development of the GMS is required to incorporate additional business and administrative processes. These actions are to: 1) transfer up to \$4 million from the Carl Moyer Program AB 923 Special Revenue Fund (80) to the VIP Fund (59); and 2) transfer and appropriate up to \$150,000 comprised of \$75,000 from the administrative portion of the Community Air Protection Program (Grant #G19-MCAP-03-1) Fund (77) and \$75,000 from the administrative portion of the Carl Moyer Program (Grant #G21-MO-27) Fund (32) into Information Management's FY 2022-23 and/or 2023-24 Budget, Services and Supplies and/or Capital Outlays Major Objects. (Reviewed; Technology Committee, February 17, 2023; Recommended for Approval)	

	In December 2022, the Board recognized a \$2.9 million award from CARB in Supplemental Environmental Project (SEP) funds to replace diesel school buses with zero-emission buses by contracting with local school districts from a Board-approved backup project list. CARB is providing an additional \$973,655 in SEP funding consisting of \$707,780 from Dr. Ing. H.C.F. Porsche AG and Porsche Cars North America, Inc. and \$265,875 from BP Products North America for South Coast AQMD to fund additional zero- emission school bus replacement projects. These actions are to: 1) recognize up to \$973,655 into the CARB SEP Special Revenue Fund (87); 2) execute contracts with local school districts to replace diesel school buses with zero-emission buses; and 3) reimburse the General Fund for administrative costs of up to \$68,154 from the CARB SEP Special Revenue Fund (87). (Reviewed: Technology Committee, February 17, 2023; Recommended for Approval)	
	<u>Item 7 – Action Item/No Fiscal Impact</u>	
7.	Amend Local Government & Small Business Assistance Advisory Group Charter	Alatorre/3122
	This action is to amend the Local Government & Small Business Assistance Advisory Group Charter to add one additional Board Member. (No Committee Review)	
	Items 8 through 15 – Information Only/Receive and File	
8.	Legislative, Public Affairs and Media Report	Alatorre/3122
	This report highlights the January 2023 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)	
9.	Hearing Board Report	Verdugo-Peralta
	This reports the actions taken by the Hearing Deard during the period of	

This reports the actions taken by the Hearing Board during the period of January 1 through January 31, 2023. (No Committee Review)

10. Civil Filings and Civil Penalties Report

This report summarizes monthly penalties and legal actions filed by the General Counsel's Office from January 1 through January 31, 2023. An Index of South Coast AQMD Rules is attached with the penalty report. (Reviewed: Stationary Source Committee, February 17, 2023)

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Katzenstein/2219

Gilchrist/3459

6. Recognize Funds, Execute Contracts and Reimburse the

CARB Supplemental Environmental Project Funds

General Fund for Zero-Emission School Bus Funding Using

11.	Lead Agency Projects and Environmental	Documents Received	Rees/2856
	This report provides a listing of CEQA documents AQMD between January 1, 2023 and January 31, for which South Coast AQMD is acting as lead ag (Reviewed: Mobile Source Committee, February 17	received by South Coast 2023, and those projects gency pursuant to CEQA. 7, 2023)	
12.	Rule and Control Measure Forecast		Rees/2856
	This report highlights South Coast AQMD rulema hearings scheduled for 2023. (No Committee Revie	king activities and public w)	
13.	Status Report on Major Ongoing and Upco Information Management	ming Projects for	Moskowitz/3329
	Information Management is responsible for data services in support of all South Coast AQMD ope provide the monthly status report on major automati projects. (Reviewed: Administrative Committee, Feb	a systems management erations. This action is to on contracts and planned bruary 10, 2023)	
14.	FY 2022-23 Contract Activity		Jain/2804
	This report lists the number of contracts let during 2022-23, the respective dollar amounts, award t contract signatory for the South Coast AQMD. (No C	the first six months of FY ype, and the authorized Committee Review)	
15.	Receive and File Annual Report on So Deferred Compensation Plans	outh Coast AQMD's	Olvera/2309
	South Coast AQMD sponsors IRS-approved 457(Budget Reconciliation Act of 1990 Deferred Cor employees. The Annual Report for Plan Year Endi the Board's responsibility for monitoring the ac Compensation Plan Committee and ensuring the of fiduciary duties and responsibilities under the Commiss to receive and file the Annual Report. (F Committee, February 10, 2023; Recommended for A	b), 401(a) and Omnibus npensation Plans for its ng June 2022 addresses ctivities of the Deferred Committee carries out its nittee Charter. This action Reviewed: Administrative Approval)	
	Items 16 through 22 Reports for Commi	ttees and CARB	
16.	Administrative Committee (Receive & File)	Chair: Benoit	Nastri/3131
17.	Legislative Committee (Receive & File)	Chair: Cacciotti	Alatorre/3122
18.	Mobile Source Committee (Receive & File)	Chair: Kracov	Rees/2856
19.	Stationary Source Committee (Receive & File)	Chair: McCallon	Aspell/2491
20.	Technology Committee (Receive & File)	Chair: Rodriguez	Katzenstein/2219
21.	Mobile Source Air Pollution Reduction Review Committee (Receive & File)	Board Liaison: 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 Amended Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II, and Proposed Amended Rule 222 – Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II, Are Exempt from CEQA; and Amend Rule 219 and Rule 222

Proposed Amended Rule 219 will add or clarify permit exemption requirements and includes enhanced recordkeeping provisions to address comments by U.S. EPA. Proposed Amended Rule 219 also includes targeted exemptions per the Governing Board's direction to encourage the usage of low-emission technologies. Proposed amendments to Rule 222 are necessary to align with the proposed revisions in Rule 219 and address certain sources with negligible emissions. This action is to adopt the Resolution: 1) Determining that Proposed Amended Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II, and Proposed Amended Rule 222 - Filing Reguirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II, are exempt from the requirements of the California Environmental Quality Act; and 2) Amending Rule 219 - Equipment Not Requiring a Written Permit Pursuant to Regulation II, and Rule 222 – Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II. (Reviewed: Stationary Source Committee, January 20 and February 17, 2023)

 Determine That Proposed Amended Rule 1401.1 – Requirements for New and Relocated Facilities Near Schools, Is Exempt from CEQA; and Amend Rule 1401.1

The school definition in recently adopted or amended air toxics rules includes early learning and development programs, such as pre-kindergarten centers, to expand the protection to younger children. Amendments are proposed to harmonize the definition of school in Rule 1401.1 with other air toxic rules. This action is to adopt the Resolution: 1) Determining that Proposed Amended Rule 1401.1 – Requirements for New and Relocated Facilities Near Schools, is exempt from the requirements of the California Environmental Quality Act; and 2) Amending Rule 1401.1 – Requirements for New and Relocated Facilities Near Schools. (Reviewed: Stationary Source Committee, January 20, 2023)

26. Approve Annual RECLAIM Audit Report for 2021 Compliance Year

The Annual RECLAIM Audit Report for 2021 Compliance Year for the NOx and SOx RECLAIM program is prepared in accordance with Rule 2015 - Backstop Provisions. This report assesses emission reductions, availability and average annual prices of RECLAIM Trading Credits (RTCs), job impacts, compliance issues, and other measures of performance for the twenty-eighth year of this program. Recent trends in trading future year RTCs are analyzed and presented in this report. A list of facilities that did not reconcile their emissions for the 2021 Compliance Year is also included in the report. This recommended action is to adopt the Resolution: 1) Approving the Annual RECLAIM Audit Report for the 2021 Compliance Year; 2) Approving staff's recommendation to

Krause/2706

Krause/2706

Aspell/2491

determine that paragraphs (d)(1) through (d)(4) of Rule 2004 continue without change, as reported in the August 2022 evaluation and review of the compliance and enforcement aspects of the RECLAIM program; and 3) Directing the Executive Officer to submit to CARB and U.S. EPA Annual RECLAIM Audit Report and the August 2022 evaluation and review of the compliance and enforcement aspects of the RECLAIM program, including the determination that paragraphs (d)(1) through (d)(4) of Rule 2004 continue without change. (Reviewed: Stationary Source Committee, February 17, 2023)

27. Approve and Adopt Technology Advancement Office Clean Fuels Program 2022 Annual Report and 2023 Plan Update, Resolution and Membership Changes for Clean Fuels Advisory Group

Each year by March 31, South Coast AQMD must submit to the California Legislative Analyst an approved Annual Report for the past year and a Plan Update for the current calendar year for the Clean Fuels Program. These actions are to: 1) approve and adopt the Technology Advancement Clean Fuels Program Annual Report for 2022 and 2023 Plan Update; 2) adopt the Resolution finding that proposed projects do not duplicate any past or present programs; 3) approve and adopt membership changes to the SB 98 Clean Fuels Advisory Group; and 4) receive and file membership changes to the Technology Advancement Advisory Group. (Reviewed: Technology Committee, February 17, 2023; Recommended for Approval)

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)

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 SCAQMD is a party. The actions are:

- In the Matter of SCAQMD v. Southern California Gas Company, Aliso Canyon Storage Facility, SCAQMD Hearing Board Case No. 137-76 (Order for Abatement); <u>People of the State of California, ex rel SCAQMD v.</u> <u>Southern California Gas Company</u>, Los Angeles Superior Court Case No. BC608322; Judicial Council Coordinated Proceeding No.4861;
- <u>CalPortland Company v. South Coast Air Quality Management District; Governing Board of the South Coast</u> <u>Air Quality Management District; and Wayne Nastri, Executive Officer, and Does 1-100</u>, San Bernardino County Superior Court, Case No. CIV DS 1925894;
- <u>SCAQMD, et al. v. EPA</u>, United States Court of Appeals, D.C. Circuit, Case No. 19-1241 (consolidated with <u>Union of Concerned Scientists v. NHTSA</u>, No. 19-1230);
- SCAQMD, et al. v. NHTSA, EPA, et al., United States Court of Appeals, D.C. Circuit, Filed May 28, 2020;
- <u>Natural Resources Defense Council, et al. v. City of Los Angeles, et al.</u>, 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;
- <u>California Trucking Association v. South Coast Air Quality Management; the Governing Board of the South</u> <u>Coast Air Quality Management District; and Does 1 through 25, inclusive</u>, Case No.: 2:21-cv-06341;

Katzenstein/2219

Gilchrist/3459

- In the Matter of SCAQMD v. Baker Commodities, SCAQMD Hearing Board Case No. 6223-1 (Order for Abatement); <u>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
 </u>
- <u>East Yard Communities for Environmental Justice v. South Coast Air Quality Management District</u>, (Refinery monitoring lawsuit) Los Angeles County Superior Court, Case No. 22STCP04398.

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 (three cases).

 <u>Center for Biological Diversity and Center for Environmental Health v. Michael S. Regan, in his official</u> <u>capacity as Administrator, United States Environmental Protection Agency</u>, 4:23-cv-00148 (Northern District of California) (PM 2.5)

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 SCAQMD (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 Dialin/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, <u>http://www.aqmd.gov/home/news-events/meeting-aqendas-minutes</u>, 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 <u>cob@aqmd.gov</u>, on or before 5:00 p.m. on the Tuesday prior to the Board meeting.

ACRO	ONYMS
AQ-SPEC = Air Quality Sensor Performance	NATTS =I
Evaluation Center	NESHAP
AQIP = Air Quality Investment Program	
AQMP = Air Quality Management Plan	NGV = Na
AVR = Average Vehicle Ridership	NOx = Ox
BACT = Best Available Control Technology	NSPS = N
BARCT = Best Available Retrofit Control Technology	NSR = Ne
Cal/EPA = California Environmental Protection Agency	OEHHA =
CARB = California Air Resources Board	
CEMS = Continuous Emissions Monitoring Systems	PAMS = F
CEC = California Energy Commission	
CEQA = California Environmental Quality Act	PEV = Plu
CE-CERT =College of Engineering-Center for Environmental	PHEV = F
Research and Technology	PM10 = P
CNG = Compressed Natural Gas	PM2.5 = F
CO = Carbon Monoxide	RECLAIM
DOE = Department of Energy	RFP = Re
EV = Electric Vehicle	RFQ = Re
EV/BEV = Electric Vehicle/Battery Electric Vehicle	RFQQ=R
FY = Fiscal Year	SCAG = S
GHG = Greenhouse Gas	SIP = Sta
HRA = Health Risk Assessment	SOx = Ox
LEV = Low Emission Vehicle	SOON = S
LNG = Liquefied Natural Gas	SULEV =
MATES = Multiple Air Toxics Exposure Study	TCM = Tr
MOU = Memorandum of Understanding	ULEV = U
MSERCs = Mobile Source Emission Reduction Credits	U.S. EPA
MSRC = Mobile Source (Air Pollution Reduction) Review	
Committee	VOC = Vo

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
DEHHA = 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 <a> 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
JLEV = Ultra Low Emission Vehicle
J.S. EPA = United States Environmental Protection
Agency
VOC = Volatile Organic Compound
ZEV = Zero Emission Vehicle

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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 932-0955-9643
- 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 932-0955-9643
- Si desea hacer un comentario público, marque *9 en su teclado para indicar que desea comentar.

1 Back to Agenda
AGENDA NO. 1

BOARD MEETING DATE: March 3, 2023

MINUTES: Governing Board Monthly Meeting

SYNOPSIS: Attached are the Minutes of the February 3, 2023 Board Meeting.

RECOMMENDED ACTION: Approve the February 3, 2023 Board Meeting Minutes.

> Faye Thomas Clerk of the Boards

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FRIDAY, FEBRUARY 3, 2023

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:

Ben J. Benoit, Chair Cities of Riverside County

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

Council Member Michael A. Cacciotti Cities of Los Angeles County – Eastern Region

Supervisor Andrew Do County of Orange

Gideon Kracov Governor's Appointee

Mayor Larry McCallon Cities of San Bernardino County

Supervisor Holly J. Mitchell County of Los Angeles

Veronica Padilla-Campos Speaker of the Assembly Appointee

Supervisor V. Manuel Perez (Left the meeting at 9:59 a.m.) County of Riverside

Council Member Nithya Raman City of Los Angeles

Council Member Carlos Rodriguez Cities of Orange County

Supervisor Janice Rutherford County of San Bernardino

Absent: Vacant, Cities of Los Angeles County – Western Region Representative

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 Benoit called the meeting to order at 9:07 a.m.

- Pledge of Allegiance: Led by Supervisor Holly J. Mitchell
- Roll Call

Supervisor Perez was present via videoconference but unable to respond to roll call due to technical difficulties.

• Opening Comments

Chair Benoit reported that he and his board assistant attended a Breathe Southern California event – *Tesla x Breathe SoCal* – at the Petersen Museum in Los Angeles. The event featured an exhibition of Tesla vehicles, which traces the history of the company from its startup, and other products Tesla has created. Chair Benoit encouraged fellow board members to attend the exhibit and noted how much electric cars have progressed over the past ten years.

Council Member Cacciotti shared photos of the Coalition for a Safe Environment Health Fair in Wilmington that he attended at the invitation of former Governing Board member Dr. Joseph Lyou and Jesse Marquez. The heath fair included lung function testing and a commercial lawn and garden equipment demonstration. He also extended an invitation to interested parties to attend the gas-powered leaf blower ban demonstration on February 8 in South Pasadena.

Chair Benoit noted that Board Member Kracov had been reappointed and Supervisor Perez has been newly appointed to the CARB Board.

Council Member Rodriguez reported that he, as well as the California Lieutenant Governor, attended Southern California Gas Company's official launch of North America's first-ever clean hydrogen powered microgrid and home on January 30 in Downey. He expressed concern that MATES V, which is based on 2018 data, is outdated and emphasized the urgent need to update the modeling and inventory data that reflects the increased use of electric vehicles, low sulfur diesel or new renewable diesel to develop the next MATES report.

Supervisor Rutherford echoed Council Member Rodriguez's comments and emphasized that the data should be updated to reflect the success of getting more electric vehicles on the road and more renewable diesel. The most updated data should be used to ensure that the Board has current information when making decisions. Wayne Nastri, Executive Officer, stated that work on MATE VI has begun and that development of MATES is a lengthy process. Mr. Nastri shared photos of staff volunteering at Habitat for Humanity projects in San Bernardino and Greater Los Angeles as part of the Working with Communities initiative, a new South Coast AQMD employee program in partnership with Habitat for Humanity that was recently launched in response to the Board's direction that the agency be more involved in community work; and announced that this year's Student Summer Internship Program will open in mid-February, with the nomination period closing in March.

• Presentation to Outgoing Chair Ben J. Benoit

Vice Chair Delgado highlighted Chair Benoit's accomplishments during his tenure on the Board. She thanked him for his leadership and announced that a new Clean Air Award – The John and Ben Benoit Excellence in Leadership and Collaboration for Clean Air, was created to honor the leadership and public service of both he and his father, John J. Benoit.

Board Members thanked Chair Benoit for his public service and commended his collaborative leadership on the Board.

Chair Benoit expressed appreciation for the opportunity to serve on the Board. He acknowledged his parents, fellow Board members, as well as his Board assistants, Ruthanne Taylor Berger and Tricia Almiron; and commended staff for their hard work and dedication to achieving clean air for all communities.

• Presentation to Outgoing Board Member Janice Rutherford

Chair Benoit recognized Supervisor Rutherford for her accomplishments, hard work, and dedication to the Inland Empire and her constituents.

Board Members offered well wishes and reflected on Supervisor Rutherford's display of leadership on the Board and commitment to her constituents.

Supervisor Rutherford reflected on the beginnings of her career in public service and how it coincided with the South Coast AQMD's efforts to advance alternative-fueled vehicles. She expressed appreciation to her fellow Board members, as well as her two Board assistants – Debra Mendelsohn and Mark Taylor; and thanked staff for their professionalism.

(Supervisor Perez left the meeting at 9:59 a.m.)

- Swearing in of Newly Appointed Board Member Holly J. Mitchell
- Swearing in of Reappointed Board Member Gideon Kracov
- Swearing in of Reappointed Board Member Andrew Do

Chair Benoit administered the oath of office to Supervisor Holly J. Mitchell who was appointed by the Los Angeles County Board of Supervisors; Board Member Gideon Kracov, who was reappointed by Governor Newsom; and Supervisor Do, who was reappointed by the Orange County Board of Supervisors. The appointment and reappointments are for terms ending January 15, 2027. Board Members Mitchell, Kracov and Do expressed appreciation for the opportunity to serve on the Board and commented on the importance of the work being done at the South Coast AQMD.

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

The Public Comment Period was opened. The following individuals addressed the Board.

Andy Silva, former Governing Board Assistant, thanked Supervisor Rutherford and her predecessor, Supervisor Josie Gonzalez, for the opportunity to provide them with staff support on the South Coast AQMD Board. He expressed appreciation for the democratic process and the importance for the public to participate in the process. For additional details, please refer to the <u>Webcast</u> beginning at 1:20:09.

Supervisor Rutherford thanked Mr. Silva for his friendship and wisdom over the years. She expressed appreciation for his attitude and the way he approaches things and echoed his sentiments that public participation is an essential part of democracy.

Sarah Wiltfong, Los Angeles County Business Federation (BizFed) Rita Loof, RadTech International Bill Quinn, California Council for Environmental and Economic Balance Adrian Martinez, Earthjustice Patty Senecal, Western States Petroleum Association

These commenters expressed appreciation to Chair Benoit and Supervisor Rutherford for their dedication and service to the Board, the leadership they have provided in navigating complex policies, and their willingness to hear stakeholders' concerns. For additional details, please refer to the <u>Webcast</u> beginning at 1:24:23.

Harvey Eder, Public Solar Power Coalition, advised that he would be filing a motion for a stay on the 2016 and 2022 AQMPs and CARB's Scoping Plan, as the plans did not evaluate for solar and ignored the Solar New Deal. For additional details, please refer to the <u>Webcast</u> beginning at 1:25:30.

Florence Gharibian, Del Amo Action Committee, welcomed Supervisor Mitchell to the Board. She reported on recent activities with their organization, which includes a community health study that was conducted in collaboration with the Coalition for Clean Air, a truck count study that was conducted in areas surrounding the Del Amo community, and a community health fair. She mentioned her involvement in CARB's rulemaking to amend the Hexavalent Chromium Airborne Toxic Control Measure. For additional details, please refer to the <u>Webcast</u> beginning at 1:29:00.

Ranji George, a member of the public, thanked Chair Benoit and Supervisor Rutherford for their approach in shaping and leading discussions and encouraging public engagement. He commented on the need to address climate change issues and promote solar, renewable, and hydrogen technologies to address climate change and meet clean air goals. He expressed concern that significant funding for hydrogen technology remains marginalized. For additional details, please refer to the <u>Webcast</u> beginning at 1:33:21.

There being no further requests to speak, the Public Comment Period was closed.

CONSENT AND BOARD CALENDAR

Items 1 Through 3 – Action Items/No Fiscal Impact

- 1. Comply with AB 361 Requirements to Allow South Coast AQMD Board and South Coast AQMD Brown Act Committees to Continue to Meet Remotely
- 2. Approve Minutes of January 6, 2023 Board Meeting
- 3. Set Public Hearings March 3, 2023 to Consider Adoption of and/or Amendments to South Coast AQMD Rules and Regulations:
 - A. Determine That Proposed Amended Rule 219 Equipment Not Requiring a Written Permit Pursuant to Regulation II, and Proposed Amended Rule 222 – Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II, Are Exempt from CEQA; and Amend Rule 219 and Rule 222
 - B. Determine That Proposed Amended Rule 1401.1 Requirements for New and Relocated Facilities Near Schools, Is Exempt from CEQA; and Amend Rule 1401.1

Items 4 and 5 – Budget/Fiscal Impact

- 4. Transfer and Appropriate Funds for Enhancements to Warehouse Actions and Investments to Reduce Emissions Program Online Portal
- 5. Approve Contract Award and Modification as Approved by MSRC

Items 6 through 12 – Information Only/Receive and File

- 6. Legislative, Public Affairs and Media Report
- 7. Hearing Board Report
- 8. Civil Filings and Civil Penalties Report
- 9. Lead Agency Projects and Environmental Documents Received
- 10. Rule and Control Measure Forecast
- 11. Status Report on Regulation XIII New Source Review812. Status Report on Major Ongoing and Upcoming Projects for Information Management

Items 13 through 18 - Reports for Committees and CARB

Note: The January 20, 2023 Technology Committee meeting was cancelled. The next regularly scheduled meeting of the Technology Committee is February 17, 2023.

- 13. Administrative Committee
- 14. Legislative Committee
- 15. Mobile Source Committee
- 16. Stationary Source Committee
- 17. Mobile Source Air Pollution Reduction Review Committee
- 18. California Air Resources Board Monthly Report

Item 19 – Staff Presentation/Board Discussion/Receive and File

- 19. U.S. EPA's Proposal to Strengthen the National Ambient Air Quality Standards for Fine Particulate Matter (Presentation in lieu of Board Letter)
- 20. Items Deferred from Consent and Board Calendar

There were no items pulled for discussion.

The Chair and Vice Chair announced that the use of virtual meetings pursuant to AB 361 will expire at the end of February. Starting in March, the Board will return to the auditorium for in-person meetings but the option for remote participation will continue to be made available to attendees. Board committees may continue to meet remotely but must revert to the original Brown Act guidelines that require remote locations be posted on the agenda and accessible to the public.

Disclosures

Supervisor Do reported that he had no financial interest in Agenda Item No. 5 but is required to identify for the record that he is a committee member on SCAG's Transportation Committee, which is involved in this item.

Mayor McCallon reported that he had no financial interest in Agenda Item No. 5 but is required to identify for the record that he is member of SCAG's Regional Council, which is involved in this item.

Council Member Cacciotti reported that he had no financial interest in Agenda Item No. 5 but is required to identify for the record that he is a council member for the city of South Pasadena, which is involved in this item.

Council Member Raman reported that she had no financial interest in Agenda Item No. 5 but is required to identify for the record that she is a member of SCAG's Regional Council, which is involved in this item.

Chair Benoit highlighted funding being recommended in Agenda Item No. 5 towards the procurement of electric vehicles and infrastructure for the City of South

Pasadena's police department, which will make that City the first in the United States and world to electrify its entire police fleet. He thanked Council Member Cacciotti for his efforts in seeing this implemented.

Agenda Item Nos. 1-19 were opened for public comment; and the following individuals addressed the Board.

Agenda Item No. 3A

Rita Loof, RadTech, stated that the UV/EB/LED industry cannot support PAR Rule 219 as currently proposed. The proposal would require a permit evaluation for the physical modification of an existing solvent borne coating process. The rule language tethers the zero-emission process to the solvent process and considers the pollution prevention process a modification of a solvent system, thereby disregarding the environmental benefits of UV/EB/LED. She urged for the proposal to be reconsidered and allow time to work with staff to come up with mutually agreeable language. For more information, please refer to the <u>Webcast</u> beginning at 1:44:37.

Agenda Item No. 10

Fernando Gaytan, Earthjustice Yassi Kavezade, Sierra Club

These commenters were pleased that Rule 2304 – Marine Port Indirect Source Rule, and Rule 2306 – New Intermodal Railyard Indirect Source Rule are scheduled for rulemaking this year; however, they were disappointed that both rules are being delayed for later in the year and that Rule 2306.1 – Existing Intermodal Railyard Indirect Source Rule, was moved from the 2023 schedule to "to-be-determined." They commented on the significant impact that emission reductions from these rules will have on communities and the region's air quality. Mr. Gaytan urged the Board to inquire about the delay of the rules and to make sure that staff has the needed resources so that the rules are not further delayed. Ms. Kavezade expressed support for the initial concepts of the railyard rules and requested that all community meetings have interpretation services for community representatives. For additional details, please refer to the Webcast beginning at 1:47:39.

Agenda Item No. 5

Ranji George expressed support for funds that have been allocated to zeroemission vehicles and infrastructure but was disappointed that hydrogen vehicles and infrastructure were not included. He advocated for more funds to be allocated to hydrogen technologies.

Harvey Eder was recognized to speak but his audio could not be heard. Chair Benoit expressed appreciation to Mr. Eder for his time and energy.

There being no further requests to speak, the public comment period for Agenda Items No. 1-19 was closed.

Board Action (Items 1–19)

MOVED BY CACCIOTTI, SECONDED BY MCCALLON TO APPROVE AGENDA ITEMS 1 THROUGH 19 AS RECOMMENDED TO:

ADOPT RESOLUTION NO. 23-4, RECOGNIZING THE PROCLAMATION OF A STATE OF EMERGENCY BY GOVENOR NEWSOM ON MARCH 4, 2020 AND THAT LOCAL OFFICIALS CONTINUE TO RECOMMEND MEASURES TO PROMOTE SOCIAL DISTANCING: AND AUTHORIZING FULLY OR PARTIALLY REMOTE TELECONFERENCE MEETINGS OF THE GOVERNING BOARD OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT, AND SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT COMMITTEES SUBJECT TO THE BROWN ACT, FOR THE PERIOD FEBRUARY 3, 2023 THROUGH MARCH 5, 2023 PURSUANT TO PROVISIONS OF THE **BROWN ACT; AND**

RECEIVE AND FILE THE COMMITTEE REPORTS AND CARB REPORT.

THE MOTION CARRIED BY THE FOLLOWING VOTE:

- AYES: Benoit, Cacciotti, Delgado, Do, Kracov, McCallon, Mitchell, Padilla-Campos, Raman, Rodriguez, and Rutherford
- NOES: None

ABSENT: Perez

19. U.S. EPA's Proposal to Strengthen the National Ambient Air Quality Standards for Fine Particulate Matter (Presentation in Lieu of Board Letter)

Sarah Rees, Deputy Executive Officer/Planning, Rule Development and Implementation, gave the staff presentation on this item.

Board Member Kracov inquired about the status of the attainment plan for the 2006 24-hour PM2.5 standard where the Basin was expected to attain the standard, and then there were issues associated with emissions associated with the backlog of cargo at the Ports. For additional details, please refer to the <u>Webcast</u> beginning at 2:10:20.

Dr. Sarah Rees, Deputy Executive Officer, Planning, Rule Development and Implementation, confirmed that Board Member Kracov was correct and added that there were some weather events that also contributed to the attainment of the 24-hour PM2.5 level standard. Dr. Rees explained that staff has been seeing cleaner conditions, however, one of the monitors in Compton has been providing anomalous results which are likely attributed to bonfires.

Board Member Kracov asked about the next steps to demonstrate attainment. Dr. Rees explained that staff is working with U.S. EPA and, although the process is not as extensive as the 2022 AQMP, staff is planning to provide updates to the Board. For additional details, please refer to the <u>Webcast</u> beginning at 2:11:04.

Harvey Eder was given another opportunity to provide comments on Agenda Items No. 1 through 19 but his audio could not be heard.

 Determine That Proposed Amended Rule 1148.2 – Notification and Reporting Requirements for Oil and Gas Wells and Chemical Suppliers, Is Exempt from CEQA; and Amend Rule 1148.2

Mike Morris, Planning and Rules Manager, gave the staff presentation on this item.

Council Member Cacciotti asked about the geographic area that the estimated cost for the distribution of written notifications covers, as well as the number of oil wells impacted by the rule and size of those operations.

Mr. Morris responded that staff estimates an annual cost of \$420,000 for mail notifications. There are approximately 300 facilities affected by this amendment; however, the facilities were not categorized by size. For additional details, please refer to the <u>Webcast</u> beginning at 2:18:52.

In response to Mayor McCallon's inquiry about how the public is informed about the online notification portal, Mr. Morris responded that the online portal is on the South Coast AQMD website and, as in other rule development processes, there has been an effort to let people know about the portal. Mayor McCallon recommended that staff do a better job to inform the public about the online portal. For additional details, please refer to the <u>Webcast</u> beginning at 2:20:02.

Mr. Nastri pointed out that staff has been working with the AB 617 communities to publicize the portal on the websites of the AB 617 communities and outreach efforts through the AB 617 Community Steering Committees. Mayor McCallon acknowledged that the AB 617 communities is a good way to let the public know that the portal exists and that they can request to receive notifications. For additional details, please refer to the <u>Webcast</u> beginning at 2:21:35.

Mr. Nastri further added that the communities expressed a desire for written notifications and that written notifications was a priority for the AB 617 communities. Board members discussed the most effective notification method.

Vice Chair Delgado noted that the Stationary Source Committee had not received any comments on this issue; however, comments were received on January 31 regarding the cost and effectiveness of mailed notices. She commented on a research study that shows text messaging is the most efficient communication tool, as it penetrates about 86 percent of the population; however, her personal belief is that door-to-door is the best tool, but not a lot of people will do that. For additional details, please refer to the <u>Webcast</u> beginning at 2:23:30.

Supervisor Mitchell commented on the experiences of Los Angeles County when trying to disseminate information quickly to the public during the pandemic. They found that many neighborhoods across the County do not have access to the Internet. She emphasized the importance of supporting the communities' request for written notifications, especially for communities that are the most vulnerable and are located close to oil wells. She further added that text technology was not effective in the delivery of emergency information during the pandemic. For additional details, please refer to the Webcast beginning at 2:25:29.

Board Member Padilla-Campos asked how the cost for mailing notifications would be distributed among the operators. Mr. Morris responded that the amount is distributed to any and all companies that would have to do the distribution. She questioned the significant cost to distribute written notifications but agreed that mailings are effective. For additional details, please refer to the <u>Webcast</u> beginning at 2:28:40.

Council Member Raman expressed support for the distribution of written notifications to alert the communities about acidizing events. She emphasized the importance of listening to the communities who have communicated their preference for written notification. For additional details, please refer to the <u>Webcast</u> beginning at 2:30:43.

Agenda Item No. 21 was opened for public comment; and the following individuals addressed the Board.

For additional details, please refer to the <u>Webcast</u> beginning at 2:32:43.

Trent Rosenlieb, California Independent Petroleum Association (CIPA) Jessica, Matrix Oil Ted Cordova, E&B Natural Resources Jeff Cooper, Family member of a small oil company

These commenters provided the following comments:

- Support proposed changes that will enhance safety to the public and further protect the environment;
- Expressed opposition to paragraph (d)(10), the requirement for written notifications be sent via U.S. mail or personal service, as small operators would incur significant costs for written notifications, which could delay maintenance by operators;

- Noted that the current electronic notification is cost effective, efficient, and environmentally friendly when compared to the proposed requirements for a written notification; and
- Requested that the Board retain the current electronic notification process.

Ashley Hernandez, Communities for a Better Environment and Wilmington resident Wendy Miranda, Esperanza Community Housing and Wilmington resident Nancy Ibrahim, Esperanza Community Housing, People Not Pozos, and Stand

Together Against Neighborhood Drilling Coalition (STAND-L.A.) Alison Hahm, Communities for a Better Environment Roberto Cabrales, Communities for a Better Environment Hugo Garcia, Esperanza Community Housing, People Not Pozos, and STAND-L.A.

Nicole Levin, Sierra Club Maro Kakoussian, Stand L.A. and Physicians for Social Responsibility Eric Romann, Physicians for Social Responsibility Augustin Cabrera, Strategic Concepts in Organizing and Policy Education Tianna Shaw Wakeman, Black Women for Wellness Sandy Navarro, Esperanza Community Housing Chris Chavez, Coalition for Clean Air

These commenters provided the following comments:

- Expressed appreciation for strengthening the rule to include written mail notifications in English and Spanish;
- Emphasized the need to revisit the rule in the future to disclose chemicals anticipated to be used and their quantities in the notification; and
- Urged the Board to adopt the proposed amendments.

Richard Parks, Redeemer Community Partnership, presented slides to illustrate the importance of the proposed amended rule. The photos showed large tanker trucks of what he believed carry air toxins, toxic acid, and carcinogenic chemicals parked in densely populated residential neighborhoods and workers wearing protective gear. (Written Comments Submitted) For additional details, please refer to the Webcast beginning at 2:40:48.

Harvey Eder commented on premature mortality projections due to air pollution and the potential of oil and gas wells used for subsurface storage space for solar generated power. For additional details, please refer to the Webcast beginning at 2:52:33.

Ralph Combs, The Termo Company, commented that the Ports and mobile sources are the primary source of pollution, and it is troubling that his industry is continuously targeted. He suggested the use of a risk-based approach to better address community concerns. For additional details, please refer to the <u>Webcast</u> beginning at 3:17:50.

There being no further requests to speak, the public comment period for Agenda Item No. 21 was closed.

Mr. Nastri commented on the concerns that the Board heard from the community about their desire for notifications and it was within the last few days that staff received concerns about the current proposal. Mr. Nastri emphasized the need to ensure that the community is provided with the necessary information in a timely and accurate manner; however, he is not aware of other agencies conducting door-to-door notifications. Staff is looking at ways to improve communications and the best notification methods. For additional details, please refer to the <u>Webcast</u> beginning at 3:19:59

Vice Chair Delgado stated that Proposed Amended Rule 1148.2 was intended to strengthen community outreach about acidizing events and noted that the majority of the rule is supported by all stakeholders. The primary issue is the method that is used to reach out to the community. Vice Chair Delgado recommended moving forward with the amended rule in its current form because of its importance and the actual noticing provisions are not effective until July 2023. She suggested that staff report back to the Stationary Source Committee or the Board about the most effective means of communicating or preferences from the community. For additional details, please refer to the <u>Webcast</u> beginning at 3:23:12.

Supervisor Mitchell expressed support for the Vice Chair's suggestion; and added that as a member of the Stationary Source Committee, it is her understanding that the industry stakeholders have been consulted as part of the rule development process so she is surprised to hear members from the industry suggest otherwise. Supervisor Mitchell noted that the impacted communities have communicated what their preferable method of communication works best for them so their input should not be ignored. For additional details, please refer to the <u>Webcast</u> beginning at 3:24:56.

Board Member Padilla-Campos stated that the adoption of PAR 1148.2 should not be delayed and that staff did a good job listening and responding to the comments they received. She added that the images Mr. Parks showed were impactful and emphasized the need to move forward with the letter of mail notification provisions. Board Member Padilla-Campos stated that she will be supporting the staff recommendation. For additional details, please refer to the <u>Webcast</u> beginning at 3:26:02.

Board Action (Agenda Item 21)

MOVED BY CACCIOTTI, SECONDED BY MITCHELL TO APPROVE AGENDA ITEM NO. 21 AS RECOMMENDED TO ADOPT RESOLUTION 23-5:

DETERMINING THAT PROPOSED AMENDED RULE 1148.2 – NOTIFICATION AND REPORTING REQUIREMENTS FOR OIL AND GAS WELLS AND CHEMICAL SUPPLIERS, IS EXEMPT FROM THE REQUIREMENTS OF THE CALIFORNIA ENVIRONMENTAL QUALITY ACT; AND

AMENDING RULE 1148.2 – NOTIFICATION AND REPORTING REQUIREMENTS FOR OIL AND GAS WELLS AND CHEMICAL SUPPLIERS.

THE MOTION CARRIED BY THE FOLLOWING VOTE:

- AYES: Benoit, Cacciotti, Delgado, Do, Kracov, McCallon, Mitchell, Padilla-Campos, Raman, Rodriguez, and Rutherford
- NOES: None

ABSENT: Perez

CLOSED SESSION

The Board recessed to closed session at 12:26 p.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 actions are:

East Yard Communities for Environmental Justice v. South Coast Air Quality Management District, (Refinery monitoring lawsuit) Los Angeles County Superior Court, Case No. 22STCP04398.

CONFERENCE WITH LEGAL COUNSEL – INITIATING LITIGATION

• 54956.9(a) and 54956.9(d)(4) to consider initiation of litigation for two cases, including:

<u>Center for Biological Diversity and Center for Environmental Health v. Michael S.</u> <u>Regan, in his official capacity as Administrator, United States Environmental</u> <u>Protection Agency</u>, 4:23-cv-00148 (Northern District of California) (PM 2.5)

Following closed session, Bayron Gilchrist, General Counsel, announced that a report of any reportable actions taken in closed session will be provided to the Clerk of the Board.

ADJOURNMENT

There being no further business, the meeting was adjourned by Mr. Gilchrist at 1:06 p.m. At the request of Chair Benoit, the meeting was closed in memory of Deputy Isaiah Cordero.

The foregoing is a true statement of the proceedings held by the South Coast Air Quality Management District Board on February 3, 2023.

Respectfully Submitted,

Faye Thomas Clerk of the Boards

Date Minutes Approved: _____

Ben J. Benoit, Chair

ACRONYMS

AQMP = Air Quality Management Plan CARB = California Air Resources Board CEQA = California Environmental Quality Act FY = Fiscal Year MATES = Multiple Air Toxics Exposure Study SIP = State Implementation Plan UV/EB/LED = Ultraviolet/Electron Beam/Light Emitting Diode

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BOARD MEETING DATE: March 3, 2023

AGENDA NO. 2

PROPOSAL: Set Public Hearing April 7, 2023 to Consider Adoption of and/or Amendments to South Coast AQMD Rules and Regulations:

Determine That Proposed Rule 1110.3 – Emissions from Linear Generators and Proposed Amended Rule 1110.2 – Emissions from Gaseous- and Liquid-Fueled Engines, Are Exempt from CEQA; and Adopt Rule 1110.3 and Amend Rule 1110.2

Proposed Rule 1110.3 will establish NOx, CO and VOC emission limits for linear generators, as well as provisions for monitoring, reporting and recordkeeping. Proposed Amended Rule 1110.2 will exclude linear generators from applicability and remove provisions currently applicable to linear generators. This action is to adopt the Resolution: 1) Determining that Proposed Rule 1110.3 – Emissions from Linear Generators and Proposed Amended Rule 1110.2 – Emissions from Gaseous- and Liquid-Fueled Engines, are exempt from the requirements of the California Environmental Quality Act; 2) Adopting Rule 1110.3; and 3) Amending Rule 1110.2. (Reviewed: Stationary Source Committee, February 17, 2023)

The complete text of the 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, <u>dalatorre@aqmd.gov</u> and on the Internet (<u>www.aqmd.gov</u>) as of March 7, 2023.

RECOMMENDED ACTION:

Set public hearing April 7, 2023 to determine that: Proposed Rule 1110.3 and Proposed Amended Rule 1110.2 are exempt from the requirements of the California Environmental Quality Act; and adopt Rule 1110.3 and amend Rule 1110.2.

Wayne Nastri Executive Officer

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AGENDA NO.	3

BOARD MEETING DATE: March 3, 2023

PROPOSAL: Authorize Purchase of Maintenance and Support Services for Servers and Storage Devices

- SYNOPSIS: The servers and storage devices are used by enterprise-level software applications that currently support the Clean Air Support System for all South Coast AQMD core activities. Maintenance support for these systems will expire on April 30, 2023. This action is to obtain approval for the sole source purchase of hardware and software maintenance and support services for servers and storage devices from Hewlett Packard Enterprise Company for one year, in an amount not to exceed \$190,000. Funds for these purchases are included in Information Management's FY 2022-23 Budget.
- COMMITTEE: Administrative, February 10, 2023; Recommended for Approval

RECOMMENDED ACTION:

Authorize the Procurement Manager to purchase one year of maintenance and support services for South Coast AQMD servers and storage devices from Hewlett Packard Enterprise Company at a cost not to exceed \$190,000.

	Wayne Nastri	
	Executive Officer	
RMM:MH:LG:ir		

Background

South Coast AQMD uses Hewlett Packard Enterprise Company (HP) servers and storage devices running Windows Server and Linux operating systems since 2000. The HP servers support several production applications such as the Clean Air Support System (CLASS), Permit Processing, Finance, Compliance, NSR, Emission Fee Billing, Notice of Violations, Facility Permits, ERS Interim Reports, Subscription Services, Web Servers, PeopleSoft Financial and HCM database, OnBase document management system, Legal system, AQMP Modeling and Telemetry system. Hardware and software maintenance and support services are required to ensure the continued operation of these programs with minimum interruption. Maintenance and support services for these servers expires on April 30, 2023.

HP is the sole manufacturer and provider of the hardware and software, and the only source for maintenance support licensing agreements. HP also provides South Coast AQMD with substantial discounts through cooperative agreements.

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 project involves the use of proprietary technology, and the contractor has ownership of key assets required for project performance. HP is the sole provider of this hardware and software and therefore, the only source for its maintenance and support licensing agreements.

Proposal

This action is to purchase one year of maintenance and support services for server hardware and software from HP at a cost not to exceed \$190,000.

Resource Impacts

Sufficient funds are included in the FY 2022-23 Budget.

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AGENDA NO. 4	1

BOARD MEETING DATE: March 3, 2023

PROPOSAL: Authorize Purchase of Servers and Storage Devices

- SYNOPSIS: The servers and storage devices are used by enterprise-level software applications that currently support the Clean Air Support System for all South Coast AQMD core business activities and air quality modeling applications that support planning and development of AQMPs. Upgrades of these equipment are required to support these activities. This action is to obtain approval for the purchase of server and storage upgrades in an amount not to exceed \$430,000. Funds for these purchases are included in Information Management's FY 2022-23 Budget and Planning, Rule Development & Area Sources' FY 2022-23 Budget.
- COMMITTEE: Administrative, February 10, 2023; Recommended for Approval

RECOMMENDED ACTION:

Authorize the Procurement Manager to purchase servers and storage devices at a cost not to exceed \$430,000.

Wayne Nastri Executive Officer

RMM:MH:LG:ir

Background

South Coast AQMD uses Hewlett Packard Enterprise Company (HP) servers and storage devices running Windows Server and Linux operating systems. The HP servers support several production applications such as the Clean Air Support System (CLASS), Permit Processing, Finance, Compliance, NSR, Emission Fee Billing, Notice of Violations, Facility Permits, ERS Interim Reports, Subscription Services, Web Servers, PeopleSoft Financial and HCM database, OnBase document management system, Legal system, AQMP Modeling and Telemetry system. The existing storage systems total 430 terabytes and are over 73 percent utilized. Existing servers are not capable of supporting new business applications or increased modeling and forecasting simulations.

Proposal

In accordance with South Coast AQMD's Administrative Policies and Procedures No. 35, bids will be solicited from firms on the List of Prequalified Vendors to Provide Computer, Network, Printer Hardware and Software, and Desktop Computer Hardware Upgrades, and through vendor master agreements, cooperative agreements and other interagency agreements with governmental entities in order to achieve the best available price. The prequalified vendor list was approved by the Board on February 4, 2022 and is in effect for a period ending February 4, 2024. Of the 11 vendors on the list, three are near-zero delivery vehicles; five are women-owned business enterprises; five are minority-owned business enterprises; six are local business enterprises; and four are small business enterprises.

This action is to authorize the Procurement Manager to execute purchase orders for servers and storage devices with the vendor providing the lowest cost bid at a total cost not to exceed \$430,000.

Resource Impacts

Sufficient funding is available in Information Management's FY 2022-23 Budget and Planning, Rule Development & Area Sources' FY 2022-23 Budget.

BOARD MEETING DATE: March 3, 2023

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AGENDA NO. 5

- PROPOSAL: Transfer Funds for Voucher Incentive Program and Appropriate Funds for Development of Carl Moyer Program Grant Management System
- SYNOPSIS: In 2022, projects were approved under the Voucher Incentive Program (VIP) and a transfer of \$4 million is needed to fund truck projects under VIP Fund (59). Additionally, in September 2021, the Board approved funds for the development of the Carl Moyer Program Grant Management System (GMS) to support the online application process for participants as well as streamline the application review process. The next phase in the development of the GMS is required to incorporate additional business and administrative processes. These actions are to: 1) transfer up to \$4 million from the Carl Moyer Program AB 923 Special Revenue Fund (80) to the VIP Fund (59); and 2) transfer and appropriate up to \$150,000 comprised of \$75,000 from the administrative portion of the Community Air Protection Program (Grant #G19-MCAP-03-1) Fund (77) and \$75,000 from the administrative portion of the Carl Moyer Program (Grant #G21-MO-27) Fund (32) into Information Management's FY 2022-23 and/or 2023-24 Budget, Services and Supplies and/or Capital Outlays Major Objects.

COMMITTEE: Technology, February 17, 2023; Recommended for Approval

RECOMMENDED ACTIONS:

- Transfer \$4 million from the Carl Moyer Program AB 923 Special Revenue Fund (80) to the VIP Fund (59); and
- Transfer and appropriate up to \$150,000, comprised of \$75,000 from the administrative portions from each of the Community Air Protection Program (Grant #G19-MCAP-03-1) Fund (77) and the Carl Moyer Program (Grant #G21-MO-27) Fund (32) into Information Management's FY 2022-23 and/or 2023-24 Budget, Services and Supplies and/or Capital Outlays Major Objects.

Background

South Coast AQMD has implemented the Carl Moyer On-Road Heavy-Duty Vehicles VIP since 2009. The VIP is a streamlined incentive program for small fleets and independent owner operators to replace older trucks with newer, cleaner models. To date, South Coast AQMD has expended approximately \$45 million in incentive funds to replace over 1,300 older diesel trucks with cleaner, lower-emitting vehicles through the VIP. Due to the January 1, 2023 compliance deadline under CARB's Truck & Bus Regulation for heavy-duty trucks with engine model years 2007 to 2009, VIP experienced increased demand for funding resulting in additional funds are needed to fund applications received.

In September 2021, the Board approved the development of the Carl Moyer Grant Management System (GMS) to facilitate the online submittal process for participants and streamline the application evaluation and approval process for staff. To date, Information Management staff have successfully completed the initial development of the Carl Moyer Program GMS application interface for public users, internal staff dashboard, application forms, as well as internal review and approval processes. The GMS was also successfully utilized during the last Carl Moyer Program solicitation in April 2022.

Additional developments for the Carl Moyer Program GMS are needed to further enhance the capabilities of the GMS by integrating inspection, contracting, invoicing, and annual reporting modules into the existing GMS. In addition, funds are needed to support the costs associated with maintaining the Carl Moyer Program GMS.

Proposal

Staff recommends a transfer of up to \$4 million from the Carl Moyer Program AB 923 Special Revenue Fund (80) to the VIP Fund (59) to fund truck projects that assist small fleets in purchasing low NOx and zero-emission replacement trucks under the VIP.

Additionally, staff is recommending the development of the next phase of the Carl Moyer Program GMS. The new GMS developments will include the following:

- Continued development of an inspection module for staff to upload inspection photos and to review and approve inspection reports;
- Contracting & Invoicing module for staff to directly prepare draft contracts in OnBase, the online platform for managing documents and processes; and
- Annual Report module for end users to upload and staff to review annual usage reports required by Carl Moyer Program guidelines.

Benefits to South Coast AQMD

Since 2009, implementation of the VIP has resulted in approximately 890 and 6.7 tons/year of NOx and PM emission reductions, respectively. The vehicles under this program will operate for many years, providing long-term emission reductions. Also,

deployment of cleaner truck technologies, particularly from mobile sources, is needed to achieve the National Ambient Air Quality standards and is part of the control strategy in the 2022 AQMP.

The transition to a centralized in-house GMS and database to manage the Carl Moyer Program projects and other incentive programs will better suit the operational needs of South Coast AQMD due to the increased requirements for application review and project tracking. The GMS will enhance the submittal process for participants, the evaluation and approval processes for staff, and the project management for both participants and staff. In addition, the Carl Moyer Program GMS offers an updated and seamless integration with the OnBase systems; particularly with the OnBase invoicing and contract modules.

Resource Impacts

Sufficient funding is available in the Carl Moyer Program AB 923 Special Revenue Fund (80) for the continued support of VIP implementation and the transfer amount to the VIP Fund (59) will not exceed \$4 million. Additionally, sufficient funding is available from the administrative portion of the Community Air Protection Program (Grant #G19-MCAP-03-1) Fund (77) and the administrative portion of the Carl Moyer Program (Grant #G21-MO-27) Fund (32) in the amount up to \$150,000 for further development of the Carl Moyer Program GMS.

BOARD MEETING DATE: March 3, 2023

AGENDA NO. 6

- PROPOSAL: Recognize Funds, Execute Contracts and Reimburse the General Fund for Zero-Emission School Bus Funding Using CARB Supplemental Environmental Project Funds
- SYNOPSIS: In December 2022, the Board recognized a \$2.9 million award from CARB in Supplemental Environmental Project (SEP) funds to replace diesel school buses with zero-emission buses by contracting with local school districts from a Board-approved backup project list. CARB is providing an additional \$973,655 in SEP funding consisting of \$707,780 from Dr. Ing. H.C.F. Porsche AG and Porsche Cars North America, Inc. and \$265,875 from BP Products North America for South Coast AQMD to fund additional zero-emission school bus replacement projects. These actions are to: 1) recognize up to \$973,655 into the CARB SEP Special Revenue Fund (87); 2) execute contracts with local school districts to replace diesel school buses with zero-emission buses; and 3) reimburse the General Fund for administrative costs of up to \$68,154 from the CARB SEP Special Revenue Fund (87).

COMMITTEE: Technology, February 17, 2023; Recommended for Approval

RECOMMENDED ACTIONS:

- 1. Recognize up to \$973,655, consisting of \$707,780 from Dr. Ing. H.C. F. Porsche AG and Porsche Cars North America, Inc. and \$265,875 from BP Products North America, into CARB SEP Special Revenue Fund (87);
- 2. Authorize the Chair to execute contracts with local school districts to replace diesel school buses with zero-emission buses from a Board-approved backup list of projects in an amount up to \$905,501 from CARB SEP Special Revenue Fund (87); and
- 3. Reimburse the General Fund for administrative cost of up to \$68,154 from CARB SEP Special Revenue Fund (87).

Wayne Nastri Executive Officer

Background

Since the inception of the Lower-Emission School Bus Program in 2001, South Coast AQMD has spent approximately \$325 million in local, state and federal funds to replace over 1,800 highly polluting diesel school buses with alternative fuel buses and retrofitted over 3,400 diesel school buses with diesel particulate traps. This program has resulted in exposure reduction of fine and ultra-fine particulate matter, for thousands of school children.

In March 2022, South Coast AQMD submitted a zero-emission school bus project plan to CARB for any upcoming Supplemental Environmental Project (SEP) funds (SEP project plan). The SEP project plan included a backup project list of school bus projects approved by the Board on December 3, 2021 that could be funded with SEP funds, consisting of the top three most cost-effective zero-emission school buses, and supporting infrastructure projects from each county.

In December 2022, the Board recognized a \$2.9 million award from CARB in SEP funds to replace diesel school buses with zero-emission buses by contracting with local school districts from the Board-approved backup project list. CARB has notified South Coast AQMD that additional SEP funding is being provided to South Coast AQMD, totaling up to \$973,655 from Dr. Ing. H.C.F. Porsche AG and Porsche Cars North America, Inc. and BP Product North America. Specifically, Dr. Ing. H.C.F. Porsche AG and Porsche Cars North America will provide \$265,875 directly to South Coast AQMD for the replacement of older diesel school buses with zero-emission replacements within the South Coast Air Basin.

South Coast AQMD will act as the administrator for these two CARB SEPs and has identified zero-emission school bus projects from the Board-approved backup project list previously submitted to CARB as part of the SEP project plan.

Proposal

This action is to recognize up to \$973,655, upon receipt, into CARB SEP Special Revenue Fund (87), to reimburse the General Fund for administrative costs of up to \$68,154 from CARB SEP Special Revenue Fund (87), and to authorize the Chair to execute contracts with local school districts in an amount up to \$905,501 from CARB SEP Special Revenue Fund (87). South Coast AQMD staff will work with the school districts identified from in the backup project list approved by the Board on December 3, 2021 and develop contracts to implement the deployment of zero-emission school buses and supporting infrastructure.
Benefits to South Coast AQMD

Successful implementation of this CARB SEP will fund up to three zero-emission school buses to annually reduce NOx, ROG, and PM emissions by approximately 0.2, 0.01 and 0.01 tons per year, respectively, and will provide less polluting cleaner transportation for school children and reduce exposure to diesel particulate matter emissions, which is a carcinogen and has non-cancer health effects.

Resource Impacts

Up to \$973,655, upon receipt, will be recognized into CARB SEP Special Revenue Fund (87). No resource impacts are anticipated with the reimbursement of administrative costs, which will not exceed \$68,154.

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BOARD MEETING	AGENDA NO. 7	
PROPOSAL:	Amend Local Government & Small Bus Group Charter	siness Assistance Advisory
SYNOPSIS:	This action is to amend the Local Gover Assistance Advisory Group Charter to a Member.	rnment & Small Business add one additional Board

RECOMMENDED ACTION:

Amend Charter for the Local Government & Small Business Assistance Advisory Group in accordance with Attachment A.

Wayne Nastri Executive Officer

DJA:EH

Background

The Board established several advisory groups in 1997 and from time to time has modified charters for those groups to meet the needs of South Coast AQMD and the public. In 2002, the Board approved a Blue Ribbon Panel recommendation regarding the operation of the various groups.

One such group is the Local Government & Small Business Assistance Advisory Group (LGSBA). The membership of this advisory group allows for greater participation from local government, business interests, as well as concerned public members established within South Coast AQMD jurisdiction. South Coast AQMD Board Member Carlos Rodriguez currently serves as Chair of the LGSBA Advisory Group.

The current number of standing members consists of 20 individuals representing: three South Coast AQMD Board Members, seven local government representatives, five small business representatives and five members of the general public.

It is recommended that the LGSBA Charter be amended to add one additional Board Member.

Proposal

Amend the Local Government & Small Business Assistance Advisory Group Charter in accordance with Attachment A.

Fiscal Impacts

There is a minimal fiscal impact.

Attachment

Local Government & Small Business Assistance Advisory Group Charter

Attachment A

LOCAL GOVERNMENT & SMALL BUSINESS ASSISTANCE ADVISORY GROUP CHARTER Modified April March 20202023

Synopsis of History:

A Local Government & Small Business Assistance Committee (LGSBA) was established by South Coast Air Quality Management District (South Coast AQMD) in 1996 to enhance outreach to and assist local governments and small businesses on matters relating to air quality. The Interagency Air Quality Management Plan (AQMP) Implementation Committee (IAIC) and its Technical Advisory Committee (TAC) were established by the Governing Board in 1989. The IAIC provided ongoing policy-level coordination between the South Coast AQMD Board and key local government entities that either must implement the AQMP or which may be affected by AQMP implementation. The TAC was comprised of staff representatives from any interested local government, including special districts. In December 2002, the Board received recommendations of the Blue Ribbon Panel Regarding Operations of Advisory Groups and made changes to the South Coast AQMD Advisory Group and the Ethnic Community Advisory Group which has since evolved into the Environmental Justice Advisory Group.

LGSBA Advisory Group Mission:

Provide input on the implementation of the AQMP, public outreach, the role of local government in achieving clean air, and small business issues; review and make recommendations regarding (a) public outreach activities related to the impacts of existing and proposed regulations on small business and local government; (b) source education; (c) small business loan and assistance programs; and (d) proposed draft rules including those most significantly impacting local government and small businesses.

This Group will provide policy level recommendations on issues within the Agency's jurisdiction which impact local governments and small businesses. Specifically, the Group shall:

- a) Review the emissions attributable to small business, local government, and community activities and the AQMP's overall approach to reducing them and make recommendations regarding these;
- b) Review and make recommendations regarding the South Coast AQMD's communication with small businesses, local governments, and community-based organizations;
- c) Review and make recommendations regarding the South Coast AQMD's small business, local government, source education and community outreach programs and materials, enforcement policies and rules; and
- d) Act as a resource to the South Coast AQMD for innovative problem solving, resource leveraging, and partnership building.

Membership:

The number of standing members shall be no more than <u>20-21</u> individuals consisting of: seven local government representatives, <u>three_four_South</u> Coast AQMD Board Members, five small business representatives, and five members of the general public. Members may serve staggered terms of four years. Members appointed as of December 5, 2003 who were previous members of this Advisory Group shall serve an initial term of two years to facilitate rotation of membership. The group membership shall reflect the geographic, ethnic, and cultural diversity of the region.

Appointment of Members

Upon recommendation by the Advisory Group Chair, and subsequent recommendation for approval by the Administrative Committee:

- a) The Chairman of the Board will appoint/reappoint members, with consideration for Board Member recommendations.
- b) The same process as above applies for re-appointing a member to fill any vacancy.

Chair: Chairman of the Board or designee.

Reporting:

The Governing Board's Administrative Committee shall be the Board's liaison with this Advisory Group. The business of the Group shall be conducted through monthly or quarterly meetings of the committee as whole and monthly meetings of subcommittees established by the committee as a whole. The meeting frequency shall be determined by the Chairman of the Advisory Group. The Group shall report monthly to the Administrative Committee on its activities and results and shall provide the Governing Board with a written annual report outlining its goals and accomplishments and proposing its agenda for the coming year.

The Advisory Group may adopt formal recommendations for action by the Governing Board to be taken to the Administrative Committee. Such recommendations shall be placed on the Advisory Group's agenda and shall become effective upon a vote by no less than a quorum. The recommendation shall be presented to the Administrative Committee via a written memorandum or letter, or by presentation by an agreed upon representative of the Advisory Group.

Compensation:

Effective July 1, 1997 the standing members of this Advisory Group shall be eligible to claim per diem of \$100 and reimbursement of mileage and parking expenses, in accordance with District policy, associated with attendance at meetings of this Advisory Group.

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AGENDA NO. 8	

BOARD MEETING DATE: March 3, 2023

REPORT: Legislative, Public Affairs and Media Report

SYNOPSIS: This report highlights the January 2023 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 Nastri Executive Officer

DA:LT:AR:ar:bel

BACKGROUND

This report summarizes the activities of the Legislative, Public Affairs and Media Office for January. The report 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 Governments.

MAJOR EVENTS (HOSTED AND SPONSORED)

Each year, staff engage in holding 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. On January 6, South Coast AQMD virtually hosted the 33rd Annual Clean Air Awards to honor community leaders, organizations and businesses who have made momentous strides in the fight for cleaner air and a better quality of life. FOX 11 Meteorologist Maria Quiban served as the emcee. This year's awardees included:

- S. Roy Wilson Memorial Award for Leadership in Government U.S. Senator Alex Padilla
- Robert M. Zweig, M.D. Memorial Award Congressman Alan Lowenthal
- Dr. William A. Burke Award for Leadership in Environmental Justice Angelica "Angie" Balderas
- Innovative Clean Air Technology Award Orange County Transportation Authority
- Leadership in Air Quality Award Watts Clean Air & Energy Committee
- Youth Leadership in Air Quality Award Andy Fung, Asian Pacific Islander Forward Movement.

COMMUNITY EVENTS/PUBLIC MEETINGS

Staff engage 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 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/grants 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 January events and meetings:

AllenCo Energy

On January 4, staff participated in a virtual stakeholder meeting hosted by Los Angeles County Department of Public Health related to AllenCo Energy. Staff provided an update on monthly compliance activities and air monitoring.

Inland Empire Fire Safe Alliance

On January 11, staff participated in the bi-monthly Inland Empire Fire Safe Alliance meeting to provide updates on the Carl Moyer program including funding opportunities for on-road public utility vehicles.

San Fernando Valley Council of Governments

On January 18, staff attended the Board of Directors meeting to provide updates on the Carl Moyer and upcoming Commercial Electric Lawn and Garden Equipment Incentive programs. Staff also highlighted that Vice Chair Cacciotti will be presenting air quality updates at City Council meetings over the next several months.

Mountain Transit

On January 18, staff shared information at the Mountain Transit Board meeting on the Carl Moyer program and Mobile Source Air Pollution Reduction Review Committee's request for micro transit project proposals.

Harbor Association of Industry and Commerce

On January 19, staff participated virtually in the Government Affairs Committee to provide updates on the Carl Moyer program focusing on zero-emission cargo handling equipment and shore power projects.

Metro Gold Line Foothill Extension Construction Authority

On January 25, staff attended the Foothill Extension Construction Authority meeting to provide information on the Mobile Source Air Pollution Reduction Review Committee's request for proposals on micro transit projects.

South Bay Cities Council of Governments Board of Directors Meeting

On January 26, staff provided the Board of Directors an update on the Carl Moyer program focusing on local government eligibility to apply for projects such as electric vehicle charging stations.

Orange County Council of Governments

On January 26, staff participated in the Board of Directors meeting to provide an update on current South Coast AQMD programs and the latest Advisor newsletter.

ENVIRONMENTAL JUSTICE UPDATE

The following are key environmental justice (EJ) related activities in which staff participated during January. These events and meetings involve communities affected disproportionately from adverse air quality impacts.

U.S. EPA

On January 10, staff attended a press briefing held by U.S. EPA on two new Inflation Reduction Act programs for EJ. The EJ Collaborative program will provide a total of

\$30 million to community-based organizations (CBO) for projects to address environmental and/or public health issues, including air quality. The Government-to-Government (EJG2G) program will provide grants totaling \$70 million to States, local government (including air agencies), Tribes, and Territories. The EJG2G program supports and/or creates activities to lead to measurable environmental or public health improvements in communities and must be conducted in partnership with CBO(s).

Future of Cities: Mayors Forum

On January 19, staff attended the Future of Cities Mayors Forum. The discussion centered on the future of cities, especially disadvantaged communities, and how they are modernizing transportation systems and driving climate innovation with co-benefits for air quality.

Habitat for Humanity Partnership

On January 21, South Coast AQMD's volunteer program "Working with Communities," partnered with Habitat for Humanity San Bernardino Area and Habitat for Humanity Greater Los Angeles to collaborate on volunteer service projects in EJ communities throughout the four-county region. In the City of Highland, volunteers painted the exterior of a home with a fresh coat of low-VOC compliant paint. In South Los Angeles, volunteers helped make home ownership a reality for eight low-income families in the Watts-Willowbrook community. The project included painting and installing electrical wiring and constructing sections of a home. The homes will have drought tolerant landscaping, energy efficient heating systems, insulation made of recycled content, low flow plumbing fixtures, and solar energy systems installed.

On January 28, South Coast AQMD's volunteer program "Working with Communities," partnered with Habitat for Humanity San Bernardino Area and completed painting the exterior of a one-story home for a family. Volunteers completed painting a one-story home that had not been updated since 1999 and the family greatly appreciated the volunteers' efforts.

Environmental Justice Advisory Group (EJAG)

The quarterly virtual EJAG meeting was held on January 27. Agenda items included an overview of 2022 EJAG Accomplishments, summary of 2022 State and Federal Legislation, and an update on the Clean Air Program for Elementary Students and the Why Healthy Air Matters program.

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.

There were no presentations in January.

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 January are summarized below:

Calls to South Coast AQMD's Main Line and	2,248
1-800-CU1-SMOG®	
Calls to South Coast AQMD's Spanish Line	38
Clean Air Connection	1
Total Calls	2,287

PUBLIC INFORMATION CENTER STATISTICS

The Public Information Center (PIC) handles phone calls and assists individuals who walk-in for general information. Email advisories provided information on upcoming meetings and events, program announcements and alerts on time-sensitive issues. Information for the month of January is summarized below:

Calls Received by PIC	67
Calls to Automated System	76
Total Calls	143
Visitor Transactions	94
Email Advisories Sent	10,010

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 January.

- Provided permit application assistance to 147 companies, and
- Processed 60 Air Quality Permit Checklists.

Types of businesses assisted:

Architecture Firms	Engineering Firms	Restaurants
Auto Body Shops	Gas Stations	Retail Facilities
Auto Repair Centers	Gasoline Dispensing	Telecommunication
Construction Firms	Facilities	Centers
Dry Cleaners	Manufacturing Facilities	Warehouses

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 January report is listed below:

Major Media Interactions	61
Press Releases	5
News Carousel	2

Major Media Topics:

- Emcee for Clean Air Awards: Coordinated the participation of Meteorologist Maria Quiban as emcee the event.
- **2022 AQMP:** E&E News reached out with questions regarding the 2022 AQMP, including clarifications on the phasing out of gas appliances. Responses were provided.
- Air Quality: PBS's weekly news show, "Sustaining US" is working on a story about the state of air quality in Southern California and requested an interview. Working on scheduling interviews.
- **EtO Investigation:** Capital and Main reached out for follow up information on our regulatory authority under the Health and Safety Code. Reporter also reached out to the Chair with questions. Responses were provided.
- South Coast AQMD Incentive Programs: Working on developing script and talking points for a public service announcement on the Replace your Ride, Residential Lawn Mower Rebate, and the Residential Charger Incentive programs to be featured on Channel 35.
- **Indirect Source Rule:** The Los Angeles Times requested information on air quality as well as questions about the Warehouse Indirect Source Rule.
- Working with Communities: Pitched the announcement of South Coast AQMD's partnership with Habitat for Humanity to local outlets.
- Windblown Dust Advisory (1/22 and 1/25): Pitched windblown dust advisories to local media outlets resulting in coverage.
- Clean Air Awards: A reminder was pitched to local media outlets inviting them to the virtual event and requesting for details to be shared on their community calendars.

News Releases:

- South Coast AQMD Issues a Windblown Dust Advisory for Portions of Los Angeles, Orange, Riverside and San Bernardino Counties (English and Spanish) January 22, 2023: Informed residents of dust caused by high winds.
- South Coast AQMD Launches New Partnership with Habitat for Humanity International (English and Spanish) – January 24, 2023: Announced the first events to take place with Habitat for Humanity in Los Angeles and San Bernardino.
- South Coast AQMD Issues a Windblown Dust Advisory for Portions of Riverside and San Bernardino Counties (English and Spanish) January 25, 2023: Informed residents of dust caused by high winds.

Social Media Posts:

- <u>Clean Air Awards Remind (1/3):</u> 1,929 Twitter Impressions -- Liked by @UCLA, @UCLAINTL, @UCLAIOES
- <u>No Burn Day Advisory (1/6)</u>: 12,439 Twitter Impressions -- Liked by @ReadyLACounty, @805Weather, @CityofRPV, @CityofRHE, @NWSSanDiego, @NWSLosAngeles +Paid Ad Support on Facebook/Instagram
- <u>Clean Air Awards Livestream</u>: 39 FB Live Viewers, 30 YouTube Viewers
- <u>AQ Forecast (1/12):</u> 1,122 Twitter Impressions -- RT by @LAFDtalk, @805weather
- <u>Windblown Dust Advisory (1/22):</u> 20,031 Twitter Impressions --RT by @BelenNBCLA, @NWSLosAngeles, @OEHHA, @LAFDtalk, @NWSSanDiego, @OurSantaMonica, @ReadyLACounty, @RubyGonzales2, @PasadenaGov

News Carousel:

- Keep Your New Year's Resolution to Reduce Air Pollution January 12, 2023: Provided link to infographic outlining environmental ways the public can continue to help reduce air pollution.
- The Carl Moyer Program is now accepting funding applications! January 18, 2023: Provided link to the Carl Moyer Program webpage.

OUTREACH TO COMMUNITY GROUPS AND FEDERAL, STATE AND LOCAL GOVERNMENTS

Outreach was conducted personally and virtually in January to communicate with elected officials or staff from the following cities:

Artesia	Hermosa Beach	Pico Rivera
Banning	Huntington Park	Pomona
Beaumont	Industry	Rancho Palos Verdes
Bell	Inglewood	Redondo Beach
Bell Gardens	Irwindale	Riverside
Bellflower	Jurupa Valley	Rolling Hills
Bradbury	La Cañada Flintridge	Rolling Hills Estates
Burbank	La Habra Heights	Rosemead
Calimesa	La Mirada	San Dimas
Canyon Lake	La Puente	San Fernando
Carson	La Verne	San Gabriel
Cerritos	Lake Elsinore	San Jacinto
Claremont	Lakewood	San Marino
Commerce	Lawndale	Santa Ana
Compton	Lomita	Santa Clarita
Corona	Long Beach	Santa Fe Springs
Covina	Los Angeles	Sierra Madre
Cudahy	Lynwood	Signal Hill
Diamond Bar	Manhattan Beach	South El Monte
Downey	Maywood	South Gate
Duarte	Menifee	South Pasadena
Eastvale	Monrovia	Temecula
El Monte	Monterey Park	Temple City
El Segundo	Moreno Valley	Torrance
Gardena	Murrieta	Vernon
Glendale	Norco	Walnut
Glendora	Norwalk	West Covina
Hawaiian Gardens	Paramount	Whittier
Hawthorne	Pasadena	Wildomar
Hemet	Perris	

Communication was conducted in January with elected officials and/or staff from the following state and federal offices:

U.S. Senator Dianne Feinstein U.S. Senator Alex Padilla U.S. Representative Nanette Barragán U.S. Representative Tony Cardenás U.S. Representative Judy Chu U.S. Representative Ted Lieu U.S. Representative Ted Lieu U.S. Representative Katie Porter Senator Ben Allen Senator Steven Bradford Senator Lola Smallwood Cuevas Senator Lena Gonzalez Senator Josh Newman Senator Anthony Portantino Senator Susan Rubio Assembly Member Mike Fong Assembly Member Mike Gipson Assembly Member Chris Holden Assembly Member Tina McKinnor Assembly Member Freddie Rodriguez Assembly Member Al Muratsuchi Assembly Member Blanca Rubio Assembly Member Carlos Villapudua

Staff represented South Coast AQMD in January and/or provided updates or a presentation to the following governmental agencies and business organizations:

Alhambra Chamber of Commerce Arcadia Chamber of Commerce Big Bear Chamber of Commerce CalFire California Chamber of Commerce California Department of Forestry and Fire Protection California Department of Transportation California Geologic Energy Management Division CARB Chino Valley Chamber of Commerce Colton Chamber of Commerce Crestline Chamber of Commerce El Monte - South El Monte Chamber of Commerce El Segundo Chamber of Commerce Fontana Chamber of Commerce Foothill Gold Line Extension Construction Authority Foothill Transit Gardena Valley Chamber of Commerce Glendora Chamber of Commerce Harbor Association of Industry and Commerce Hermosa Beach Chamber of Commerce Highland Area Chamber of Commerce Inglewood Airport Area Chamber of Commerce Inland Empire Resource Conservation District Inland Empire Fire Safe Alliance Inland Valley Development Agency Kaiser Permanente

Lake Arrowhead Communities Chamber of Commerce League of California Cities, Los Angeles County Division Loma Linda Chamber of Commerce Lomita Chamber of Commerce Los Angeles County Fire Department Los Angeles Economic Development Corporation Manhattan Beach Chamber of Commerce Montclair Chamber of Commerce Mountain Transit National Oceanic and Atmospheric Administration **Omnitrans Ontario Chamber of Commerce Orange County Business Council** Orange County Hispanic Chamber of Commerce Palos Verdes Peninsula Chamber of Commerce Port of Long Beach Port of Los Angeles Rancho Cucamonga Chamber of Commerce **Redlands Chamber of Commerce** Redondo Beach Chamber of Commerce **Rialto Chamber of Commerce Riverside Transit Agency** Running Springs Chamber of Commerce San Bernardino Board of Supervisors San Bernardino Chamber of Commerce San Bernardino County Transportation Authority San Bernardino County Fire Department San Gabriel Basin Water Quality Authority San Gabriel Valley Council of Governments San Gabriel Valley Economic Partnership San Gabriel Valley Mosquito & Vector Control District San Pedro Chamber of Commerce Snow Valley Chamber of Commerce South Bay Cities Council of Governments Southern California Association of Governments Sunline Transit Agency Torrance Area Chamber of Commerce United States Fire Service Upland Chamber of Commerce U.S. Department of Agriculture U.S. EPA **U.S.** Forest Service Yucaipa Chamber of Commerce

In January, staff represented South Coast AQMD and/or provided updates or a presentation to the following community and educational groups and organizations:

American Lung Association Breathe Southern California Cal Poly Pomona California State University, Dominguez Hills California State University, Long Beach California State University, Los Angeles City of Hope Fontana Unified School District Grades of Green Habitat for Humanity, Los Angeles and San Bernardino Mt. San Antonio Community College **Our Global Humanity** Palos Verdes Peninsula Land Conservancy **Red Cross Rialto Unified School District** San Gabriel and Lower Los Angeles Rivers Mountains Conservancy San Gabriel Mountains Community Collaborative San Gabriel Valley Mountains Regional Conservancy South Bay Parkland Conservancy University of La Verne

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BOARD MEETING DATE: March 3, 2023

AGENDA NO. 9

REPORT: Hearing Board Report

SYNOPSIS: This reports the actions taken by the Hearing Board during the period of January 1 through January 31, 2023.

COMMITTEE: No Committee Review

RECOMMENDED ACTION: Receive and file.

Cynthia Verdugo-Peralta Hearing Board Chair

ft

Two summaries are attached: January 2023 Hearing Board Cases, and Rules From Which Variances and Orders for Abatement Were Requested in 2023. An index of South Coast AQMD Rules is also attached.

There were no appeals filed during the period of January 1 to January 31, 2023.

Report of January 2023 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
 Eagle Rock Aggregates, Inc. Case No. 6233-1 (K. Manwaring) 	203(b)	Petitioner's compliant Tier 2 Engine ship enroute from BC, CANADA to LA Port was unforeseeably damaged and disabled. Essential government projects will cease if another ship can't be found.	Not Opposed/Granted	Ex Parte Emergency granted commencing 1/16/23 and continuing for 30 days or until the SV currently scheduled for 1/26/23, whichever comes first.	VOC: TBD by 1/26/23
 Eagle Rock Aggregates, Inc. Case No. 6233-1 (S. Hanizavareh) 	203(b)	If terminal can't receive ship-based aggregate, facility can't process essential government infrastructure projects. Only a non-compliant Tier 1 Engine ship is available to continue aggregate delivery.	Not Opposed/Granted	SV granted commencing 1/26/23 and continuing through 4/11/23.	VOC: TBD by 3/30/23
3. The Kroger Company (Ralphs) Case No. 6166-2 (K. Manwaring)	1100(e)(2)(A) 1146(c)(1)(J)	Boilers could not meet 01/01/23 Rule 1146 deadline. Plus, load was greatly reduced regarding size of boilers. However, petitioner knew this in early 2022 and did not exhibit due diligence.	Opposed/Dismissed	IV dismissed without prejudice for lack of due diligence.	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
 South Coast AQMD vs. Los Angeles City Sanitation Bureau, Hyperion Treatment Plant Case No. 1212-40 (E. Chavez, R. Mansell, and M. Reichert) 	402	Respondent cannot contain sewage odors, nor conduct operations at Wastewater treatment plant without being in violation of Rule 402. Over 1100 complaints. Proposed compromise presented.	Stipulated/Modified	Mod. O/A issued commencing 1/25/23 and continuing through 9/6/23. The Hearing Board shall retain jurisdiction over this matter until 9/6/23.	N/A
 South Coast AQMD vs. Southern California Edison, Pebbly Beach Generating Station Case No. 1262-115 (M. Reichert) 	1470(c)(4)(A)	Unit 15's PM Emission limit inadvertently omitted, yet still unable to meet Rule 1470. Stipulated O/A with proposed conditions for achieving compliance as soon as practicable.	Stipulated/Modified	Mod. O/A issued commencing 1/24/23 and continuing through 1/4/24. The Hearing Board shall retain jurisdiction over this matter until 1/4/24.	N/A

Acronyms EV: Emergency Variance IV: Interim Variance Mod: Modification N/A: Not Applicable O/A: Order for Abatement PM: Particulate Matter SV: Short Variance

TBD: To Be Determined VOC:Volatile Organic Compound

Rules from which Variances and Orders for Abatement were Requested in 2023													
Rules	Jan	Feb	Mar	April	Мау	June	July	Aug	Sept	Oct	Nov	Dec	Total Actions
203(b)	2												2
402	1												1
1100(e)(2)(A)	1												1
1146(c)(1)(J)	1												1
1470(c)(4)A)	1												1

SOUTH COAST AQMD RULES AND REGULATIONS INDEX 2023 HEARING BOARD CASES AS OF JANUARY 31, 2023

REGULATION II – PERMITS

Rule 203 Permit to Operate

REGULATION IV – PROHIBITIONS

Rule 402 Nuisance

REGULATION XI - TOXICS AND OTHER NON-CRITERIA POLLUTANTS

- Rule 1100 Implementation Schedule for NOx Facilities
- Rule 1146 Emissions of Oxides of Nitrogen from Industrial, Institutional and Commercial Boilers, Steam Generators, and Process Heaters

REGULATION XIV - TOXICS AND OTHER NON-CRITERIA POLLUTANTS

Rule 1470 Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines

		1 Back to Agenda				
BOARD MEETIN	AGENDA NO. 10					
REPORT:						
SYNOPSIS:	S: This report summarizes monthly penalties and legal actions filed by the General Counsel's Office from January 1 through January 31, 2023. An Index of South Coast AQMD Rules is attached with the penalty report.					
COMMITTEE:	Stationary Source, February 17, 2023, F	Reviewed				
RECOMMENDEI Receive and file.	D ACTION:					

Bayron T. Gilchrist General Counsel

BTG:cr

There are no Civil Filings for January 2023

Attachments January 2023 Penalty Report Index of South Coast AQMD Rules and Regulations

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT General Counsel's Office

Settlement Penalty Report (01/01/2023 - 01/31/2023)

Total Penalties	
Civil Settlement: MSPAP Settlement:	\$1,447,662.81 \$3,813.00
Total Cash Settlements:	\$1,451,475.81
Fiscal Year through 01/31/2023 Cash Total:	\$3,891,019.44

Fac ID	Company Name	Rule Number	Settled Date	Init	Notice Nbrs/Case Nbrs	Total Settlement
Civil						
141126	AM/PM OF DIAMOND BAR	461, HSC 41960.2	01/04/2023	GV	P69615	\$2,789.66
183832	AST TEXTILE GROUP, INC.	1100, 2004, 2005, 2012	01/26/2023	SH	P66126, P68659, P74253, P74256, P74259, P74261, P74268	\$98,500.08
117912	AVIBANK MANUFACTURING INC.	2202	01/20/2023	SH	P66977	\$1,000.00
800030	CHEVRON PRODUCTS CO.	40 CFR 63.670, 218, 401, 1118, 1173, 1176, 3002, HSC 41701	01/24/2023	BT	P65625, P65626, P65627, P65628, P65629, P65630, P67837, P67839, P75051	\$266,000.00
186899	ENERY HOLDINGS LLC	2004, 2012, 2012 Appendix A, 3002(C)(1)	01/06/2023	SH	P66066, P66072, P66076, P66173	\$12,000.00
124838	EXIDE TECHNOLOGIES	203, 221, 430, 1407, 1420, 2004, 3002, 3004, HSC 42401	01/20/2023	BTG	In re: Exide Technologies, Inc., U.S. Bankruptcy Court, District of Delaware, Case No. 13-11482 (KJC) (Bankruptcy Case); Delaware District Court, Case No.: 19-00891 (Appellate Case); United States Court of Appeals, Third Circuit, Case No. 20-1858	\$349,923.07
176901	FARHA ENTERPRISERS, INC.	203, 461	01/05/2023	RM	P67212, P70358, P70364	\$1,250.00

Fac ID	Company Name	Rule Number	Settled Date	Init	Notice Nbrs/Case Nbrs	Total Settlement
Civil						
113160	HILTON COSTA MESA	2004	01/19/2023	JL	P70003	\$5,400.00
183591	INDY'S DEMOLITION	1403	01/06/2023	SH	P69433	\$5,500.00
8547	QUEMETCO INC.	40 CFR 63.544, 1420.1, 2004, 3002(C)(1)	01/24/2023	JL	P67058, P76066	\$35,000.00
174591	TESORO REF & MKTG CO LLC,	1155, 1158, 2004, 3002	01/26/2023	КСМ	P67926, P67950, P74506	\$4,500.00
151798	TESORO REF & MKTG CO LLC CO.	221, 1118, 3002	01/24/2023	KCM	P67805, P67806, P68969, P68970,	\$5,000.00
195521	TRANE TECHNOLOGIES	1111	01/24/2023	MR	SRV2020-00060	\$660,800.00
Total Ci	vil Settlements: \$1,447,662.81					
MSPAP						
172792	EL SEGUNDO OIL, LLC	1173	01/06/2023	MT	P73352	\$2,477.00
156061	INC.	461	01/06/2023	MT	P69880	\$1,336.00
Total MS	SPAP Settlements: \$3,813.00					

SOUTH COAST AQMD'S RULES AND REGULATIONS INDEX

JANUARY 2023 PENALTY REPORT

REGULATION II - PERMITS

- Rule 203 Permit to Operate
- Rule 218 Continuous Emission Monitoring
- Rule 221 Plans

REGULATION IV - PROHIBITIONS

- Rule 401 Visible Emissions
- Rule 430 Breakdown Provisions
- Rule 461 Gasoline Transfer and Dispensing

REGULATION XI - SOURCE SPECIFIC STANDARDS

- Rule 1100 Implementation Schedule for NOx Facilities
- Rule 1111 NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces
- Rule 1118 Emissions from Refinery Flares
- Rule 1155 Particulate Matter Control Devices
- Rule 1158 Storage, Handling and Transport of Petroleum Coke
- Rule 1173 Fugitive Emissions of Volatile Organic Compounds
- Rule 1176 Sumps and Wastewater Separators

REGULATION XIV - TOXICS

- Rule 1403 Asbestos Emissions from Demolition/Renovation Activities
- Rule 1407 Control of Emissions of Arsenic, Cadmium, and Nickel from Non-Ferrous Metal Melting Operations
- Rule 1420 Emissions Standard for Lead
- Rule 1420.1 Emissions Standards for Lead from Large Lead-Acid Battery Recycling Facilities

REGULATION XX - REGIONAL CLEAN AIR INCENTIVES MARKET (RECLAIM)

- Rule 2004 Requirements
- Rule 2005 New Source Review for RECLAIM
- Rule 2012 Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NOx) Emissions
- Rule 2012 Appx. A Protocol for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NOx) Emissions

REGULATION XXII ON - ROAD MOTOR VEHICLE MITIGATION

Rule 2202 On-Road Motor Vehicle Mitigation Options

REGULATION XXX-TITLE V PERMITS

Rule 3002 Requirements Rule 3004 Permit Types and Content

CODE OF FEDERAL REGULATIONS

40 CFR 63.544 Standards for Total Enclosure for NESHAPs from Secondary Lead Smelting **Requirements for Flare Control Devices** 40 CFR 63.670

CALIFORNIA HEALTH AND SAFETY CODE

- 41701 **Restricted Discharges**
- 41960.2
- Gasoline Vapor Recovery Violation of Order for Abatement 42401

		1 Back to Agenda		
BOARD MEETING	G DATE: March 3, 2023	AGENDA NO. 11		
REPORT: Lead Agency Projects and Environmental Documents Received				
SYNOPSIS:	This report provides a listing of CEQA documents received by South Coast AQMD between January 1, 2023 and January 31, 2023, and those projects for which South Coast AQMD is acting as lead agency pursuant to CEQA.			
COMMITTEE:	Mobile Source, February 17, 2023, Revie	ewed		
RECOMMENDED	ACTION:			

Receive and file.

	Wayne Nastri Executive Officer
SR:MK:MM:SW:ET	

CEQA Document Receipt and Review Logs (Attachments A and B) – Each month, South Coast AQMD receives numerous CEQA documents from other public agencies on projects that could adversely affect air quality. A listing of all documents received during the reporting period January 1, 2023 to January 31, 2023 is included in Attachment A. A total of 50 CEQA documents were received during this reporting period and 22 comment letters were sent. A list of active projects for which South Coast AQMD staff is continuing to evaluate or prepare comments for November 2022 and December 2022 reporting period is included as Attachment B.

The Intergovernmental Review function, which consists of reviewing and commenting on the adequacy of the air quality analysis in CEQA documents prepared by other lead agencies, is consistent with the Board's 1997 Environmental Justice Guiding Principles and Environmental Justice Initiative #4. As required by the Environmental Justice Program Enhancements for FY 2002-03, approved by the Board in October 2002, each attachment notes proposed projects where South Coast AQMD has been contacted regarding potential air quality-related environmental justice concerns. South Coast AQMD has established an internal central contact to receive information on projects with potential air quality-related environmental justice concerns. The public may contact South Coast AQMD about projects of concern by the following means: in writing via fax, email, or standard letters; through telephone communication; and as part of oral comments at South Coast AQMD meetings or other meetings where South Coast AQMD staff is present. The attachments also identify, for each project, the dates of the public comment period and the public hearing date, if applicable. Interested parties should rely on the lead agencies themselves for definitive information regarding public comment periods and hearings as these dates are occasionally modified by the lead agency.

In January 2006, the Board approved the Workplan for the Chairman's Clean Port Initiatives. One action item of the Chairman's Initiatives 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 response to describing goods movement, CEQA documents (Attachments A and B) are organized to group projects of interest into the following categories: goods movement projects; schools; landfills and wastewater projects; airports; general land use projects, etc. In response to the mitigation component, guidance information on mitigation measures was compiled into a series of tables relative to off-road engines; on-road engines; harbor craft; ocean-going vessels; locomotives; fugitive dust; and greenhouse gases. These mitigation measure tables are on the CEQA webpages portion of South Coast AQMD's website at: <u>http://www.aqmd.gov/home/regulations/ceqa/airquality-analysis-handbook/mitigation-measures-and-control-efficiencies</u>. Staff will continue compiling tables of mitigation measures for other emission sources.

Staff focuses on reviewing and preparing comments for projects: where South Coast AQMD is a responsible agency; that may have significant adverse regional air quality impacts (e.g., special event centers, landfills, goods movement); that may have localized or toxic air quality impacts (e.g., warehouse and distribution centers); where environmental justice concerns have been raised; and which a lead or responsible agency has specifically requested South Coast AQMD review. If staff provided written comments to the lead agency as noted in the column "Comment Status," there is a link to the "South Coast AQMD Letter" under the Project Description. In addition, if staff testified at a hearing for the proposed project, a notation is provided under the "Comment Status." If there is no notation, then staff did not provide testimony at a hearing for the proposed project.

During the period of January 1, 2023 to January 31, 2023, South Coast AQMD received 50 CEQA documents which are listed in the Attachment A. In addition, there are 15 documents from earlier that either have been reviewed or are still under review. Those are listed in the Attachment B. The current status of the total 65 documents from Attachment A and B are summarized as follows:

- 22 comment letters were sent;
- 33 documents were reviewed, but no comments were made;
- 10 documents are currently under review.

(The above statistics are from January 1, 2023 to January 31, 2023 and may not include the most recent "Comment Status" updates in Attachments A and B.)

Copies of all comment letters sent to lead agencies can be found on South Coast AQMD's CEQA webpage at the following internet address: <u>http://www.aqmd.gov/home/regulations/ceqa/commenting-agency</u>.

South Coast AQMD Lead Agency Projects (Attachment C) – Pursuant to CEQA, South Coast AQMD periodically acts as lead agency for stationary source permit projects. Under CEQA, the lead agency is responsible for determining the type of CEQA document to be prepared if the proposal for action is considered to be a "project" as defined by CEQA. For example, an Environmental Impact Report (EIR) is prepared when South Coast AQMD, as lead agency, finds 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 South Coast AQMD determines that the project will not generate significant adverse environmental impacts, or the impacts can be mitigated to less than significance. The ND and MND are written statements describing the reasons why projects will not have a significant adverse effect on the environment and, therefore, do not require the preparation of an EIR.

Attachment C to this report summarizes the active projects for which South Coast AQMD is lead agency and is currently preparing or has prepared environmental documentation. As noted in Attachment C, South Coast AQMD continued working on the CEQA documents for two active projects during January 2023.

Attachments

- A. Incoming CEQA Documents Log
- B. Ongoing Active Projects for Which South Coast AQMD Has or Is Continuing to Conduct a CEQA Review
- C. Active South Coast AQMD Lead Agency Projects

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
Warehouse & Distribution Centers RVC230103-06 Beaumont Hills Logistics Center PLAN2022-0889#	The project consists of construction of seven industrial buildings totaling 4,677,000 square feet on 576.17 acres. The project is located on the southwest side of Highway 79 and California Drive. http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/RVC230103-06.pdf	Site Plan	City of Beaumont	South Coast AQMD staff commented on 1/11/2023
	Comment Period: 12/28/2022 - 1/11/2023 Public Hearing: 1/12/2023			
RVC230111-02 JD Fields Pipe Facility - Site Development Review SDR 21-021	The project consists of construction of a 25,000 square foot warehouse on 9.53 acres. The project is located near the southeast corner of South Gilmore Street and Acacia Avenue.	Notice of Intent to Adopt a Mitigated Negative Declaration	City of Hemet	No comments sent for this document received
	Comment Period: 1/11/2023 - 2/10/2023 Public Hearing: N/A			
Warehouse & Distribution Centers RVC230117-05 Compass Northern Gateway Project	The project consists of construction of three warehouses on three separate sites totaling 490,393 square feet on 26.23 acres. Project Site 1 is located near the northeast corner of McLaughlin Road and Goetz Road. Project Site 2 is located near the southwest corner of Ethanac Road and Wheat Street. Project Site 3 is located on southeast corner of Ethanac Road and Evans Road. http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/RVC230117-05.pdf Comment Period: 1/13/2023 - 2/13/2023 Public Hearing: 1/23/2023	Notice of Preparation	City of Menifee	South Coast AQMD staff commented on 1/30/2023
Warehouse & Distribution Centers	The project consists of construction of a 170,066 square foot warehouse on 7.23 acres. The	Site Plan	City of Highland	South Coast
SBC230124-03 Patriot Partners Warehouse at the SEC of Victoria Avenue & 5th Street	project is located on the southeast corner of Victoria Avenue and 5th Street. http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/SBC230124-03.pdf Comment Period: 1/24/2023 - 2/9/2023			AQMD staff commented on 1/30/2023
	Comment Period: 1/24/2023 - 2/9/2023 Public Hearing: N/A			

*Sorted by Land Use Type (in order of land uses most commonly associated with air quality impacts), followed by County, then date received.

- Project has potential environmental justice concerns due to the nature and/or location of the project.

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
Industrial and Commercial LAC230131-01 World Oil Tank Installation Project#	The project consists of construction of two 25,000 barrel crude oil storage tanks on six acres. The project is located at 1405 Pier C Street near the northwest corner of Pico Avenue and Pier C Street within Port of Long Beach in the designated AB 617 Wilmington, Carson, West Long Beach community. Reference LAC211014-02 and LAC201007-01	Notice of Preparation	City of Long Beach Harbor Department	Under review, may submit written comments
	Comment Period: 1/30/2023 - 2/28/2023 Public Hearing: 2/8/2023			
Industrial and Commercial RVC230103-01 Conditional Use Permit 21-05080	The project consists of construction of a 6,000 square foot industrial building on 5.97 acres. The project is located near the northwest corner of Mapes Road and Goetz Road.	Notice of Intent to Adopt Mitigated Negative Declaration	City of Perris	Document reviewed - No comments sent for this document received
	Comment Period: 12/30/2022 - 1/18/2023 Public Hearing: N/A			
Industrial and Commercial RVC230111-04 West Campus Upper Plateau Project	The project consists of demolition of 14 military bunkers, and construction of 65.32 acres of business park uses, 143.31 acres of industrial uses, 42.22 acres of commercial and retail uses, 37.91 acres of public streets, 60.28 acres of recreational uses, 17.72 acres of open space, 2.84 acres of public facilities, and 445.43 acres of conservation uses on 817.90 acres. The project is located on the southwest corner of Meridian Parkway and Alessandro Boulevard in Riverside. Reference RVC211123-02	Notice of Availability of a Draft Environmental Impact Report	March Joint Powers Authority	Under review, may submit written comments
Industrial and Commercial	Comment Period: 1/9/2023 - 3/10/2023 Public Hearing: N/A	Notice of	City of Pasumont	South Coast
RVC230111-05 Beaumont Pointe Specific Plan#	feet of commercial uses, a 90,000 square foot hotel with 125 rooms, and 263.5 acres of open space on 539.9 acres. The project is located on the northwest corner of State Route 60 and Fourth Street. Reference RVC221201-08, RVC211112-01, RVC210901-01, RVC210401-05, and RVC200908- 03 http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/february-2023/RVC230111-05.pdf	Availability of a Draft Environmental Impact Report	City of Beaumont	AQMD staff commented on 2/8/2023

- Project has potential environmental justice concerns due to the nature and/or location of the project.

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
Industrial and Commercial RVC230131-07 Robertson's Ready Mix's Request for a Determination of Vested Rights	The project consists of vested rights determination on approximately 792.22 acres and mining operations on 132 acres. The project is bounded by Corona to the north, Lake Matthews to the east, Arcilla to the south, and Interstate 15 to the west.	Site Plan	Riverside County	Under review, may submit written comments
	Comment Period: 1/27/2023 - 2/27/2023 Public Hearing: 2/28/2023			
Waste and Water-related	The project consists of an amendment to increase the processing capacity of construction,	Other	City of Santa Fe	Document
LAC230103-02 Amendment of Conditional Use Permit Case No. 524	demolition, and inert materials from 24.9 tons per day to 49.9 tons per day to an existing green waste transfer facility. The project is located near the northeast corner of Imperial Highway and Bloomfield Avenue. Reference LAC161206-03		Springs	No comments sent for this document received
	Comment Period: 1/3/2023 - 1/8/2023 Public Hearing: 1/9/2023		D	
Waste and Water-related LAC230111-06 DeMenno-Kerdoon	Staff provided comments on the Permit Modification for the project, which can be accessed at: http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2021/june/LAC210415-06.pdf. The project consists of modifications to an existing hazardous waste facility permit to remove seven tanks, and install eight 42,000-gallon tanks 14 feet in diameter and 38 feet in height, a naphtha splitter column, an oily water filter press, and an ethylene glycol filter press. The project is located at 2000 North Alameda Street on the southeast corner of North Alameda Street and East Pine Street in the City of Compton within the designated AB 617 South Los Angeles community. Reference LAC210415-06, LAC201215-04, LAC201117-11, LAC200623-08, and LAC190924-05	Permit Modification	Department of Toxic Substances Control	Document reviewed - No comments sent for this document received
	Comment Period: N/A Public Hearing: N/A			

- Project has potential environmental justice concerns due to the nature and/or location of the project.

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
Waste and Water-related ORC230111-01 Kinsbursky Brothers Supply, Inc.	The project consists of renewal of an existing hazardous waste facility permit to continue storage, treatment, and disposal of hazardous waste and a tentative decision on the permit renewal. The project is located at 1314 North Anaheim Boulevard on the northeast corner of North Anaheim Boulevard and West Commercial Street in Anaheim. Reference ORC210401-08, ORC191227-07, ORC190827-07, ORC190702-12, ORC170523-02, ORC150501-03, and ORC140610-09	Permit Renewal	Department of Toxic Substances Control	Under review, may submit written comments
Waste and Water-related RVC230103-09 Draft Salton Sea Long-Range Plan	The project consists of plans to protect and improve air quality, water quality, and wildlife habitat and to prevent or reduce health and environmental consequences from the long-term recession of the Salton Sea. 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.	Initial Project Consultation	U.S. Army Corps of Engineers Los Angeles District and the Salton Sea Authority	Document reviewed - No comments sent for this document received
	Comment Period: 1/1/2023 - 2/13/2023 Public Hearing: N/A			
Waste and Water-related RVC230124-04 Avenues Septic to Sewer Project	The project consists of construction of a 14,000 linear feet of sewer main and lateral pipelines with a capacity to generate 62,500 gallons of wastewater per day on 99 acres. The project is bounded by Mill Street to the north, Irwin Drive and Avenue 6 to the east, East Lakeshore Drive to the south, and Country Club Boulevard to the west in Lake Elsinore.	Notice of Intent to Adopt a Mitigated Negative Declaration	Elsinore Valley Municipal Water District	Document reviewed - No comments sent for this document received
Waste and Water-related	Comment Period: 1/18/2023 - 2/1//2023 Public Hearing: N/A	Notice of Intent	Elsinore Valley	Document
RVC230124-05 Sedco Hills Septic to Sewer Project	with a capacity to generate 130,000 gallons of wastewater per day on 380 acres. The project is bounded by Malaga Road to the north, Interstate 15 to the east, Lemon Street to the south, and Mission Trail to the west in Wildomar.	to Adopt a Mitigated Negative Declaration	Municipal Water District	reviewed - No comments sent for this document received
	Comment Period: 1/18/2023 - 2/17/2023 Public Hearing: N/A			

- Project has potential environmental justice concerns due to the nature and/or location of the project.

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
Waste and Water-related RVC230124-08 Perris North Groundwater Monitoring Project	The project consists of construction of 16 groundwater monitoring wells ranging from 60 feet to 515 feet in depth. The project is located near the southwest corner of Interstate 215 and Gregory Lane in cites of Moreno Valley and Perris. Reference RVC211216-04 and RVC200501-06	Notice of Intent to Adopt a Mitigated Negative Declaration	Eastern Municipal Water District	Document reviewed - No comments sent for this document received
	Comment Period: 1/24/2023 - 2/9/2023 Public Hearing: N/A			
Waste and Water-related RVC230131-02 Los Alamos Hills Water System Project	The project consists of annexation of 50 parcels totaling 171.91 acres and construction of 10,685 linear feet of 8 and 12 inch water pipelines. The project is bounded by Los Alamos Road to the north, Mason Avenue and Mary Place to the east, Celia Road to the south, and Ruth Ellen Way to the west in Murrieta.	Notice of Intent to Adopt a Mitigated Negative Declaration	Eastern Municipal Water District	Under review, may submit written comments
	Comment Period: 1/31/2023 - 2/23/2023 Public Hearing: N/A		D	Under
SBC230131-05 Ducommun AeroStructures	The project consists of a permit modification to install a detection monitoring well and a point of compliance well on the Ducommun AeroStructures site on 120 acres. The project is located on the southwest corner of El Mirage Road and Sheep Creek Road in El Mirage.	Modification	Toxic Substances Control	review, may submit written comments
77,17,1	Comment Period: 1/27/2023 - 3/27/2023 Public Hearing: 1/23/2023	0.1	II ' 10 /	Degument
ORC230111-10 Oil and Gas Decommissioning Activities on the Pacific Outer Continental Shelf	The Environmental Protection Agency has submitted a comment for the project, which consists of decommissioning and removal of 23 oil and gas platforms and associated pipelines. The project is located offshore eight nautical miles west of counties of Santa Barbara, Ventura, and Orange. Reference ORC210826-05	Other	Department of the Interior, Bureau of Safety and Environmental Enforcement	No comments sent for this document received
	Comment Period: N/A Public Hearing: N/A			

- Project has potential environmental justice concerns due to the nature and/or location of the project.

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
<i>Utilities</i> SBC230124-02 Soda Mountain Solar Project	The proposed project consists of construction of a 300-megawatt photovoltaic solar facility on 1,490 acres. The project is bounded by Baker to the north, Mojave National Preserve to the east, Rasor Off-Highway Vehicle Area to the south, and Interstate 15 to the west. Reference ODP150612-09 and ODP131224-01	Notice of Preparation	United States Bureau of Land Management	Document reviewed - No comments sent for this document received
	Comment Period: 1/18/2023 - 2/16/2023 Public Hearing: 2/2/2023			
Transportation LAC230111-09 SR-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.	Notice of Preparation	California Department of Transportation	Document reviewed - No comments sent for this document received
	Comment Period: 1/10/2023 - 1/16/2023 Public Hearing: 12/15/2022			
Transportation RVC230120-02 DEV2022-028 Bella Estates TTM 38592	The project consists of subdivision of 20.07 acres into 13 one acre lots for the future construction of 3 detention basins and road improvements. The project is located on the northeast corner of Waldon Road and Sunset Avenue.	Site Plan	City of Menifee	Document reviewed - No comments sent for this document received
	Comment Period: 1/19/2023 - 2/19/2023 Public Hearing: N/A			
Institutional (schools, government, etc.)	The project consists of upgrading school facilities, updating technology, and increasing safety	Notice of Propagation	Los Angeles	Document reviewed -
LAC230103-04 District-Wide Redevelopment Program	Burbank to the north, 710 freeway to the east, San Pedro to the south, and the Pacific Ocean to the west. The project includes four designated AB 617 communities: 1) East Los Angeles, Boyle Heights, West Commerce, 2) Southeast Los Angeles, 3) South Los Angeles, and 4) Wilmington, Carson, West Long Beach.	rieparation	District	No comments sent for this document received
	Comment Period: 1/3/2023 - 2/2/2023 Public Hearing: N/A			

- Project has potential environmental justice concerns due to the nature and/or location of the project.

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
Institutional (schools, government, etc.) LAC230117-01 Fire Station No. 9 Project at 4101 Long Beach Boulevard	The project consists of construction of a 12,780 square foot fire station on 0.4 acres. The project is located on the southwest corner of Long Beach Boulevard and East Randolph Place in the designated AB 617 Wilmington, Carson, West Long Beach community. Reference LAC220222-01	Final Environmental Impact Report	City of Long Beach	Document reviewed - No comments sent for this document received
	Comment Period: N/A Public Hearing: 1/24/2023			
Institutional (schools, government, etc.) LAC230117-03 McKinley Elementary School Campus Master Plan Project	The project consists of demolition of existing structures and construction of two school buildings totaling 50,910 square feet, 55,000 square feet of parking lot uses, 14,500 square feet of playground uses and 3,500 square feet of lunch shelter uses on 6.48 acres. The project is located on the southeast corner of Arizona Avenue and 23rd Court in Santa Monica.	Notice of Preparation	Santa Monica- Malibu Unified School District	Document reviewed - No comments sent for this document received
	Comment Period: 1/13/2023 - 2/12/2023 Public Hearing: 1/31/2023			
Institutional (schools, government, etc.) LAC230117-04 Grant Elementary School Campus Master Plan Project	The project consists of demolition of existing structures and construction of two school buildings totaling 34,271 square feet, 35,000 square feet of parking lot uses, and 73,700 square feet of playground uses on 6.01 acres. The project is located near the northwest corner of 24th Court and Ocean Park Place North in Santa Monica.	Notice of Preparation	Santa Monica- Malibu Unified School District	Document reviewed - No comments sent for this document received
	Comment Period: 1/13/2023 - 2/12/2023 Public Hearing: 2/7/2023			
Institutional (schools, government, etc.) LAC230120-01 1200 North Cahuenga Boulevard Project	The project consists of demolition of 8,941 square feet of an existing building and construction of three office campus buildings totaling 75,262 square feet. The project is located on southeast corner of North Cahuenga Boulevard and La Mirada Avenue.	Notice of Intent to Adopt a Mitigated Negative Declaration	City of Los Angeles	Document reviewed - No comments sent for this document received
	Comment Period: 1/19/2023 - 2/8/2023 Public Hearing: N/A			

- Project has potential environmental justice concerns due to the nature and/or location of the project. Documents received by the CEQA Intergovernmental Review program but not requiring review are not included in this report.
SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
Institutional (schools, government, etc.) LAC230126-02 Land Transfer from the Sepulveda Ambulatory Care Center to the Los Angeles National Cemetery	The project consists of demolition of an existing golf course and baseball field and transfer of 26.4 acres of land. The land will be transferred from the Sepulveda Ambulatory Care Center near the northeast corner of Plummer Street and Woodley Avenue to the Los Angeles National Cemetery on the southwest corner of Lassen Street and Haskell Avenue in Los Angeles.	Notice of Availability of a Draft Environmental Assessment	Department of Veterans Affairs	Under review, may submit written comments
	Comment Period: 1/26/2023 - 2/26/2023 Public Hearing: N/A			
Institutional (schools, government, etc.) RVC230131-04 Conditional Use Permit No. 220005	The project consists of construction of a 12,838 square feet pilot desalination facility on 2.78 acres. The project is located near the southeast corner of System Road and Vaughn Road.	Notice of Intent to Adopt a Mitigated Negative Declaration	Riverside County	Under review, may submit written comments
	Comment Period: 1/24/2023 - 2/22/2023 Public Hearing: 3/1/2023			
Medical Facility	The project consists of construction of two medical buildings totaling 6,916 square feet on 1.33	Site Plan	City of Beaumont	Document
RVC230103-08 SoCal Dental Partners, Inc. PLAN2022- 0896	acres. The project is located near the northwest corner of North Highland Avenue and East 6th Street.			reviewed - No comments sent for this document received
	Comment Period: 12/28/2022 - 1/18/2023 Public Hearing: 1/19/2023			
Retail RVC220104-01 Planning Application - DEV2022-027: Major Plot Plan (PLN22-0289) Conditional Use Permit (PLN22-0288) for Mister Car Wash at the Shoppes	The project consists of construction of a 5,381 square foot car wash facility on 1.07 acres. The project located on the northwest corner of Rockport Road and Laguna Vista Drive.	Site Plan	City of Menifee	Document reviewed - No comments sent for this document received
	Comment Period: 1/4/2023 - 1/16/2023 Public Hearing: 1/17/2023			

- Project has potential environmental justice concerns due to the nature and/or location of the project.

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
Retail RVC230103-07 Shell Neptune CUP2022-0067 and V2022-0114	The project consists of construction of a 2,748 square foot hydrogen station on 1.23 acres. The project is located near the southwest corner of Pennsylvania Avenue and East 6th Street. http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/RVC230103-07.pdf	Site Plan	City of Beaumont	South Coast AQMD staff commented on 1/11/2023
Retail RVC230111-08 Planning Application - DEV2022-024: Major Plot Plan (PLN22-0261)	The project consists of construction of a 4,844 square foot carwash facility and a 4,223 square foot office facility on 1.62 acres. The project is located near the northeast corner of Haun Road and New Hub Drive.	Initial Project Consultation	City of Menifee	Document reviewed - No comments sent for this document received
	Comment Period: 1/11/2023 - 1/30/2023 Public Hearing: N/A			
General Land Use (residential, etc.) LAC230103-05 North Paramount Gateway Specific Plan	The project consists of construction of 5,044 residential units and 31,171 square feet of retail and office uses on 279 acres. The project is bounded by South Gate to the north, Anderson Street to the east, Rosecrans Avenue to the south, and the Union Pacific Railroad to the west within the designated AB 617 Southeast Los Angeles community. Reference LAC220107-04 http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/LAC230103-05.pdf Comment Period: 12/22/2022 - 2/6/2023 Public Hearing: N/A	Notice of Availability of a Draft Environmental Impact Report	City of Paramount	South Coast AQMD staff commented on 1/27/2023
General Land Use (residential, etc.) LAC230111-07 The Bond Project	The proposed project consists of demolition of 10,000 square feet of existing structures, and construction of a 212,508 square foot building with 45 hotel rooms and 95 residential units, a restaurant, and an art gallery on 0.92 acres. The project is located on the northeast corner of Santa Monica Boulevard and North Orange Grove Avenue. Reference LAC190815-01	Notice of Availability of a Revised Draft Environmental Impact Report	City of West Hollywood	Document reviewed - No comments sent for this document received

- Project has potential environmental justice concerns due to the nature and/or location of the project.

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
General Land Use (residential, etc.) LAC230124-01 8th, Grand and Hope	The project consists of demolition of a 36,178 square foot parking structure and construction of a 554,927 square foot building with 580 residential units and subterranean parking on 0.83 acres. The project is located on the northwest corner of Eighth Street and Grand Avenue in the community of Central City. Reference LAC211119-03 and LAC190510-01	Final Environmental Impact Report	City of Los Angeles	Document reviewed - No comments sent for this document received
	Comment Period: N/A Public Hearing: 2/15/2023			
General Land Use (residential, etc.) ORC230117-06 Pointe Common Affordable Housing Project	The project consists of construction of 65 residential units on 2.25 acres. The project is located near the southwest corner of West Commonwealth Avenue and North Basque Avenue.	Notice of Intent to Adopt a Mitigated Negative Declaration	City of Fullerton	Document reviewed - No comments sent for this document received
	Comment Period: 1/12/2023 - 2/10/2023 Public Hearing: N/A			Deserves
General Lana Use (restaential, etc.) ORC230124-09 Victoria Boulevard Apartments	The project consists of demolition of the Capistrano Unified School District and construction of 349 residential units and a seven level parking structure on a 5.5 acre portion of 80 acres. The project is located at 26126 Victoria Boulevard on the southeast corner of Victoria Boulevard and Sepulveda Boulevard. Reference ORC210720-03	Availability of a Draft Environmental Impact Report	City of Dana Point	No comments sent for this document received
	Comment Period: 1/20/2023 - 3/6/2023 Public Hearing: 2/27/2023			
General Land Use (residential, etc.) ORC230131-03 Old Ranch Country Club Specific Plan Project	The project consists of construction of 51 residential units, a 25,340 square foot medical office facility, a 109,015 square foot hotel with 150 rooms, a 2,650 maintenance facility, and a 3-level parking structure. The project is located near the northwest corner of Lampson Avenue and Basswood Street.	Notice of Preparation	City of Seal Beach	Under review, may submit written comments
	Comment Period: 2/6/2023 - 3/7/2023 Public Hearing: 2/22/2023			

- Project has potential environmental justice concerns due to the nature and/or location of the project.

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
General Land Use (residential, etc.) RVC230110-01 DEV2022-029 Salt Creek Planned Unit Development	The project consists of construction of 319 residential units on 55.4 acres. The project is located on the southwest corner of Briggs Road and Simpson Road.	Site Plan	City of Menifee	South Coast AQMD staff commented on 1/30/2023
	http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/RVC230110-01.pdf Comment Period: 1/9/2023 - 1/31/2023 Public Hearing: N/A			
General Land Use (residential, etc.) RVC230111-03 General Plan Amendment No. 190009, Zone Change No. 1900026, Tentative Tract Map No. 37743, Plot Plan No. 200016 and 200017, and Conditional Use Permit No. 200030	The project consists of construction of 52 residential units, a 4,088 square foot convenience store, a 3,096 square foot service gas station with 6 fueling pumps, and a 8,373 square foot retail building on 9.17 acres. The project is located the northeast corner of Mount Vernon Avenue and Center Street in Riverside.	Notice of Intent to Adopt a Mitigated Negative Declaration	Riverside County	Document reviewed - No comments sent for this document received
General Land Use (residential, etc.) RVC230131-06 Golden Meadows	The project consists of subdivision of 46.5 acres for future development of 156 to 259 residential units. The project is located on the southwest corner of Garbani Road and Sherman Road. Reference RVC210525-02	Initial Project Consultation	City of Menifee	Document reviewed - No comments sent for this document received
	Comment Period: 1/27/2023 - 2/7/2023 Public Hearing: 2/8/2023			

- Project has potential environmental justice concerns due to the nature and/or location of the project.

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
Plans and Regulations ALL230106-01 Draft 2020 RTP Amendment #3	The amendment consists of priority updates on time-sensitive projects for the development of a long-range transportation plan and land use policies, strategies, actions, and programs to identify and accommodate current and future mobility goals, policies, and needs for the next 25 years. The project encompasses 38,000 square miles and includes counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The project also includes six designated AB 617 communities: 1) East Los Angeles, Boyle Heights, West Commerce, 2) Eastern Coachella Valley, 3) San Bernardino, Muscoy, 4) Southeast Los Angeles, 5) South Los Angeles, and 6) Wilmington, Carson, West Long Beach. Reference ALL221018-16, ALL200401-03, ALL191210-01, and ALL190123-01	Other	Southern California Association of Governments	Document reviewed - No comments sent for this document received
Plans and Regulations ALL230106-02 Draft 2023 Federal Transportation Improvement Program (FTIP) Consistency Amendment #23-03	The amendment is to ensure the Federal Transportation Improvement Program (FTIP) for the 2020 Connect SoCal project remains consistent with the Regional Transportation Plan. The project consists of priority updates on time-sensitive projects for the development of a long-range transportation plan and land use policies, strategies, actions, and programs to identify and accommodate current and future mobility goals, policies, and needs for the next 25 years. The project encompasses 38,000 square miles and includes counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The project also includes six designated AB 617 communities: 1) East Los Angeles, Boyle Heights, West Commerce, 2) Eastern Coachella Valley, 3) San Bernardino, Muscoy, 4) Southeast Los Angeles, 5) South Los Angeles, and 6) Wilmington, Carson, West Long Beach. Reference ALL230106-01, ALL221018-16, ALL200401-03, ALL191210-01, and ALL190123-01 Comment Period: 1/6/2023 - 2/5/2023 Public Hearing: 1/17/2023	Other	Southern California Association of Governments	Document reviewed - No comments sent for this document received
Plans and Regulations LAC230103-03 Alhambra Zoning Code Update Project	The project consists of updates to the city's zoning designations to include development standards and design guidelines for housing development. The project encompasses 7.63 square miles and is bounded by cities of South Pasadena and San Marino to the north, City of Rosemead to the east, City of Monterey Park to the south, and unincorporated areas of Los Angeles County to the west. Comment Period: 12/29/2022 - 1/17/2023 Public Hearing: N/A	Notice of Intent to Adopt a Negative Declaration	City of Alhambra	Document reviewed - No comments sent for this document received

- Project has potential environmental justice concerns due to the nature and/or location of the project.

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
Plans and Regulations LAC230117-02 El Segundo Downtown Specific Plan Update	The project consists of construction of 300 residential units, 130,000 square feet of retail uses, 200,000 square feet of office uses, and 24,000 square feet of medical uses on 43.8 acres. The project is bounded by Mariposa Avenue to the north, Eucalyptus Drive to the east, El Segundo Boulevard to the south, and Concord Street to the west. http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/LAC230117-02.pdf Comment Period: 1/12/2023 - 2/13/2023 Public Hearing: 2/2/2023	Notice of Preparation	City of El Segundo	South Coast AQMD staff commented on 1/30/2023
Plans and Regulations LAC230124-06 Altamira Canyon Creek Restoration Project	The project consists of restoration, repairs, and improvements of embankments totaling 4,192 square feet in Altamira Canyon Creek. The project is located near the southeast corner of Sweetbay Road and Narcissa Drive.	Notice of Intent to Adopt a Mitigated Negative Declaration	City of Rancho Palos Verdes	Document reviewed - No comments sent for this document received
	Comment Period: 1/25/2023 - 2/24/2023 Public Hearing: N/A			
Plans and Regulations LAC230124-07 Brookside Golf Course Improvements Project	The project consists of expansion of an existing golf driving range and construction of a miniature golf facility on 16 acres. The project is located near the northwest corner of Rosemont Avenue and Rose Bowl Drive in Pasadena.	Notice of Intent to Adopt a Mitigated Negative Declaration	The Rose Bowl Operating Company	Document reviewed - No comments sent for this document received
	Comment Period: 1/17/2023 - 3/3/2023 Public Hearing: N/A			
Plans and Regulations RVC230126-01 City of Corona General Plan Housing Element Rezoning Program Update	The project consists of updates to the City's General Plan Housing Element to assess housing needs, densities, and development standards with a planning horizon of 2029. The project encompasses 39.55 square miles and is bounded by Norco to the north, El Cerrito to the east, Arcilla to the south, and Chino Hills to the west. Reference RVC220921-07 and RVC220712-02	Final Supplemental Environmental Impact Report Impact Report	City of Corona	Document reviewed - No comments sent for this document received
	Comment renou. N/A Public Hearing: N/A			

- Project has potential environmental justice concerns due to the nature and/or location of the project.

SOUTH COAST AQMD LOG-IN NUMBER PROJECT TITLE	PROJECT DESCRIPTION		TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
Plans and Regulations SBC230124-10 Section 368 Energy Corridors Resource Management Plan Amendment	The project consists of recommended updates to the 2009 land use plan designations of upproximately 673 miles of eight specific energy corridors on public lands managed by Bure Land Management. The affected states include Arizona, California, Colorado, Idaho, Monta Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.		Initial Project Consultation	United States Department of the Interior, Bureau of Land Management	Document reviewed - No comments sent for this document received

- Project has potential environmental justice concerns due to the nature and/or location of the project.

ATTACHMENT B* ONGOING ACTIVE PROJECTS FOR WHICH SOUTH COAST AQMD HAS OR IS CONTINUING TO CONDUCT A CEQA REVIEW

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
Warehouse & Distribution Centers SBC221213-08 Airport Gateway Specific Plan#	The project consists of construction of 10,597,178 square feet of business park uses, a 75,000 square foot hotel with 150 rooms, 7,802,541 square feet of warehouse uses, 142,792 square feet of commercial uses, and 209.65 acres of road improvements on 679 acres. The project is located on the northeast corner of Interstate 10 and Tippecanoe Avenue in the cities of San Bernardino and Highland. Reference SBC220621-09 Comment Period: 12/12/2022 - 3/14/2023 Public Hearing: N/A	Notice of Availability of a Draft Environmental Impact Report	Inland Valley Development Agency	Under review, may submit written comments
Warehouse & Distribution Centers	The project consists of construction of a 435,420 square foot warehouse and a 16,173 square foot	Draft	City of South Gate	South Coast
LAC221207-01 5037 Patata Street Industrial Development	truck maintenance facility on 27.12 acres. The project is located near the northeast corner of Patata Street and Wilcox Avenue within the designated AB 617 Southeast Los Angeles community. http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/LAC221207-01.pdf Comment Period: 12/2/2022 - 1/18/2023 Public Hearing: N/A	Environmental Impact Report		AQMD staff commented on 1/18/2023
Warehouse & Distribution Centers	The project consists of redevelopment of a 295,499 square foot warehouse on 13.49 acres. The	Notice of	City of Whittier	South Coast
LAC221220-04 Whittier Boulevard Business Center	project is located near the southwest corner of Whittier Boulevard and Penn Street. <u>http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/LAC221220-04.pdf</u> Comment Period: 12/14/2022 - 1/13/2023 Public Hearing: N/A	Preparation		AQMD staff commented on 1/12/2023
Warehouse & Distribution Centers	The project consists of construction of a 1,138,638 square foot warehouse on 43.94 acres. The	Notice of	City of Menifee	South Coast
RVC221206-01 The Motte Business Center#	project is located near the southeast corner of Ethanac Road and Dawson Road. <u>http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/RVC221206-01.pdf</u> Comment Period: 12/6/2022 - 1/16/2023 Public Hearing: 12/12/2022	Preparation		AQMD staff commented on 1/16/2023
Warehouse & Distribution Centers	The project consists of construction of a 142,995 square foot warehouse on 6.93 acres. The	Notice of Intent	City of Perris	South Coast
RVC221213-04 Development Plan Review 21-00008	project is located on the northwest corner of Harley Knox Boulevard and North Perris Boulevard. http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/RVC221213-04.pdf	to Adopt Mitigated Negative Declaration		AQMD staff commented on 1/6/2023
	Comment Period: 12/9/2022 - 1/18/2023 Public Hearing: N/A			

*Sorted by Comment Status, followed by Land Use, then County, then date received.

ATTACHMENT B ONGOING ACTIVE PROJECTS FOR WHICH SOUTH COAST AQMD HAS OR IS CONTINUING TO CONDUCT A CEQA REVIEW

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
Warehouse & Distribution Centers RVC221220-01 Thousand Palms Warehouse Project#	The project consists of construction of a 1,238,992 square foot warehouse and an electric substation on 83 acres. The project is located on the northeast corner of Rio Del Sol and 30th Avenue in Thousand Palms. http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/RVC221220-01.pdf Comment Period: 11/30/2022 - 1/6/2023 Public Hearing: 12/12/2022.	Notice of Preparation	Riverside County	South Coast AQMD staff commented on 1/6/2023
Warehouse & Distribution Centers	The project consists of construction of a 591,203 square foot warehouse on 37.46 acres. The	Notice of	County of Riverside	South Coast
RVC221220-02 Rider and Patterson Business Center	project is located on the southwest corner of Rider Street and Patterson Avenue in North Perris. Reference RVC220823-05 http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/RVC221220-02.pdf Comment Period: 11/28/2022 - 1/5/2023 Public Hearing: 1/9/2023	Preparation		AQMD staff commented on 1/5/2023
Waste and Water-related	The project consists of establishment of a land use covenant to restrict future land use on 3.4	Draft Removal	Department of	South Coast
LAC221213-02 Lincoln Heights Service Center	acres. The project is located on the northeast corner of West Avenue 26 and Humboldt Street in Los Angeles. http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/LAC221213-02.pdf Comment Period: 12/12/2022 - 1/25/2023 Public Hearing: N/A	Action Work Plan	Toxic Substances Control	AQMD staff commented on 1/25/2023
Waste and Water-related	The project consists of improvements to four existing facilities, construction of a 60,000 square	Notice of	The Metropolitan	South Coast
LAC221213-09 F.E. Weymouth Water Treatment Plan and La Verne Site Improvements Program	foot warehouse, and construction of a 35,000 square foot engineering building on 135 acres. The project is located near the northwest corner of Wheeler Avenue and 5th Street in La Verne. http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/LAC221213-09.pdf	Preparation	Water District of Southern California	AQMD staff commented on 1/21/2023
	Comment Period: 12/8/2022 - 1/23/2023 Public Hearing: N/A			
Waste and Water-related	The project consists of construction of seven miles of drinking water pipelines, RO brine	Notice of	Big Bear Area	South Coast
SBC221206-04 The Replenish Big Bear Program	minimization, three pump stations, a groundwater recharge system, and four monitoring wells with a capacity of up to 2,210 acre feet per year on 138 square miles by 2040. The project is bounded by unincorporated areas of San Bernardino county in the north, east, south, and west in Big Bear. http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/SBC221206-04.pdf	Preparation	Regional Wastewater Agency	AQMD staff commented on 1/17/2023

ATTACHMENT B ONGOING ACTIVE PROJECTS FOR WHICH SOUTH COAST AQMD HAS OR IS CONTINUING TO CONDUCT A CEQA REVIEW

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
General Land Use (residential, etc.) RVC221206-08 Moreno Valley Mall Redevelopment	The project consists of construction of 1,627 residential units, two hotels with 270 rooms, 60,000 square feet of office uses, and 23,656 square feet of retail uses on 58.61 acres. The project is located on the southwest corner of Centerpoint Drive and Towne Circle. Reference RVC220412-12 http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/RVC221206-08.pdf	Notice of Availability of a Draft Environmental Impact Report	City of Moreno Valley	South Coast AQMD staff commented on 1/11/2023
	Comment Period: 11/27/2022 - 1/11/2023 Public Hearing: N/A			
General Land Use (residential, etc.) SBC221206-02 Downtown Core Project	The project consists of construction of 10,920 residential units and 3,992,868 square feet of commercial uses on 478 acres. The project is bounded by Foothill Boulevard to the north, Mango Avenue to the east, and Randall Avenue to the south, and Juniper Avenue to the west. http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/SBC221206-02.pdf Comment Period: 12/30/2022 - 1/3/2023 Public Hearing: 12/14/2022	Notice of Preparation	City of Fontana	South Coast AQMD staff commented on 1/3/2023
Plans and Regulations LAC221118-02 Los Angeles County Metro Area Plan	The project consists of development of land use policies and implementation strategies to address affordable housing needs, transportation improvements, air quality, economic development, and environmental justice. The project encompasses seven unincorporated areas: 1) East Los Angeles,	Notice of Availability of a Draft	County of Los Angeles	South Coast AQMD staff commented
	2) Florence-Firestone, 3) Willowbrook, 4) West Rancho Dominguez-Victoria, 5) East Rancho Dominguez, 6) Walnut Park, and 7) West Athens-Westmont. The project includes four designated AB 617 communities: 1) East Los Angeles, Boyle Heights, West Commerce, 2) Southeast Los Angeles, 3) South Los Angeles, and 4) Wilmington, Carson, West Long Beach. Reference LAC220217-09	Impact Report		on 1/13/2023
	http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/LAC221118-02.pdf			
Plans and Pagulations	Comment Period: 11/17/2022 - 1/16/2023 Public Hearing: N/A	Notice of	City of Lawndala	South Coast
LAC221213-07 City of Lawndale General Plan Update	guidelines for housing, land use, transportation, and economic development elements with a planning horizon of 2045. The project encompasses 917 acres and is bounded by Hawthorne to the north and west, Gardena and unincorporated areas of Los Angeles County to the east, and City of Torrance to the south, and Redondo Beach to the south and west.	Preparation	City of Lawidale	AQMD staff commented on 1/5/2023
	http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/LAC221213-07.pdf Comment Period: 12/6/2022 - 1/5/2023 Public Hearing: 12/15/2022			

ATTACHMENT B ONGOING ACTIVE PROJECTS FOR WHICH SOUTH COAST AQMD HAS OR IS CONTINUING TO CONDUCT A CEQA REVIEW

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
Plans and Regulations	The project consists of construction of 1,576 residential units on 153 acres. The project is located	Notice of	City of Jurupa	South Coast
RVC221214-01 Vernola Ranch Specific Plan Project	on the southwest corner of Bellegrave Avenue and Pats Ranch Road. Reference RVC210630-01	Preparation	Valley	AQMD staff commented
	http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/RVC221214-01.pdf			1/12/2023
	Comment Period: 12/14/2022 - 1/13/2023 Public Hearing: 1/9/2023			

ATTACHMENT C ACTIVE SOUTH COAST AQMD LEAD AGENCY PROJECTS THROUGH JANUARY 31, 2023

PROJECT DESCRIPTION	PROPONENT	TYPE OF	STATUS	CONSULTANT
		DOCUMENT		
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 natural gas-fueled ICEs.	Quemetco	Environmental Impact Report (EIR)	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. Staff 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. Written comments submitted relative to the Draft EIR and oral comments made at the community meetings, along with responses will be included in the Final EIR which is currently being prepared by the consultant.	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 flares.	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.	SCS Engineers



BOARD MEETING DATE: March 3, 2023

AGENDA NO. 12

REPORT: Rule and Control Measure Forecast

SYNOPSIS: This report highlights South Coast AQMD rulemaking activities and public hearings scheduled for 2023.

COMMITTEE: No Committee Review

RECOMMENDED ACTION: Receive and file.

Wayne Nastri Executive Officer

SLR:MK:IM:AK:ZS

2023 MASTER CALENDAR

The 2023 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.

Staff continues to move forward with rulemaking, recognizing stakeholders' resource limitations due to COVID-19. To maintain social distancing while integrating public participation in the rulemaking process, staff is connecting with stakeholders using teleand videoconferencing. In 2023, there will be opportunities for in-person meetings as social distancing requirements are being lifted. Staff intends to continue to provide teleand videoconferencing options where feasible to maximize public participation.

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.

1153.1	Emissions of Oxides of Nitrogen from Commercial Food Ovens
Proposed Amended	Rule 1153.1 is being moved from May to June 2023 to allow additional tim
work with stakehold	dars on finalizing datails of proposed rule language and evaluate socioecons

Proposed Amended Rule 1153.1 is being moved from May to June 2023 to allow additional time to work with stakeholders on finalizing details of proposed rule language and evaluate socioeconomic impacts.

Month	Title and Description	Type of
April		Rulemaking
1110.3+	Emissions from Linear Generators	Other
1110.2	Emissions from Gaseous - and Liquid-Fueled Engines	
	Proposed Rule 1110.3 will establish emission standards and	
	requirements for the linear generators. Rule 1110.2 will need to be	
	amended to remove existing provisions for linear generators. Michael Morris 909.396.3282; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
May	Title and Description	Type of Rulemaking
Reg III	Fee Rules	Other
including 304	Equipment, Materials, and Ambient Air Analyses	
304.1	Analyses Fees	
304.2	Fees for Operations Supportive of Emissions Analyses	
	Regulation III will incorporate the CPI adjustments to keep pace	
	with inflation, pursuant to Rule 320, and proposed amendments may	
	also include any other needed adjustments. Proposed Amended	
	Regulation III will update annual emission fees, will seek to recover	
	costs incurred by South Coast AQMD from operators responsible for	
	large incidents requiring South Coast AQMD response, and other	
	fees to ensure cost recovery. Kalam Cheung 909.396.3281; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
463	Organic Liquid Storage	Other
	Proposed Amended Rule 463 will address the current test method	
	and improve the effectiveness, enforceability, and clarity of the rule.	
	Proposed amendments may also be needed to ensure consistency	
	with Rule 1178.	
1135+	Michael Morris 909.396.3282; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
1155	Encilities	AR 617
	Proposed Amended Rule 1135 will modify provisions for	BARCT
	electricity generating units at Santa Catalina Island to reflect a	
	revised BARCT assessment	
	Michael Morris 909.396.3282; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	

2023 MASTER CALENDAR

* Potentially significant hearing

Month May (Continued)	Title and Description	Type of Rulemaking
1178 ⁺	Further Reductions of VOC Emissions from Storage Tanks at	AOMP/
1170	Petroleum Facilities	AB 617 CERP/
	Proposed Amended Rule 1178 will incorporate the use of more	AB 617
	advanced early leak detection methods and improve leak detection	BARCT
	and repair programs for storage tanks along with potential control technologies to further reduce VOC emissions. <i>Michael Morris</i> 909.396.3282; CEOA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
June	Title and Description	Type of Rulemaking
1153.1#	Emissions of Oxides of Nitrogen from Commercial Food Ovens	AQMP/
	Proposed Amended Rule 1153.1 will establish NOx BARCT limits	AB 617
	and expand the applicability to RECLAIM and former RECLAIM	BARCT
	facilities. Heather Farr 909 396 3672: CEOA: Barbara Radlein 909 396 2716: Socio: Elaine Shen 909 396 2715	
1405*	Control of Ethylene Oxide and Chlorofluorocarbon Emissions	Toxics
	from Sterilization or Fumigation Processes	
	Amendments needed to address ethylene oxide emissions from	
	sterilization of medical equipment.	
Regulation	New Source Review	AOMP
XIII ^{*#}	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.	
	Michael Morris 909.396.3282; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	Type of
August	Title and Description	Type of Dulomoking
1150 1#	Control of NOv Emissions from Nitric Acid Tonks	
1139.1	Proposed Rule 1150 1 will establish requirements to reduce NOv	AQMP/
	emissions from nitric acid units that will apply to RECLAIM former	BARCT
	RECLAIM and non-RECLAIM facilities	DAICI
	Kalam Cheung 909.396.3281; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	

* 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

Month August (Continued)	Title and Description	Type of Rulemaking
1455	Control of Hexavalent Chromium Emissions from Torch	Toxics
	Cutting and Welding	
	Proposed Rule 1455 will establish requirements to reduce	
	hexavalent chromium emissions from torch cutting and welding of	
	chromium alloys. Kalam Cheung 909.396.3281: CEOA: Barbara Radlein 909.396.2716: Socio: Elaine Shen 909.396.2715	
2202*	On-Road Motor Vehicle Mitigation Options	Other
	Proposed Amended Rule 2202 will streamline implementation for	
	regulated entities, as well as reduce review and administration time	
	for South Coast AQMD staff. Concepts may include program	
	components to facilitate achieving average vehicle ridership targets. Vicki White 909.396.3436; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
Regulation	RECLAIM	AQMP
XX ^{*#}	Proposed Amended Regulation XX will address the transition of	
	NOx RECLAIM facilities to a command-and-control regulatory	
	Structure. Michael Morris 909.396.3282; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
		Type of
September	Title and Description	Rulemaking
1146.2#+	Emissions of Oxides of Nitrogen from Large Water Heaters and	AQMP/
	Small Boilers and Process Heaters	AB 617
	Proposed Amended Rule 1146.2 will update the NOx emission	BARCT
	limits to reflect BARCT. Other provisions may be added to facilitate	
	the deployment of zero-emission units regulated under the proposed	
	amended rule.	
	Heatner Farr 909.390.30/2; CEQA: Barbara Kaalein 909.396.2/16; Socio: Elaine Shen 909.396.2/15	

* 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

Month		Type of
October	Title and Description	Rulemaking
317	Clean Air Act Non-Attainment Fees	Other
	Proposed amendments may be needed to modify CAA Section 185	
	fees for non-attainment. TBD; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
1173+	Control of Volatile Organic Compound Leaks and Releases from	AQMP/
	Components at Petroleum Facilities and Chemical Plants	AB 617 CERP
	Proposed Amended Rule 1173 will further reduce emissions from	
	petroleum and chemical plants by requiring early leak detection	
	approaches. Michael Morris 909 396 3282 · CEOA · Barbara Radlein 909 396 2716 · Socio · Elaine Shen 909 396 2715	
1180	Refinery Fenceline and Community Air Monitoring	Other
	Rule 1180 will be amended to consider expanding the target list of	
	compounds to include compounds identified in the OEHHA's	
	updated priority list published in 2019.	
	Heather Farr 909.396.3672; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
1180.1	Non-Refinery Fenceline and Community Monitoring	Other
	Proposed Rule 1180.1 will establish fenceline and community monitoring	
	requirements for non-petroleum refineries and facilities that are not	
	currently included in Rule 1180 – Refinery Fenceline and Community Air	
	Monitoring. Heather Farr 909 396 3672 · CFOA · Barbara Badlein 909 396 2716 · Socio · Flaine Shen 909 396 2715	
2306*+	New Intermodal Railyard Indirect Source Rule	AOMP/
	Proposed Rule 2306 will establish requirements for new intermodal	AB 617 CERP
	railyards to minimize emissions from indirect sources associated	
	with new railyards.	
	Elaine Shen 909.396.2715; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	

* Potentially significant hearing

Month		Type of
November	Title and Description	Rulemaking
1118*+	Control of Emissions from Refinery Flares	AQMP/
	Proposed Amended Rule 1118 will seek to incorporate provisions to	AB 617 CERP
	further reduce flaring at refineries, for clean service flares, and	
	facility thresholds. Other amendments to improve clarity and to	
	remove obsolete provisions.	
11/18 1*+	Heather Farr 909.396.3672; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	Other/
1140.1	Proposed Amendments to Rule 11/8 1 may be needed to further	AB 617 CERP
	reduce emissions from operations, implement early leak detection	AD 017 CLIM
	odor minimization plans and enhanced emissions and chemical	
	reporting from oil and drilling sites.	
	Michael Morris 909.396.3282; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
1435*	Control of Emissions from Metal Heat Treating Processes	Toxics/
	Proposed Rule 1435 will establish requirements to reduce point	AB 617 CERP
	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. Kalam Cheung 909 396 3281 · CEOA · Barbara Radlein 909 396 2716 · Socio · Elaine Shen 909 396 2715	
Desertes		Type of
December	Title and Description	Rulemaking
1151	Motor Vehicle and Mobile Equipment Non-Assembly Line	Other/
	Coating Operations	AB 617 CERP
	Proposed Amended Rule 1151 will provide clarifications of current	
	requirements and amend provisions to address implementation	
1445*	Control of Toxic Emissions from Laser Arc Cutting	Toxics
1115	Proposed Rule 1445 will establish requirements to reduce	TOMES
	hexavalent chromium and other metal toxic air contaminant	
	particulate emissions from laser arc cutting.	
	Kalam Cheung 909.396.3281; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
2304*+	Marine Port Indirect Source Rule	AQMP/
	Proposed Rule 2304 will establish requirements to reduce emissions	AB 617 CERP
	From indirect sources related to marine ports.	

* Potentially significant hearing

2023 To-Be-Determined

2023	Title and Description	Type of
2025	The and Description	Rulemaking
102	Definition of Terms	Other
	Proposed amendments may be needed to update and add	
	definitions, and potentially modify exemptions.	
103	TBD; CEQA: Barbara Radlein 909.396.2/16; Socio: Elaine Shen 909.396.2/15	Other
105	Proposed amendments are needed to undate geographic areas to be	Oulei
	consistent with state and federal references to those geographic	
	areas	
	TBD; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
209	Transfer and Voiding of Permits	Other
	Proposed amendments may be needed to clarify requirements for	
	change of ownership and permits and the assessment of associated	
	fees.	
223	Kalam Cheung 909.396.3281; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715 Emission Reduction Permits for Large Confined Animal	ΔΟΜΡ
223	Facilities	AQMI
	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.	
	TBD; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
403	Fugitive Dust	Other
	Proposed Amended Rule 403 will seek to remove outdated	
	provisions and add clarification of existing provisions to enhance	
	compliance.	
403.1	Supplemental Fugitive Dust Control Requirements for	Other
103.1	Coachella Valley Sources	Other
	Proposed Amended Rule 403.1 would clarify existing requirements	
	for dust control and remove outdated provisions contained in	
	supporting documents for Rule 403.1.	
	TBD; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
407#	Liquid and Gaseous Air Contaminants	AB 617
	Proposed Amended Rule 407 will update SOx emission limits to	BARCT
	reflect Best Available Retrofit Control Technology, if needed,	
	remove exemptions for RECLAIM facilities, and update	
	monitoring, reporting, and recordkeeping requirements. TBD; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	

2023	Title and Description	Type of Rulemaking
410	Odors from Transfer Stations and Material Recovery Facilities	Other
	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.	
125	TBD; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	<u></u>
425	Odors from Cannabis Processing	Other
	Proposed Rule 425 will establish requirements for control of odors	
	from cannabis processing.	
430	Breakdown Provisions	RECLAIM/
150	Amendments to Rule 430 will need to be amended to remove	Other
	exemptions for facilities that exit the RECLAIM program and	o their
	update references to CEMS rules. Other amendments may be	
	needed to address current policies from U.S. EPA regarding startup.	
	shutdown, and malfunction requirements.	
	TBD; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
431.1#	Sulfur Content of Gaseous Fuels	AB 617
	Proposed Amended Rule 431.1 will assess exemptions, including	BARCT/
	RECLAIM, and update other provisions, if needed.	AB 617 CERP
/21.2#	Heather Farr 909.396.3672; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715 Sulfur Contont of Liquid Eurols	AP 617
431.2	Proposed Amended Rule 131.2 will assess exemptions including	
	PECIAIM and undate other provisions if needed	AB 617 CEDD
	Heather Farr 909.396.3672; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	AD 017 CERI
431.3#	Sulfur Content of Fossil Fuels	AB 617
	Proposed Amended Rule 431.3 will assess exemptions, including	BARCT/
	RECLAIM, and update other provisions, if needed.	AB 617 CERP
4.4.4	Heather Farr 909.396.3672; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	0.1
444	Open Burning	Other
	Amendments may be needed to clarify existing provisions.	
445*	Wood Burning Devices	AQMP
	Proposed Amended Rule 445 will address additional U.S. EPA	
	requirements for Best Available Control Measures and potentially	
	address ozone contingency measure requirements for the Coachella	
	Valley. Amendments may be needed to revise the penalty structure	
	for violations on No Burn Days during the wood burning season.	
	TBD; CEOA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	

* 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

2023	Title and Description	Type of Rulemaking
461	Gasoline Transfer and Dispensing	Other
	Amendments to Rule 461 may be needed to address potential	
	regulatory gaps.	
4.61.1	TBD; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909. 396.2715	0.1
461.1	Gasoline Transfer and Dispensing for Mobile Fueling	Other
	Operations	
	Amendments to Rule 461.1 may be needed to address new	
	information or to improve implementation since this is a newly	
	adopted rule.	
462	TBD; CEQA: Barbara Radlein 909.396.2/16; Socio: Elaine Shen 909.396.2/15	Other
402	Proposed Amended Pule 462 will incorporate the use of advanced	Other
	tachniques to detect fugitive emissions and Eagility Vener Leak	
	Other amondments may be needed to streamling implementation	
	ond add alarity	
	TBD: CEOA: Barbara Radlein 909.396.2716: Socio: Elaine Shen 909.396.2715	
468#	Sulfur Recovery Units	AB 617
	Proposed Amended Rule 468 will update SOx emission limits to	BARCT
	reflect Best Available Retrofit Control Technology, if needed,	
	remove exemptions for RECLAIM facilities, and update	
	monitoring, reporting, and recordkeeping requirements.	
	TBD; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
469#	Sulfuric Acid Units	AB 617
	Proposed Amended Rule 469 will update SOx emission limits to	BARCT
	reflect Best Available Retrofit Control Technology, if needed,	
	remove exemptions for RECLAIM facilities, and update	
	monitoring, reporting, and recordkeeping requirements.	
1101#	TBD; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	A.D. (17
1101"	Secondary Lead Smelters/Sulfur Oxides	AB 617
	Proposed Amended Rule 1101 will update SOx emission limits to	BARCT
	reflect Best Available Retrofit Control Technology, if needed,	
	remove exemptions for RECLAIM facilities, and update	
	monitoring, reporting, and recordkeeping requirements. TBD; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	

* 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

2023	Title and Description	Type of
2023	The and Description	Rulemaking
1102	Dry Cleaners Using Solvent Other Than Perchloroethylene	AB 617 CERP
	Proposed amendments may be needed to address certain exempt	
	compounds, VOC limits for certain applications, and other	
	amendments to improve clarity.	
1105#	Michael Morris 909.396.3282; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	AB 617
1105	Proposed Amended Pule 1105 will under SOx emission limits to	
	reflect Post Available Petrofit Control Technology if peeded	AD 617 CEDD
	remove exemptions for PECLAIM facilities, and undete	AD 017 CERF
	monitoring, reporting, and recordly coning requirements	
	TBD: CEOA: Barbara Radlein 909.396.2716: Socio: Elaine Shen 909.396.2715	
1107	Coating of Metal Parts and Products	Toxics/
	Proposed amendments may be needed to address certain exempt	Other
	compounds, VOC limits for certain applications, and other	
	amendments to improve clarity.	
	Heather Farr 909.396.3672; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
1108	Cutback Asphalt	Toxics/
	Proposed amendments may be needed to address certain exempt	Other
	compounds, VOC limits for certain applications, and other	
	amendments to improve clarity.	
1100 1	Heather Farr 909.396.3672; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	T = ==: = = = /
1108.1	Emuisined Asphalt	TOXICS/
	Proposed amendments may be needed to address certain exempt	Other
	compounds, VOC limits for certain applications, and other	
	amendments to improve clarity.	
1110 2*+#	Fmissions from Gaseous- and Liquid-Fueled Engines	AOMP/
1110.2	Proposed amendments will address use of emergency standby	AR 617
	angines at assential public services for Dublic Safety Power Shutoff	
	programs. Proposed amondments may also be peeded to incorporate	DARCI
	programs. I roposed amendments may also be needed to incorporate possible comments by U.S. EDA for approval into the SID and	
	address monitoring provisions for new angines	
	Michael Morris 909.396.3282; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	

^{*} 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

2023	Title and Description	Type of
2023		Rulemaking
1110.4	Emissions from Emergency Generators	Toxics/
1401	New Source Review of Toxic Air Contaminants	Other
1470	Requirements for Stationary Diesel-Fueled Internal	
	Combustion and Other Compression Ignition Engines	
	Proposed Rule 1110.4 and Proposed Amended Rule 1470 will	
	establish and revise rule provisions to reduce NOx, CO, and PM	
	emissions from emergency generators. Proposed Amended Rule	
	1401 will remove the exemption for emergency generators and	
	therefore require a demonstration that risk thresholds are not	
	exceeded in order to obtain a permit.	
1111	Michael Morris 909.396.3282; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	ΛΟΜΡ
1111	Type Central Furnaçes	AQMI
	Proposed Amended Rule 1111 will implement the 2022 control	
	measure requiring zero emission residential space heating	
	Heather Farr 909.396.3672; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
1111.1	Zero-Emission Residential Furnaces	AQMP
	Proposed Rule 1111.1 may include provisions to encourage zero	
	emission residential furnaces that goes beyond Rule 1111 for gas-	
	fired furnaces.	
1112	TBD; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	Othor
1115	Architectural Coalings Dronosod amondments may be needed to address delisted	Other
	a roposed amendments may be needed to address densied	
	obsolete provisions	
	Heather Farr 909.396.3672; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
1114	Petroleum Refinery Coking Operations	Other
	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.	
1110#	TBD; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	AD (17
1119"	Preprotection Coke Calcining Operations – Oxides of Sulfur	
	rioposed Amended Kule 1119 will update SOX emission limits to	DAKUI/
	reflect Dest Available Ketrolit Control Technology, II needed,	AB 01 / CERP
	memory exemptions for KECLAIN facilities, and update	
	<i>TBD; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715</i>	

2023	Title and Description	Type of
2020		Rulemaking
1121*	Control of Nitrogen Oxides from Residential Type, Natural-	AQMP
	Gas-Fired Water Heaters	
	Proposed amendments may be needed to further reduce NOx	
	emissions from water heaters.	
	Heather Farr 909.396.3672; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
1121.1	Zero Emission Residential Water Heaters	AQMP
	Proposed Rule 1121.1 may include provisions to encourage zero	
	emission water heaters that goes beyond Rule 1121 for gas-fired	
	water heaters.	
1122	TBD; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	Towing
1122	Solvent Degreasers	1 OXICS/
	Proposed amendments may be needed to address certain exempt	Other
	compounds, VOC limits for certain applications, and other	
	amendments to improve clarity.	
1124	Aerospace Assembly and Component Manufacturing	Toxics/
1127	Onerations	Other
	Proposed amendments may be needed to address certain exempt	Other
	compounds VOC limits for certain applications and other	
	amondments to improve clarity	
	Heather Farr 909.396.3672; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
1125	Metal Container, Closure, and Coil Coating Operations	Toxics/
	Proposed amendments may be needed to address certain exempt	Other
	compounds, VOC limits for certain applications, and other	
	amendments to improve clarity.	
	Heather Farr 909.396.3672; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
1126	Magnet Wire Coating Operations	Toxics/
	Proposed amendments may be needed to address certain exempt	Other
	compounds, VOC limits for certain applications, and other	
	amendments to improve clarity.	
1100	Heather Farr 909.396.3672; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	T = -: /
1128	raper, rabric, and rum Coating Operations	I OX1CS/
	Proposed amendments may be needed to address certain exempt	Other
	compounds, VOC limits for certain applications, and other	
	amendments to improve clarity.	
	neumer run 909.390.3072, CEQA. Barbara Kaulein 909.390.2710; Socio: Eluine Snen 909.390.2713	

2023	Title and Description	Type of Rulemaking
1130	Graphic Arts	Toxics/
	Proposed amendments may be needed to address certain exempt	Other
	compounds, VOC limits for certain applications, and other	
	amendments to improve clarity. Heather Farr 909.396.3672; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
1130.1	Screen Printing Operations	Toxics/
	Proposed amendments may be needed to address certain exempt	Other
	compounds, VOC limits for certain applications, and other	
	amendments to improve clarity.	
	Heather Farr 909.396.3672; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
1133.3	Emission Reductions from Greenwaste Composting Operations	AQMP
	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.	
1126	Michael Morris 909.396.3282; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	— • /
1136	Wood Products Coatings	I OXICS/
	Proposed amendments may be needed to address certain exempt	Other
	compounds, VOC limits for certain applications, and other	
	amendments to improve clarity.	
1138+	Control of Emissions from Restaurant Operations	ΔΟΜΡ
1150	Proposed Amended Rule 1138 will further reduce emissions from	AQMI
	underfired charboilers	
	Heather Farr 909.396.3672; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
1142	Marine Tank Vessel Operations	Other
	Proposed Amended Rule 1142 will address VOC and hydrogen	
	sulfide emissions from marine tank vessel operations, applicability,	
	noticing requirements, and provide clarifications.	
	TBD; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
1143	Consumer Paint Thinners and Multi-Purpose Solvents	Toxics/
	Proposed amendments may be needed to address certain exempt	Other
	compounds, VOC limits for certain applications, and other	
	amendments to improve clarity.	
	Heather Farr 909.396.3672; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	1

2023	Title and Description	Type of Rulemaking
1144	Metalworking Fluids and Direct-Contact Lubricants	Toxics/
	Proposed amendments may be needed to address certain exempt	Other
	compounds, VOC limits for certain applications, and other	
	amendments to improve clarity.	
	Heather Farr 909.396.3672; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
1145	Plastic, Rubber, Leather, and Glass Coatings	Toxics/
	Proposed amendments may be needed to address certain exempt	Other
	compounds, VOC limits for certain applications, and other	
	amendments to improve clarity.	
11/6	Finissions of Oxides of Nitrogen from Industrial Institutional	Other
1140	and Commercial Boilers Steam Cenerators and Process	Other
	Heaters	
	Proposed amendments to Rule 1146 may be needed to incorporate	
	comments from U.S. EPA	
	TBD; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
1146.1#	Emissions of Oxides of Nitrogen from Small Industrial,	Other
	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.	
11.00	Heather Farr 909.396.3672; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
1162	Polyester Resin Operations	Toxics/
	Proposed amendments may be needed to address certain exempt	Other
	compounds, VOC limits for certain applications, and other	
	amendments to improve clarity.	
1165	Control of Emissions from Incinerators	AOMP
1100	Proposed Rule 1165 will establish emission standards, source	· · · · · ·
	testing, and monitoring, record keeping, and reporting requirements	
	for incinerators.	
	Michael Morris 909.396.3282; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
1166	Volatile Organic Compound Emissions from Decontamination	Other
	of Soil	
	Proposed Amended Rule 1166 will update requirements,	
	specifically concerning notifications and usage of mitigation plans	
	(site specific versus various locations).	
	Michael Morris 909.396.3282; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	1

2023	Title and Description	Type of
1171		Rulemaking
1171	Solvent Cleaning Operations	Toxics/
	Proposed Amendments to Rule 11/1 may be needed to address	Other
	certain exempt chemicals and compliance issues.	
1174	Control of Volatile Organic Compound Emissions from the	AOMP/
	Ignition of Barbecue Charcoal	Other
	Proposed amendments may be needed to address certain exempt	
	compounds, VOC limits for certain applications, and other	
	amendments to improve clarity.	
	Heather Farr 909.396.3672; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
1176	VOC Emissions from Wastewater Systems	Other/
	Proposed Amended Rule 1176 will clarify the applicability of the	AB 617 CERP
	rule to include bulk terminals under definition of "Industrial	
	Facilities," and streamline and clarify provisions.	
1186 1 1191	Fleet Rules	AOMP/
1192, 1193.	Proposed amendments to Rules 1186.1, 1191, 1192, 1193, 1194.	Other
1194, 1195,	1195. 1196 will seek to align South Coast AOMD fleet rules with	ouioi
1196*+	CARB's final Advanced Clean Fleets should it be adopted.	
	Vicki White 909.396.3436; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
1403*	Asbestos Emissions from Demolition/Renovation Activities	Toxics
	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.	
1404	Katam Cheung 909.396.3281; CEQA: Barbara Raalem 909.396.2716; Socio: Elame Snen 909.396.2715 Hexavalent Chromium Emissions from Cooling Towers	Toxics/
1404	Amendments may be needed to provide additional clarifications	AOMP
	regarding use of process water that is associated with sources that	n Quin
	have the potential to contain chromium in cooling towers and	
	address VOC emissions	
	TBD; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
1405^{*}	Control of Ethylene Oxide and Chlorofluorocarbon Emissions	Toxics
	from Sterilization or Fumigation Processes	
	Amendments to address ethylene oxide emissions from facilities	
	and provisions not considered in earlier amendment.	
1	Kalam Cheung 909 396 3281: CEOA: Barbara Radlein 909 396 2716: Socio: Flaine Shen 909 396 2715	1

* 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

2023	Title and Description	Type of Rulemaking
1411	Recovery or Recycling of Refrigerants from Motor Vehicle Air	Toxics
1111	Conditioners	TOMES
	Proposed Amended Rule 1411 seeks amendments to coincide with	
	Section 609 of the Clean Air Act.	
	TBD; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
1415	Reduction of Refrigerant Emissions from Stationary Air	Other
1415.1	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.	
1/20	TBD; CEQA: Barbara Radlein 909.396.2/16; Socio: Elaine Shen 909.396.2/15 Fmissions Standard for Load	Toxics
1420	Proposed Amended Rule 1420 will undate requirements to address	TUARES
	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	
	he needed to address storage and handling requirements, and revise	
	closure requirements	
	Michael Morris 909.396.3282; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
1420.1	Emission Standards for Lead and Other Toxic Air	Toxics
	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.	
1 4 2 0 2	Michael Morris 909.396.3282; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	. .
1420.2	Emission Standards for Lead from Metal Melting Facilities	I OXICS
	Proposed Amended Rule 1420.2 will update requirements to address	
	arsenic emissions to close a regulatory gap between Kule 1420 and Dula 1407 Control of Emissions of Argania Codmium and Nichola	
	Kule 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	
	Kalam Cheung 909.396.3281; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	

2023	Title and Description	Type of
1 4 2 0 . 2		Rulemaking
1420.3	Emissions Standards for Lead from Firing Ranges	Others
	Proposed Rule 1420.3 will establish requirements to address lead	
	emissions from firing ranges. Kalam Cheung 909 396 3281: CEOA: Barbara Radlein 909 396 2716: Socio: Flaine Shen 909 396 2715	
1426.1	Hexavalent Chromium Emissions from Metal Finishing	Toxics
	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.	
1.400	Kalam Cheung 909.396.3281; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
1430	Control of Emissions from Metal Grinding Operations at Metal	AB 617 CERP
	Forging Facilities	
	Amendments to Rule 1430 may be needed to further reduce	
	emissions and odors from metal grinding and metal cutting	
	Operations at metal forging facilities. Kalam Cheung 909.396.3281: CEOA: Barbara Radlein 909.396.2716: Socio: Elaine Shen 909.396.2715	
1450*	Control of Methylene Chloride Emissions	Toxics
	Proposed Rule 1450 will reduce methylene chloride emissions from	
	furniture stripping and establish monitoring, reporting, and	
	recordkeeping requirements.	
1466	Michael Morris 909.396.3282; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	·
1466	Control of Particulate Emissions from Soils with Toxic Air Contominants	I OXICS
	A mandmants may be needed to residential cleanup projects	
	Michael Morris 909.396.3282; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
1466.1	Control of Particulate Emissions from Demolition of Buildings	Toxics
	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.	
1460	Michael Morris 909.396.3282; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	Torios
1409	Electronleting and Chromic Acid Anodizing Operations	TOXICS
	Amendments to Rule 1460 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	
	Kalam Cheung 909.396.3281; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	

* Potentially significant hearing

2023	Title and Description	Type of Rulemaking
1470.1	Emissions from Emergency Standby Diesel Fueled Engines	AQMP
	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.	
1472	Michael Morris 909.396.3282; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	Torios
1472	Standby Dissal Eucled Internal Combustion Engines	TOXICS
	Droposed Amonded Dule 1472 will remove provisions that are no	
	Proposed Amended Rule 1472 will remove provisions that are no	
	2015 Health Disk Assassment Cuidelings and assass the need for	
	Compliance Diane	
	Compliance Fians. Michael Morris 909.396.3282: CEOA: Barbara Radlein 909.396.2716: Socio: Elaine Shen 909.396.2715	
1901	General Conformity	AQMP
	Proposed Amended Rule 1901 will establish a new General	
	Conformity determination process for applicable projects receiving	
	federal funding or approval.	
	TBD; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
2306.1*+	Existing Intermodal Railyard Indirect Source Rule	AQMP/
	Proposed Rule 2306.1 will establish requirements for existing	AB 617 CERP
	intermodal railyards to minimize emissions from indirect sources	
	associated with these facilities.	
Regulation XX	RECLAIM - Requirements for Oxides of Sulfur (SOX)	RECI AIM/
Regulation XX	Emissions	Other
	Amendments to Regulation XX rules to address SOx requirements at	other
	RECLAIM facilities if there is consideration to transition SOx	
	RECLAIM to command-and-control regulatory structure	
	Michael Morris 909.396.3282; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	
Regulation	Facility-Based Mobile Sources	AQMP/
$XXIII^{*+}$	Proposed rules within Regulation XXIII would reduce emissions	AB 617 CERP
	from indirect sources (e.g., facilities that attract mobile sources). Elaine Shen 909.396.2715; CEQA: Barbara Radlein 909.396.2716; Socio: Elaine Shen 909.396.2715	

* 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

2023	Title and Description	Type of
2025		Rulemaking
Regulation II,	Various rule amendments may be needed to meet the requirements	Other/ AQMP/
III, IV, XIV,	of state and federal laws, implement OEHHA's 2015 revised risk	Toxics/
XI, XIX, XXIII,	assessment guidance, changes from OEHHA to new or revised toxic	AB 617
XXIV, XXX	air contaminants or their risk values, address variance issues,	BARCT/
and XXXV	emission limits, technology-forcing emission limits, conflicts with	AB 617 CERP
	other agency requirements, to abate a substantial endangerment to	
	public health, additional reductions to meet SIP short-term measure	
	commitments, to address issues raised by U.S. EPA or CARB for the	
	SIP or for a rule that was submitted into the SIP, compliance issues	
	that are raised by the Hearing Board. 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 (upon	
	adoption). 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.	

 ^{*} 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

		1 Back to Agenda	
BOARD MEETING	AGENDA NO. 13		
REPORT: Status Report on Major Ongoing and Upcoming Projects for Information Management			
SYNOPSIS:	Information Management is responsible management services in support of all Sc operations. This action is to provide the major automation contracts and planned	for data systems outh Coast AQMD monthly status report on projects.	
COMMITTEE:	Administrative, February 10, 2023, Review	ewed	
RECOMMENDED Receive and file.	ACTION:		

	Wayne Nastri
	Executive Officer
RMM:MAH:XC: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 March 3, 2023 Board Meeting Status Report on Major Ongoing and Upcoming Projects for Information Management

Project	Brief Description	Estimated Project Cost	Completed Actions	Upcoming Milestones
Phone System Upgrade	Upgrade components of the agency Cisco Unified Communications System that are past end of support	\$175,000	 RFQ released September 3, 2021 Awarded January 7, 2022 	Complete upgrade February 28, 2023
AQ-SPEC Cloud Platform Phase 2	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	\$313,350	 Project Charter released Task Order issued, evaluated, and awarded Project kickoff completed Requirements gathering completed Fit Gap and data storage analysis completed Architecture and functional design completed Work Plan development for Phase 2 completed Dashboard designs approved Discovery Phase completed Proposal for implementation phase received 	• Begin implementation phase
PeopleSoft Electronic Requisition	This will allow submittal of requisitions online, tracking multiple levels of approval, electronic archival, pre- encumbrance of budget, and streamlined workflow	\$75,800	 Project Charter released Task Order issued, evaluated, and awarded Requirements gathering and system design completed System setup and code development, and User Acceptance Testing for Information Management completed System setup and code development, and User Acceptance Testing completed System setup and code development, and User Acceptance Testing completed for Administrative and Human Resources, and Technology Advancement Office completed 	 Deploy to IM and AHR divisions Training and Integrated User Testing for other divisions

Project	Brief Description	Estimated Project Cost	Completed Actions	Upcoming Milestones
Permitting System Automation Phase 2	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	\$525,000	 Board approved initial Phase 2 funding December 2017 Board approved remaining Phase 2 funding October 5, 2018 Completed report outlining recommendations for automation of Permitting Workflow Developed application submittals and form filing for first nine of 32 400-E forms Completed application submittals and form filing for 23 types of equipment under Rule 222 for User Testing Deployed production of the top three most frequently used Rule 222 forms: Negative Air Machines, Small Boilers and Charbroilers Deployment to stage of Phase 2 additional 12 400-E-XX forms completed Deployed to production 3 additional Rule 222 forms (Tar Pots, Cooling Towers, and Power Washers) Deployment to production 8 additional Rule 222 forms (Food Ovens, Storage of Odorants, Equipment Used to Store Aqueous Urea Solutions, Asphalt Day Tanker, Asphalt Pavement Heater, Diesel Fueled Boiler, Micro Turbines, and Portable Diesel Fueled Heater) completed. Deployment to production of the Emergency Internal Combustion Engine (EICE) application completed. 	 Requirements gathering for Phase 3 of the project (final twelve 400-E- XX forms) Complete User Acceptance Testing and deployment to production of Phase 1 of the project (first ten 400-E-XX forms) Complete User Acceptance Testing and deployment to production of next set of Rule 222 forms

Project	Brief Description	Estimated Project Cost	Completed Actions	Upcoming Milestones
Warehouse Indirect Source Rule Online Reporting Portal	Development of online reporting portal for Rule 2305 – Warehouse Indirect Source	\$250,000	 Task Order issued Deployed Phase 1.1 – Warehouse Operations Notification Submittal Deployed Phase 1.2 – Warehouse Operations Notification Evaluation Deployed Phase 2 – Early Annual WAIRE Report (EAWR), Initial Site Information Report (ISIR), full Annual WAIRE Report (AWR) Deployed Phase 3– Final Annual WAIRE Report 	• Phase 4 Enhancements
Carl Moyer Program GMS	Development of simplified and streamlined Online Grant Management System (GMS) Portal for Carl Moyer Program	\$116,275	 Task Order issued Phase 1 completed and approved by stakeholder Solicitation for On-Road opened to public Phase 2 – tasks module enhancement User Acceptance Testing completed Phase 2 – 30-day Letter User Acceptance Testing for completed Phase 2 CARL Import for Infrastructure and Marine Development completed Phase 2 – CARL Import for Off-Road and On-Road User Acceptance Testing completed Application Status Tracking User Acceptance Testing completed Evaluation – Messages Module User Acceptance Testing completed Carl Moyer Program – PA2023- 04 opened 01/10/23@1pm 	 Phase 2 – Sprint 3 Development Phase 2 – sprint 4 requirements gathering Phase 2 – management reports
Project	Brief Description	Estimated Project Cost	Completed Actions	Upcoming Milestones
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Agenda Tracking System	Develop new Agenda Tracking System for submittal, review and approval of Governing Board meeting agenda items	\$250,000	 Project initiation completed Task order issued Project planning completed Vision and Scope completed Task order issued Project Kick-off completed 	• System design
PeopleSoft HCM (Human Capital Management) upgrade	Upgrade PeopleSoft HCM product to latest tools and image level to maintain regulatory and functional support	\$180,000	 Project initiation completed Task order issued System assessment completed Customization assessment completed Installation certification completed Data migration completed 	• User Acceptance Testing
Source Test Tracking System (STTS)	Online STSS will keep track of timelines and quantify the number of test protocols and reports received. 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.	\$250,000	 Project initiation completed Task Order issued Project kickoff completed User requirements gathering for internal users completed Developed full business process model Developed screens mock-ups Reviewed proposed automation with EQUATE Working Group completed Completed development of all Sprints 1 through 8 Completed overview of development progress to EQUATE Working Group. Deploy updated STTS Data Model and move application to stage completed Internal and external orientation/training for testers completed Development of all modifications identified by users completed. 	 Complete User Acceptance Testing of STTS Portal in stage environment Complete testing of STTS Portal with regulated community volunteers Deploy STTS Portal to production
Compliance System	Develop new Compliance System to help streamline the compliance business process	\$450,000	Project initiation	• High level requirement gathering

Project	Brief Description	Estimated Project Cost	Completed Actions	Upcoming Milestones
Renewal of HP Server Maintenance & Support	Purchase of maintenance and support services for servers and storage device	\$150,000		 Request Board approval for HP server maintenance and support April 7, 2023 Execute contract April 30, 2023
Purchase of Server and Storage Upgrades	Purchase servers and storage upgrades to support enterprise-level software applications including the Clean Air Support System for all South Coast AQMD core business activities and modeling applications that support Planning and AQMP development	\$430,000		 Request Board approval for server and storage upgrades April 7, 2023 Execute purchases April 30, 2023

Projects that have been completed within the last 12 months are shown below.							
Completed Projects							
Project	Date Completed						
Carl Moyer GMS – PA2023-04	January 10, 2023						
AB 2766 for reporting year 2022	January 3, 2023						
WAIRE Program Online Portal – Phase 3	December 31, 2022						
Annual Emission Reporting for reporting year 2022	December 31, 2022						
Online Application Filing – Eight Additional Rule 222 Forms	December 2, 2022						
CLASS Database Software Licensing	November 30, 2022						
Upgrade of Ingres Database Software	August 5, 2022						
Upgrade of OnBase Software	August 2, 2022						
Renewal of OnBase Software Support	July 15, 2022						
Replace Your Ride (RYR)/One Stop Shop Integration	July 7, 2022						
Warehouse Operations Notification Online Submittal Portal Phase 2.2 Initial Site Information Report (ISIR) and full Annual WAIRE Report (AWR)	June 1, 2022						
Alternative Colors for Air Quality Map	May 20, 2022						
Permit Application Enhancements for Rule 1109.1 Tracking	May 04, 2022						
Mobile Application Enhancements	May 03, 2022						
HP Server Maintenance & Support	April 30, 2022						
National Weather Service Alert Integration	April 21, 2022						
Prop 1B GMS – Locomotive and Cargo	April 19, 2022						

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BOARD MEETING DATE: March 3, 2023

AGENDA NO. 14

REPORT: FY 2022-23 Contract Activity

SYNOPSIS: This report lists the number of contracts let during the first six months of FY 2022-23, the respective dollar amounts, award type, and the authorized contract signatory for the South Coast AQMD.

COMMITTEE: No Committee Review

RECOMMENDED ACTION: Receive and file.

Wayne Nastri Executive Officer

SJ:DH:KB:gp

Background

The Board's Procurement Policy and Procedures requires staff to provide semi-annual reports to the Board on contract activity. This report identifies five categories of contract awards:

- 1) New Awards new contracts for professional services and research projects;
- Other air monitoring station leases, Board Assistant agreements, and miscellaneous lease agreements that generate revenue, e.g., lease of South Coast AQMD office space;
- 3) **Sponsorships** contracts funding public events and technical conferences which provide air quality related benefits;
- 4) **Modifications** amendments to existing contracts usually reflecting changes in the project scope and/or schedule; and
- 5) **Terminated Contracts** Partial/No Work Performed modifications to contracts to reflect termination of a portion or all work which result in de-obligation of contract funding.

The report further specifies under New Awards, which contracts were awarded competitively, and which were awarded on a sole source basis. Within the first four categories, the level of approval (Board or Executive Officer) is indicated.

Summary

The total value of all contracts and contract modifications for this period (the first six months of FY 2022-23) was \$170,743,840.04, with 183 contracts and contract modifications totaling \$168,544,324.00 (98 percent) approved by the Board and 158 contracts and contract modifications totaling \$2,199,516.04 (2 percent) approved by the Executive Officer. This does not include modifications for termination with partial or no work completed. Table 1 is a summary of the 356 contracts and modifications (including terminations and the associated amount of de-obligated funding) issued during this period.

Contract Category	Number	Amount
New Awards	175	\$157,893,980.25
Other	35	\$933,794.94
Sponsorships	13	\$215,500.00
Modifications	118	\$11,700,564.85
Terminations	15	-\$4,023,243.00
Total	356	\$166,720,597.04

Table 1:	Contracts,	Modifications a	and Amounts	(including	terminations)
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Of the total value for New Awards of \$157,893,980.25, \$110,719,623.00 (70 percent) was awarded through the competitive process. As shown below in Table 2, contracts totaling \$2,199,516.04 were approved by the Executive Officer.

Table 2:	Contracts	Approved	by	Executive	Officer
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Contract Description	Contract Amount
Board Member Assistant contracts and contract modifications, as approved by the Executive Officer (Administrative Committee)	\$926,311.96
Technical consulting and legal services	\$168,497.75
Contract modifications for extensions of time or additional budgeted services from previously approved vendors	\$774,026.83
Sponsorships in advanced technologies and community and business outreach	\$215,500.00
Miscellaneous services including ZEV vehicle leases, software licenses and event services	\$100,649.50
Air monitoring licenses	\$14,530.00
Total	\$2,199,516.04

Attachment

Contract Activity Report for the period July 1, 2022 through December 31, 2022

DEPT ID	DEPT NAME	CONTRACT NUMBER	FUND CODE	DESCRIPTION	VENDOR NAME	CONTRACT AMOUNT	FOOT NOTE
I. NE Com	W AWARDS Detitive - Board Approved						
44	TECHNOLOGY ADVANCEMENT OFFICE	C21268	77	REPOWER 1 MAIN ENGINE OF 1 MARINE VESSEL	MORE CARNAGE LLC	\$179,200.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22308	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	SALVADOR PINA	\$55,896.00	
49	TECHNOLOGY ADVANCEMENT OFFICE	C22328	32	REPLACEMENT OF 8 CARGO HANDLING EQUIPMENT AND 7 OFF-ROAD EQUIPMENT	SA RECYCLING LLC	\$574,710.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C21272	27/32	REPLACEMENT OF 11 OFF-ROAD EQUIPMENT	LUCKY FARMS, LLC	\$730,532.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C21362	77	REPOWER 2 MAIN ENGINES OF 1 MARINE VESSEL	MV SPORT KING 2015 INC	\$312,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C21385	79	REPLACEMENT OF 27 ON-ROAD FREIGHT TRUCKS	US FOODS INC	\$1,279,112.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22040	32	EXPANSION AND OPERATION OF 1 EXISTING RENEWABLE GAS FILLING STATION	ORANGE UNIFIED SCHOOL DISTRICT	\$910,084.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22068	79	REPLACEMENT OF 2 ON-ROAD CLASS 8 WASTE HAULERS	CITY OF SACRAMENTO	\$400,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22078	79	REPLACEMENT OF 2 ON-ROAD CLASS 8 WASTE HAULERS	CITY OF FOLSOM	\$400,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22079	79	REPLACEMENT OF 12 ON-ROAD CLASS 8 FREIGHT TRUCKS	NEW BERN TRANSPORT CORPORATION	\$2,400,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22091	77	CONSTRUCTION AND OPERATION OF 1 NEW BATTERY ELECTRIC INFRASTRUCTURE	MILLER MILLING COMPANY LLC	\$19,841.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22109	32	CONSTRUCT NEW RNG STATION WITH 3 DUAL HOSE FAST FILL DISPENSERS	CITY OF EL MONTE	\$1,427,145.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22153	81	PROP 1B TRUCK REPLACEMENT PROGRAM	YES CARGO INC	\$200,000.00	

DEPT ID	DEPT NAME	CONTRACT NUMBER	FUND CODE	DESCRIPTION	VENDOR NAME	CONTRACT AMOUNT	FOOT NOTE
44	TECHNOLOGY ADVANCEMENT OFFICE	C22185	32	REPLACEMENT OF 2 OFF-ROAD EQUIPMENT	INLAND EMPIRE REGIONAL COMPOSTING	\$164,437.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22193	32	REPLACEMENT OF 2 MAIN ENGINES OF A MARINE VESSEL	TOURSX LLC	\$47,949.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22243	81	PROP 1B TRUCK REPLACEMENT PROGRAM	AJR TRUCKING, INC.	\$1,800,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22248	79	REPLACEMENT OF 1 ON-ROAD CLASS 7 DRAYAGE TRUCKS	SEAN ARIAN M PIZARRO	\$46,789.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22252	79	REPLACEMENT OF 7 ON-ROAD CLASS 8 DRAYAGE TRUCKS	MLI LEASING LLC	\$595,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22255	79	REPLACEMENT OF 5 ON-ROAD CLASS 8 DRAYAGE TRUCKS	MORTIMER & WALLACE LLC	\$425,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22263	79	REPLACEMENT OF 2 ON-ROAD CLASS 8 WASTE HAULERS	SOUTH SAN FRANCISCO SCAVENGER CO INC	\$400,000.00	
27	INFORMATION MANAGEMENT	C22276	01	PIP INTERNET SERVICES	VERIZON ENTERPRISE SOLUTIONS	\$459,405.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22277	79	REPLACEMENT OF 2 ON-ROAD CLASS 8 FREIGHT TRUCKS	VALLEY PACIFIC PETROLEUM SERVICES	\$89,925.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22283	32	CONSTRUCTION AND OPERATION 4 NEW BATTERY CHARGING STATIONS	CITY OF GLENDORA	\$107,776.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22295	81	PROP 1B TRUCK REPLACEMENT PROGRAM	ECOLOGY AUTO PARTS INC	\$500,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22298	79	REPLACEMENT OF 2 ON-ROAD CLASS 8 DRAYAGE TRUCK	PEREZ EXPRESS INC	\$170,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22299	32	REPLACEMENT OF 3 LOCOMOTIVES	UNION PACIFIC RAILROAD COMPANY	\$7,157,737.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22303	32	REPLACEMENT OF 2 OFF-ROAD EQUIPMENT	ROLLING CAMEL RANCHES INC	\$680,528.00	

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44	TECHNOLOGY ADVANCEMENT OFFICE	C22305	32	REPLACEMENT OF 2 OFF-ROAD EQUIPMENT	SALVADOR MORA	\$209,907.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22309	79	REPLACEMENT OF 1 ON-ROAD CLASS 8 DRAYAGE TRUCK	SONIC FREIGHT LINE LLC	\$85,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22314	32	REPLACEMENT OF 2 OFF-ROAD EQUIPMENT	WASHBURN GROVE MANAGEMENT, INC.	\$345,548.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22321	59	VIP PROGRAM DEALERSHIP	COACHWEST LUXURY & PERFORMANCE MOTORCARS	\$0.00	1
44	TECHNOLOGY ADVANCEMENT OFFICE	C22323	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	HONDO FRAMING, INC	\$113,411.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22324	32	REPLACEMENT OF 2 OFF-ROAD EQUIPMENT	JIM BOOTSMA JR.	\$308,692.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22325	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	POST BROTHERS CONSTRUCTION	\$156,230.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22326	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	CITRUS PRO INC	\$66,672.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22327	32	REPLACEMENT OF 10 OFF-ROAD EQUIPMENT	EPC LANDSCAPING, LLC	\$1,046,016.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22329	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	FASTRACK RENTALS, INC.	\$245,547.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22330	32	REPLACEMENT OF 23 OFF-ROAD ENGINES	MCMINN EQUIPMENT RENTAL & LEASING, INC.	\$6,555,310.00	
49	TECHNOLOGY ADVANCEMENT OFFICE	C22331	32	REPLACEMENT OF 1 AND REPOWER OF 14 OFF-ROAD EQUIPMENT	PEED EQUIPMENT COMPANY	\$5,666,160.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22334	81	PROP 1B TRUCK REPLACEMENT PROGRAM	LATIN AMERICAN CARRIERS, INC.	\$100,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22335	81	PROP 1B TRUCK REPLACEMENT PROGRAM	VEGA EXPRESS TRUCKING LLC	\$200,000.00	

DEPT ID	DEPT NAME	CONTRACT NUMBER	FUND CODE	DESCRIPTION	VENDOR NAME	CONTRACT AMOUNT	FOOT NOTE
44	TECHNOLOGY ADVANCEMENT OFFICE	C22340	32	REPLACEMENT OF 3 OFF-ROAD EQUIPMENT	STICE CO INC	\$352,522.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22341	79	REPLACEMENT OF 1 ON-ROAD CLASS 8 DRAYAGE TRUCK	JONGHO LEE	\$85,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22342	79	REPLACEMENT OF 1 ON-ROAD CLASS 8 DRAYAGE TRUCK	ANGEL GEOVANNI GARCIA	\$85,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22343	79	REPLACEMENT OF 1 ON-ROAD CLASS 8 DRAYAGE TRUCK	PY TRUCKING INC	\$85,000.00	
27	INFORMATION MANAGEMENT	C22346	01	PHONE SYSTEM MAINTENANCE SERVICES - FY2022- 2023	INSIGHT PUBLIC SECTOR, INC	\$777.944.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22347	32	REPLACEMENT OF 2 OFF-ROAD EQUIPMENT	VENTURA TRANSFER COMPANY	\$502,193.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22352	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	JAMES MCMINN, INC.	\$1,645,020.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22355	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	BNSF RAILWAY COMPANY	\$81,104.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22357	32	REPLACEMENT OF 2 OFF-ROAD EQUIPMENT	DORSEY FAMILY GROVES, LLC	\$155,170.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22358	32	REPLACEMENT OF 3 OFF-ROAD EQUIPMENT	A J ZIMMER CONSTRUCTION INC	\$270,824.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22359	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	LA QUINTA DATE GROWERS, L.P.	\$64,435.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22360	32	REPLACEMENT OF 63 OFF-ROAD EQUIPMENT	TGI EQUIPMENT CORPORATION	\$10,424,532.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22362	32	REPLACEMENT OF 2 OFF-ROAD EQUIPMENT	WEST COAST TURF	\$144,682.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22363	32	REPLACEMENT OF 2 OFF-ROAD EQUIPMENT	C&C SCRAP SERVICES, INC	\$275,446.00	

DEPT ID	DEPT NAME	CONTRACT NUMBER	FUND CODE	DESCRIPTION	VENDOR NAME	CONTRACT AMOUNT	FOOT NOTE
44	TECHNOLOGY ADVANCEMENT OFFICE	C22365	32	REPLACEMENT OF 10 OFF-ROAD EQUIPMENT	COMMERCIAL COATING CO INC	\$232,491.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22366	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	DESERT EMPIRE MOBILE HOMES	\$122,409.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22368	32	REPLACEMENT OF 2 OFF-ROAD EQUIPMENT	FISCHER, INC	\$214,775.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22369	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	SO CALIFORNIA REGIONAL RAIL AUTHORITY	\$318,142.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22371	32	REPLACEMENT OF 2 OFF-ROAD EQUIPMENT	EAGLE ROCK AGGREGATES INC	\$97,957.00	
46	MONITORING & ANALYSIS	C22375	01	CONDUCT CALIBRATION OF METEOROLOGICAL DEVICES IN AB 617 COMMUNITIES	TECHNICAL AND BUSINESS SYSTEMS	\$50,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22376	32	REPLACEMENT OF 20 OFF-ROAD EQUIPMENT	GLESS RANCH, INC	\$1,101,611.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22377	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	GUILLERMO GONZALES	\$148,269.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22378	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	JUAN ANTONIO RIOS LUNA	\$111,797.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22379	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	NOE ESPINOZA	\$51,720.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22380	32	REPLACEMENT OF 3 OFF-ROAD EQUIPMENT	JUNIOR ENTERPRISES, LLC	\$750,240.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22381	32	REPLACEMENT OF 2 OFF-ROAD EQUIPMENT	KIP CONSTRUCTION SERVICES INC	\$291,350.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22382	32	REPLACEMENT OF 6 OFF-ROAD EQUIPMENT	MARTIN MORA	\$491,381.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22383	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	NATURES BEST FARMS INC	\$151,371.00	

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44	TECHNOLOGY ADVANCEMENT OFFICE	C22385	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	CAL-COAST CONSTRUCTION SPECIALISTS, INC	\$127,339.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22386	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	NICKOLAS EUGENE NUCIFORO	\$141,530.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22389	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	CITY OF HAWAIIAN GARDENS	\$15,807.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22390	32	REPLACEMENT OF 1 OFF-RAOD EQUIPMENT	D.L. WIEST ENTERPRISES, INC.	\$690,130.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22391	32	REPLACEMENT OF 2 OFF-ROAD EQUIPMENT	DOMENIGONI BROTHERS RANCH LP	\$262,318.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22393	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	WILLIAMS HEAVY EQUIPMENT RENTAL INC	\$81,278.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22396	32	REPLACEMENT OF 1 OFF-RAOD EQUIPMENT	GREEN HORSE POLO PARK OWNERS ASSOCIATION	\$101,721.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22398	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	GREG ANDERSON	\$97,489.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22401	32	REPLACEMENT OF 3 OFF-ROAD EQUIPMENT	KRAMAR'S IRON & METAL INC	\$226,067.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22402	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	KATHLEEN A WEBER INC	\$58,621.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22404	32	CONSTRUCTION AND OPERATION OF 2 NEW ELECTRIC VEHICLE CHARGING STATIONS	WATTEV INC	\$3,356,158.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22405	79	REPLACEMENT OF 1 ON-ROAD CLASS 8 DRAYAGE TRUCK	CHANG HWAN LEE	\$85,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22406	32	REPLACEMENT OF 7 OFF-ROAD EQUIPMENT	YUSEN TERMINALS INC	\$82,800.00	
16	ADMNISTRATIVE & HUMAN RESOURCES	C22416	01	LANDSCAPE AND TREE MAINTENANCE - FY22-23 FUNDING	TROPICAL PLAZA NURSERY INC	\$394,713.00	

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44	TECHNOLOGY ADVANCEMENT OFFICE	C22418	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	OAK GLEN WINERY LLC	\$75,779.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22422	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	LA QUINTA COUNTRY CLUB	\$70,985.00	
16	ADMNISTRATIVE & HUMAN RESOURCES	C23019	01	SECURITY GUARD SERVICES AT SCAQMD DIAMOND BAR HEADQUARTERS FY 22-23	GSSI, INC	\$1,966,145.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C23031	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	BOSCH DAIRY #2	\$209,747.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C23045	32	REPLACEMENT OF 14 OFF-ROAD EQUIPMENT	NATIONAL DISTRIBUTION CENTERS	\$628,432.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C23047	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	PRO-ORGANIC FARMS LLC	\$233,171.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C23051	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	ALBERTO RODRIGUEZ CRUZ	\$77,154.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C23052	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	AGRISCAPE, INC	\$141,921.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C23053	32	REPLACEMENT OF 2 OFF-ROAD EQUIPMENT	ALEJANDRO GALINDO	\$118,330.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C23054	32	REPLACEMENT OF 2 OFF-ROAD EQUIPMENT	ANTONIO RAMIREZ	\$304,140.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C23055	32	REPLACEMENT OF 5 OFF-ROAD EQUIPMENT	ANTHONY VINEYARDS, INC.	\$365,225.00	
49	TECHNOLOGY ADVANCEMENT OFFICE	C23056	32	REPLACEMENT OF 4 OFF-ROAD EQUIPMENT	BOERSMA DAIRY	\$396,723.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C23057	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	AUDENCIO MARTINEZ ESPINOZA	\$198,365.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C23058	32	REPLACEMENT OF ONE 1 OFF-ROAD EQUIPMENT	BRITO RANCHES LP	\$71,700.00	

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44	TECHNOLOGY ADVANCEMENT OFFICE	C23062	77	CONSTRUCTION AND OPERATION OF ONE RENEWABLE NATURAL GAS FILLING STATION	EQUILON ENTERPRISES LLC	\$800,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C23064	79	REPLACEMENT OF FOUR ON-ROAD CLASS 8 WASTE HAULERS	WASTE MANAGEMENT OF CALIFORNIA INC	\$288,832.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C23065	79	REPLACEMENT OF 13 ON-ROAD CLASS 8 DRAYAGE TRUCKS	PACIFIC EXPRESSWAY INC	\$1,105,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C23066	79	REPLACEMENT OF 2 ON-ROAD CLASS 8 DRAYAGE TRUCKS	TRICON TRANSPORTATION, INC.	\$170,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C23067	79	REPLACEMENT OF 3 ON-ROAD CLASS 8 WASTE HAULERS	USA WASTE OF CALIFORNIA INC	\$216,624.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C23070	79	REPLACEMENT OF 1 ON-ROAD CLASS 7 DRAYAGE TRUCK	ALEJANDRO MELENDEZ	\$46,789.00	
26	PLANNING, RULE DEVELOPMENT & IMPLEMENTATION	C23078	01	PROVIDE EXPERT TECHNICAL SERVICES IN SUPPORT OF UPCOMING MAJOR PROJECTS, INCLUDING THE 2022 AQMP	INTEGRA ENVIRONMENTAL CONSULTING	\$100,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C23079	79	REPLACEMENT OF 1 ON-ROAD CLASS 8 DRAYAGE TRUCKS	DAN LY LLC	\$85,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C23080	79	REPLACEMENT OF 1 ON-ROAD CLASS 8 DRAYAGE TRUCK	LUNA LOGISTICS INC	\$85,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C23094	77	11 OFF-ROAD AGRICULTURAL EQUIPMENT - OPERATE ONLY	ANTHONY VINEYARDS, INC.	\$0.00	1
50	ENGINEERING & PERMITTING	C23098	01	CONSULTING SERVICES FOR REVIEW OF PERMIT APPLICATIONS	WILLIAM DANIEL WALTERS	\$50,000.00	
50	ENGINEERING & PERMITTING	C23099	01	CONSULTING SERVICES FOR THE REVIEW OF PERMIT APPLICATIONS	CASTLE ENVIRONMENTAL CONSULTING, LLC	\$50,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22199	80	PURCHASE OF 2 ELECTRIC SCHOOL BUSES WITH ASSOCIATED INFRASTRUCTURE	BALDWIN PARK UNIFIED SCHOOL DISTRICT	\$420,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22201	80	PURCHASE OF 4 ELECTRIC SCHOOL BUSES	BONITA UNIFIED SCHOOL DISTRICT	\$1,560,000.00	

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44	TECHNOLOGY ADVANCEMENT OFFICE	G22202	80	PURCHASE OF 1 ELECTRIC SCHOOL BUS	BUENA PARK SCHOOL DISTRICT	\$390,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22203	80	PURCHASE OF 7 CNG SCHOOL BUSES	CAPISTRANO UNIFIED SCHOOL DISTRICT	\$1,435,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22204	80	PURCHASE OF 2 CNG SCHOOL BUSES	CENTRALIA SCHOOL DISTRICT	\$420,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22206	80	PURCHASE OF 4 ELECTRIC SCHOOL BUSES	COACHELLA VALLEY UNIFIED SCHOOL DISTRICT	\$1,600,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22208	80	PURCHASE OF 2 CNG SCHOOL BUSES	DESERT SANDS UNIFIED SCHOOL DISTRICT	\$410,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22209	80	PURCHASE OF 1 CNG SCHOOL BUS	EL MONTE UNION HIGH SCHOOL DISTRICT	\$220,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22210	80	PURCHASE OF 5 CNG SCHOOL BUSES AND 1 ELECTRIC SCHOOL BUS WITH ASSOCIATED INFRASTRUCTURE	FONTANA UNIFIED SCHOOL DISTRICT	\$1,490,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22211	80	PURCHASE OF 2 CNG SCHOOL BUSES	FOUNTAIN VALLEY SCHOOL DISTRICT	\$410,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22212	80	PUCHASE OF 2 CNG SCHOOL BUSES	FULLERTON JOINT UNION HIGH SCHOOL DIST	\$440,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22213	80	PURCHASE OF OF 2 SCHOOL BUSES	FULLERTON SCHOOL DISTRICT	\$310,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22215	80	PURCHASE OF 7 CNG SCHOOL BUSES WITH ASSOCIATED INFRASTRUCTURE	HEMET UNIFIED SCHOOL DISTRICT	\$1,540,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22216	80	PURCHASE OF 2 CNG SCHOOL BUSES	HUNTINGTON BEACH CITY SCHOOL DISTRICT	\$410,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22218	80	PURCHASE OF 2 CNG SCHOOL BUSES	LA HABRA CITY SCHOOL DISTRICT	\$410,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22219	80	PURCHASE OF 7 CNG SCHOOL BUSES	LAKE ELSINORE UNIFIED SCHOOL DISTRICT	\$1,540,000.00	

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44	TECHNOLOGY ADVANCEMENT OFFICE	G22220	80	PURCHASE OF 2 CNG SCHOOL BUSES	LOS ALAMITOS UNIFIED SCHOOL DISTRICT	\$410,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22222	80	PURCHASE OF 6 SCHOOL BUSES	MONTEBELLO UNIFIED SCHOOL DISTRICT	\$2,340,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22223	80	PURCHASE OF 4 ELECTRIC SCHOOL BUSES WITH ASSOCIATED INFRASTRUCTURE	MORENO VALLEY UNIFIED SCHOOL DISTRICT	\$1,560,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22225	80	PURCHASE OF 3 SCHOOL BUSES	NEWHALL SCHOOL DISTRICT	\$666,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22226	80	PURCHASE OF 2 CNG SCHOOL BUSES	NEWPORT MESA UNIFIED SCHOOL DISTRICT	\$410,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22227	80	PURCHASE OF 8 CNG SCHOOL BUSES	NORWALK-LA MIRADA UNIFIED SCHOOL DIST	\$1,680,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22229	80	PURCHASE OF 3 ELECTRIC SCHOOL BUSES AND ASSOCIATED INFRASTRUCTURE	ONTARIO-MONTCLAIR SCHOOL DISTRICT	\$1,170,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22230	80	PURCHASE OF 2 CNG SCHOOL BUSES	ORANGE UNIFIED SCHOOL DISTRICT	\$420,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22232	80	PURCHASE OF 6 ELECTRIC SCHOOL BUSES	REDLANDS UNIFIED SCHOOL DISTRICT	\$2,340,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22234	80	PURCHASE 2 PROPANE SCHOOL BUSES	SAUGUS UNION SCHOOL DISTRICT	\$310,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22235	80	PURCHASE OF 2 CNG SCHOOL BUSES	SULPHUR SPRINGS SCHOOL DISTRICT	\$444,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22237	80	PURCHASE OF 5 CNG SCHOOL BUSES WITH ASSOCIATED INFRASTRUCTURE	TORRANCE UNIFIED SCHOOL DISTRICT	\$1,100,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22238	80	PURCHASE OF 1 CNG SCHOOL BUS	WALNUT VALLEY UNIFIED SCHOOL DISTRICT	\$205,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22240	80	PURCHASE OF 4 ELECTRIC SCHOOL BUSES WITH ASSOCIATED INFRASTRUCTURE	WHITTIER UNION HIGH SCHOOL DISTRICT	\$840,000.00	

DEPT ID	DEPT NAME	CONTRACT NUMBER	FUND CODE	DESCRIPTION	VENDOR NAME	CONTRACT AMOUNT	FOOT NOTE
44	TECHNOLOGY ADVANCEMENT OFFICE	G22241	80	PURCHASE OF 14 ELECTRIC SCHOOL BUSES	WM S HART UNION HIGH SCHOOL DISTRICT	\$3,108,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22268	80	REPLACE 1 CNG FUEL TANK ON SCHOOL BUS	CHAFFEY JOINT UNION HIGH SCHOOL DISTRICT	\$20,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22338	80	REPLACE 6 CNG FUEL TANKS ON SCHOOL BUSES	OCEAN VIEW SCHOOL DISTRICT	\$120,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22339	80	REPLACE 6 CNG TANKS ON SCHOOL BUSES	FONTANA UNIFIED SCHOOL DISTRICT	\$120,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22353	80	REPLACE 1 CNG TANK ON A SCHOOL BUS	ALTA LOMA SCHOOL DISTRICT	\$20,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G22354	80	REPLACE 1 CNG TANK ON A SCHOOL BUS	REDLANDS UNIFIED SCHOOL DISTRICT	\$20,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G23050	80	REPLACE 2 CNG TANKS ON SCHOOL BUSES	DOWNEY UNIFIED SCHOOL DISTRICT	\$40,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G23061	17	PURCHASE OF 38 DIESEL SCHOOL BUSES	MORENO VALLEY UNIFIED SCHOOL DISTRICT	\$4,282,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	G23063	80	REPLACE 2 CNG TANKS ON SCHOOL BUSES	ORANGE UNIFIED SCHOOL DISTRICT	\$40,000.00	
44	MSRC	MS18180	23	UPGRADE FACILITY AND PROVIDE TRAINING	OMNITRANS	\$83,000.00	
44	MSRC	MS18183	23	INSTALL PUBLICLY ACCESSIBLE HYDROGEN FUELING STATION	NIKOLA TA HRS 1 LLC	\$1,660,000.00	
44	MSRC	MS21009	23	DEPLOY 12 - ZERO-EMISSION YARD TRACTORS	ITS TECHNOLOGIES & LOGISTICS, LLC	\$1,686,900.00	
44	MSRC	MS21016	23	PROCURE 2 POWER CENTERS AND 4 MEGA CHARGERS	RYDER INTEGRATED LOGISTICS INC	\$3,169,746.00	
44	MSRC	MS21025	23	INSTALL EV CHARGING STATION	COSTCO WHOLESALE CORPORATION	\$160,000.00	

DEPT ID	DEPT NAME	CONTRACT NUMBER	FUND CODE	DESCRIPTION	VENDOR NAME	CONTRACT AMOUNT	FOOT NOTE
					Subtotal	\$110,719,623.00	
Sole S	ource - Board Approved						
44	TECHNOLOGY ADVANCEMENT OFFICE	C22082	31	DEVELOP HIGH-FLOW BUS FUELING PROTOCOL	FRONTIER ENERGY INC	\$25,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22108	67	CONDUCT OUTREACH FOR RESIDENTS IN DISADVANTAGED COMMUNITIES FOR THEJETSI PILOT PROGRAM	COALITION FOR CLEAN AIR	\$99,553.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22125	67	MANAGE DATA COLLECTION, FLEET ANALYSIS AND REPORTING ON THE JETSI PILOT PROJECT.	RICARDO INC	\$1,351,924.00	
26	DEVELOPMENT & IMPLEMENTATION	C22135	01	COMMUNITY-BASED OUTREACH AND PROVIDE TRAINING ON WAYS TO MITIGATE HEALTH IMPACTS	DESERT HEALTHCARE DISTRICT	\$27,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22177	67,23	DEPLOYMENT OF 50 BATTERY ELECTRIC TRUCKS AND CHARGING INFRASTRUCTURE	DAIMLER TRUCKS NORTH AMERICA LLC	\$15,918,593.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22247	67,23	DEPLOY 50 BATTERY ELECTRIC CLASS 8 TRUCKS - INITIAL FUNDING FROM FUND 23	NFI INTERACTIVE LOGISTICS LLC	\$23,108,129.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C22409	01	NON-PFAS FUME SUPPRESSANT	ALLIANCE TECHNICAL GROUP LLC	\$60,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C23037	32	REPLACEMENT OF 2 OFF-ROAD EQUIPMENT	POMONA SCRAP METAL INC	\$758,011.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C23039	17	REPLACEMENT OF 1 DIESEL ELECTRIC FREIGHT LINE- HAUL LOCOMOTIVE TO A ZERO-EMISSION FREIGHT LINE-HAUL LOCOMOTIVE WITH SUPPORTING CHARGING INFRASTRUCTURE	BNSF RAILWAY COMPANY	\$4,967,000.00	
46	MONITORING & ANALYSIS	C23042	01	EXPANDED MOMA CALIBRATION TOOL	AEROQUAL INC	\$60,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C23059	31	STUDY OF EMISSIONS AND AIR QUALITY IMPACT FROM GOODS MOVEMENT OPERATIONS IN SOUTHERN CALIFORNIA COMMUNITIES	UNIVERSITY OF CALIFORNIA RIVERSIDE	\$500,000.00	

DEPT ID	DEPT NAME	CONTRACT NUMBER	FUND CODE	DESCRIPTION	VENDOR NAME	CONTRACT AMOUNT	FOOT NOTE
44	TECHNOLOGY ADVANCEMENT OFFICE	C23071	31	RENEW SCAQMD MEMBERSHIP IN CALIFORNIA FUEL CELL PARTNERSHIP FOR FY 2022	FRONTIER ENERGY INC	\$40,000.00	
					Subtotal	\$46,915,210.00	
Sole S	Source - Executive Officer	Approved					
	PLANNING, RULE			FOR ZERO-EMISSION FUELING INFRASTRUCTURE			
26	DEVELOPMENT & IMPLEMENTATION	C22395	01	RELATED TO THE 2022 AQMP, PORTS AND RAILYARD ISR¿S	INDUSTRIAL ECONOMICS INCORPORATED	\$51,297.60	
35	LEGISLATIVE, PUBLIC AFFAIRS & MEDIA	C23029	01	BRANDING AND ADVERTISEMENT OF SCAQMD'S 8TH ANNUAL ENVIRONMENTAL JUSTICE CONFERENCE	FAVIANNA RODRIGUEZ	\$2,000.00	
35	LEGISLATIVE, PUBLIC AFFAIRS & MEDIA	C23030	01	LICENSE AND SERVICES AGREEMENT FOR ENVIRONMENTAL JUSTICE CONFERENCE	WHOVA, INC.	\$4,299.00	
	ADMINISTRATIVE &			WEST INLAND EMPIRE EMPLOYMENT RELATIONS			
16	HUMAN RESOURCES	C23033	01	CONSORTIUM MEMBERSHIP	LIEBERT CASSIDY WHITMORE	\$4,920.00	
	ADMINISTRATIVE &						
16	HUMAN RESOURCES	C23035	01	HEALTH INSURANCE BROKERAGE SERVICES	ALLIANT INSURANCE SERVICES INC	\$78,000.00	
16	ADMINISTRATIVE & HUMAN RESOURCES	C23060	01	LEASE 2 HYUNDAI IONIQ EVS	PUENTE HILLS HYUNDAI	\$88,586.50	
08	LEGAL	C23084	01	LEGAL ADVICE AND COUNSEL ON CONTRACTS MATTERS	ATKINSON, ANDELSON, LOYA, RUUD & ROMO	\$5.000.00	
35	LEGISLATIVE, PUBLIC	C23102	01	EDUCATION AND WATTS CLEAN AIR AND ENERGY	PHYSICIANS FOR SOCIAL	\$22,200,15	
55		025102	01			\$22,200.15	
44	ADVANCEMENT OFFICE	C23104	01	DIAMOND BAR HEADQUARTERS	COMPRESSION SOURCE INC	\$0.00	1
	LEGISLATIVE, PUBLIC						
35	AFFAIRS & MEDIA	C23111	01	SUBSCRIPTION TO CAPITOL TRACK	WAVELENGTH AUTOMATION INC	\$2,844.00	
					Subtotal	\$259,147.25	

DEPT ID	DEPT NAME	CONTRACT NUMBER	FUND CODE	DESCRIPTION	VENDOR NAME	CONTRACT AMOUNT	FOOT NOTE
II. O	THER						
Board	d Assistant						
Board	Administrative Committee	/Executive Office	r Approv	ed			
02	GOVERNING BOARD	C23000	01	BOARD ASSISTANT SERVICES FOR BEN BENOIT	TRICIA ALMIRON	\$22,435.92	
02	GOVERNING BOARD	C23001	01	BOARD ASSISTANT SERVICES FOR BEN BENOIT	RUTHANNE TAYLOR BERGER	\$74,000.04	
				BOARD ASSISTANT SERVICES FOR VERONICA PADILLA-			
02	GOVERNING BOARD	C23002	01	CAMPOS	AMY J WONG	\$62,564.00	
02	GOVERNING BOARD	C23003	01	BOARD ASSISTANT SERVICES FOR ANDREW DO	CHRIS WANGSAPORN	\$39,624.00	
02	GOVERNING BOARD	C23004	01	BOARD ASSISTANT SERVICES FOR LARRY MCCALLON	RONALD KETCHAM	\$45,045.96	
02	GOVERNING BOARD	C23005	01	BOARD ASSISTANT SERVICES FOR BEN BENOIT	THOMAS ALAN GROSS	\$22,435.92	
				BOARD ASSISTANT SERVICES FOR VERONICA PADILLA-			
02	GOVERNING BOARD	C23006	01	CAMPOS	MARIA TERESA ACOSTA	\$48,000.00	
				BOARD ASSISTANT SERVICES FOR VERONICA PADILLA-			
02	GOVERNING BOARD	C23007	01	CAMPOS	SANDRA HERNANDEZ	\$33,000.00	
				BOARD ASSISTANT SERVICES FOR VERONICA PADILLA-			
02	GOVERNING BOARD	C23008	01	CAMPOS	CRISTIAN RIESGO	\$12,000.00	
02	GOVERNING BOARD	C23009	01	BOARD ASSISTANT SERVICES FOR GIDEON KRACOV	DESTINY RODRIGUEZ	\$75,000.00	
				BOARD ASSISTANT SERVICES FOR VERONICA PADILLA-			
02	GOVERNING BOARD	C23010	01	CAMPOS	ALISA COTA	\$25,872.00	
02	GUVERNING BUARD	C23011	01	BUARD ASSISTANT SERVICES FOR GIDEON KRACOV	KOSS BENJAMIN ZELEN	\$27,604.92	
02		C22042	01			624 004 04	
02	GOVERINING BOARD	C23012	01	BUARD ASSISTANT SERVICES FOR JAINICE RUTHERFORD	COUNTY OF SAN BERNARDINO	\$34,094.04	

DEPT ID	DEPT NAME	CONTRACT NUMBER	FUND CODE	DESCRIPTION	VENDOR NAME	CONTRACT AMOUNT	FOOT NOTE
02	GOVERNING BOARD	C23013	01	BOARD ASSISTANT SERVICES FOR JANICE RUTHERFORD	DEBRA S MENDELSOHN	\$32,974.92	
02	GOVERNING BOARD	C23015	01	BOARD ASSISTANT SERVICES FOR NITHYA RAMAN	JOSHUA JAMES NUNI	\$4,611.48	
02	GOVERNING BOARD	C23016	01	BOARD ASSISTANT SERVICES FOR NITHYA RAMAN	JACKSON GUZE	\$39,433.44	
02	GOVERNING BOARD	C23017	01	BOARD ASSISTANT SERVICES FOR SHEILA KUEHL	LORAINE LUNDQUIST	\$54,054.96	
02	GOVERNING BOARD	C23018	01	BOARD ASSISTANT SERVICES FOR V MANUEL PEREZ	GUILLERMO GONZALEZ	\$44,044.92	
02	GOVERNING BOARD	C23020	01	BOARD ASSISTANT SERVICES FOR MICHAEL CACCIOTTI	WILLIAM J KELLY	\$12,000.00	
02	GOVERNING BOARD	C23021	01	BOARD ASSISTANT SERVICES FOR CARLOS RODRIGUEZ	MATTHEW AUGUST HOLDER	\$61,563.00	
02	GOVERNING BOARD	C23022	01	BOARD ASSISTANT SERVICES FOR MICHAEL CACCIOTTI	WILLIAM GLAZIER	\$6,000.00	
02	GOVERNING BOARD	C23023	01	BOARD ASSISTANT SERVICES FOR MICHAEL CACCIOTTI	WESLEY REUTIMANN	\$6,000.00	
02	GOVERNING BOARD	C23024	01	BOARD ASSISTANT SERVICES FOR MICHAEL CACCIOTTI	SHO ΤΑΥ	\$5,400.00	
02	GOVERNING BOARD	C23025	01	BOARD ASSISTANT SERVICES FOR MICHAEL CACCIOTTI	BENJAMIN S WONG	\$14,400.00	
02	GOVERNING BOARD	C23026	01	BOARD ASSISTANT SERVICES FOR MICHAEL CACCIOTTI	TIMOTHY PHILLIP SANDOVAL	\$7 <i>,</i> 380.00	
02	GOVERNING BOARD	C23027	01	BOARD ASSISTANT SERVICES FOR REX RICHARDSON	CITY OF LONG BEACH	\$60,062.00	
02	GOVERNING BOARD	C23028	01	BOARD ASSISTANT SERVICES FOR MICHAEL CACCIOTTI	CHAWKINS COMMUNICATIONS INC	\$8,881.92	

DEPT ID	DEPT NAME	CONTRACT NUMBER	FUND CODE	DESCRIPTION	VENDOR NAME	CONTRACT AMOUNT	FOOT NOTE
02	GOVERNING BOARD	C23120	01	BOARD ASSISTANT SERVICES FOR CARLOS RODRIGUEZ	MARK D TAYLOR Subtotal	\$30,781.50 \$909,264.94	
Other	- Executive Officer Appro	ved					
	TECHNOLOGY						
44	ADVANCEMENT OFFICE	C22267	01	AIR MONITORIING LICENSE AGREEMENT	CITY OF DESERT HOT SPRINGS	\$0.00	9
	TECHNOLOGY						
42	ADVANCEMENT OFFICE	C22372	01	AIR MONITORING STATION LICENSE	CITY OF TORRANCE	\$10,800.00	
26	PLANNING, RULE DEVELOPMENT &	C22207	01	PACIFIC RIM INITIATIVE FOR MARITIME EMISSION REDUCTIONS TO ESTABLISH INTERNATIONAL PARTNERSHIPS FOR EMISSION REDUCTIONS FROM		¢10,000,00	
20	INPLEMENTATION	CZZ397	01	OCEAN GOING VESSELS		\$10,000.00	
46	MONITORING & ANALYSIS	C23046	01	AIR MONITORING LICENSE AGREEMENT	LOS ANGELES UNIFIED SCHOOL DISTRICT	\$0.00	9
		0200.0	01		DESERT SANDS UNIFIED SCHOOL	<i>+</i> 0.00	
46	MONITORING & ANALYSIS	C23049	01	AIR MONITORING LICENSE AGREEMENT	DISTRICT	\$3,130.00	
46	MONITORING & ANALYSIS	C23081	01	AIR MONITORING LICENSE AGREEMENT	CITY OF LOS ANGELES	\$0.00	9
46	MONITORING & ANALYSIS	C23095	01	AIR MONITORING LICENSE AGREEMENT	ONTARIO GATEWAY BUSINESS CTR OWNERS ASSOCIATION	\$600.00	
					Subtotal	\$24,530.00	
111. S	PONSORSHIPS						
Spons	orships - Executive Office	r Approved					
	TECHNOLOGY			COSPONSOR 15TH ANNUAL VERDEXCHANGE			
44	ADVANCEMENT OFFICE	C22373	01	CONFERENCE	COMMUNITY PARTNERS	\$2 <i>,</i> 500.00	
	LEGISLATIVE, PUBLIC			CA SAFE SCHOOLS SPONSORSHIP FOR CA SAFE			
35	AFFAIRS & MEDIA	C23034	01	SCHOOLS 24TH ANNIVERSARY-YOUR LIFE IS NOW	COMMUNITY PARTNERS	\$5,000.00	

DEPT ID	DEPT NAME	CONTRACT NUMBER	FUND CODE	DESCRIPTION	VENDOR NAME	CONTRACT AMOUNT	FOOT NOTE
	LEGISLATIVE, PUBLIC						
35	AFFAIRS & MEDIA	C23036	01	SPONSORSHIP FOR LATINA PUBLIC SERVICE ACADEMY	THE LATINA PUBLIC SERVICE ACADEMY	\$1,000.00	
	LEGISLATIVE, PUBLIC			SPONSORSHIP FOR 8TH ANNUAL ENVIRONMENTAL			
35	AFFAIRS & MEDIA	C23041	01	JUSTICE ENFORCEMENT SYMPOSIUM	DEL AMO ACTION COMMITTEE	\$2,500.00	
	LEGISLATIVE, PUBLIC				BOY SCOUTS OF AMERICA CALIFORNIA		
35	AFFAIRS & MEDIA	C23085	01	ADVENTURE WEEKEND SPONSORSHIP	INLAND	\$1,000.00	
	LEGISLATIVE, PUBLIC			HABITAT FOR HUMANITY INTERNATIONAL	HABITAT FOR HUMANITY		
35	AFFAIRS & MEDIA	C23088	01	SPONSORSHIP 2022	INTERNATIONAL INC	\$90,000.00	
	LEGISLATIVE, PUBLIC						
35	AFFAIRS & MEDIA	C23089	01	17TH ANNUAL TASTE OF SOUL SPONSORSHIP	LOS ANGELES SENTINEL, INC	\$75,000.00	
	LEGISLATIVE, PUBLIC			BREATHE SOUTHERN CALIFORNIA SPONSORSHIP FOR			
35	AFFAIRS & MEDIA	C23091	01	2022 BREATH OF LIFE AWARDS	BREATHE SOUTHERN CALIFORNIA	\$10,000.00	
	TECHNOLOGY						
44	ADVANCEMENT OFFICE	C23092	01	COSPONSOR THE 2022 ALTCAR EXPO & CONFERENCE	PLATIA PRODUCTIONS	\$8,000.00	
	LEGISLATIVE, PUBLIC			OUR GLOBAL HUMANITY, INC. SPONSORSHIP - BACK-			
35	AFFAIRS & MEDIA	C23093	01	TO-SCHOOL FOR HOLIDAYS EVENT	OUR GLOBAL HUMANITY INC.	\$5,000.00	
	LEGISLATIVE, PUBLIC			SPONSOR 2022 CELEBRATING LOU CALANCHE'S	LEGACY LA YOUTH DEVELOPMENT		
35	AFFAIRS & MEDIA	C23107	01	LEGACY EVENT	CORP.	\$5,000.00	
	TECHNOLOGY			ENVIRONMENTALLY PREFERRED ADVANCED			
49	ADVANCEMENT OFFICE	C23114	01	GENERATION (ICEPAG) 2022	UNIVERSITY OF CALIFORNIA - IRVINE	\$8,000.00	
	LEGISLATIVE, PUBLIC			SPONSORSHIP OF RIVERSIDE COUNTY'S 2022 STATE OF			
35	AFFAIRS & MEDIA	C23116	01	THE COUNTY EVENT	COUNTY OF RIVERSIDE	\$2,500.00	
					Subtotal	\$215,500.00	
IV. M	ODIFICATIONS						

Board Approved

	TECHNOLOGY			ALTERNATIVE FUELS, AND ZERO-EMISSION		
44	ADVANCEMENT OFFICE	C15380	31	TRANSPORTATION TECHNOLOGIES	ICF RESOURCES, LLC	\$30,000.00

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DEPT ID	DEPT NAME	CONTRACT NUMBER	FUND CODE	DESCRIPTION	VENDOR NAME	CONTRACT AMOUNT	FOOT NOTE	Г E
	TECHNOLOGY			RENEWABLE NATURAL GAS (RNG) PRE-				
44	ADVANCEMENT OFFICE	C17310	76	COMMERCIALIZATION OPTIMIZATION AND RESEARCH	KORE INFRASTRUCTURE, LLC	\$0.00		6
08	LEGAL	C18114	01	PROVIDE ENVIRONMENTAL LAW SERVICES	WOODRUFF SPRADLIN & SMART	\$150,000.00		
	TECHNOLOGY			HANDLING EQUIPMENT, EV INFRASTRUCTURE AND				
44	ADVANCEMENT OFFICE	C19278	67	RENEWABLE ENERGY	VOLVO TECHNOLOGY OF AMERICA LLC	\$1,044,854.00		
	ADMINISTRATIVE &				ATKINSON, ANDELSON, LOYA, RUUD &			
16	HUMAN RESOURCES	C21088	01	EMPLOYMENT AND LABOR RELATIONS LEGAL SERVICES	ROMO	\$25,000.00		
	LEGISLATIVE, PUBLIC							
35	AFFAIRS & MEDIA	C21171	01	LEGISLATIVE REPRESENTATION IN SACRAMENTO	CALIFORNIA ADVISORS LLC	\$142,080.00		
	LEGISLATIVE, PUBLIC							
35	AFFAIRS & MEDIA	C21172	01	LEGISLATIVE REPRESENTATION IN SACRAMENTO	JOE A GONSALVES & SON	\$143,000.00		
	INFORMATION			SHORT AND LONG-TERM SYSTEMS DEVELOPMENT,				
27	MANAGEMENT	C21331	01	MAINTENANCE ANDSUPPORT SERVICES	AGREEYA SOLUTIONS, INC	\$305,000.00		
	INFORMATION			SHORT AND LONG -TERM SYSTEMS DEVELOPMENT,				
27	MANAGEMENT	C21332	01	MAINTENANCE AND SUPPORT SERVICES	PRELUDE SYSTEMS, INC.	\$55,000.00		
	INFORMATION			SHORT AND LONG-TERM SYSTEMS DEVELOPMENT,				
27	MANAGEMENT	C21333	01	MAINTENANCE AND SUPPORT SERVICES	SIERRA CYBERNETICS INC	\$210,000.00		
	INFORMATION			MAINTENANCE AND SUPPORT SERVICES AS APPROVED				
27	MANAGEMENT	C21335	01	BY THE SCAQMD GOVERNING BOARD ON 4/2/21	VARSUN ETECHNOLOGIES GROUP, INC	\$297,000.00		
	TECHNOLOGY				CEMEX CONSTRUCTION MATERIAL			
44	ADVANCEMENT OFFICE	C22071	81	PROP 1B VEHICLE REPLACEMENT PROGRAM	PACIFIC, LLC	\$800,000.00		
	TECHNOLOGY			TECHNICAL ASSISTANCE FOR IMPLEMENTATION AND				
44	ADVANCEMENT OFFICE	C22099	32,77	OUTREACH SUPPORT FOR THE CARL MOYER PROGRAM	GREEN PARADIGM CONSULTING, INC	\$100,000.00		
	LEGISLATIVE, PUBLIC							
35	AFFAIRS & MEDIA	C22138	01	LEGISLATIVE REPRESENTATION IN WASHINGTON DC	KADESH & ASSOCIATES, LLC	\$226,392.00		
	LEGISLATIVE, PUBLIC							
35	AFFAIRS & MEDIA	C22139	01	LEGISLATIVE REPRESENTATION IN WASHINGTON DC	CARMEN GROUP, INC	\$222,090.00		

DEPT ID	DEPT NAME	CONTRACT NUMBER	FUND CODE	DESCRIPTION	VENDOR NAME	CONTRACT AMOUNT	FOOT NOTE
08	LEGAL	C22345	01	PROVIDE LEGAL ADVICE AND COUNSEL	SHUTE MIHALY & WEINBERGER LLP	\$225,000.00	
44	MSRC	MS21002	23	PROVIDE PROGRAMMATIC SERVICES TO THE MSRC	BETTER WORLD GROUP ADVISORS	\$183,075.00	
11	MSPC	M\$2100E	22		SOUTHERN CALIFORNIA ASSOCIATION	\$6 751 000 00	
44	Ware	WI321005	25		Subtotal	\$10,909,491.00	
Execu	itive Officer Approved						
	ADMINISTRATIVE &						
16	HUMAN RESOURCES	C14670	01	CLASSIFICATION AND COMPENSATION SERVICES	KOFF & ASSOCIATES, INC.	\$0.00	6
27	INFORMATION MANAGEMENT	C15468	01	SHORT AND LONG-TERM SYSTEMS DEVELOPMENT, MAINTENANCE AND SUPPORT SERVICES	VARSUN ETECHNOLOGIES GROUP, INC	\$0.00	6
44	TECHNOLOGY ADVANCEMENT OFFICE	C15611	31	INSTALLATION OF ONTARIO RENEWABLE HYDROGEN FUELING STATION	ONTARIO CNG STATION INC.	\$0.00	6
			-	DEVELOPING AND IMPLEMENTING LEGAL STRATEGY			-
08	LEGAL	C16042	01	FOR RECLAIM RULE	ARNOLD & PORTER KAYE SCHOLER LLP	\$0.00	6
	PLANNING, RULE DEVELOPMENT &						
26	IMPLEMENTATION	C16393	01	CONSULTANTS TO PROVIDE CEQA ASSISTANCE	PLACEWORKS INC	\$100,000.00	
	PLANNING, RULE DEVELOPMENT &						
26	IMPLEMENTATION	C16394	01	CONSULTANTS TO PROVIDE CEQA ASSISTANCE	ENVIRONMENTAL AUDIT INC	\$75,000.00	
	ADMINSTRATIVE & HUMAN				DUNBAR & ASSOCIATES, A		
16	RESOURCES	C18035	01	COUNSEL FOR LEGAL LIABILITY	PROFESSIONAL LAW	\$50,000.00	
	ADMINISTRATIVE &						
16	HUMAN RESOURCES	C18085	01	INSURANCE BROKERAGE SERVICES	ALLIANT INSURANCE SERVICES INC	\$50,980.00	

DEPT ID	DEPT NAME	CONTRACT NUMBER	FUND CODE	DESCRIPTION	VENDOR NAME	CONTRACT AMOUNT	FOOT NOTE
26	PLANNING, RULE DEVELOPMENT & IMPLEMENTATION	C18260	27	RULE 1111 CONSUMER REBATE PROGRAM FOR COMPLIANT NATURAL GAS-FIRED FAN-TYPE CENTRAL FURNACES	ELECTRIC & GAS INDUSTRIES ASSOCIATION	\$0.00	6
08	LEGAL	C18303	01	ONLINE LEGAL RESEARCH/ELECTRONIC LEGAL SERVICEF	THOMSON REUTERS - WEST PYMT CTR	\$72,444.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C19075	77	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	KUNO'S GRADING, INC	\$0.00	6
16	ADMINSTRATIVE & HUMAN RESOURCES	C19204	01	LEARNING MANAGEMENT SYSTEM (LMS)	NEOGOV	\$36,965.83	
16	ADMINISTRATIVE & HUMAN RESOURCES	C19206	01	OPERATION OF SCAQMD CAFETERIA	CALIFORNIA DINING SERVICES	\$0.00	6
26	PLANNING, RULE DEVELOPMENT & IMPLEMENTATION	C19318	27	HIGH EFFICIENCY AND LOW-NOX COMBO RIBBON BURNER COMBUSTION SYSTEM DEMONSTRATION	GAS TECHNOLOGY INSTITUTE	\$0.00	6
44	TECHNOLOGY ADVANCEMENT OFFICE	C19322	01	UPPER AIR METEOROLOGICAL MONITORING NETWORK	SONOMA TECHNOLOGY INC	\$0.00	6
44	TECHNOLOGY ADVANCEMENT OFFICE	C19344	54	NOx COMBUSTION TECHNOLOGY ON A NATURAL GAS- FIRED CRUDE OIL HEATER	CLEARSIGN COMBUSTION CORPORATION	\$0.00	6
44	TECHNOLOGY ADVANCEMENT OFFICE	C19369	56	EFMP PROGRAM DISMANTLER	LKQ-PICK YOUR PART-1275	\$0.00	6
16	ADMINISTRATIVE & HUMAN RESOURCES	C19445	01	MAINTENANCE, SERVICE AND REPAIRS OF HVAC AND REFRIGERATION EQUIPMENT	KLM, INC	\$49,184.00	
26	PLANNING, RULE DEVELOPMENT & IMPLEMENTATION	C20078	01	SOUTH COAST AQMD PARTNERSHIP WITH CANSAC-CEFA	DESERT RESEARCH INSTITUTE	\$15,000.00	
08	LEGAL	C20081	01	PROVIDE LEGAL ADVICE AND COUNSEL	PROSKAUER ROSE LLP	\$75,000.00	
44	TECHNOLOGY ADVANCEMENT OFFICE	C20137	01	LICENSE AGREEMENT FOR AIR MONITORING STATION	LEEWARD BAY MARINA	\$12,000.00	

DEPT ID	DEPT NAME	CONTRACT NUMBER	FUND CODE	DESCRIPTION	VENDOR NAME	CONTRACT AMOUNT	FOOT NOTE
	TECHNOLOGY			DEVELOP AND DEMONSTRATE WATER-IN-FUEL			
44	ADVANCEMENT OFFICE	C20140	83	RETROFIT TECHNOLOGY FOR OCEAN-GOING VESSELS	MAN ENERGY SOLUTIONS USA INC.	\$0.00	6
	TECHNOLOGY						
44	ADVANCEMENT OFFICE	C20207	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	FUENTES BROS TRUCKING	\$0.00	6
	TECHNOLOGY			FREIGHT DEMONSTRATION: DEMONSTRATE FUEL CELL			
44	ADVANCEMENT OFFICE	C20244	31	RANGE-EXTENDED DRAYAGE TRUCKS	CUMMINS ELECTRIFIED POWER NA INC	\$0.00	6
	ADMINISTRATIVE &			DEFERRED COMPENSATION PLAN CONSULTANT			
16	HUMAN RESOURCES	C20335	01	SERVICE	BENEFIT FINANCIAL SERVICES GROUP	\$36,000.00	
	TECHNOLOGY						
44	ADVANCEMENT OFFICE	C20342	56	CARB ONE-STOP-SHOP (OSS) PILOT	GRID ALTERNATIVES	\$0.00	11
	TECHNOLOGY			EXPAND 1 RNG FILLING STATION AND CONSTRUCT 1	LOS ANGELES COUNTY SANITATION		
44	ADVANCEMENT OFFICE	C20358	77	NEW RNG FILLING STATION	DISTRICTS	\$0.00	6
	TECHNOLOGY						
44	ADVANCEMENT OFFICE	C21052	54	APPROVED DEALERSHIP FOR MAP PROGRAM	VELOCITY TRUCK CENTERS	\$0.00	6
	TECHNOLOGY						
44	ADVANCEMENT OFFICE	C21070	31	MOA-ASSES EMISSION IMPACTS OF	SOUTHERN CALIFORNIA GAS COMPANY	\$0.00	6
	ADMINSTRATIVE & HUMAN						
16	RESOURCES	C21089	01	EMPLOYEE AND LABOR RELATIONS LEGAL SERVICES	LIEBERT CASSIDY WHITMORE	\$0.00	6
17	CLERK OF THE BOARDS	C21094	01	LEGAL REPRESENTATION FOR THE HEARING BOARD.	STRUMWASSER & WOOCHER LLP	\$35,000.00	
	TECHNOLOGY			CONSTRUCTION AND OPERATION OF 2 NEW RNG			
44	ADVANCEMENT OFFICE	C21131	77	FILLING STATIONS	CR&R INCORPORATED	\$0.00	6
	TECHNOLOGY			REPLACEMENT OF 4 OFF-ROAD CARGO HANDLING	TOTAL TERMINALS INTERNATIONAL,		
44	ADVANCEMENT OFFICE	C21217	77	EQUIPMENT	LLC	\$0.00	6
	TECHNOLOGY						
44	ADVANCEMENT OFFICE	C21219	77	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	NORTH SHORE GREENHOUSES INC	\$0.00	6
	DEVELOPMENT &			INVESTIGATING OGV NOX EMISSIONS USING			
26	IMPLEMENTATION	C21222	01	AIRBORNE MEASUREMENT DATA	EXPLICIT APS	\$0.00	6

DEPT ID	DEPT NAME	CONTRACT NUMBER	FUND CODE	DESCRIPTION	VENDOR NAME	CONTRACT AMOUNT	FOOT NOTE
	TECHNOLOGY						
44	ADVANCEMENT OFFICE	C21251	27	REPOWER 1 MAIN ENGINE ON 1 MARINE VESSEL	FUKUSHIMA FISHING LLC	\$0.00	6
	TECHNOLOGY			TECHNICAL ASSISTANCE WITH INCENTIVE AND			
44	ADVANCEMENT OFFICE	C21260	01	RESEARCH & DEVELOPMENT PROGRAMS	FREDRICK MINASSIAN	\$0.00	6
	TECHNOLOGY			REPOWER 2 MAIN ENGINES AND 1 AUXILIARY ENGINE			
44	ADVANCEMENT OFFICE	C21263	77	OF 1 MARINE VESSEL	AMERICAN MARINE CORPORATION	\$0.00	6
	TECHNOLOGY			REPOWER OF ONE MAIN ENGINE OF ONE MARINE			
44	ADVANCEMENT OFFICE	C21268	77	VESSEL	MORE CARNAGE LLC	\$0.00	6
	TECHNOLOGY			2-FOR-1 REPLACEMENT OF 1 OFF-ROAD EQUIPMENT			
44	ADVANCEMENT OFFICE	C21271	32	AND REPLACEMENT OF 3 OFF-ROAD EQUIPMENT	EMERALD ACRES LLC	\$0.00	6
	TECHNOLOGY						
44	ADVANCEMENT OFFICE	C21274	32	REPLACEMENT OF 2 OFF-ROAD EQUIPMENT	ORGANIC DEPOT LLC	\$0.00	6
	TECHNOLOGY						
44	ADVANCEMENT OFFICE	C21301	77	REPOWER 1 MAIN ENGINE ON 1 MARINE VESSEL	AUGELLO ENTERPRISES LLC	\$0.00	6
	TECHNOLOGY						
44	ADVANCEMENT OFFICE	C21305	32	REPOWER OF 2 OFF-ROAD EQUIPMENT	P. RILEY ENTERPRISES, INC.	\$0.00	6
	ADMINISTRATIVE &						
16	HUMAN RESOURCES	C21330	01	EMPLOYEE SEARCH AND RECRUITMENT SERVICES	CPS HR CONSULTING	\$25,000.00	
	TECHNOLOGY						
44	ADVANCEMENT OFFICE	C21363	77	REPOWER 1 MAINE ENGINE OF A MARINE VESSEL	VICTORY SPORTFISHING CO, INC.	\$0.00	6
	ADMINSTRATIVE & HUMAN						
16	RESOURCES	C21374	01	HUMAN RESOURCES CONSULTING	SHAW HR CONSULTING, INC.	\$15,000.00	
	PLANNING, RULE			NOx AT DIFFERENT PROPULSION ENGINE LOADS FROM	l		
	DEVELOPMENT &			ITS PROPRIETARY REMOTE SNIFFER MEASUREMENTS			
26	IMPLEMENTATION	C21395	01	AT THE GREAT BELT BRIDGE	FLUXSENSE AB	\$0.00	6
	TECHNOLOGY						
44	ADVANCEMENT OFFICE	C22054	80	REPOWER 1 MAIN ENGINE OF A MARINE VESSEL	MARINA DEL REY SPORTFISHING, LLC	\$0.00	6
	TECHNOLOGY				TRI-MODAL DISTRIBUTION SERVICES		
44	ADVANCEMENT OFFICE	C22055	79	VM MITIGATION TRUCK REPLACEMENT PROGRAM	INC	\$0.00	6

DEPT ID	DEPT NAME	CONTRACT NUMBER	FUND CODE	DESCRIPTION	VENDOR NAME	CONTRACT AMOUNT	FOOT NOTE
08	LEGAL	C22067	01	LEGAL ASSISTANCE WITH CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)	BEST BEST & KRIEGER	\$0.00	6
	TECHNOLOGY			DEVELOP AND DEMONSTRATE HYDROGEN FUEL CELL			
44	ADVANCEMENT OFFICE	C22084	31	MEDIUM-DUTY BUSES	A-1 ALTERNATIVE FUEL SYSTEMS	\$0.00	6
	ADMINSTRATIVE & HUMAN						
16	RESOURCES	C22100	01	EMPLOYEE DE-ESCALATION TRNG	CHUBB GLOBAL RISK ADVISORS	\$3,840.00	
	ADMINISTRATIVE &						
16	HUMAN RESOURCES	C22101	01	INVESTIGATIVE SERVICES	PUBLIC INTEREST INVESTIGATIONS INC	\$10,000.00	
	LEGISLATIVE, PUBLIC						
35	AFFAIRS & MEDIA	C22102	01	FACILITATION SERVICES FOR AB 617 COMMUNITY	CASTILLO CONSULTING PARTNERS, LLC	\$0.00	6
	DEVELOPMENT &			HEALTH EFFECTS SUPPORT FOR AQMP AND THE			
26	IMPLEMENTATION	C22111	01	REVIEW OF THE HEAPF	KHADEEJA ABDULLAH	\$5,000.00	
	DEVELOPMENT &			ASSIST THE EMISSION REDUCTION ESTIMATES	ENERGY AND ENVIRONMENTAL		
26	IMPLEMENTATION	C22112	01	ASSOCIATED WITH OCEANGOING VESSEL	RESEARCH	\$2,500.00	
	DEVELOPMENT &			PROVIDE ASSISTANCE WITH UPDATING HEALTH	INDUSTRIAL ECONOMICS		
26	IMPLEMENTATION	C22152	01	BENEFITS LITERATURE 2022 AQMP	INCORPORATED	\$55,113.00	
	TECHNOLOGY						
44	ADVANCEMENT OFFICE	C22165	32	REPOWER 2 MAIN ENGINES OF A MARINE VESSEL	KISSEL BOAT DESIGN LLC	\$0.00	6
	TECHNOLOGY						
44	ADVANCEMENT OFFICE	C22169	32	REPOWER 2 MAINE ENGINES OF A MARINE VESSEL	NATIVE SUN SPORTFISHING INC	\$0.00	6
	TECHNOLOGY						
44	ADVANCEMENT OFFICE	C22171	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	A J ZIMMER CONSTRUCTION INC	\$0.00	6
	TECHNOLOGY						
44	ADVANCEMENT OFFICE	C22175	32	REPOWER 1 MAIN ENGINE ON 1 MARINE VESSEL	REDONDO SPECIAL LLC	\$0.00	6
	TECHNOLOGY						
44	ADVANCEMENT OFFICE	C22179	32	REPOWER OF 2 MAIN ENGINES OF A MARINE VESSEL	HARRY PROUTY	\$0.00	6
	TECHNOLOGY						
44	ADVANCEMENT OFFICE	C22180	32	REPOWER 2 MAIN ENGINES OF A MARINE VESSEL	CHRISTOPHER CASTRO	\$0.00	6

DEPT ID	DEPT NAME	CONTRACT NUMBER	FUND CODE	DESCRIPTION	VENDOR NAME	CONTRACT AMOUNT	FOOT NOTE
44	TECHNOLOGY ADVANCEMENT OFFICE	C22181	32	REPOWER 2 MAIN ENGINES OF A MARINE VESSEL	FURY SEA ADVENTURES INC	\$0.00	6
44	TECHNOLOGY ADVANCEMENT OFFICE	C22182	32	REPOWER 4 MAIN ENGINES OF A MARINE VESSEL	HARBOR DOCKSIDE, INC.	\$0.00	6
44	TECHNOLOGY ADVANCEMENT OFFICE	C22183	32	REPLACEMENT OF 5 DIESEL LOCMOTIVES WITH 4	CALIFORNIA STEEL INDUSTRIES INC	\$0.00	6
11		C22105	22			\$0.00	6
44	TECHNOLOGY	022103	52			\$0.00	0
44	ADVANCEMENT OFFICE TECHNOLOGY	C22187	32	REPOWER 2 MAIN ENGINES OF MARINE VESSEL	J&M MARINE INVESTMENT LLC	\$0.00	6
44	ADVANCEMENT OFFICE TECHNOLOGY	C22188	32	REPOWER 2 MAIN ENGINES ON 1 MARINE VESSEL	JAMES CVITANOVICH	\$0.00	6
44	ADVANCEMENT OFFICE	C22253	32	REPOWER 1 MAIN ENGINE OF 1 MAIN VESSEL	AMERICAN MARINE CORPORATION	\$0.00	11
44		C22254	32	REPOWER 1 MAIN ENGINE OF A MARINE VESSEL	GREGORY L WATSON	\$0.00	6
44	ADVANCEMENT OFFICE	C22257	32	REPOWER 1 MAIN ENGINE OF A MARINE VESSEL	J&T SPORTFISHING INC	\$0.00	6
44	ADVANCEMENT OFFICE	C22260	32	REPOWER 2 MAIN ENGINES OF A MARINE VESSEL	HANSON FISHERIES CORP	\$0.00	6
44	TECHNOLOGY ADVANCEMENT OFFICE	C22262	31	STUDY OF FUEL CELL MICROGRIDS FOR BACKUP POWER AND TRANSIT	UNIVERSITY OF CALIFORNIA - IRVINE	\$0.00	6
44	TECHNOLOGY ADVANCEMENT OFFICE	C22308	32	REPLACEMENT OF 1 OFF-ROAD EQUIPMENT	SALVADOR PINA	\$0.00	6
03	EXECUTIVE OFFICE	C22421	01	PROVIDE CONSULTING SERVICES	BROADBENT CONSULTING GROUP, LLC	\$50,000.00	
02	GOVERNING BOARD	C23013	01	BOARD CONSULTANT FOR JANICE RUTHERFORD	DEBRA S MENDELSOHN	\$17,047.02	

DEPT ID		DEPT NAME	CONTRACT NUMBER	FUND CODE	DESCRIPTION	VENDOR NAME	CONTRACT AMOUNT	FOOT NOTE
44	MSRC		ML16017	23	DUTY NATURAL GAS VEHICLES AND INSTALL CNG STATION	CITY OF LONG BEACH	\$0.00	6
44	MSRC		ML16047	23	ENHANCE CLASS 1 BIKEWAY	CITY OF FONTANA	\$0.00	6
44	MSRC		ML18020	23	PURCHASE ONE MEDIUM AND ONE HEAVY-DUTY ZERO EMISSION VEHICLE	CITY OF COLTON	\$0.00	6
44	MSRC		ML18030	23	INSTALL ELECTRIC VEHICLE CHARGING STATIONS	CITY OF GRAND TERRACE	\$0.00	11
44	MSRC		ML18036	23	INSTALL ELECTRIC VEHICLE CHARGING STATIONS	CITY OF INDIAN WELLS	\$0.00	6
44	MSRC		ML18047	23	PURCH 5 HD NEAR-ZERO EM VEHICL	CITY OF WHITTIER	\$0.00	6
44	MSRC		ML18051	23	INSTALL 11 EV CHARGING AND1 CNG FUELING STATION	CITY OF RANCHO CUCAMONGA	\$0.00	6
44	MSRC		ML18059	23	INSTALLATION OF 6 ELECTRIC VEHICLE CHARGING STATIONS	CITY OF GLENDALE	\$0.00	6
44	MSRC		ML18080	23	INSTALL EV CHARGING STATIONS	CITY OF SANTA MONICA	\$0.00	6
44	MSRC		ML18082	23	PROCURE MEDIUM-DUTY ZERO-EMISSION VEHICLES AND INSTALL EV CHARGING STATIONS	CITY OF LOS ANGELES	\$0.00	6
44	MSRC		ML18089	23	PROCURE 1 HEAVY-DUTY NEAR-ZERO EMISSION VEHICLE	CITY OF GLENDORA	\$0.00	6
44	MSRC		ML18145	23	PROCURE 11 HD ZERO EMISSION VEHICLES & PROVIDE TAXICAB INCENTIVES	CITY OF LOS ANGELES	\$0.00	6
44	MSRC		ML18170	23	PROCURE 2 LIGHT-DUTY ZEV'S AND INSTALL EV CHARGING STATIONS	CITY OF LAGUNA NIGUEL	\$0.00	6
44	MSRC		MS18015	23	IMPLEMENT FUTURE COMMUNITIES PROGRAM	SOUTHERN CALIFORNIA ASSOCIATION OF GOVT	\$0.00	6

DEPT ID		DEPT NAME	CONTRACT NUMBER	FUND CODE	DESCRIPTION	VENDOR NAME	CONTRACT AMOUNT	FOOT NOTE
44	MSRC		MS18023	23	WEEKEND FREEWAY SERVICE PATROL	RIVERSIDE CO. TRANSPORTATION COMMISSION	\$0.00	6
44	MSRC		MS18029	23	INSTALL LIMITED ACCESS CNG STATION AND TRAIN MECHANICS	IRVINE RANCH WATER DISTRICT	\$0.00	6
44	MSRC		MS18115	23	EXPAND EXISTING PUBLIC ACCESS L/CNG FUELING STATION	CITY OF COMMERCE	\$0.00	6
44	MSRC		MS18122	23	INSTALL LIMITED ACCESS CNG STATION WITH RNG	UNIVERSAL WASTE SYSTEMS, INC.	\$0.00	6
44	MSRC		MS21002	23	PROVIDE PROGRAMMATIC SERVICES TO THE MSRC	BETTER WORLD GROUP ADVISORS	\$0.00	6
44	MSRC		MS21013	23	TRACTORS AND ASSOCIATED CHARGING INFRASTRUCTURE	4 GEN LOGISTICS, LLC	\$0.00	6
44	MSRC		MS21014	23	DEPLOY 5 NEAR ZERO EMISSION TRUCKS	GREEN FLEET SYSTEMS, LLC	\$0.00	6
44	MSRC		MS21018	23	DEPLOY UP TO 23 NEAR ZERO EMISSION TRUCKS	PAC ANCHOR TRANSPORTATION, INC.	\$0.00	6
44	MSRC		MS21023	23	INSTALL EV CHARGING STATION	BNSF RAILWAY COMPANY Subtotal	\$0.00 \$791.073.85	6
							<i></i>	
V. TEF	RMINAT	ED CONTRACTS-PAR	TIAL/NO WORK	PERFOR	MED			
44	TECHN ADVAN	OLOGY ICEMENT OFFICE	C20212	77	REPLACEMENT OF 3 OFF-ROAD EQUIPMENT	SA RECYCLING LLC	-\$121,165.00	7
44	TECHN ADVAN	OLOGY ICEMENT OFFICE	C21323	79	REPLACEMENT OF 17 ON-ROAD DRAYAGE TRUCKS	USA WASTE OF CALIFORNIA INC	-\$50,000.00	7
44	TECHN ADVAN	OLOGY ICEMENT OFFICE	C21350	79	REPLACEMENT OF 3 ON-ROAD DRAYAGE TRUCKS	PACIFIC GREEN TRUCKING INC	-\$85,000.00	7

DEPT ID	DEPT NAME	CONTRACT NUMBER	FUND CODE	DESCRIPTION	VENDOR NAME	CONTRACT AMOUNT	FOOT NOTE
	TECHNOLOGY						
44	ADVANCEMENT OFFICE	C22059	79	REPLACEMENT OF 5 ON-ROAD DUMP TRUCKS	RRM PROPERTIES, LTD	-\$800,000.00	7
49	TECHNOLOGY ADVANCEMENT OFFICE	C22328	32	REPLACEMENT OF 8 CARGO HANDLING EQUIPMENT AND 7 OFF-ROAD EQUIPMENT	SA RECYCLING LLC	-\$83,582.00	7
				INSTALL LPG FUELING STATION AND UPGRADE			
44	MSRC	ML11029	23	EXISTING CNG STATION	CITY OF SANTA ANA	-\$187,500.00	7
44	MSRC	ML18136	23	PROCURE 4 ON-ROAD LIGHT-DUTY ZERO EMISSION VEHICLES AND INSTALL EV CHARGING STATION	CITY OF ORANGE	-\$2,500.00	7
44	MSRC	ML18138	23	INSTALL BICYCLE RACKS AND EV CHARGING STATIONS	CITY OF LA CANADA FLINTRIDGE	-\$17,411.00	7
44	MSRC	ML18172	23	PROCURE 1 HEAVY-DUTY ZERO EMISSION VEHICLE	CITY OF HUNTINGTON PARK	-\$65,450.00	7
44	MSRC	ML18174	23	PROCURE 1 HEAVY-DUTY NEAR-ZERO EMISSION VEHICLE	CITY OF BELL	-\$25,000.00	7
44	MSRC	MS14075	23	EXPAND CNG FUELING STATION AND MODIFY MAINTENANCE FACILITY	FULLERTON JOINT UNION HIGH SCHOOL DIST	-\$6,558.00	7
44	MSRC	MS16110	23	EXPAND EXISTING NATURAL GAS FUELING STATIONS AND MODIFY MAINTENANCE FACILITY	CITY OF RIVERSIDE	-\$30,000.00	7
44	MSRC	MS18114	23	INSTALL LIMITED ACCESS CNG STATION	COUNTY OF LOS ANGELES	-\$175,000.00	7
44	MSRC	MS18175	23	EXPAND EXISTING PUBLIC ACCESS HYDROGEN STATION	N UNIVERSITY OF CALIFORNIA - IRVINE	-\$1,000,000.00	7
44	MSRC	MS21004	23	IMPLEMENT SPECIAL TRANSIT SERVICE TO DODGER STADIUM	LOS ANGELES COUNTY METROPOLITAN	-\$1,374,077.00	7
					Subtotal	-\$4,023,243.00	

DEPT ID	DEPT NAME	CONTRACT NUMBER	FUND CODE	DESCRIPTION	VENDOR NAME	CONTRACT AMOUNT	FOOT NOTE
	SPECIAL FUNDS				<u>FOOTNOTES</u>		
17	ADV. TECH, OUTREACH & EDU FUND			1 NO FIXED VALUE			
22	AIR QUALITY IMPROVEMENT	FUND			2 RATES VARY - NO FIXED VALUE		
23	MSRC FUND				3 REVENUE CONTRACT - NO AMOUNT SHOW	N	
27	AIR QUALITY INVESTMENT F	UND			4 NO COST - COST REALLOCATION		
31	CLEAN FUELS FUND				5 CHANGED TO EMPLOYEE STATUS		
32	CARL MOYER FUND - SB1107	ACCOUNT			6 NO COST- TIME EXTENSION		
33	SCHOOL BUS REPLACEMENT	PROGRAM			7 DE-OBLIGATION OF FUNDING		
35	AES SETTLEMENT FUND				8 COMPETITIVE SOLICITATION ISSUED BY A	NOTHER GOV AGENCY	
36	RULE 1309.1 PRIORITY RESE	RVE FUND			9 NO COST - AIR MONITORING/LICENSE		
38	LADWP SETTLEMENT PROJEC	CTS FUND			11 NO COST - CHANGE IN TERMS		
40	NATURAL GAS VEHICLE PART	INERSHIP FUND			12 FEDERAL GOVERNMENT PASS-THRU		
45	CBE/CBO SETTLEMENT AGRE	EMENT FUND			13 AT DIRECTION OF LEGISLATIVE COMMITTI	EE	
46	BP ARCO SETTLEMENT FUND)			14 OPTIONAL YEAR RENEWAL/MULTI-YR CON	ITRACT	
48	HEALTH EFFECTS RESEARCH	FUND			15 TRUCK GRANT PAID TO CASCADE SIERRA S	SOLUTIONS	
49	CEQA GHG MITIGATION FUN	D			16 AMOUNT UTILIZED MAY BE LESS THAN CO	NTRACT AMOUNT	
52	TRAPAC SCHOOL AIR FILTRA	TION					
54	RULE 1118 MITIGATION FUN	ID					
56	HEROS II PROGRAM FUND						
57	EL MONTE PARK PROJECT SE	TTLEMENT FUND					
58	AB1318 MITIGATION FEES F	UND					
59	VOUCHER INCENTIVE PROGR	RAM FUND (VIP)					
61	ADVANCED TECHNOLOGY GO	OODS MOVEMENT					
67	GHG REDUCTION PROJECTS	FUND					
69	LADWP SETTLEMENT PROJE	CTS FUND					
75	AIR FILTRATION FUND						
76	SO CAL GAS SETTLEMENT FU	JND					
77	COMMUNITY AIR PROTECTIO	ON AB 134 FUND					
79	VW MITIGATION REVENUE F	UND					
80	CARL MOYER FUND - AB923	ACCOUNT					
81	PROPOSITION 1B - GOODS N	OVEMENT FUND					
83	CLEAN SHIPPING TECH DEM	O FUND					
84	ALISO CANYON AIR FILTRAT	ION FUND					

85 ALISO FUND PORTER RANCH SEP FUND

1 Back to Agen	da
AGENDA NO.	15

BOARD MEETING DATE: March 3, 2023

- PROPOSAL: Receive and File Annual Report on South Coast AQMD's Deferred Compensation Plans
- SYNOPSIS: South Coast AQMD sponsors IRS-approved 457(b), 401(a) and Omnibus Budget Reconciliation Act of 1990 () Deferred Compensation Plans for its employees. The Annual Report for Plan Year Ending June 2022 addresses the Board's responsibility for monitoring the activities of the Deferred Compensation Plan Committee and ensuring the Committee carries out its fiduciary duties and responsibilities under the Committee Charter. This action is to receive and file the Annual Report on the South Coast AQMD's Deferred Compensation Plans.

COMMITTEE: Administrative, February 10, 2023; Recommended for Approval

RECOMMENDED ACTION: Receive and file.

Wayne Nastri Executive Officer

AJO:mm

Background

South Coast AQMD sponsors and administers 457(b), 401(a) and Omnibus Budget Reconciliation Act of 1990 (OBRA) Deferred Compensation Plans for its employees. The Deferred Compensation Plans, which include the 457(b), 401(a) and OBRA plans, are administered by Empower Retirement, LLC (Empower), one of the largest workplace retirement savings plan providers in the United States. State law governs the fiduciary requirements for the operation and investment of deferred compensation plans sponsored by governmental entities. South Coast AQMD's Board serves a fiduciary role, subject to the duties and obligations under Article XVI, Section 17 of the California Constitution. To meet its fiduciary responsibilities, the Board has established a Deferred Compensation Plan Committee (Committee) to oversee the administration of the Plans. On May 2, 2008, the Board approved the Deferred Compensation Plan Committee Charter, formalizing the fiduciary duties and responsibilities of the Committee. The four members of the Deferred Compensation Plan Committee are the Chief Financial Officer, the Deputy Executive Officer/Administrative and Human Resources, the Human Resources Manager over employee benefits, and the General Counsel.

In October 2021, as the result of an RFP process, the Board approved a 5-year contract with Empower for record-keeping and administrative services, beginning January 1, 2022. In addition to the retirement plan administrator, South Coast AQMD utilizes the services of an independent, third-party consulting firm, Benefit Financial Services Group (BFSG), to provide services to the Plans as a fiduciary under a Registered Investment Advisor agreement.

Summary of Report

The Committee meets on a quarterly basis to review the Plan design, investment options, asset allocation, and demographics, and to make changes as necessary. During the 2021-22 fiscal year period, the Committee adopted a revised Investment Policy Statement to update proxy voting and Watch List-related procedures, and to reallocate the foreign large equity category. The Committee also placed two funds on the Watch List due to short-term underperformance, updated the Target Date Model allocations, replaced the General Interest Account (GIA) with the Great West Fixed Account, utilized excess market value from the GIA to supplement future crediting rates in the Fixed Account and to provide a one-time benefit to participants invested in the GIA, and extended the contract with the BFSG consulting firm for one year.

As of June 30, 2022, the Plans have:

- 1,055 participants (employees and retirees)
- Approximately \$204 million in assets
- Outperformed the 3-, 5- and 10-year performance benchmarks

The Annual Report provides detailed information regarding Plan Assets/Demographics, Committee Actions, and Plan Performance.

Proposal

Staff recommends the Board receive and file the Deferred Compensation Plan Annual Report to the Board for Plan Year Ending June 2022.

Attachment

Deferred Compensation Plan Annual Report for Plan Year Ending June 2022

Report To The Board

Plan Year Ending: June 2022

Prepared for: South Coast Air Quality Management District 457 Deferred Compensation & 401(a) Defined Contribution Plans





Renefit Financial Services Group
Table of Contents

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Section 2 Committee Meeting Summary and Plan Updates

Section 3 Plan Assets / Demographics

Section 4 Plan Performance / Cost Benchmarking

Section 5 Appendix



Plan Background

Section 1

South Coast Air Quality Management District Plan Overview

Plan Name	South Coast Air Quality Management District 457 Deferred Compensation & 401(a) Defined Contribution Plans
Inception Date (457 Plan)	January 1, 1987
Inception Date (401 Plan)	January 1, 2017

Plan Features (457 Plan)

Plan Year End	June 30 th
Entry Date	Immediate
Employee Deferrals	Pre-tax & Roth
Catch-up	Age 50 & Special 457 Catch-up Contributions
Employer Contributions	Yes - determined in accordance with the terms of the employment contract

Default Investment Alternative

Default Fund	T. Rowe Price Retirement Series

Service Providers

Recordkeeper	Empower
Directed Trustee	Reliance Trust Company
Plan Advisor	Benefit Financial Services Group ("BFSG")

Committee Oversight

Membership	John Olvera (Chair), Bayron Gilchrist, Sujata Jain, and Raquel Arciniega
Duties	Settlor and Fiduciary
California Government Code 53213.5 Compliance	The Committee intends for the Plan to comply with the provisions of California Government Code 53213.5 providing Plan fiduciaries with relief from liability for the investment decisions made by participants.





Committee Meeting Summary & Plan Updates

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Section 2

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Fiduciary Updates

Meeting Date	ltem	Update		
September 23, 2021	Watch List	Agreed to place MFS International New Discovery on the Watch List.		
September 23, 2021	Fixed Account Selection	Agreed to terminate the GIA and utilize the Fixed Account.		
October 15, 2021	Fixed Account	Agreed to utilize \$4.5 million GIA's excess market value to supplement future crediting rates of the Great West Fixed Account and utilize the remainder to provide a one-time benefit to participants invested in the GIA.		
December 14, 2021	Investment Policy Statement ("IPS")	Agreed to adopt the revised IPS.		
December 14, 2021	Target Date Models Allocation	BFSG updated the model allocations.		
February 1, 2022	Watch List	Agreed to place American Funds Fundamental Investors on the Watch List.		



Settlor (Administrative) Updates

Meeting Date	ltem	Update
February 1, 2022	Special Catch-up Provision	Approved a more flexible administration of the special catch-up provision in accordance with Empower's viewpoint.
June 9, 2022	BFSG Contract Renewal	Noted the contract with BFSG will be extended for another year beginning July 1, 2022.





Plan Assets / Demographics

Section 3

Range of Investments

ver riskforer potential reward Higher riskfugher				Higher risk/higher potential reward	
FIXED INCOME		BALANCED		EQUITY	
CAPITAL PRESERVATION	INCOME	HYBRID	VALUE	BLEND	GROWTH
DOMESTIC					
STABLE VALUE	INTERMEDIATE CORE BOND		LARGE VALUE	LARGE BLEND	LARGE GROWTH
Great West Fixed Investment Account - Series IV	Vanguard Total Bond Market Index Adm		DFA US Large Cap Value I	American Funds Fundamental Invs R6	T. Rowe Price Blue Chip Growth I
			Hartford Dividend and Growth R5	Vanguard FTSE Social Index Admiral	
				Vanguard Institutional Index I	
	INTERMEDIATE CORE-PLUS BOND	ALLOCATION50% TO 70% EQUITY	MID VALUE	MID BLEND	MID GROWTH
	Metropolitan West Total Return Bd I	American Funds American Balanced R6	Vanguard Selected Value Inv	Vanguard Mid Cap Index Admiral	Carillon Eagle Mid Cap Growth A
			SMALL VALUE	SMALL BLEND	SMALL GROWTH
			American Beacon Small Cap Value R6	Vanguard Small Cap Index Adm	Fidelity Advisor® Small Cap Growth Z
			Vanguard Small Cap Value Index Admiral		
		FOR	EIGN		
				FOREIGN LARGE BLEND	
				Hartford International Opportunities R5	
				Vanguard Developed Markets Index Admiral	
					FOREIGN SMALL/MID GROWTH
					MFS International New Discovery A
				DIVERSIFIED EMERGING MKTS	
				Vanguard Emerging Mkts Stock Idx Adm	
	SPECIALTY				
			UTILITIES	REAL ESTATE	HEALTH
			Vanguard Utilities Index Adm	Vanguard Real Estate Index Admiral	Hartford Healthcare R5
		ALLO	CATION		
		TARGET DATE SERIES			
		T. Rowe Price Retirement I Series			
Funds listed in Red are scheduled to be removed	L				

Funds listed in Ree are scheduled to be removed. Funds listed in Green are scheduled to be added. Funds listed in Blue are frozen to contributions. Funds listed in Purple represent Default Fund.



Asset Allocation by Fund

Investment Option	2Q 2022	% of Assets	# of Balances
Great West Fixed Investment Account - Series IV	\$89,312,905	43.86%	645
T. Rowe Price Blue Chip Growth I	\$21,142,921	10.38%	487
American Funds Fundamental Invs R6	\$14,153,417	6.95%	286
Vanguard Institutional Index I	\$12,192,468	5.99%	289
Hartford Dividend and Growth R5	\$9,290,220	4.56%	393
Carillon Eagle Mid Cap Growth A	\$5,805,758	2.85%	368
Hartford International Opportunities R5	\$4,738,147	2.33%	384
T. Rowe Price Retirement I 2045 I	\$4,503,082	2.21%	84
American Funds American Balanced R6	\$3,967,757	1.95%	118
T. Rowe Price Retirement I 2035 I	\$3,352,669	1.65%	47
Metropolitan West Total Return Bd I	\$3,263,784	1.60%	270
Hartford Healthcare R5	\$3,111,813	1.53%	102
Vanguard Mid Cap Index Admiral	\$3,075,577	1.51%	216
Vanguard Selected Value Inv	\$2,956,008	1.45%	319
Vanguard Total Bond Market Index Adm	\$2,542,953	1.25%	224
Fidelity Advisor® Small Cap Growth Z	\$2,357,840	1.16%	309
Vanguard FTSE Social Index Admiral	\$2,150,322	1.06%	78
American Beacon Small Cap Value R6	\$1,992,334	0.98%	295
Vanguard Small Cap Index Adm	\$1,792,815	0.88%	201
Vanguard Utilities Index Adm	\$1,614,855	0.79%	83
MFS International New Discovery A	\$1,598,390	0.78%	169
Vanguard Small Cap Value Index Admiral	\$1,382,232	0.68%	46
Vanguard Developed Markets Index Admiral	\$1,340,743	0.66%	159
T. Rowe Price Retirement I 2040 I	\$957,257	0.47%	19
Vanguard Real Estate Index Admiral	\$855,286	0.42%	70
DFA US Large Cap Value I	\$680,257	0.33%	121
Vanguard Emerging Mkts Stock Idx Adm	\$651,948	0.32%	114
T. Rowe Price Retirement I 2055 I	\$631,612	0.31%	24
T. Rowe Price Retirement I 2060 I	\$600,767	0.30%	40
T. Rowe Price Retirement I 2025 I	\$555,641	0.27%	15
T. Rowe Price Retirement I 2050 I	\$552,416	0.27%	29
T. Rowe Price Retirement I 2030 I	\$320,779	0.16%	12
T. Rowe Price Retirement I 2020 I	\$142,814	0.07%	6
T. Rowe Price Retirement I 2015 I	\$19,638	0.01%	4
T. Rowe Price Retirement I 2065 I	\$16,442	0.01%	6
T. Rowe Price Retirement I 2005 I	\$9,819	0.00%	3
T. Rowe Price Retirement I 2010 I	\$9,334	0.00%	3
Guaranteed Interest Account	\$0	0.00%	0
Subtotal	\$203,643,018	100.00%	1,055
Self-Directed Brokerage Account	\$790,385		
Total	\$204,433,403		
Total # of Participants	1,055		
Average Account Balance	\$193,776		

Note: Funds listed in Bold are included in the Target Date Models.

Note: Personal Choice Retirement Account had 11 balances as of quarter end.



Growth of Plan Assets







Plan Performance / Cost

Section 4

Portfolio Return vs. Custom Benchmark



Current Quarter



Benchmark Weightings

Index	Category	Weight
BFSG Custom Stable Value	Stable Value	43.86%
Bloomberg US Agg Float Adj TR USD	Intermediate Core Bond	1.25%
Bloomberg US Agg Bond TR USD	Intermediate Core-Plus Bond	1.60%
40% BC Agg - 60% S&P 500	Allocation50% to 70% Equity	1.95%
Russell 1000 Value TR USD	Large Value	0.33%
Russell 1000 Value TR USD	Large Value	4.56%
S&P 500 TR USD	Large Blend	6.95%
S&P 500 TR USD	Large Blend	1.06%
S&P 500 TR USD	Large Blend	5.99%
Russell 1000 Growth TR USD	Large Growth	10.38%
Russell Mid Cap Value TR USD	Mid Value	1.45%
CRSP US Mid Cap TR USD	Mid Blend	1.51%
Russell Mid Cap Growth TR USD	Mid Growth	2.85%
Russell 2000 Value TR USD	Small Value	0.98%
CRSP US Small Cap Value TR USD	Small Value	0.68%
CRSP US Small Cap TR USD	Small Blend	0.88%
Russell 2000 Growth TR USD	Small Growth	1.16%
MSCI ACWI Ex USA NR USD	Foreign Large Blend	2.33%
FTSE Dvlp ex US All Cap(US RIC)NR USD	Foreign Large Blend	0.66%
MSCI ACWI Ex USA Small Growth NR USD	Foreign Small/Mid Growth	0.78%
FTSE EMs AC China A Incl (US RIC) NR USD	Diversified Emerging Mkts	0.32%
S&P 500 Sec/Health Care TR USD	Health	1.53%
Real Estate Spliced Index*	Real Estate	0.42%
MSCI US IMI/Utilities 25-50 GR USD	Utilities	0.79%
S&P Target Date Series	Target Date Series	5.73%



Evaluation Methodology

Per Investment Policy Statement

Returns (40%)

Trailing 3-, 5-, and 10- year Rolling 10-year

Style (15%)

R² Credit Quality Consistency / Dispersion

Expense (15%)

Net Expense Ratio

Fund Score

Under 26 – Outperform 26 to 50 – Perform Over 50 - Underperform

Risk (30%)

Sharpe Ratio Up-Capture Ratio Down-Capture Ratio

٢

All data points are percentile ranking relative to the Custom Peer Group. The Custom Peer Group is the fund's Morningstar Category excluding Index Funds, fund-of-funds, and funds with less than 3 Years of Returns. Only the lowest expense share class is evaluated.



Evaluation Methodology Summary

	Quarterly Ranking			
Investment Name	2Q22	1Q22	4Q21	3Q21
Intermediate Core-Plus Bond				
Metropolitan West Total Return Bond Fund	26	23	17	18
Allocation50% to 70% Equity				
American Funds American Balanced Fund	12	11	16	14
Large Value				
DFA US Large Cap Value Portfolio	30	30	29	23
Hartford Dividend and Growth Fund	0	0	2	4
Large Blend				
American Funds Fundamental Invs	56	48	44	37
Vanguard FTSE Social Index Fund	2	0	0	0
Large Growth				
T. Rowe Price Blue Chip Growth Fund	37	24	18	12
Mid Value			10	
Vanguard Selected Value Fund	36	34	40	40
Mid Growth				
Carilion Eagle Mid Cap Growth Fund	2	4	Ь	g
American Beacon Sm Can Val Ed	24	25	40	27
Small Growth	54	30	40	
Fidelity® Small Can Growth Fund	12	9	12	17
Foreign Large Blend			15	
Hartford International Opportunities Ed	20	17	14	18
Foreign Small/Mid Growth			±.,	
MES International New Discovery Fund	62	86	88	73
Health				
Hartford Healthcare Fund	42	42	32	32
Target Date Series				
T. Rowe Price Retirement Series	16	13	10	9
Average Rank	26	25	26	24
Plan Weighted Rank (Reweighted)	28	23	21	19





Note: Average and Plan-Weighted Average rankings shown above reflect the actual funds offered in the Plan (and their respective weightings) during the applicable quarter.

Fee Breakdown & Recordkeeping Costs

	Plan Assets 06/30/2022	Total Plan Expense (%) ²	Total Plan Expense (\$)	Revenue to Invmt. Mgmt. (\$)	Revenue to RK / Admin. (Vendor)
South Coast Air Quality	\$202 642 018	0 518%	¢1 054 572	\$1,013,843	\$40,729
Retirement Savings Plan	\$203,043,018	0.318%	Ş1,054,572	0.498%	0.020%
Industry Average ¹		0.559%	\$1,139,365		

¹The Industry Average represents the weighted expense (based upon current allocation) of lowest cost Institutional and Retirement share classes in each asset category from Morningstar, plus the benchmark revenue requirement.

²Total Plan Expense does <u>not</u> include additional qualified Plan expenses or transaction costs.

Investment Management and Recordkeeping Costs



Recordkeeping Fee on a Per Participant Basis





Appendix

Section 5



South Coast Air Quality Management District 21865 Copley Drive, Diamond Bar, CA 91765 (909) 396-2000, www.aqmd.gov

MEETING DATE: September 23, 2021

REPORT: Deferred Compensation Plan Committee

SYNOPSIS: The Deferred Compensation Plan Committee met on September 23, 2021, at 3:00 pm. The meeting was conducted via a Zoom web conference. The following is a summary of that meeting.

RECOMMENDED ACTION: Receive and file.

A. John Olvera, Chair Deferred Compensation Plan

AJO:RH:tc

Committee Members Present

John Olvera – Deputy Executive Officer / Admin and Human Resources Bayron Gilchrist – General Counsel Sujata Jain - Chief Financial Officer Raquel Arciniega - Human Resources Manager

Committee Members Absent

None

<u>Guests</u>

Darren Stewart, Benefit Financial Services Group ("BFSG") Aksana Munoz, BFSG Dario Gomez, Empower Retirement ("Empower") Robert Gleason, Empower

Call to Order

Chair Olvera called the meeting to order at 3:03 pm.

Approval of Prior Meeting Minutes: The Committee unanimously approved the minutes of the meeting held on June 8, 2021.

FIDUCIARY AGENDA

457 and 401(a) Plans Quarterly Investment Review – 2^{nd} Quarter 2021: The Committee received and unanimously approved the Retirement Plan Quarterly Investment Review (the "Report") for the 457 Deferred Compensation Plan and the 401(a) Defined Contribution Plan (collectively the "Plans") for the quarter ending June 30, 2021.

To provide context to the performance of the investment options in the Plan, BFSG provided an overview of the economy and capital markets during the reporting period. The presentation was followed by a quantitative and qualitative review of the funds offered in the Plans, in accordance with the Evaluation Methodology criteria set forth in the Plans' Investment Policy Statement (the "IPS").

MFS International New Discovery slightly underperformed both benchmarks over the quarter and one-year period, largely due to the fund's defensive style. One of the fund managers retired in April 2021. Another long-term manager is retiring next year. Due to changes in management, BFSG recommended placing the fund on the Watch List. The Committee unanimously agreed.

Hartford Healthcare Fund is currently on the Watch List due to a change in management. Strong stock selection contributed to short-term performance. One of

the fund's co-managers will retire in 2021. After discussion, the Committee agreed to keep the fund on the Watch to monitor fund management.

The Committee reviewed performance, costs, and utilization of the Target Date Models. As of the end of the reporting period, 69 participants utilized the Models. The total amount invested in the Models was approximately \$6.9 million.

The Committee reviewed point-in-time Plan-level performance noting the Plan demonstrated better risk-adjusted returns than the active benchmark, as measured by 3-year Sharpe ratio, and had a lower expense ratio than the active peer group.

The Committee reviewed fees paid to Empower for recordkeeping and administration of the District's Plans. During the recent Request for Proposal ("RFP"), Empower proposed to reduce their revenue requirement for the 457 Plan to 2 basis points on Plan assets. The Committee will meet with the Governing Board on September 24, 2021, and recommend to award the contract to Empower.

Fixed Account Analysis and Selection: As Empower's proposal includes the utilization of their MassMutual Guaranteed Interest Account ("GIA") or the Great West Fixed Account ("Fixed Account"), BFSG prepared and presented a comparison of both investment options for the Committee's review and consideration.

One drawback to the GIA is the restrictive sponsor liquidity provision should the fund need to be removed when the market-to-book value is less than 100%. Assets would be available at market value or through 60 quarterly installments. The assets would not be liquid to participants, even for distributions, during the installment period. The Fixed Account offers more favorable sponsor liquidity options, including a 12-month put, a market-value adjustment, and an installment payment during which participants have full liquidity.

In terms of crediting rates, the products are similar, but a lack of historical data prevents a clear comparison. The GIA provides a higher crediting rate floor, starting at 2.5% and declining to 1.8% by the end of the five-year contract. The Fixed Account guarantees against loss but does not guarantee a specific interest rate. Both guarantees are provided by Great West, which has a strong credit rating.

A key provision of the GIA is that it offers a two-way market-value adjustment. Based on the market value calculation provided by Empower on September 7, 2021, an additional 15% of assets would be available to participants if the Committee chose to terminate the fund. The market value has increased substantially over the last few years, because of the declining interest rate environment. The market value would likely dissipate over the coming years if interest rates were to increase. The 15% excess could be amortized into future crediting rate of the Fixed Account, given as a one-time return to participants invested in the fund, or be split between the two. BFSG reviewed an analysis of expected crediting rates for both products over life of the contract and discussed the changes to the market and environment that could impact the favorability of one decision over the other. After thorough review and discussion, the Committee unanimously agreed to terminate the GIA and utilize the Fixed Account, pending the Governing Board's approval to keep Empower as the recordkeeper.

The Committee also unanimously agreed to amortize \$4.5 million of the gains into the crediting rate of the Fixed Account over the next four years. This amount was chosen as it would likely keep the crediting rate of the Fixed Account above 2.5% for each of the five years, provided interest rates do not decline further. The remainder will be allocated to participants pro rata, based on their investment in the GIA as of market close on September 23, 2021.

Unfortunately, the Fixed Account cannot be added until the Plan converts to the Empower platform in mid-January 2022. During that time, rising interest rates could cause a reduction in the market value. The Committee asked Empower to provide an update on the market value of the GIA at a special meeting in a few weeks as well as options for potentially reducing the interest rate risk over the next four months.

SETTLOR AGENDA

Employee Education Meetings Update: BFSG provided an update on employee education meetings conducted for the District's Plan participants. During the second quarter of 2021, BFSG conducted a webinar, Estate and Legacy Planning. Over 90 Plan participants attended the webinar. BFSG's CFP, Mr. Johnson, had 7 one-on-one consultations and delivered 3 financial plans during the quarter. The year-to-date activity was also reviewed by the Committee.

Quarterly Review 457 and 401(a) Plans: Mr. Gleason presented a Plan Review report for the quarter ending June 30, 2021. The District's Plans are scheduled to transition to the Empower's recordkeeping platform in January 2022. The transition is expected to be completed over a weekend with no blackout period. Other areas discussed included Plan assets, demographics, cash flow, asset allocation, and loan utilization.

The Committee received and filed the 401(a) Plan Review for the reporting quarter.

Expense Budget Account Quarterly Activity Review: The Committee reviewed the accounting activity report for the Plan Expense Budget account. As of July 8, 2021, the balance in the account was \$5,393.

OTHER MATTERS:

Public Comments – There were no public comments. **Other Business** – There was no other business.

Adjournment - The meeting adjourned at 5:15 p.m.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT DEFERRED COMPENSATION PLAN COMMITTEE SPECIAL MEETING MINUTES

October 15, 2021

Members Present:	John Olvera, Deputy Executive Officer / Admin and Human Resources Sujata Jain, Chief Financial Officer Bayron Gilchrist, General Counsel Raquel Arciniega - Human Resources Manager
Committee Consultants:	Darren Stewart, Benefit Financial Services Group ("BFSG") Aksana Munoz, BFSG Robert Gleason, Empower

Call to Order: The special meeting of the Deferred Compensation Plan Committee (the "Committee") was called to order by Mr. Olvera on October 15, 2021, at 2:30 pm. The purpose of the meeting was to discuss items listed on the agenda. The meeting was conducted via a Zoom web conference.

Action Item

1. Fixed Account Review

The Committee revisited the discussion held at the September meeting regarding the Guaranteed Interest Account ("GIA") and the Fixed Account. Mr. Gleason noted Empower can administer the conversion of the GIA to the Fixed Account in two ways. Each of the proposed methods involves liquidating the GIA at market value and was discussed in detail. The most recent market value calculation is 116% of book value.

Under the first method, assets in the GIA would map directly into the Fixed Account on or about February 18, 2022. This method allows for the amortization of part of the gains into the crediting rate of the Fixed Account for the term of the contract with Empower but includes a lengthy period of uncertainty during which the market value could fluctuate. Empower would reduce its revenue requirement from 0.04% to 0.02% in November, instead of January as detailed in the Request for Proposal. Empower would also continue to credit an annualized rate of 2.5% to participants invested in the GIA until the mapping to the Fixed Account.

Under the second method, the GIA would be liquidated on or about November 19, 2021, and mapped into a money market fund as a holding place until the Great West Fixed Account could be added on or about February 18th. This method shortens the time for market value fluctuation but requires that all gains be credited to participants pro rata based on

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT DEFERRED COMPENSATION PLAN COMMITTEE SPECIAL MEETING MINUTES

assets invested in the GIA as of close of business on September 23, 2021. During the period invested in the money market, the crediting rate would likely be zero.

After discussion, the Committee unanimously agreed to adopt the first method and map the GIA to the Fixed Account on or about February 18, 2022. The Committee will continue to monitor the market value of the GIA and asked Empower to provide an updated percentage to the Committee at its meeting on November 16, 2021. The Committee also asked Empower to inquire as to the last possible date the Committee could change its decision on liquidating the GIA.

Other Matters

2. Public Comments – There were no public comments.

Adjournment

With no further items to address, Mr. Olvera adjourned the meeting at 3:20 pm.



South Coast Air Quality Management District 21865 Copley Drive, Diamond Bar, CA 91765 (909) 396-2000, www.aqmd.gov

MEETING DATE: December 14, 2021

REPORT: Deferred Compensation Plan Committee

SYNOPSIS: The Deferred Compensation Plan Committee met on December 14, 2021, at 10:30 am. The meeting was conducted via a Zoom web conference. The following is a summary of that meeting.

RECOMMENDED ACTION: Receive and file.

A. John Olvera, Chair Deferred Compensation Plan

AJO:RH:tc

Committee Members Present

John Olvera – Deputy Executive Officer / Admin and Human Resources Bayron Gilchrist – General Counsel Sujata Jain - Chief Financial Officer Raquel Arciniega - Human Resources Manager

Committee Members Absent

None

<u>Guests</u>

Darren Stewart, Benefit Financial Services Group ("BFSG") Aksana Munoz, BFSG Dario Gomez, Empower Retirement ("Empower") Robert Gleason, Empower

Call to Order

Chair Olvera called the meeting to order at 10:30 am.

Approval of Prior Meeting Minutes: The Committee unanimously approved the minutes of the meetings held on September 23, 2021, and October 15, 2021.

FIDUCIARY AGENDA

457 and 401(a) Plans Quarterly Investment Review – 3^{rd} Quarter 2021: The Committee received and unanimously approved the Retirement Plan Quarterly Investment Review (the "Report") for the 457 Deferred Compensation Plan and the 401(a) Defined Contribution Plan (collectively the "Plans") for the quarter ending September 30, 2021.

To provide context to the performance of the investment options in the Plan, BFSG provided an overview of the economy and capital markets during the reporting period. The presentation was followed by a quantitative and qualitative review of the funds offered in the Plans, in accordance with the Evaluation Methodology criteria set forth in the Plans' Investment Policy Statement (the "IPS").

Metropolitan West Total Return Bond – It was noted the firm's chief investment officer ("CIO") is retiring at the end of the year. Two managers of the fund will then serve as co-CIO and will remain on the fund. A strong and well experienced analyst team will continue to support the fund. As such, this change is not concerning at this time.

MFS International New Discovery is currently on the Watch List. Short-term underperformance was largely due to the fund's defensive nature as illustrated by its

up-capture ratio ranking of 100 ("underperform"). The fund is positioned to perform well in declined markets based on its strong down capture ratio of 22 ("outperform"). During the quarter, an overweight to emerging markets and poor stock selection in real estate weighed on fund performance. One of the fund managers retired earlier this year and another is expected to retire in April 2023. The fund will continue to be managed by the experienced team of comanagers. Due to management changes, BFSG recommended keeping the fund on the Watch List. The Committee unanimously agreed.

Hartford Healthcare Fund is currently on the Watch List due to management changes. One of fund comanagers is retiring in 2022. Another gave up her comanager position on this strategy in June 2021 in order to become the CEO of the subadvisor Wellington Management Company. Due management changes, BFSG recommended keeping the fund on the Watch List. The Committee unanimously agreed.

The Committee reviewed point-in-time Plan-level performance noting the Plan demonstrated better risk-adjusted returns than the active benchmark, as measured by 3-year Sharpe ratio, and had a lower expense ratio than the active peer group.

The Committee reviewed fees paid to Empower for recordkeeping and administration of the District's Plans. As of November 1, 2021, the required revenue to Empower was reduced to 2 basis points on each Plan. This places Empower's fees within a lower band of the market segment based on a Request for Proposal conducted in 2021.

Investment Policy Statement Update: To assist the Committee with its ongoing diligence, BFSG proposed updates to the Investment Policy Statement (the "IPS") for the Plans. The noteworthy updates included proxy voting, Watch List-related procedures, and splitting the foreign large equity category into growth, value, and blend. BFSG reviewed and discussed each section of the IPS in detail. It was noted Empower sends proxies for voting to the plan sponsor on behalf of participants. After discussion, the Committee agreed to adopt the revised IPS through these minutes.

Target Date Models Allocation Update: BFSG discussed updates to the Target Date Models. The updates included minor allocation changes in each asset class. The Committee unanimously approved the proposed updates to the Models.

Share Class Review: To assist the Committee with its ongoing due diligence, BFSG prepared and reviewed a Share Class analysis to examine the investment options in both Plans. The analysis illustrated a comparison of the current and lowest possible share class of each fund in the Plans. No changes were proposed at this time. The Committee agreed to revisit this topic in 2022 once the decision regarding the GIA is finalized.

Committee's Meeting Schedule 2022: The Committee unanimously approved the meeting calendar for 2022. The meetings dates are February 8, June 9, September 14, and December 7.

Fixed Account Review: Empower noted the most recent market value calculation is 113% of book value. The Committee revisited its decision to move assets from the Guaranteed Interest Account ("GIA") to the Fixed Account. As noted at the prior meetings, the Fixed Account cannot be added until the Plans convert to the Empower platform. Mr. Gleason noted the migration to the Empower platform has been pushed from January 2022 to February 2022, pushing the effective date of moving assets to the Fixed Account after the platform migration date.

After discussion, the Committee unanimously agreed to schedule a special meeting once Empower has more information on the platform migration time frame.

SETTLOR AGENDA

Employee Education Meetings Update: BFSG provided an update on employee education meetings conducted for the District's Plan participants. In early December, BFSG conducted a webinar, Social Security. Approximately 70 Plan participants attended the webinar. The year-to-date activity with BFSG's CFP included 34 one-on-one consultations and 11 financial plan deliveries. During the year, BFSG conducted 3 workshops which had over 200 attendees.

Quarterly Review 457 and 401(a) Plans: Mr. Gleason presented the 457(b) Plan Review report for the quarter ending September 30, 2021. Areas reviewed included Plan assets, demographics, cash flow, asset allocation, and loan utilization.

The Committee received and filed the 401(a) Plan Review for the reporting quarter.

Expense Budget Account Quarterly Activity Review: The Committee reviewed the accounting activity report for the Plan Expense Budget account. As of October 11, 2021, the balance in the account was \$7,569. MassMutual will reallocate any unused balance in the EBA back to participants automatically at the end of the year.

OTHER MATTERS:

Public Comments – There were no public comments.

Other Business – There was no other business.

Adjournment - The meeting adjourned at 11:55 a.m.



South Coast Air Quality Management District 21865 Copley Drive, Diamond Bar, CA 91765 (909) 396-2000, www.aqmd.gov

MEETING DATE: February 1, 2022

REPORT: Deferred Compensation Plan Committee

SYNOPSIS: The Deferred Compensation Plan Committee met on February 1, 2022, at 3:30 pm. The meeting was conducted via a Zoom web conference. The following is a summary of that meeting.

RECOMMENDED ACTION: Receive and file.

A. John Olvera, Chair Deferred Compensation Plan

AJO:RH:tc

Committee Members Present

John Olvera – Deputy Executive Officer / Admin and Human Resources Bayron Gilchrist – General Counsel Sujata Jain - Chief Financial Officer Raquel Arciniega - Human Resources Manager

Committee Members Absent

None

Guests

Darren Stewart, Benefit Financial Services Group ("BFSG") Aksana Munoz, BFSG Dario Gomez, Empower Retirement ("Empower") Robert Gleason, Empower Armando Llanes, Empower Paul Wright, Empower

Call to Order

Chair Olvera called the meeting to order at 3:30 pm.

Approval of Prior Meeting Minutes: The Committee unanimously approved the minutes of the meeting held on December 14, 2021.

FIDUCIARY AGENDA

457 and 401(a) Plans Quarterly Investment Review – 4th Quarter 2021: The Committee received and unanimously approved the Retirement Plan Quarterly Investment Review (the "Report") for the 457 Deferred Compensation Plan and the 401(a) Defined Contribution Plan (collectively the "Plans") for the quarter ending December 31, 2021.

To provide context to the performance of the investment options in the Plan, BFSG provided an overview of the economy and capital markets during the reporting period. The presentation was followed by a quantitative and qualitative review of the funds offered in the Plans, in accordance with the Evaluation Methodology criteria set forth in the Plans' Investment Policy Statement (the "IPS").

Changes to the Plan's Target Date Models were completed by Empower in December 2021.

American Funds Fundamental Investors: The management team has experienced moderate turnover over the last few years. The fund underperformed its peers and benchmark during the quarter and underperformed both over all periods measured in

the Report except for its peers on a ten-year basis. During the third quarter of 2021, an out-of-benchmark position in mining stocks detracted from relative performance. During the fourth quarter of 2021, an out-of-benchmark position in gambling stocks detracted from relative performance, as did a significant overweight to tobacco, and underweight to automobile manufacturers. A significant position in foreign equity continues to detract from relative performance. Due to underperformance and manager turnover, BFSG recommended placing the fund on the Watch List. The Committee unanimously approved placing the fund on the Watch List.

T. Rowe Price Blue Chip Growth - In September 2021, Paul Greene officially took over for long-term manager Larry Puglia. Paul had worked with the fund as an analyst for more than a decade and gradually took on management responsibilities beginning in January 2020. BFSG held a conference call with fund management to discuss the transition as well as recent underperformance on February 1, 2022. Greene's portfolio shifts are nearly complete as he has reduced the number of holdings by approximately one-third, mostly by selling off the small positions that had little impact on performance. The portfolio remains diverse with approximately ninety stock positions. Greene utilized most of those proceeds to purchase stocks with higher growth potential than have historically been held in the portfolio. Among others, this included initiating positions in Tesla and Rivian leading the fund to have a higher P/E ratio than its peers and index. During the quarter management held an underweight to Tesla, which detracted from performance relative to its peers and index. The most noticeable disparity in performance for the quarter was between the peers and the index, caused by the concentration of Microsoft and Apple in the index (more than 20% of the holdings). Despite recent underperformance, the fund is easily outperforming its peers on a five- and ten-year basis and the Evaluation Methodology score remains an outperform at 18. The Committee unanimously agreed to continue monitoring the changes to the portfolio.

MFS International New Discovery underperformed its both benchmarks during the quarter, largely due to its conservative investment style. Lead manager retired in early-2021 and another long-term manager is planning to retire in 2023. The fund will continue to be managed by the experienced team of comanagers. Due to management changes, BFSG recommended keeping the fund on the Watch List. The Committee agreed.

Hartford Healthcare Fund underperformed category peers and the index benchmark during the quarter. Recent underperformance was largely due to an overweight to biotech stocks. One of fund managers is planning to retire this year. The Committee unanimously agreed to keep the fund on Watch to monitor performance and management changes. The Committee reviewed point-in-time Plan-level performance noting the Plan demonstrated better risk-adjusted returns than the active benchmark, as measured by 3-year Sharpe ratio, and had a lower expense ratio than the active peer group.

The Committee reviewed fees paid to Empower for recordkeeping and administration of the District's Plans. As of November 1, 2021, the required revenue to Empower was reduced to 2 basis points on each Plan. This places Empower's fees within a lower band of the market segment based on a Request for Proposal conducted in 2021.

The Plan operates under a level fee arrangement where fund revenue sharing payments are credited directly to the participants invested in the fund. The Committee reviewed the share classes used in the Plan and noted that after adjusting for credited revenue sharing, using the optimal share class for each fund provided annualized savings of approximately \$32,000.

Transition to Fixed Account: On January 18, 2022, SCAQMD executed the investment change authorization and signed the group annuity contracts and funding agreement relative to the upcoming Fixed Account change for all Plans. The MassMutual GIA will be replaced with the Great West Fixed Investment Account - Series IV. The last updated MassMutual GIA MVA was 114.573% as of January 31, 2022. The investment change is scheduled for February 24, 2022, and a participant communication was sent by Empower on January 24, 2022. Following this update, the Committee reaffirmed their decision to make this investment change.

Fiduciary Education – Cybersecurity: In April 2021, the U.S. Department of Labor (the "DOL") issued new Cybersecurity guidance for plan sponsors, providers, and participants. Although ERISA does not apply to governmental plans, best practice is to attempt to follow the guidelines and regulations established for private plans. The guidance establishes a baseline for a fiduciary breach should a claim arise. BFSG issued a cybersecurity questionnaire to Empower for the Committee's fiduciary file and stored that information on the BFSG e-library. SCAQMD can share that information with their internal IT specialists for a detailed review and evaluation.

After discussion, the Committee agreed to invite a cybersecurity specialist from Empower to the next regularly scheduled meeting to discuss the recordkeeper's cybersecurity protocols.

SETTLOR AGENDA

Special Catch-up Provision: The Committee discussed a potential change in the interpretation of how to apply the special catch-up provision. This provision is already utilized by the District. Mr. Wright noted Empower's interpretation of this provision is slightly more flexible than MassMutual and Hartford. As Empower's interpretation

is more favorable for participants, the Committee unanimously approved the change to begin administering this provision in accordance with Empower's viewpoint. This change does not require a Plan amendment.

Quarterly Review 457 and 401(a) Plans: Mr. Gleason presented the 457(b) Plan Review report for the quarter ending December 31, 2021. Areas reviewed included Plan assets, demographics, cash flow, asset allocation, and loan utilization.

The Committee received and filed the 401(a) Plan Review for the reporting quarter.

Expense Budget Account Quarterly Activity Review: The Committee reviewed the accounting activity report for the Plan Expense Budget account. As of January 6, 2022, the ending balance in the account was \$2,491.63.

Participant Communications: The Committee discussed participant communication efforts for the 2022 year. Mr. Llanes provided an overview of Empower's targeted, goal-specific, and event-based campaigns which are designed to engage employees and drive specific actions. These campaigns will be available for the District once the Plans move to the Empower's platform this quarter.

OTHER MATTERS:

Public Comments – There were no public comments.

Other Business – There was no other business.

Adjournment - The meeting adjourned at 5:00 p.m.



South Coast Air Quality Management District 21865 Copley Drive, Diamond Bar, CA 91765 (909) 396-2000, www.aqmd.gov

MEETING DATE: June 9, 2022

REPORT: Deferred Compensation Plan Committee

SYNOPSIS: The Deferred Compensation Plan Committee met on June 9, 2022, at 2:00 pm. The meeting was conducted via a Zoom web conference. The following is a summary of that meeting.

RECOMMENDED ACTION: Receive and file.

A. John Olvera, Chair Deferred Compensation Plan

AJO:RH:tc

Committee Members Present

John Olvera – Deputy Executive Officer / Admin and Human Resources Sujata Jain - Chief Financial Officer Raquel Arciniega - Human Resources Manager

Committee Members Absent

Bayron Gilchrist – General Counsel

Guests

Anthony Tang, South Coast Air Quality Management District ("SCAQMD") Mae Mendoza, SCAQMD Darren Stewart, Benefit Financial Services Group ("BFSG") Antonia Lipovac, BFSG Dario Gomez, Empower Retirement ("Empower") Robert Gleason, Empower Trish McGinity, Empower Claudia Leao, Empower

Call to Order

Chair Olvera called the meeting to order at 2:06 pm.

Approval of Prior Meeting Minutes: The Committee unanimously approved the minutes of the meeting held on February 1, 2022.

FIDUCIARY AGENDA

457 and 401(a) Plans Quarterly Investment Review – 1^{st} **Quarter 2021:** The Committee received and unanimously approved the Retirement Plan Quarterly Investment Review (the "Report") for the 457 Deferred Compensation Plan and the 401(a) Defined Contribution Plan (collectively the "Plans") for the quarter ending March 31, 2022.

To provide context to the performance of the investment options in the Plans, BFSG provided an overview of the economy and capital markets during the reporting period. The presentation was followed by a quantitative and qualitative review of the funds offered in the Plans, in accordance with the Evaluation Methodology criteria set forth in the Plans' Investment Policy Statement (the "IPS").

American Funds Fundamental Investors – The fund underperformed relative to its peers during the first quarter. An overweight in foreign securities and poor stock selection in communication services and financials detracted from recent performance. An underweight to insurance also detracted from recent performance. Committee agreed to maintain the fund on the Watch List.

MFS International New Discovery – The fund significantly outperformed its Foreign Small/Mid Growth category peers during the first quarter. The strategy's bias to downside protection had been a headwind as markets made new highs over the last two years. However, the fund outperformed its peers by 6% in the volatile first quarter and has outperformed by another 4% since the end of the quarter. Contributing to more recent performance has been an underweight to technology and biotechnology stocks, along with strong stock selection in the portfolio's healthcare sleeve. The Committee agreed to maintain the fund on the Watch List and BFSG will bring a fund search to the next meeting to review potential alternatives, as the fund will have been on the Watch List for one year.

Hartford Healthcare Fund – The fund is currently on the Watch List due to a recent manager change. During the first quarter, the fund performed in line with its peers but underperformed relative to its index. The index is market-cap weighted and therefore consists largely of large cap pharmaceutical companies that have performed well during the market downturn. The fund and its peer group have more small and mid cap exposure as well as larger weightings in medical devices and biotechnology. The fund current ranks a 42 ("perform") per the Evaluation Methodology and it was noted the fund's expense ratio of 0.88 remained below its category benchmark of 0.94. There were 2 new co-managers added to the fund in March 2022 and the Committee agreed to maintain the fund on the Watch List.

The Committee reviewed point-in-time Plan-level performance noting the Plan demonstrated better risk-adjusted returns than the active benchmark, as measured by 3-year Sharpe ratio, and had a lower expense ratio than the active peer group.

The Committee reviewed fees paid to Empower for recordkeeping and administration of the District's Plans.

The Plan operates under a level fee arrangement where fund revenue sharing payments are credited directly to the participants invested in the fund. The Committee reviewed the share classes used in the Plan and noted that after adjusting for credited revenue sharing, using the optimal share class for each fund provided annualized savings of approximately \$32,500.

Cybersecurity: Ms. McGinity from Empower's Cybersecurity team hosted an educational presentation covering Empower's cybersecurity protocols. Ms. McGinity also reviewed the Department of Labor cybersecurity guidance issued in April 2021. Other items covered included cybersecurity best practices, online security tips, guidance for plan sponsors, data protection, security testing, and Empower's security guarantee.

Fiduciary Education – Cryptocurrency: On March 10, 2022 the U.S. Department of Labor ("DOL") released guidance to plan sponsors regarding the risks of

cryptocurrency investments and their place in retirement plans. BFSG reviewed the guidance with the Committee. Empower has confirmed they have no way to broadly exclude cryptocurrency and related products from the brokerage window due to the subjectivity of the DOL's language, and further clarification from the DOL is needed before such an exclusion could be made possible. With respect to monitoring individual investments inside the brokerage window, the Committee will continue to rely on historical DOL direction and federal court decisions and will look for further guidance from the DOL on this issue in the future.

SETTLOR AGENDA

BFSG Contract Renewal: The Committee noted the contract with BFSG will be extended for another year beginning July 1, 2022.

Quarterly Review 457 and 401(a) Plans: Mr. Gleason presented the 457(b) Plan Review report for the quarter ending March 31, 2022. Areas reviewed included Plan assets, demographics, cash flow, asset allocation, and loan utilization.

The Committee received and filed the 401(a) Plan Review for the reporting quarter.

Expense Budget Account Quarterly Activity Review: The Committee reviewed the accounting activity report for the Plan Expense Budget account. As of March 31, 2022, the ending balance in the account was \$2,491.46.

OTHER MATTERS:

Public Comments – There were no public comments.

Other Business – There was no other business.

Adjournment - The meeting adjourned at 3:33 p.m.


BOARD MEETING DATE: March 3, 2023

AGENDA NO. 16

REPORT: Administrative Committee

SYNOPSIS: The Administrative Committee held a hybrid meeting on Friday, February 10, 2023. The following is a summary of the meeting.

RECOMMENDED ACTION: Receive and file.

Ben J. Benoit, Chair Administrative Committee

SN:cb

Committee Members

Present: Chair Ben Benoit, Committee Chair Senator (Ret.) Vanessa Delgado, Vice Chair Council Member Michael Cacciotti Board Member Gideon Kracov

Call to Order

Chair Benoit called the meeting to order at 10:05 a.m.

For additional details of the Administrative Committee Meeting, please refer to the Webcast.

DISCUSSION ITEMS:

- 1. **Board Members' Concerns:** There were no concerns to report.
- 2. Chair's Report of Approved Travel: There was no travel to report.
- 3. **Report of Approved Out-of-Country Travel:** There was no travel to report.

- 4. **Review February 3, 2023 Governing Board Agenda:** Wayne Nastri, Executive Officer, highlighted the Set Hearing rules and Public Hearing items. Bayron Gilchrist, General Counsel/Legal, commented on changes with AB 361, and how it would affect remote participation in the Board Meeting. For additional information, please refer to the <u>Webcast at 1:58</u>.
- 5. **Approval of Compensation for Board Member Assistant(s)/Consultant(s):** There was no approval of compensation for Board Member Assistant(s)/ Consultant(s) to report.
- 6. **Update on South Coast AQMD Inclusion, Diversity and Equity Efforts:** Cessa Heard-Johnson, Diversity, Equity & Inclusion Officer, provided an update on agency efforts, seasonal events, upcoming workshops and statewide issues, and discussed Aiko Herzig-Yoshinaga's accomplishments for Fabulous Female Friday. For additional information, please refer to the <u>Webcast at 3:59</u>.

Board Member Kracov inquired about Dr. Heard-Johnson's expanded role with AB 617. Dr. Heard-Johnson elaborated that other agency's AB 617 programs are aligned with DEI. Mr. Nastri added that the position was developed to better address concerns with DEI and be more prepared and in a better position as we go into the communities and have a common understanding of the different perspectives both inside and outside of the District. Board Member Kracov requested a presentation on the structure. For additional information on this comment, please refer to the <u>Webcast at 11:35</u>.

7. South Coast AQMD's FY 2022-23 Second Quarter Ended December 31, 2022 Budget vs. Actual (Unaudited): Sujata Jain, Chief Financial Officer, presented a general overview of the budget for the second quarter ending on December 31, 2022, revenues and expenditures, use of fund balance and provided a five-year projection. The budget summary is a balanced budget. Ms. Jain provided a comparison with the previous fiscal year which showed that we are on track and trending. The expenditures comparison also showed that we are at the point that we are supposed to be. The vacancy rate is high at 20 percent. The five-year projection is on track to stay within Board policy. For additional information on this update, please refer to the <u>Webcast at 16:41.</u>

Councilmember Cacciotti inquired about the vacancy rate being 20 percent and how that translates into numbers. Ms. Jain responded that it is about 200 people. For additional information on this update, please refer to the <u>Webcast at 21:50</u>.

8. **Receive and File Annual Report on South Coast AQMD's Deferred Compensation Plans:** John Olvera, Deputy Executive Officer, Administrative & Human Resources, provided an overview of the South Coast AQMD's Deferred Compensation Plans for the plan year that ended in June 2022. Mr. Olvera reported that changes were made to the plan's investment policy and its fund options during the plan year by the Board appointed Oversight Committee. The plan has over 1,000 participants and its evaluation at June 2022 was just over \$200,000,000. The plan is outperforming the 3, 5 and 10-year benchmark that is used to evaluate progress. For additional information on this update please refer to the Webcast at 23:49.

9. **Status Report on Major Ongoing and Upcoming Projects for Information Management:** Ron Moskowitz, Chief Information Officer, reported that solicitation PA 2023-04 was deployed for the Carl Moyer Program. A new version to the portal for cities and entities to report their motor vehicles was also deployed and a phone system upgrade was completed. For additional information on this update please refer to the <u>Webcast at 24:51.</u>

Harvey Eder provided public comment regarding the public comment process. For additional information on this update please refer to the <u>Webcast at 26:22</u>.

ACTION ITEMS:

10. **Authorize Purchase of Servers and Storage Devices:** Mr. Moskowitz reported that this item is to obtain approval for the purchase of servers and storage devices in an amount not to exceed \$430,000 and funds are available in the budget.

Moved by Delgado; seconded by Benoit, unanimously approved.

Ayes:Benoit, Delgado, Cacciotti, KracovNoes:None

11. Authorize Purchase of Maintenance and Support Services for Servers and Storage Devices: Mr. Moskowitz reported that this item is to purchase maintenance and support services for servers and storage devices from Hewlett Packard Enterprise Company for one year in an amount not to exceed \$190,000.

Moved by Delgado; seconded by Benoit, unanimously approved.

Ayes:Benoit, Delgado, Cacciotti, KracovNoes:None

WRITTEN REPORTS:

12. Environmental Justice Advisory Group Minutes for the October 28, 2022 Meeting: The report was acknowledged and received. 13. Local Government & Small Business Assistance Advisory Group Minutes for the December 9, 2022 Meeting: The report was acknowledged and received.

OTHER MATTERS:

- 14. **Other Business:** Chair Benoit swore in Vice Chair Delgado as the new Chair of the Governing Board. For additional information on this update please refer to the <u>Webcast at 34:56</u>.
- 15. **Public Comment:** Mr. Eder provided public comment regarding public records, a history of proceedings, stipulation and mandates. For additional information on this update please refer to the <u>Webcast at 30:15</u>.
- 12. **Next Meeting Date:** The next regular Administrative Committee meeting is scheduled for Friday, March 10, 2023 at 10:00 a.m.

Adjournment

The meeting was adjourned at 10:40 a.m.



MEETING OF THE ENVIRONMENTAL JUSTICE ADVISORY GROUP FRIDAY, OCTOBER 28, 2022 MEETING MINUTES

Members Present:

Senator Vanessa Delgado (Ret.), EJAG Chair (Board Member) Veronica Padilla-Campos (Board Member) Manuel Arredondo Angie Balderas Dr. Lawrence Beeson Suzanne Bilodeau Kerry Doi Kareem Gongora Dr. Afif El-Hasan Mary Figueroa Angela GarciaAna Gonzalez Dr. Monique Hernandez Rafael Yanez

Members Absent:

Supervisor Janice Rutherford (Board Member) Elizabeth Alcantar Rhetta Alexander Paul Choe Dr. Jill Johnston Humberto Lugo David McNeill Donald Smith

South Coast AQMD Staff:

Derrick Alatorre, Deputy Executive Officer/Legislative, Public Affairs & Media Nicholas Sanchez, Assistant Chief Deputy Counsel/Legal Alicia Lizarraga, Senior Public Affairs Manager/Legislative, Public Affairs & Media Evangelina Barrera, Senior Public Affairs Specialist/Legislative, Public Affairs & Media Iliana Garcia, Senior Public Affairs Specialist/Legislative, Public Affairs & Media Alejandra Vega, Senior Public Affairs Specialist/Legislative, Public Affairs & Media

Brandee Keith, Senior Public Affairs Specialist/Legislative, Public Affairs & Media

Dr. Elaine Shen, Planning and Rules Manager/Planning, Rules Development, and Implementation Dr. Andrea Polidori, Assistant Deputy Executive Officer/Monitoring and Analysis Brisa Lopez, Secretary/Legislative, Public Affairs & Media

Call To Order/Opening Remarks

Senator Vanessa Delgado called the meeting to order at 12:00 p.m., and roll call was taken.

Agenda Item #1: Approval of August 26, 2022 Meeting Minutes

Chair Delgado called for the approval of the August 26, 2022, meeting minutes.

Moved by Kareem Gongora; seconded by Larry Beeson Ayes: Delgado, Arredondo, Beeson, Bilodeau, Doi, El-Hassan, Figueroa, Garcia, Gongora, Gonzalez, Yanez Noes: None Abstain: Padilla-Campos, Balderas, Hernandez, Absent: Rutherford, Alcantar, Alexander, Choe, Johnston, Lugo, McNeill, Smith

Agenda Item #2: Review of Follow-Up/Action Items

Derrick Alatorre, Deputy Executive Officer of Legislative, Public Affairs & Media, reviewed the action items from the August 26, 2022, meeting:

• Staff was requested to provide presentation on South Coast AQMD CEQA guidance.

A presentation on CEQA guidance to be scheduled at a future meeting.

Agenda Item #3: 2023 Goals and Objectives

Alicia Lizarraga, Senior Public Affairs Manager, Legislative, Public Affairs and Media reviewed the 2023 Goals and Objectives and opened it for discussion.

Rafael Yanez expressed interest in continued updates on efforts by CARB to meet clean air goals.

Chair Delgado requested an item on the implementation of the WHAM and CAPES programs.

Mr. Gongora suggested adding education and outreach to underserved communities for grant programs such as Carl Moyer.

Governing Board Member Veronica Padilla Campos requested to add updates on Indirect Source Rules.

In public comment Moses Huerta spoke in support of the 2023 Goals and Objectives. Harvey Eder spoke in support of solar energy.

Mr. Gongora motioned to approve the 2023 Goals and Objectives with the changes noted during discussion.

Moved by Mr. Gongora; seconded by Chair Delgado

Ayes: Delgado, Padilla-Campos, Arredondo, Balderas, Beeson, Bilodeau, Doi, El-Hassan, Figueroa, Garcia, Gongora, Gonzalez, Hernandez, Yanez Noes: None Abstain: None Absent: Rutherford, Alcantar, Alexander, Choe, Johnston, Lugo, McNeill, Smith

For further details, please refer to the Webcast at 00:04:35

Agenda Item #4: Update on Draft Socioeconomic Report for the Revised Draft 2022 Air Quality Management Plan

Elaine Shen, Planning and Rules Manager of Planning, Rules Development, and Implementation, presented on the Draft Socioeconomic Report for the Revised Draft 2022 Air Quality Management Plan.

Ms. Hernandez asked for clarification on the mortality rates of environmental justice communities versus non environmental justice communities.

Mr. Yanez made comments regarding modeling data used in the Revised Draft 2022 AQMP.

Mr. Gongora expressed concern regarding the accuracy of air quality monitoring as visible pollution levels do not seem to be improving.

Mr. Eder gave public comment on solar technology.

For further details, please refer to the Webcast at 00:40:11

Agenda Item #5: Update on Air Monitoring

Dr. Andrea Polidori, Assistant Deputy Executive Officer of Monitoring and Analysis presented an update on the different types of air monitoring used by South Coast AQMD.

Angela Garcia asked about what actions would be taken when air monitoring revealed leaking oil or gas wells and requested clarification on the technology used to gather real-time data.

Mr. Yanez suggested compliance inspectors be equipped with infrared cameras to detect hazardous leaks during investigations.

Ms. Hernandez asked what sort of community alert system was in place to let residents know about hazardous air quality conditions when they happen, as well as to what extent decommissioned wells were also analyzed during monitoring efforts.

Mr. Yanez asked whether South Coast AQMD alerted local emergency services when a hazardous air quality threat is identified. Ms. Garcia suggested ensuring a network of contacts is in place to respond to active hazardous conditions.

Manuel Arredondo asked whether particle pollutants were also monitored, especially during times of storms, high wind conditions, and elevated dust conditions.

Mr. Eder made public comment in support of solar technology. Mr. Huerta spoke in support of continuing and expanding the use of the air monitoring technology.

For further details, please refer to the Webcast at 01:08:13.

Agenda Item #6- Member Updates/Other Business

There were no new member updates.

Agenda Item #7- Public Comment

Mr. Eder raised concerns on the intersectional issues of environmental justice, homelessness, and racial disparity.

For further details, please refer to the Webcast at 01:59:33

Agenda Item #8: Next Meeting Date

The next regular EJAG meeting is scheduled for January 27, 2023, at 12:00 p.m.

Adjournment

Mr. Alatorre adjourned the meeting at 2:00 p.m.



LOCAL GOVERNMENT & SMALL BUSINESS ASSISTANCE ADVISORY GROUP FRIDAY, DECEMBER 9, 2022 MEETING MINUTES

MEMBERS PRESENT:

Council Member Carlos Rodriguez, LGSBA Chair (Board Member) Senator Vanessa Delgado (Board Member) Felipe Aguirre Council Member Rachelle Arizmendi, City of Sierra Madre Paul Avila, P.B.A. & Associates LaVaughn Daniel, DancoEN John DeWitt, JE DeWitt, Inc. Bill LaMarr, California Small Business Alliance Rita Loof, RadTech International Eddie Marquez, Roofing Contractors Association David Rothbart, Los Angeles County Sanitation Districts

MEMBERS ABSENT:

Supervisor Janice Rutherford (Board Member) Geoffrey Blake, Metal Finishers of Southern California Todd Campbell, Clean Energy

OTHERS PRESENT:

Mark Abramowitz Harvey Eder Moses Huerta Debra Mendelsohn, Board Member Consultant *(Rutherford)* Mark Taylor, Board Member Consultant *(Rutherford)*

SOUTH COAST AQMD STAFF:

Susan Nakamura, Chief Operating Officer Derrick Alatorre, Deputy Executive Officer Jason Aspell, Deputy Executive Officer Anissa Heard-Johnson, Deputy Executive Officer Michael Krause, Assistant Deputy Executive Officer Daphne Hsu, Principal Deputy District Counsel Karin Manwaring, Senior Deputy District Counsel David Ono, Senior Air Quality Engineering Manager Philip Crabbe III, Senior Public Affairs Manager Denise Peralta Gailey, Public Affairs Manager Mark Henninger, Information Technology Manager Anthony Tang, Information Technology Supervisor Susan Tsai, Senior Air Quality Engineer Elaine Hills, Senior Staff Specialist Derek Camacho, Air Quality Specialist Van Doan, Air Quality Specialist Paul Wright, Senior Information Technology Specialist Aisha Reyes, Senior Administrative Secretary

Agenda Item #1 and 2 – Roll Call/Call to Order/Opening Remarks

Chair Carlos Rodriguez called the meeting to order at 11:30 a.m.

For additional details of the Local Government & Small Business (LGSBA) Advisory Group Meeting, please refer to the Webcast at Live Webcast (aqmd.gov).

Agenda Item #3 – Approval of October 14, 2022 Meeting Minutes

Chair Rodriguez called for approval of the October 14, 2022, meeting minutes.

No public comment.

Motion to approve minutes made by Rita Loof; seconded by Vanessa Delgado; approved.

Ayes: Aguirre, Arizmendi, Avila, Daniel, Delgado, DeWitt, LaMarr, Loof, Marquez, Rodriguez, Rothbart Noes: None Absent: Blake, Campbell, Rutherford

For additional details, please refer to the <u>Webcast</u> beginning at 6:20.

Agenda Item #4 – Review of Follow-Up and Action Items

Derrick Alatorre, Deputy Executive Officer, Legislative, Public Affairs and Media, reviewed the action items from the October 14, 2022 meeting, which was to provide links of the Argonne National Laboratory study and Draft Socioeconomic Report in the meeting minutes. Links to the study and report were included in the October 14, 2022 meeting minutes and emailed to the Advisory Group on October 28, 2022.

No public comment.

For additional details, please refer to the Webcast beginning at 8:10.

Agenda Item #5 – Update on Engineering and Permitting – Online Filing

David Ono, Senior Air Quality Engineering Manager/Engineering and Permitting, provided an update on Online Filing.

Bill LaMarr asked about the volume of online registrations. Mr. Ono referenced slide #3 – Online Filing Activity. Mr. LaMarr asked about the permit backlog and the target of 50%. Jason Aspell, Deputy Executive Officer, Engineering and Permitting, replied that it is currently above 50%. For additional details, please refer to the <u>Webcast</u> beginning at 23:05.

Rita Loof asked if increased applications are expected due to the transition from the Regional Clean Air Incentives Market (RECLAIM) program and how it will impact the backlog. Mr. Ono replied that pending applications due to the landing rules are being tracked and there are a few hundred pending applications. Ms. Loof asked if the Permit Streamlining Task Force looked at which types of equipment have negligible emissions and stated that could be one way to reduce backlog is to exempt those units from permitting. Mr. Aspell replied that permit exemptions are evaluated through the rulemaking process for Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II. For additional details, please refer to the <u>Webcast</u> beginning at 26:37. David Rothbart asked about the difficulty in developing the online registration program and how it helps in terms of labor. Mr. Ono explained that other teams assist in the program development as they are the subject-matter experts on particular equipment. Mr. Ono explained that as the modules roll out, more complete applications are submitted, which saves permit processing time. Mr. Rothbart also asked if there will be more development of online applications. Mr. Aspell confirmed that there are ongoing developments. For additional details, please refer to the <u>Webcast</u> beginning at 32:00.

No public comment.

For additional details on the presentation and discussions, please refer to the Webcast beginning at 9:10.

Agenda Item #6 – Overview of 2022 Air Quality Management Plan

Michael Krause, Assistant Deputy Executive Officer/Planning, Rule Development and Implementation, provided an overview of the 2022 Air Quality Management Plan (AQMP).

Mr. Rothbart commented on penalties due to non-attainment and asked if there are updates on Rule 317 – Clean Air Act Non-Attainment Fees. Mr. Krause replied that staff is working on amendments to Regulation III including looking at the Clean Air Act Non-Attainment fees and Regulation III is on the Rule Forecast calendar. For additional details on the presentation and discussions, please refer to the Webcast beginning at 42:25.

Ms. Loof commented on industries bringing volatile organic compound (VOC) reduction and suggested that the South Coast Air Quality Management District (South Coast AQMD) should take an advocacy role for businesses and communities and also mentioned million-dollar contracts for lobbyists. Mr. Alatorre provided correction to the contract amount, which was approximately \$220,000 per year for each consultant. For additional details on the presentation and discussions, please refer to the <u>Webcast</u> beginning at 46:40.

Harvey Eder provided public comment. For additional details, please refer to the <u>Webcast</u> beginning at 51:40.

For additional details on the presentation and discussions, please refer to the Webcast beginning at 36:55.

<u>Agenda Item #7 – 2023 Rules Outlook</u>

Mr. Krause presented on 2023 Rules Outlook.

Mr. LaMarr asked about a Regulation III workshop that is scheduled for the following week. Mr. Krause replied that the meeting has been cancelled. Susan Nakamura, Chief Operating Officer, confirmed that staff is working on proposed amendments to Regulation III. For additional details on the presentation and discussions, please refer to the <u>Webcast</u> beginning at 1:10:22.

Mr. Rothbart asked how staff prioritizes rule development. Mr. Krause explained that there are many factors that contribute to rule development prioritization, such as having prior commitments in the AQMPs, AB 617, staffing and time needed for the California Environmental Quality Act (CEQA) analysis and socioeconomic analysis. For additional details on the presentation and discussions, please refer to the <u>Webcast</u> beginning at 1:15:05.

Ms. Loof referenced a discussion on potential changes to ozone and particulate matter (PM) standards by Sarah Rees at a previous meeting and asked for an update. Mr. Krause stated that an update is unavailable and would follow-up. For additional details on the presentation and discussions, please refer to the <u>Webcast</u> beginning at 1:17:13.

Follow-Up: Provide an update on potential changes to ozone and PM standards mentioned at a previous meeting.

Ms. Loof referenced slide #4 and asked for details on how amendments to Rule 1151 – Motor Vehicle and Mobile Equipment Non-Assembly Line Coating Operations were related to the Community Emission Reduction Plan (CERP). Mr. Krause replied that the South Los Angeles designated community expressed concern regarding auto body shops and wanted to ensure those facilities are conducting best practices and using the best technology available. Ms. Loof expressed concern that the CERPs are for specific communities and rules are applicable to all operators within South Coast AQMD. Mr. Krause stated that rules are jurisdictionally based and would benefit everyone as concerns highlighted by one community may also exist in other communities. For additional details on the presentation and discussions, please refer to the <u>Webcast</u> beginning at 1:18:38.

No public comment.

For additional details on the presentation and discussions, please refer to the <u>Webcast</u> beginning at 55:05.

Agenda Item #8 – Other Business

No other business.

Agenda Item #9 – Public Comment

Mr. Eder provided comment on solar power plans. For additional details, please refer to the <u>Webcast</u> beginning at 1:25:08.

Moses Huerta thanked everyone for their participation in the group.

Agenda Item #10 – Next Meeting Date

The next regular LGSBA Advisory Group meeting is scheduled for Friday, January 13, 2023, at 11:30 a.m.

<u>Adjournment</u>

The meeting adjourned at 1:08 p.m.

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AGENDA NO.	17

BOARD MEETING DATE: March 3, 2023

REPORT: Legislative Committee

SYNOPSIS:The Legislative Committee held a meeting remotely on Friday,
February 10, 2023. The following is a summary of the meeting.

RECOMMENDED ACTION: Receive and file.

Michael A. Cacciotti, Chair Legislative Committee

DJA:LTO:PFC:DPG:ar

Committee Members

Present: Council Member Michael A. Cacciotti, Chair Senator Vanessa Delgado (Ret.) Board Member Veronica Padilla-Campos Supervisor V. Manuel Perez Council Member Nithya Raman

Absent: None

Call to Order Chair Michael Cacciotti called the meeting to order at 9:00 a.m.

DISCUSSION/ACTION ITEMS:

1. Update on 2023 South Coast AQMD-Sponsored State Legislative Concepts Philip Crabbe, Senior Public Affairs Manager/Legislative, Public Affairs & Media, presented an update regarding 2023 South Coast AQMD-sponsored state legislative proposals. Supervisor Perez asked for additional information regarding the AB 2766 DMV fee increase proposal. Chair Cacciotti commented that the fee has not been increased since it was instituted in 1990. Wayne Nastri, Executive Officer, added that South Coast AQMD sponsored a bill establishing a DMV smog abatement fee in recent years that was signed into law.

Supervisor Perez requested that staff work to secure a Senate co-author for the AB 617 policy sponsor bill and asked for clarification on the independent special district proposal. Mr. Crabbe responded that the independent special district proposal is to ensure local air districts are eligible to receive certain types of state and federal funding such as COVID relief.

Council Member Raman inquired about how proposed AB 617 budget cuts will impact the program. Mr. Nastri responded that the proposed \$50 million cut in AB 617 funding would have a negative impact on the program. Staff is working with CAPCOA on budget letters requesting restoration of the AB 617 funds if the greenhouse gas cap and trade auctions yield sufficient revenues.

Council Member Raman inquired whether a bill proposal for increased civil penalties related to air quality violations is being pursued this year. Mr. Nastri responded that due to higher priority items and other issues, it is not being pursued this year. For additional information, please refer to the <u>Webcast</u> beginning at 8:10.

There was no public comment.

DISCUSSION ITEMS:

2. 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.

Jed Dearborn, Cassidy & Associates, reported that President Biden focused on climate investments and the Inflation Reduction Act (IRA) during his State of the Union Address. The remarks aligned with the meeting South Coast AQMD had with the White House Council on Environmental Quality earlier in the week where funding for air pollution and environmental justice were discussed. The President's Budget is expected to be published on March 9, which is expected to include funding for climate, air pollution and environmental justice.

Mark Kadesh, Kadesh & Associates, provided an overview of South Coast AQMD's meetings with senior Members of Congress and legislative staff. The meetings focused on the need for action by U.S. EPA and other agencies to reduce air

pollution from mobile sources through policies and funding, especially through the Bipartisan Infrastructure Law (BIL) and IRA.

Gary Hoitsma, Carmen Group, reported that South Coast AQMD staff met with the Federal Maritime Administration to discuss funding for research and development for cleaner ships as well as investments and possible collaboration on ports and infrastructure issues. A meeting with the Federal Railroad Administration focused on funding opportunities and the need for research and development for zero-emission locomotives.

Supervisor Perez commented on the need to think through the timeline on how to achieve results. Mr. Nastri concurred on the need to have a presence in Washington, D.C. and added that staff are working on a timeline for advocacy centered around the budget process as well as taking into consideration potential litigation related to U.S. EPA.

Chair Cacciotti commented on the need for funding for rail projects to reduce air pollution. Mr. Nastri shared that the Washington D.C. meetings last week was to gather information on funding opportunities and to discuss how a joint project with many stakeholders such as air agencies, ports, rail operators and others to receive large scale funding. For additional information, see <u>Webcast</u> at 33:04.

There was no public comment.

3. 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.

Ross Buckley, of California Advisors, LLC, reported on Governor Newsom's appointments to the CARB Board including the reappointed Board Member Gideon Kracov for South Coast AQMD and Supervisor Perez for the Mojave Air District.

Paul Gonsalves, Joe A. Gonsalves & Son, reported that the Legislature has until February 17 to introduce bills. So far, 1,160 bills have been introduced.

Alfredo Arredondo, Resolute, commented that budget hearings will begin on March 1 in the Assembly and March 2 in the Senate. For additional information, see <u>Webcast</u> beginning at 38:23.

Supervisor Perez commented that now is time to push for air quality priorities. Chair Cacciotti agreed with Supervisor Perez and inquired about the strategy for the AB 2766 bill. Mr. Gonsalves advised that legislation does take time and

coordination, but there may be opportunities given that the fee have not been increased in a long time and other factors.

There was no public comment.

OTHER MATTERS:

4. Other Business

Supervisor Perez commented that he is in support of resurrecting the Climate Change Committee. Mr. Nastri added that climate is at the forefront of issues which presents South Coast AQMD the opportunity to capitalize on co-benefits for air quality. For additional information, see <u>Webcast</u> beginning at 47:29.

5. Public Comment Period

Harvey Eder commented on alternative energy cooperatives as they relate to special districts.

6. Next Meeting Date

The next regular Legislative Committee meeting is scheduled for Friday, March 10, 2023, at 9:00 a.m.

Adjournment

The meeting adjourned at 9:53 a.m.

Attachments

- 1. Attendance Record
- 2. Update on Federal Legislative Issues Written Reports
- 3. Update on State Legislative Issues Written Reports

ATTACHMENT 1

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT LEGISLATIVE COMMITTEE MEETING ATTENDANCE RECORD – February 10, 2023

Council Member Michael Cacciotti	. South Coast AQMD Board Member
Senator Vanessa Delgado (Ret.)	. South Coast AQMD Board Member
Board Member Veronica Padilla-Campos	. South Coast AQMD Board Member
Supervisor V. Manuel Perez.	. South Coast AQMD Board Member
Council Member Nithya Raman	. South Coast AQMD Board Member
Ken Chawkins	. Board Consultant (Cacciotti)
Guillermo Gonzalez	. Board Consultant (Perez)
Amy Wong	. Board Consultant (Padilla-Campos)
Ben Wong	. Board Consultant (Cacciotti)
Alfrada Arradanda	Desoluto
Anteuo Anteuonuo	California Advisora LLC
KOSS DUCKIEY	Canida & Associates
Jed Dearborn.	. Cassidy & Associates
Paul Gonsalves	. Joe A. Gonsalves & Son
Gary Holtsma	. Carmen Group, Inc.
Mark Kadesh	. Kadesh & Associates
Ben Miller	. Kadesh & Associates
Mark Abramowitz	Public Member
Jackson Guze	Public Member
Farzaneh Khalai	Public Member
Bill I a Marr	Public Member
Frick Martell	Public Member
Melanie Masud	Public Member
Fred Minessien	Dublic Momber
Inconstruction Moore	Dublic Member
Dill Oving	Dublic Member
DIII Quiiiii	. Public Member
	. Public Member
Patty Senecal	. Public Member
Brissa Sotelo-Vargas	. Public Member
Denny Zane	. Public Member
Derrick Alatorre	South Coast AOMD Staff
Debra Ashby	South Coast AOMD Staff
Barbara Baird	South Coast AOMD Staff
Philin Crabbe	South Coast AOMD Staff
Sheri Hanizayarah	South Coast AOMD Staff
Anissa Cassa Heard Johnson	South Coast AOMD Staff
Mark Hanninger	South Coast AOMD Staff
Suioto Join	South Coast AQMD Staff
Sujata Jaili	South Coast AQMD Staff
Kaunyn Higgins	. South Coast AQMD Statt
Aaron Katzenstein	. South Coast AQMD Staff
Jason Low	. South Coast AQMD Staff
Ian MacMillan	. South Coast AQMD Staff

Terrence Mann	South Coast AQMD Staff
Connie Mejia	South Coast AQMD Staff
Ron Moskowitz	South Coast AQMD Staff
Susan Nakamura	South Coast AQMD Staff
Wayne Nastri	South Coast AQMD Staff
Denise Peralta Gailey	South Coast AQMD Staff
Sarah Rees	South Coast AQMD Staff
Mary Reichert	South Coast AQMD Staff
Aisha Reyes	South Coast AQMD Staff
Lisa Tanaka O'Malley	South Coast AQMD Staff
Anthony Tang	South Coast AQMD Staff
Alejandra Vega	South Coast AQMD Staff
Jillian Wong	South Coast AQMD Staff
Victor Yip	South Coast AQMD Staff

ATTACHMENT 2A



To: South Coast AQMD From: Cassidy & Associates Date: January 25, 2023 Re: January Report

HOUSE/SENATE

Congress

Both the House and Senate are in session this week together for the first time this Congress. Both chambers are still assigning committee seats and ratios and they hope to have final rosters by the end of the week or the beginning of next week.

Legislative activity this week is expected to remain relatively quiet in the Senate as they continue to organize and establish committee rules and assignments. The House will use the majority of the week to consider legislation that would hinder the Biden administration's ability to tap into the Strategic Petroleum Reserve. Outside of any legislative action, we can expect discussions on Capitol Hill related to the debt limit, President Biden's new chief of staff, and Speaker McCarthy's committee organization progress.

EPA

The EPA has announced the availability of \$100 million from the Inflation Reduction Act for environmental justice grants. These grants will advance environmental justice in underserved and overburdened communities. This funding marks the largest amount of environmental justice grant funding ever offered by the EPA. There are two Requests for Applications for this funding through the Environmental Justice Collaborative Problem-Solving (EJCPS) Cooperative Agreement Program and the Environmental Justice Government-to-Government (EJG2G) Program.

The EJCPS Cooperative Agreement Program will provide an estimated \$30 million in funding directly to community-based nonprofit organizations (and partnerships with those

organizations), with \$5 million reserved for small community-based nonprofit organizations. In total, EJCPS will fund 50 awards of \$500,000 and 30 awards of \$150,000.

The EJG2G Program will provide an estimated \$70 million in funding, with \$20 million set aside for State government to be used in conjunction with Community-Based Organization (CBO) partners, \$20 million for local governments with CBO partners, \$20 million for Federally Recognized Tribal Nations with CBO partners, and \$10 million for US Territories and remote tribes with limited access to CBO partners. The Agency anticipates funding approximately 70 projects of up to \$1 million each for a three-year project.

The EPA will host pre-application webinars to answer questions. The first webinar on January 24 will be focused on EJCPS and can be registered for <u>here</u>. The second webinar will be focused on EJG2G and be registered for <u>here</u>.

Earlier in January, the EPA announced a proposal to strengthen a key national ambient air quality standard (NAAQS) for fine particle pollution. The EPA's proposal will specifically take comments on strengthening the primary annual fine particle standard. The Agency will also take comment on the full range standard included in the Clean Air Scientific Advisory Committee's latest report. The EPA is also proposing to revise other aspects related to the PM standards, such as monitoring requirements and the Air Quality Index, that will help states and Tribal Nations meet the revised standards. The EPA will accept public comment for 60 days after the proposal is published in the Federal Register. They will also conduct a virtual public hearing over several days for this proposed rulemaking, with the hearing beginning at 11am Eastern Time and concluding 7pm Eastern Time each day. The EPA will begin pre-registering speakers for the hearing upon publication of the announcement of the public hearings in the Federal Register. Additional information will also be made available on the <u>National Ambient Air Quality Standards</u> for PM webpage.

Cassidy and Associates support in January:

- Secured key meetings with the Biden Administration for Executive staff;
- Worked with South Coast AQMD staff to strategize on DC outreach;
- Continued to monitor and report on activities in Congress and the Administration that impact the District.

IMPORTANT LEGISLATIVE DATES

June 30, 2023:

Pause on student loan payments and interest schedule to expire.

September 30, 2023:

The Farm Bill, an omnibus package of legislation that supports US agriculture and food industries; the bill is reauthorized on a five-year cycle.

AGENCY RESOURCES

USA.gov is cataloging all U.S. government activities related to coronavirus. From actions on health and safety to travel, immigration, and transportation to education, find pertinent actions here. Each Federal Agency has also established a dedicated coronavirus website, where you can find important information and guidance. They include: Health and Human Services (HHS), Centers of Medicare and Medicaid (CMS), Food and Drug Administration (FDA), Department of Education (DoED), Department of Agriculture (USDA), Small Business Administration (SBA), Department of Labor (DOL), Department of Homeland Security (DHS), Department of State (DOS), Department of Veterans Affairs (VA), Environmental Protection Agency (EPA), Department of the Interior (DOI), Department of Energy (DOE), Department of Commerce (DOC), Department of Justice (DOJ), Department of Housing and Urban Development (HUD), Department of the Treasury (USDT), Office of the Director of National Intelligence (ODNI), and U.S. Election Assistance Commission (EAC).

Helpful Agency Contact Information:

U.S. Department of Health and Human Services – Darcie Johnston (Office – 202-853-0582 / Cell – 202-690-1058 / Email – <u>darcie.johnston@hhs.gov</u>)

U.S. Department of Homeland Security – Cherie Short (Office – 202-441-3103 / Cell – 202-893-2941 / Email – <u>Cherie.short@hq.dhs.gov</u>)

U.S. Department of State – Bill Killion (Office – 202-647-7595 / Cell – 202-294-2605 / Email – <u>killionw@state.gov</u>)

U.S. Department of Transportation – Sean Poole (Office – 202-597-5109 / Cell – 202-366-3132 / Email – <u>sean.poole@dot.gov</u>)

ATTACHMENT 2B

KADESH & ASSOCIATES

South Coast AQMD Report for the February 2023 Legislative Meeting covering January 2023 Kadesh & Associates

The turbulent kickoff of the congressional session in January provided a likely preview of the year ahead. Ordinarily, the first day of the House session is a quick and ceremonial affair, with the party in power selecting a Speaker, followed by the swearing-in of the members of the 118th Congress. This year, a split within the Republican caucus led to a days-long standoff: the Speaker election took fifteen ballots to resolve, and the House was not sworn in until after midnight four days later.

In order to secure the gavel, new Speaker Kevin McCarthy made a series of concessions to the holdouts in his caucus, notably by allowing any single member of Congress to call a noconfidence vote to remove the Speaker. He also agreed to add three members of the Freedom Caucus to the Rules Committee, which sets the parameters for debate on the House floor. Diluting the power of House leadership was one of the stated goals of Speaker McCarthy's detractors, and they appear to have been successful.

Speaker McCarthy also agreed to allow hardliners in his caucus the opportunity to use the debt ceiling discussions – and to a lesser extent the FY24 budget cycle – as a way to offer significant spending cuts to mandatory and discretionary spending. This sets up a rocky path ahead for the two primary Congressional tasks this year: raising the debt limit and enacting appropriations bills for FY 2024. In fact, the debt ceiling has already been reached, but Treasury is able to use "extraordinary measures" to address the lack of borrowing authority. Secretary Yellin has said these accounting maneuvers will not work past the summer, and it is unclear how this unruly Congress will handle must-pass bills with a firm deadline.

Speaker McCarthy and Democratic Leader Jeffries have finished negotiating the party ratios for House committees, and both Republicans and Democrats are expected to finalize their committee assignments over the next few weeks. The Senate has been out of session since conducting its swearing-in but is expected to return next week. President Biden plans to give the annual State of the Union address on February 7. While not a part of the budget process, the SOTU traditionally kicks off the new year and it usually followed closely by the release of the Administration's proposed budget. This year, however, we are not expecting to see the FY24 budget request until March which will compress the annual appropriations cycle.

Kadesh & Associates Activity Summary-

-Worked with South Coast AQMD and the congressional delegation on efforts to encourage whole-of-government efforts to address air quality through BIL and IRA funding programs.

Contacts:

Contacts included staff and Members throughout the CA delegation, especially the authors of priority legislation, Senate offices, members of the South Coast House delegation, and members of key committees. We have also been in touch with administration staff.

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ATTACHMENT 2C



То:	South Coast AQMD Legislative Committee
From:	Carmen Group
Date:	January 26, 2023
Re:	Federal Update Executive Branch

Goffman EPA Nomination: The President formally resubmitted the nomination of **Joseph Goffman** to be EPA Assistant Administrator for Air and Radiation. While Goffman has been serving in the post in an acting capacity, his nomination died in the last Congress after it deadlocked along party lines in committee and was never brought up for a Senate floor vote. The President also resubmitted the nomination of **David Uhlmann** to be EPA Assistant Administrator for Enforcement and Compliance. Uhlmann's nomination was similarly deadlocked in committee last year and failed to be brought to a final floor vote. Prospects for both nominations are improved now that Democrats have a 51-49 majority in the Senate.

Environmental Protection Agency

EPA Proposes New PM Air Quality Standard: In January, the EPA announced a proposal to strengthen the national ambient air quality standard for particulate matter (PM 2.5). The proposed rule requests public comment on a plan to change the annual PM2.5 standard from a level of 12 micrograms per cubic meter to a level between 9 and 10 micrograms per cubic meter. This would be the first change in the standard since 2012 and results from EPA's June 2021 decision to reconsider the previous administration's December 2020 action to retain the 2012 PM 2.5 standard. EPA says the new proposed rule has the potential to prevent up to 4,200 premature deaths per year. After reviewing comments, EPA plans to issue the new final standard later this year.

EPA Announces EJ Grant Availability: In January, the EPA announced the availability of \$100 million for projects that "advance environmental justice in underserved and overburdened communities across the country." EPA has published two Requests for Applications for this funding through the Environmental Justice Collaborative Problem-Solving (EJCPS) Cooperative Agreement Program and the Environmental Justice Government-to-Government (EJG2G) Program. With funding made possible through the Inflation Reduction Act, this marks the largest amount of environmental justice grant funding ever offered by the EPA. Applications due by April 10, 2023.

EPA Releases Legal Guidance to Advance Environmental Justice: In January, the EPA released the *Cumulative Impacts Addendum to EPA Legal Tools to Advance Environmental Justice (EJ Legal Tools)*. The *Addendum* builds on *EJ Legal Tools*

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released in May 2022 by identifying a wide range of authorities that can be deployed to address cumulative impacts from pollution and non-pollution sources that have a disproportionate impact on communities with environmental justice concerns. Together, EPA says these are crucial tools for integrating environmental justice considerations and equity in agency programs, policies and activities.

EPA Seeks Comment on Proposal to Address EJ Concerns in All NECIs: In

January, the EPA announced a series of proposed actions to update the agency's National Enforcement and Compliance Initiatives (NECIs) for which it now seeks public comment. Among these is its proposal for the first time to address environmental justice concerns in all of its existing and new NECI initiatives for the FY 2024-2027 cycle. Every four years, EPA selects national initiatives to focus resources on serious and widespread environmental problems where the federal government can make a difference. Comments due by March 13, 2023.

Department of Transportation

DOT Releases Five-Year RD&T Strategic Plan: In January, the Department of Transportation released its *Research, Development and Technology (RD&T) Strategic Plan for Fiscal Years 2022-2026.* Among other things, the plan will guide the more than \$5 billion in research activities funded through the Bipartisan Infrastructure Law. https://www.transportation.gov/sites/dot.gov/files/2023-01/USDOT% 20RDT% 20Strategic% 20Plan% 20FY22-26_010523_508.pdf

Department of Energy

DOE Launches Clean Energy Program to Help Communities: In January, the

Department of Energy launched the new \$50 million Clean Energy to Communities (C2C) Program to help communities across the country to transition to clean energy systems. The program will connect local governments, utilities, community-based groups and others with the innovative modeling and tools developed at DOE's national laboratories to advance clean energy and related public health and cost-saving goals.

DOE/DOT/HUD/EPA

Blueprint to Decarbonize America's Transportation Sector Released: In January, the Administration released its *U.S. National Blueprint for Transportation Decarbonization* which was developed jointly by the Departments of Energy, Transportation, Housing & Urban Development, and the Environmental Protection Agency. It is designed to set forth a government-wide strategy for cutting all greenhouse gas emissions from the transportation sector by 2050. <u>https://www.energy.gov/sites/default/files/2023-01/the-us-national-blueprint-for-transportation-decarbonization.pdf</u>

Outreach: Contacts included Republican staff at the Senate Environment & Public Works Committee on the outlook for clean air legislation in the 118th Congress, and representatives of our business coalition group in follow-up to the December release of EPA's final rule on heavy-duty truck emissions standards.

ATTACHMENT 3A



CALIFORNIA ADVISORS, LLC

South Coast AQMD Report California Advisors, LLC February 10, 2023, Legislative Committee Hearing

Legislative Update

The Legislature returned to Sacramento on January 4 from their holiday recess. While a handful of bills were introduced in December, most of the new legislation will begin to take shape in the next few weeks. The bill introduction deadline is February 17, so the Legislature will continue to introduce bills up until that day. We expect to see thousands of bills introduced between the two houses before that deadline.

On January 18, Speaker Rendon announced the committee assignments for each member of the Assembly. He had previously only released who was going to be the Chair and Vice-Chair in December. Now, that the committees are filled they can begin their work to set bills for hearing and hold oversight hearings. The Senate also released their full committee memberships ahead of the Assembly on January 5.

Additionally, the California Energy Commission recently released updated data showing the state's accelerating transition to zero-emission vehicles (ZEVs). The data showed that 18.8% of all new cars sold last year in California were ZEVs and 40% of ZEVs sold in the U.S. are sold in California. As you may recall, last May the Governor announced that ZEVs made up 16.32% of vehicles sold. So, there were even more sales and growth in the last six months of 2022.

In a press release, the Governor highlighted that California continues to lead the zero-emission vehicle market:

- 345,818 ZEV sales in California in 2022
- 1,399,913 cumulative ZEV sales in California
- 80,027 shared electric vehicle chargers installed in California
- Up to \$9,500 in grants & rebates available for low-income Californians

Budget Update

On January 10, Governor Gavin Newsom presented his state budget to the Legislature. Subsequently, on January 13, the Legislative Analyst's Office (LAO) provided a summary of the proposal and released a report. Specifically, in the report, the LAO provides an assessment of the budget and raises issues for legislative consideration.

As it pertains to the projected budget deficit – the LAO highlights that the Governor proposes to address the budget problem primarily with spending-related solutions. Notably, the Governor does not propose using any reserves. This approach, according to the LAO, is prudent given the downside risk to revenues posed by the current heightened risk of recession. The LAO recommends the Legislature maintain this approach during its own planning process.

Additionally, the LAO recommended the Legislature:(1) plan for a larger budget problem and (2) address that larger problem by reducing more one-time and temporary spending.

On January 18, the Senate Budget and Fiscal Review Committee held an informational hearing. The purpose of that hearing was to get an overview of the Governor's budget and hear directly from the Department of Finance on some of those proposals. The various Senate and Assembly budget subcommittees will begin their process to have more in-depth discussions on the fiscal outlook and they will start crafting their own versions of the budget for their respective houses in February. The Assembly Budget Committee will hold its first hearing the first week of February.

As a reminder, the state budget must be passed by June 15 in time for the Governor to sign the package and the new fiscal year to begin on July 1. However, the last two years we have seen the Legislature pass budgets to meet that June deadline and continue to negotiate with the Governor over the following weeks. Then they have to pass a subsequent budget that would reflect the deal made between the Governor, Senate, and the Assembly.

ATTACHMENT 3B



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 916 441-0597 - FAX 916 441-5061 Email: gonsalves@gonsalvi.com

South Coast Air Quality Management District
Anthony, Jason & Paul Gonsalves
Legislative Update – January 2023
Thursday, January 26, 2023

On January 4, 2023, the Legislature reconvened for the 2023-24 legislative session. This year, the Legislature has 34 newly elected members, which is the largest class of new members since Proposition 28 in 2012 which established 12-yr terms. 24 of the newly elected members are in the Assembly and 10 are in the Senate. However, 3 of the 10 that are new to the Senate have served previously in the Assembly.

The Assembly is now comprised of 62 Democrats and 18 Republicans while the Senate now has 32 Democrats and 8 Republicans. This is more than enough for a Democratic super majority in both houses, which allows them to pass bills and budgets without a single Republican vote.

On January 10, 2023, Governor Newsom released his January budget proposal. After years of record California budget surpluses that topped \$100 billion, the State is now facing a \$22.5 billion budget deficit. Governor Newsom's January budget proposes to address the fiscal shortfall through delayed spending commitments, trigger cuts, and delaying State debt payments. Fortunately, the State is sitting on \$35 billion in reserves and the Governor's budget proposal keeps those reserves whole. The Legislature will have between now and June 15th to negotiate a final spending plan for the 2023-24 Legislative Session.

The following will provide you with updates of interest to the District:

BUDGET

As previously noted, the State is facing a \$22.5 billion budget shortfall in the 2023-24 fiscal year. Spiraling inflation and a weakening stock market has clouded the economic forecast for the state, which depends heavily on capital gains from its wealthiest residents. The Department of Finance now expects that tax revenues will total \$29.5 billion, or 9.6%, less than what was assumed in last year's budget. Recognizing the fiscal uncertainty in the outyears, Governor Newsom's January budget proposal does not tap into the \$35 billion in cash reserves to address the deficit.

The Governor has proposed to delay \$7.4 billion in spending to future budget years and shift \$4.3 billion in appropriations to other sources, such as construction projects that would now be paid for with bonds. His budget proposal would also eliminate \$5.7 billion in previously funded expenditures, including \$3 billion to address inflation and \$750 million to pay down unemployment insurance debt, with another \$3.9 billion in "trigger" cuts that could be reversed next year if the state has enough money.

Those trigger cuts are largely concentrated on climate and transportation because of the magnitude of those budgets. Zero-emission vehicle credits and infrastructure programs are set to receive \$2.5 billion less from the general fund in the coming years, with about half of those reductions offset with money from the Greenhouse Gas Reduction Fund (GGRF/Cap-and-Trade). The plan proposes to pull back \$2 billion from local rail projects and \$350 million from housing programs.

The proposed cuts in climate programs include \$6 billion for climate initiatives with more than half of the cuts from the state's clean transportation initiatives. The Governor is proposing to cut \$2.5 billion from zero emission vehicle infrastructure build-out, and about \$1.4 billion of that amount would be shifted to the GGRF. Another \$2.2 billion in funds would be cut from transportation that includes spending for rail and transit projects.

The Assembly and Senate Budget Committees will spend the next few months identifying the Legislature's budget priorities and negotiating with the Governor. In May, the Governor will release his May Revise to the budget with the final budget being adopted by June 15, 2023. As always, we will continue to keep you apprised as the year progresses.

ZEV SALES

On January 20, 2023, the California Energy Commission released the latest data showing 18.8% of all new cars sold last year in California were ZEVs and 40% of ZEVs sold in the U.S. are sold in California.

ZEV sales are up 38% from 2021 and 138% from 2020. In comparison, the latest estimates show ZEV sales were 5.8% of all U.S. car sales in 2022. There were 345,818 ZEV sales in California in 2022 with 1,399,913 cumulative ZEV sales in California. Additionally, over 80,000 shared electric vehicle chargers were installed in California (both public and shared private). California is home to 55 ZEV and ZEV-related manufacturers and leads the nation in ZEV manufacturing jobs.

Last month, the California Energy Commission approved a \$2.9 billion investment plan that accelerates California's 2025 electric vehicle charging and hydrogen refueling goals. In November, the California Air Resources Board approved a \$2.6 billion investment plan to support ZEV projects, with 70% of the funds directed to disadvantaged and low-income communities. In addition, California expects to receive \$384 million of federal funding from the National Electric Vehicle Infrastructure Program to install charging stations throughout the state.

2023 LEGISLATIVE DEADLINES

January 4 - Legislature reconvenes

January 10 - Budget must be submitted by Governor

January 20 - Last day to submit bill requests to the Office of Legislative Counsel.

February 17 - Last day for bills to be introduced

March 30 - Spring Recess begins upon adjournment

April 10 - Legislature reconvenes from Spring Recess

April 28 - Last day for policy committees to hear and report to fiscal committees' fiscal bills introduced in their house

May 5 - Last day for policy committees to hear and report to the Floor nonfiscal bills introduced in their house

May 12 - Last day for policy committees to meet prior to June 5

May 19 - Last day for fiscal committees to hear and report to the Floor bills introduced in their house. Last day for fiscal committees to meet prior to June 5

May 30-June 2 - Floor session only. No committee may meet for any purpose except Rules Committee, bills referred pursuant to A.R. 77.2, and Conference Committees

June 2 - Last day for each house to pass bills introduced in that house

June 5 - Committee meetings may resume

June 15 - Budget Bill must be passed by midnight

July 14 - Last day for policy committees to meet and report bills. Summer Recess begins upon adjournment, provided Budget Bill has been passed

August 14 - Legislature reconvenes from Summer Recess

September 1 - Last day for fiscal committees to meet and report bills

September 5-14 - Floor session only. No committees may meet for any purpose, except Rules Committee, bills referred pursuant to Assembly Rule 77.2, and Conference Committees

September 8 - Last day to amend on the Floor

September 14 - Last day for each house to pass bills. Interim Recess begins upon adjournment

ATTACHMENT 3C



South Coast Air Quality Management District Legislative and Regulatory Update – January 2023

Important Upcoming Dates

February 17 - Last Day for Bills to be Introduced

- 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 Executive branches. Selected highlights of our recent advocacy include:
 - Provided key updates regarding the availability of funding for key priorities of South Coast in the Governor's proposed budget.
 - Set and attended meetings with legislative offices to begin discussions on potential legislative proposals for new legislative session.
- LAO Assessment of 2022 Scoping Plan Update. On January 4, the Legislative Analyst's Office (LAO) released their analysis of the Scoping Plan Update adopted by CARB in December of 2022. The full report is available here: <u>https://lao.ca.gov/Publications/Report/4656</u>. Summary from report included below:

2022 Scoping Plan Update Identifies Pathway to Long-Term 2045 Greenhouse Gas (GHG) Goal. California has established statutory goals for reducing statewide GHG emissions—down to at least 40 percent below the 1990 level by 2030, and to at least 85 percent below the 1990 level by 2045. The California Air Resources Board (CARB) must develop a plan for meeting these goals, and update this Scoping Plan every five years. In its recently adopted plan, CARB selects its preferred pathway to meeting the state's long-term 2045 GHG goal, and adopts a new, more ambitious goal for 2030 (48 percent reduction below the 1990 level).

Plan Lacks a Clear Strategy for Meeting 2030 GHG Goals. In this brief, we evaluate CARB's plan for meeting the state's 2030 GHG goals. Despite the significant reductions needed to meet these goals, CARB's plan does not identify which specific policies it will implement. For example, the plan is unclear regarding how much the state will rely on financial incentives, sector-specific regulatory programs, or cap-and-trade. Rather, the plan's estimated reductions are driven primarily by assumptions developed by CARB, without specifying how those assumed outcomes might be achieved. The lack of focus on policy options is a missed opportunity that has important ramifications for California's overall GHG reduction efforts, including:

- The lack of specificity likely will lead to delayed action, as it defaults to state departments to identify necessary implementation steps. This increases the risk that the state will not meet its statutory 2030 GHG goal, much less CARB's more ambitious target.
- If the state needs to adopt policy changes in a relatively short period of time to meet its goal, this could be costlier and/or disruptive for private businesses and households.
- The plan does not provide the Legislature with sufficient information—such as about cost-effectiveness, distributional impacts, or other environmental impacts—to evaluate the merits of new policies that might be needed to meet the 2030 goal.
- Failing to develop a credible plan to meet statewide GHG goals could adversely affect California's ability to serve as an effective model for other jurisdictions or demonstrate global leadership.

Cap-and-Trade Program Is Not Currently Positioned to Close 2030 Emissions Gap. CARB indicates that it will evaluate the cap-and-trade program in 2023 to determine whether changes are needed to help meet its 2030 goal. We find that cap-and-trade is not currently positioned to ensure the state meets it

statutory 2030 GHG goal, much less CARB's more ambitious target. In short, the program is not stringent enough to drive the additional emission reductions needed because there will be more than enough allowances available for covered entities to continue to emit at levels exceeding the 2030 target. This could also lead to relatively low allowance prices, as well as reduced and volatile cap-and-trade auction revenue.

Recommend Legislature Require CARB to Clarify 2030 Plan and Consider Cap-and-Trade Changes. We recommend the Legislature direct CARB to submit a report to the Legislature by July 31, 2023 that clarifies its plan for reducing GHG emissions to meet the 2030 statutory goal. We also recommend the Legislature consider changes to the cap-and-trade program to address concerns about program stringency. Potential modification options include: reducing the supply of allowances issued in future years, limiting the use of offsets (credits generated from GHG reductions taken by entities not covered by cap-and-trade), and extending the program beyond 2030.

Governor's Proposed Budget Released. On January 10 the Governor released his budget proposal for the Budget Act of 2023. With revenues to the State coming in significantly lower than anticipated, the proposal uses three avenues to address the \$22.5 billion budget gap: cuts to General Fund commitments and appropriations made in previous budgets, shifting funds away from using General Fund dollars to special funds that may have the capacity to take on new funding commitments, and delaying funding that would have been available in the budget year to some time in the future.

The full budget summary and budget detail is available online here: <u>https://ebudget.ca.gov/</u>

- ✤ AB 617 Funding Largely Preserved: As of the 2022 Budget Act, the AB 617 Program was set to get \$300 million from the General Fund in the 2023-24 fiscal year. However, in light of the worsening General Fund condition this is now proposed to be reduced to \$250 million and to be funded with proceeds from the Greenhouse Gas Reduction Fund instead of the General Fund. The budget also includes a provision that would provide an additional \$50 million for the 2023-24 fiscal year should the General Fund condition improve by January 2024.
- CalMatters: Environmentalists say Newsom's budget cuts jeopardize climate programs, electric car mandate. By Nadia Lopez. January 10, 2023 https://calmatters.org/environment/2023/01/california-climate-budget/

Environmentalists slammed Gov. Gavin Newsom for slashing billions of dollars from initiatives that the governor has repeatedly called top priorities: efforts to combat climate change and transition to zero-emission vehicles.

Facing a <u>projected \$22.5 billion deficit</u>, Newsom today proposed to eliminate \$6 billion in climate spending in his <u>2023-24 budget</u>. The governor helped push a five-year <u>\$54 billion climate package</u> approved by the Legislature during last year's session, but he now proposes to cut it to \$48 billion.

More than half of those proposed cuts – \$3.3 billion – come from the state's clean transportation initiatives. Newsom hopes to offset those reductions with federal funds and perhaps a new bond reserve, but the move comes just five months after the state approved a <u>historic mandate for electrifying cars</u>.

Now climate advocates are questioning whether the state will be able to fund its ambitious electrification efforts and ensure California transitions to clean cars as it faces an economic downturn.

"We recognize the financial situation, but this is exactly what we've been nervous about," said Mike Young, political and organizing director at California Environmental Voters, an advocacy group. "We actually need to be investing and defending more of our climate investments and really pushing for that. We can't get out of our situation if we're going backwards."

Money for zero-emission vehicle incentive programs, such as rebates for car buyers, and charging infrastructure would be cut by \$2.5 billion. About \$1.4 billion of that amount would be shifted to the state's

fund for its cap-and-trade program, a market that is paid into by fossil fuel companies. That leaves a net decrease of \$1.1 billion.

At a press conference today, Newsom said he is not concerned that the \$1.1 billion cut would keep the state from meeting its electrification goals. He said climate and transportation was cut "because of the magnitude" of the investment those areas already had. He added that he is confident that California could make up those shortfalls with federal Inflation Reduction Act dollars. His budget plan also says he might ask the Legislature for a bond issue.

"We're committing a \$48 billion package, which is just an unprecedented investment in this space," he said. "Our commitment is firm."

Still, those dollars would have been used to build more charging stations in disadvantaged communities and provide electric car subsidies for people who cannot afford to buy electric cars.

The cuts would also affect the construction of chargers and other infrastructure for heavy-duty trucks, a much-needed investment as the state considers another ambitious proposal to <u>ban sales of high-polluting</u> <u>diesel trucks</u> and phase in zero-emission models. The proposed budget cuts \$1.5 billion from the general fund and shifts responsibility for \$839 million of those dollars to the state's cap-and-trade fund. Another \$2.2 billion in funds would be cut from transportation spending for some rail and public transit projects.

David Weiskopf, senior policy advisor at NextGen Policy, a progressive climate group, worries that the state's reduced investments could delay much-needed action on climate change. He said a steady funding stream is necessary to prevent fluctuations in climate investments, especially as the state continues to experience the increasingly dire effects of climate change, including worsening heat waves, droughts and floods.

"Climate needs to be central to every agency's mission and budget," Weiskopf said. "Until we adopt a more comprehensive approach, the fate of our state remains tied to the hope that we have only good budget years."

State Sen. Josh Becker, a Democrat from San Mateo who chairs a budget subcommittee on environmental issues, said the proposed cuts "are concerning at a time when we should be accelerating our work, not tapping the brake pedal."

"If federal money isn't available to backfill some of those proposed cuts, pulling back on these climate and environmentally-sensitive investments now is going to make progress that much harder," he added. Newsom will negotiate over the budget with the Legislature, and then issue a revised budget in May based on updated fiscal projections. He said climate money will be restored if possible. The final budget comes in June.

Newsom's top environmental official, Secretary for Environmental Protection Yana Garcia, said lowincome communities will still be prioritized in climate programs. She said the budget cuts are minimal and that proceeds from future cap-and-trade auctions can play a large role in helping fund these investments.

"Despite the hard decisions we had to make this year I'm proud that we've continued to prioritize our zero emission vehicle investments related to equity," she said. "The proposed budget includes a continued focus on heavy-duty zero emission vehicles and charging infrastructure as well, given the pollution these vehicles spew into communities."

In addition to relying on federal funding, Newsom shifted much of the funding burden to the state's landmark cap-and-trade program, which has faced heavy criticism from legislators and activists. The program allows big polluters such as oil refineries and power plants to buy credits to offset their emissions. Businesses that produce excess emissions can buy or trade credits that allow them to keep polluting.

The biggest problem is that an oversupply of credits in the system allows businesses to hoard. That means businesses can keep polluting far past state limits in later years — which could also result in low allowance prices and reduced revenue from auctions, according to <u>the Legislature's nonpartisan fiscal advisers</u>.

Environmentalists say the state can't afford to eliminate any investments given the severity of the climate crisis.

"Every dollar that we have to delay means accepting greater harm – losing \$6 billion in climate funding unquestionably hurts the state more in the long-term than it saves in the near term," Weiskopf, of NextGen Policy, said.

Young, of California Environmental Voters, said environmentalists had long been planning for a potential deficit and were hopeful that the passage of Proposition 30 could have secured long-term funding for muchneeded investments in zero-emission vehicles. But the ballot measure failed in November after Newsom opposed it. It would have raised as much as \$5 billion annually by imposing a 1.75% personal income tax increase on Californians with incomes above \$2 million per year. Most of that money was set aside for zero-emission car subsidies and more charging stations.

Environmentalists who campaigned on behalf of the measure had long feared California's financial challenges and budget shortfalls could further delay the state's move toward electric vehicles, said Young, who worked on the Prop 30 campaign.

"Our goal for Prop. 30 was always to build stable financial funding for this, because we knew that this would be coming ahead and unfortunately, it came sooner than later," he added.

Newsom's proposed budget release comes as California experiences a deadly bout of intense rain and flooding. The governor allocated new funding towards flood preparedness and response, including \$135 million for the next two years to reduce urban flooding. Delta levees will also get \$40.6 million for repairs and upgrades.

▲ Back to Agenda AGENDA NO. 18

BOARD MEETING DATE: March 3, 2023

REPORT: Mobile Source Committee

SYNOPSIS: The Mobile Source Committee held a hybrid meeting on Friday, February 17, 2023. The following is a summary of the meeting.

RECOMMENDED ACTION: Receive and file.

Gideon Kracov, Chair Mobile Source Committee

SLR:ak

Committee Members

Present: Board Member Gideon Kracov, Chair Mayor Larry McCallon Supervisor Holly J. Mitchell Supervisor V. Manuel Perez Council Member Nithya Raman

Absent: None

Call to Order

Chair Kracov called the meeting to order at 9:00 a.m.

For additional details of the Mobile Source Committee Meeting, please refer to the Webcast.

INFORMATIONAL ITEMS:

1. Annual Report on AB 2766 Funds from Motor Vehicle Registration Fees for Fiscal Year 2020-2021

Lane Garcia, Program Supervisor, Planning, Rule Development and Implementation, summarized implementation of the AB 2766 Program for FY 2020-21.

Mayor McCallon commented on the relative cost-effectiveness of each noted project category, and staff highlighted that some types of projects may only be available to city and county jurisdictions to implement (e.g., traffic signal synchronization) and may not be comparable with measures seen in other programs (e.g., rules or vehicle

replacement programs). For additional details, please refer to the <u>Webcast</u> beginning at 09:50.

Mayor McCallon asked about jurisdictions that are misusing the funds. Ian MacMillan, Assistant Deputy Executive Officer, Planning, Rule Development and Implementation responded that the audit process corrects misuse and that misuse is very rare. For additional details, please refer to the <u>Webcast</u> beginning at 13:05.

Supervisor Perez asked how outreach is performed with the funds, and staff responded that outreach activities are eligible uses of the funds and that the annual report lists all the projects for the fiscal year. For additional details, please refer to the <u>Webcast</u> beginning at 14:50.

Chair Kracov noted the remaining balances for the jurisdictions, and staff affirmed that jurisdictions can accumulate funds over time for future projects. For additional details, please refer to the <u>Webcast</u> beginning at 16:30.

2. Update on CEQA Project Guidance for Cumulative Impacts From Air Toxics

Mike Morris, Planning and Rules Manager, Planning, Rule Development and Implementation, provided a status update on CEQA Project Guidance for Cumulative Impacts from Air Toxics.

Chair Kracov asked if projects screened out in the first step of the proposed approach would not be required to provide further information or analysis and if this policy will be implemented by the local jurisdictions. Mr. Morris confirmed both. Supervisor Perez asked for the location of the school in the example and if there are other settings like the example. Mr. Morris replied that the example was Jurupa Hills High School in Fontana and confirmed that there are other settings like this. For additional details, please refer to the <u>Webcast</u> beginning at 24:03.

Mayor McCallon asked if future projects are identified in a general plan. Michael Krause, Assistant Deputy Executive Officer, Planning, Rule Development and Implementation, responded that future projects are included in general or other regional plans. Chair Kracov asked about how projects move from the first to the fourth step, which requires a full HRA, and Mr. Krause explained the general concepts and responded that staff is still working with stakeholders on the thresholds for each step. For additional details, please refer to the <u>Webcast</u> beginning at 35:27.

Chair Kracov, Mayor McCallon, and Councilmember Raman inquired about outreach and the approval process. Staff indicated that the public outreach is continuing and will continue to expand and that this item will come back to the committee in summer of 2023. Councilmember Raman asked if projects would continue to be approved by local agencies, and Mr. Krause affirmed. Wayne Nastri, Executive Officer, added that this effort is in response to a lawsuit by the Attorney
General's Office and that South Coast AQMD is committed to developing the guidance to address cumulative impacts and working with the Attorney General's office and other agencies. Chair Kracov asked if South Coast AQMD will follow this guidance when it is lead agency and Mr. Krause confirmed. For additional details, please refer to the <u>Webcast</u> beginning at 38:38.

Harvey Eder, Public Solar Power Coalition, highlighted that our region has problems with particulate matter, NOx, and VOC. For additional details, please refer to the <u>Webcast</u> beginning at 49:21.

Sarah Wiltfong, LA County Business Federation, recommended having a third-party vendor complete MATES VI if that would speed up the analysis. For additional details, please refer to the <u>Webcast</u> beginning at 52:30.

David Pettit, Natural Resources Defense Council, suggested the cumulative impacts policy scope be expanded to other pollutants, such as PM and NOx, to address the impacts from warehouses to EJ communities. For additional details, please refer to the <u>Webcast</u> beginning at 53:43.

Chair Kracov asked about the role of MATES used in this policy. Mr. Nastri explained that updating MATES is a very lengthy and complex process, and the latest MATES V was done and approved by the Board in 2021. Susan Nakamura, Chief Operating Officer, added that MATES is expected to be used in the first screening step, and Dr. Sarah Rees, Deputy Executive Officer, Planning, Rule Development and Implementation, explained the relationship among diesel PM, PM2.5, and cancer risks. For additional details, please refer to the Webcast beginning at 55:30.

WRITTEN REPORTS:

3. Rule 2305 Implementation Status Report: Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program

Mayor McCallon noted that the WAIRE Program Annual Report presented at last month's meeting did not include the fees collected by the program. He requested that that information be included in the report and asked for the current status of those fees collected. Mr. MacMillan committed to including that information in future reports and stated that the three required reports from the program had generated approximately \$230,000 in administrative fees, which will continue to increase over time. Mr. MacMillan noted that staff began receiving Annual WAIRE Reports recently for the 2022 compliance period and will continue receiving reports through the extended deadline of March 2, 2023. Mr. MacMillan stated that approximately 30 percent of expected operators have initiated or completed their Annual WAIRE Reports. He noted that the program had collected approximately \$600,000 in mitigation fees, but \$2.6 million is anticipated based on preliminary data entered into the system. For additional details, please refer to the <u>Webcast</u> beginning at 1:05:41. Mayor McCallon asked how mitigation fees would be used. Mr. MacMillan stated that the mitigation fees would be tracked to ensure the funding goes back to the community it was generated from, but there will be a public process, and that the Board will ultimately determine the use (e.g., zero-emission infrastructure, zero-emission trucks) of those funds. Mayor McCallon stated it was important to have the funding return to the community it was generated from. For additional details, please refer to the <u>Webcast</u> beginning at 1:08:40.

Mayor McCallon also asked what NOx reductions were achieved through this program and if that analysis will be included in future reports. Mr. MacMillan acknowledged that staff committed to do so in the previous committee meeting, stating that once the data has been received and analyzed, staff would report back to this committee in the summer. Chair Kracov also requested to have the report include a section regarding the mitigation fees. Mr. Nastri agreed to report back on the total funds generated and the estimated emission reductions, including future reductions anticipated from funded infrastructure projects. For additional details, please refer to the <u>Webcast</u> beginning at 1:09:56.

- **4.** Rule 2202 Activity Report: Rule 2202 Summary Status Report This item was received and filed.
- 5. Monthly Report on Environmental Justice Initiatives: CEQA Document Commenting Update

This item was received and filed.

OTHER MATTERS:

6. Other Business

There was no other business to report.

7. Public Comment Period

There was no public comment to report.

8. Next Meeting Date

The next regular Mobile Source Committee meeting is scheduled for Friday, March 17, 2023 at 9:00 a.m.

Adjournment

The meeting adjourned at 10:12 a.m.

Attachments

- 1. Attendance Record
- 2. Rule 2305 Implementation Status Report
- 3. Rule 2202 Activity Report Written Report
- 4. Monthly Report on Environmental Justice Initiatives: CEQA Document Commenting Update – Written Report

ATTACHMENT 1

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT MOBILE SOURCE COMMITTEE MEETING Attendance – February 17, 2023

Board Member Gideon Kracov	South Coast AQMD Board Member
Mayor Larry McCallon	
Supervisor Holly J. Mitchell	South Coast AQMD Board Member
Supervisor V. Manuel Perez	South Coast AQMD Board Member
Council Member Nithya Raman	South Coast AQMD Board Member
Ron Ketchum	Board Consultant (McCallon)
Loraine Lundquist	Board Consultant (Mitchell)
Laura Muraida	Board Consultant (Mitchell)
Josh Nuni	Board Consultant (Raman)
Ross Zelen	Board Consultant (Kracov)
Mark Abramowitz	
Chris Chavez	Coalition for Clean Air
Curtis Coleman	Southern California Air Quality Alliance
Harvey Eder	Public Solar Power Coalition
Kevin Hendrawan	CARB
Bill La Marr	
Jacqueline Moore	PMSA
David Pettit	Natural Resource Defense Council
Bethmarie Quiambao	SCE
Sarah Wiltfong	LA County Business Federation
Derrick Alatorre	South Coast AQMD Staff
Jason Aspell	South Coast AQMD Staff
Barbara Baird	South Coast AQMD Staff
Rachel Ballon	South Coast AQMD Staff
Philip Crabbe III	South Coast AQMD Staff
Lane Garcia	South Coast AQMD Staff
Bayron Gilchrist	South Coast AQMD Staff
Sheri Hanizavareh	South Coast AQMD Staff
Anissa Heard-Johnson	South Coast AQMD Staff
Mark Henninger	South Coast AQMD Staff
Kathryn Higgins	South Coast AQMD Staff
Jason Low	South Coast AQMD Staff
Aaron Katzenstein	South Coast AQMD Staff
Susan Nakamura	South Coast AQMD Staff
Wayne Nastri	South Coast AQMD Staff
Ian MacMillan	South Coast AQMD Staff
Michael Morris	South Coast AQMD Staff
Ron Moskowitz	South Coast AQMD Staff
Sarah Rees	South Coast AQMD Staff
Mary Reichert	South Coast AQMD Staff
Zafiro Sanchez	South Coast AQMD Staff
Nicole Silva	South Coast AQMD Staff
Lisa Tanaka O'Malley	South Coast AQMD Staff
Anthony Tang	South Coast AQMD Staff



<u>Rule 2305 Implementation Status Report:</u> <u>Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program</u>

September 1, 2022 to January 31, 2023

1. Implementation and Outreach Activities:

Activity	Since Last Report	Since Rule Adoption
Calls and Emails to WAIRE Program Hotline (909 396-3140) and Helpdesk (<u>waire-program@aqmd.gov</u>)	1,147	2,879
Views of Compliance Training Videos (outside of webinars)	2,691	4,743
Emails Sent with Information About WAIRE Program Resources	9,093	~30,506
Visits to <u>www.aqmd.gov/waire</u>	8,344	~28,790
Presentations to Stakeholders	2*	142

*Air & Waste Management Association, Transportation Research Board

2. Highlights of Recent Implementation Activities

Staff presented an overview of the WAIRE Program to about 50 community members, academic researchers, and air quality consultants at the Air & Waste Management Association's Freight & Environment: Ports of Entry conference in Oakland CA and to about 60 researchers and government officials at the Transportation Research Board Annual Meeting in Washington DC. Stakeholders praised the program and inquired if the rule could be implemented in other jurisdictions.

Staff continued to expand and build the WAIRE Program Online Portal (POP) in preparation of the initial Annual WAIRE Reports (AWRs) initially due January 31, 2023. In January unforeseen issues to WAIRE POP were discovered. To allow time to make corrections to WAIRE POP, AWRs are being accepted through March 2, 2023. Software upgrades were quickly addressed and deployed for warehouse operators on February 1. As of January 31, 61 facilities had submitted a complete AWR, 29 additional facilities had submitted reports but had not yet paid fees, and another 159 facilities had initiated reports in WAIRE POP. Approximately 1,019 warehouses are expected to file an AWR by the deadline in March.

Staff has continued targeted outreach to Phase 1 facilities (warehouses $\geq 250,000$ square feet) that had not yet submitted an Initial Site Information Report (ISIR) and has continued to respond to WAIRE Program emails and hotline calls. These efforts included conducting virtual consultation sessions to various stakeholders to broaden outreach efforts and provide technical

support as stakeholders prepared for the initial Annual WAIRE Report (AWR) submittal.

On December 9, 2022, a physical mailer with a one-page informational flyer was distributed to 5,294 warehouse properties that may be subject to Rule 2305. The one-page advisory notice provided a general overview of Rule 2305 requirements and resources on the WAIRE Program.

Staff conducted targeted in-person outreach as a follow-up to that physical mailer, focusing on the AB 617 designated community of San Bernardino & Muscoy (SBM), which identified warehouses as an air quality priority. Staff conducted site visits to 28 warehouse buildings in the SBM community boundary to disseminate Rule 2305 program information, collect contact information for warehouse owners/operators, advise of Rule 2305 requirements, and provide technical assistance if needed.

Staff met with several warehouse owners/operators virtually to discuss reported information identified as business confidential. This feedback will be used to develop an approach for addressing business confidentiality concerns when data reported through the WAIRE Program becomes publicly accessible later during implementation of the program via the online F.I.N.D. tool. Ongoing WAIRE Program implementation also included completing desk audits of approximately 100 early action Annual WAIRE Reports (EAWRs) and continuing review of rule related reports (e.g., the Warehouse Operations Notifications (WONs) and ISIRs).

Anticipated Activity in February

- Conduct a webinar regarding Annual WAIRE Report requirements and submittals via WAIRE POP to field questions from stakeholders.
- Continue to conduct outreach to Phase 1 and Phase 2 warehouse operators to advise of Rule 2305 requirements, including tracking truck trips and earning WAIRE Points for the 2022 and 2023 compliance period.
- Continue to analyze data submitted through R2305 reports (e.g., WONs, ISIRs, AWRs, early action AWRs).
- 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.



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, 2023 – January 31, 2023

Employee Commute Reduction Progr	am (ECRP)
# of Submittals:	78

10

Emission Reduction Strategies (ERS) # of Submittals:

Air Quality Investment Program (AQIP) Exclusively					
County	<pre># of Facilities</pre>	<u> \$ Amount</u>			
Los Angeles	1	\$	6,309		
Orange	0	\$	0		
Riverside	0	\$	0		
San Bernardino	0	\$	0		
TOTAL:	1	\$	6,309		

ECRP w/AQIP Combination			
County	<pre># of Facilities</pre>	<u>\$ Ar</u>	<u>nount</u>
Los Angeles	0	\$	0
Orange	0	\$	0
Riverside	0	\$	0
San Bernardino	0	\$	0
TOTAL:	0	\$	0

Total Active Sites as of January 31, 2023

EC	ECRP (AVR Surveys)						
ECRP ¹	AQIP ²	ERS ³	Submittals w/Surveys	AQIP	ERS	TOTAL	
521	9	72	602	102	647	1,351	
38.56%	0.67%	5.33%	44.56%	7.55%	47.89%	100%4	

Total Peak Window Employees as of January 31, 2023

ECRP (AVR Surve		eys)	TOTAL			TOTAL		TOTAL		
ECRP ¹	AQIP ²	ERS ³	Submittals w/Surveys	AQIP	ERS	TOTAL				
368,256	3,223	11,180	382,659	14,018	276,124	672,801				
54.74%	0.48%	1.66%	56.88%	2.08%	41.04%	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

BOARD MEETIN	G DATE: March 3, 2023	AGENDA NO.
REPORT:	Lead Agency Projects and E	Invironmental Documents Received
SYNOPSIS:	This report provides a listing South Coast AQMD betwee 2023, and those projects for lead agency pursuant to CE	g of CEQA documents received by n January 1, 2023 and January 31, which South Coast AQMD is acting as QA.
COMMITTEE:	Mobile Source, February 17	, 2023, Reviewed
RECOMMENDED Receive and file.	O ACTION:	

	Wayne Nastri
	Executive Officer
SR:MK:MM:SW:ET	

CEQA Document Receipt and Review Logs (Attachments A and B) – Each month, South Coast AQMD receives numerous CEQA documents from other public agencies on projects that could adversely affect air quality. A listing of all documents received during the reporting period January 1, 2023 to January 31, 2023 is included in Attachment A. A total of 50 CEQA documents were received during this reporting period and 21 comment letters were sent. A list of active projects for which South Coast AQMD staff is continuing to evaluate or prepare comments for November 2022 and December 2022 reporting period is included as Attachment B.

The Intergovernmental Review function, which consists of reviewing and commenting on the adequacy of the air quality analysis in CEQA documents prepared by other lead agencies, is consistent with the Board's 1997 Environmental Justice Guiding Principles and Environmental Justice Initiative #4. As required by the Environmental Justice Program Enhancements for FY 2002-03, approved by the Board in October 2002, each attachment notes proposed projects where South Coast AQMD has been contacted regarding potential air quality-related environmental justice concerns. South Coast AQMD has established an internal central contact to receive information on projects with potential air quality-related environmental justice concerns. The public may contact South Coast AQMD about projects of concern by the following means: in writing via fax, email, or standard letters; through telephone communication; and as part of oral comments at South Coast AQMD meetings or other meetings where South Coast AQMD staff is present. The attachments also identify, for each project, the dates of the public comment period and the public hearing date, if applicable. Interested parties should rely on the lead agencies themselves for definitive information regarding public comment periods and hearings as these dates are occasionally modified by the lead agency.

In January 2006, the Board approved the Workplan for the Chairman's Clean Port Initiatives. One action item of the Chairman's Initiatives 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 response to describing goods movement, CEQA documents (Attachments A and B) are organized to group projects of interest into the following categories: goods movement projects; schools; landfills and wastewater projects; airports; general land use projects, etc. In response to the mitigation component, guidance information on mitigation measures was compiled into a series of tables relative to off-road engines; on-road engines; harbor craft; ocean-going vessels; locomotives; fugitive dust; and greenhouse gases. These mitigation measure tables are on the CEQA webpages portion of South Coast AQMD's website at: <u>http://www.aqmd.gov/home/regulations/ceqa/airquality-analysis-handbook/mitigation-measures-and-control-efficiencies</u>. Staff will continue compiling tables of mitigation measures for other emission sources.

Staff focuses on reviewing and preparing comments for projects: where South Coast AQMD is a responsible agency; that may have significant adverse regional air quality impacts (e.g., special event centers, landfills, goods movement); that may have localized or toxic air quality impacts (e.g., warehouse and distribution centers); where environmental justice concerns have been raised; and which a lead or responsible agency has specifically requested South Coast AQMD review. If staff provided written comments to the lead agency as noted in the column "Comment Status," there is a link to the "South Coast AQMD Letter" under the Project Description. In addition, if staff testified at a hearing for the proposed project, a notation is provided under the "Comment Status." If there is no notation, then staff did not provide testimony at a hearing for the proposed project. During the period of January 1, 2023 to January 31, 2023, South Coast AQMD received 50 CEQA documents which are listed in the Attachment A. In addition, there are 16 documents from earlier that either have been reviewed or are still under review. Those are listed in the Attachment B. The current status of the total 66 documents from Attachment A and B are summarized as follows:

- 21 comment letters were sent;
- 29 documents were reviewed, but no comments were made;
- 16 documents are currently under review.

(The above statistics are from January 1, 2023 to January 31, 2023 and may not include the most recent "Comment Status" updates in Attachments A and B.)

Copies of all comment letters sent to lead agencies can be found on South Coast AQMD's CEQA webpage at the following internet address: <u>http://www.aqmd.gov/home/regulations/ceqa/commenting-agency</u>.

South Coast AQMD Lead Agency Projects (Attachment C) – Pursuant to CEQA, South Coast AQMD periodically acts as lead agency for stationary source permit projects. Under CEQA, the lead agency is responsible for determining the type of CEQA document to be prepared if the proposal for action is considered to be a "project" as defined by CEQA. For example, an Environmental Impact Report (EIR) is prepared when South Coast AQMD, as lead agency, finds 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 South Coast AQMD determines that the project will not generate significant adverse environmental impacts, or the impacts can be mitigated to less than significance. The ND and MND are written statements describing the reasons why projects will not have a significant adverse effect on the environment and, therefore, do not require the preparation of an EIR.

Attachment C to this report summarizes the active projects for which South Coast AQMD is lead agency and is currently preparing or has prepared environmental documentation. As noted in Attachment C, South Coast AQMD continued working on the CEQA documents for two active projects during January 2023.

Attachments

- A. Incoming CEQA Documents Log
- B. Ongoing Active Projects for Which South Coast AQMD Has or Is Continuing to Conduct a CEQA Review
- C. Active South Coast AQMD Lead Agency Projects

DRAFT

ATTACHMENT A* INCOMING CEQA DOCUMENTS LOG January 1, 2023 to January 31, 2023

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
Warehouse & Distribution Centers	The project consists of construction of seven industrial buildings totaling 4,677,000 square feet	Site Plan	City of Beaumont	South Coast AOMD staff
RVC230103-06	on 570.17 acres. The project is located on the southwest side of Fighway 79 and Carlothia Drive.			commented
Beaumont Hills Logistics Center PLAN2022-0889#				on 1/11/2023
	http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/RVC230103-06.pdf			
	Comment Period: 12/28/2022 - 1/11/2023 Public Hearing: 1/12/2023			
Warehouse & Distribution Centers	The project consists of construction of a 25,000 square foot warehouse on 9.53 acres. The project	Notice of Intent	City of Hemet	** Under
RVC230111-02	is located near the southeast corner of South Gilmore Street and Acacia Avenue.	to Adopt a		review, may
JD Fields Pipe Facility - Site		Nitigated		written
Development Review SDR 21-021		Declaration		comments
	Comment Period: 1/11/2023 - 2/10/2023 Public Hearing: N/A			
Warehouse & Distribution Centers	The project consists of construction of three warehouses on three separate sites totaling 490,393	Notice of	City of Menifee	South Coast
RVC230117-05	square feet on 26.23 acres. Project Site 1 is located near the northeast corner of McLaughlin Road	Preparation	-	AQMD staff
Compass Northern Gateway Project	and Goetz Road. Project Site 2 is located near the southwest corner of Ethanac Road and Wheat			commented
1 5 5	Street. Project Site 3 is located on southeast corner of Ethanac Road and Evans Road.			1/30/2023
	http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/RVC230117-05.pdf			
	Comment Period: 1/13/2023 - 2/13/2023 Public Hearing: 1/23/2023			
Warehouse & Distribution Centers	The project consists of construction of a 170,066 square foot warehouse on 7.23 acres. The	Site Plan	City of Highland	South Coast
SBC230124-03	project is located on the southeast corner of Victoria Avenue and 5th Street.			AQMD staff
Patriot Partners Warehouse at the SEC				on
of Victoria Avenue & 5th Street				1/30/2023
	http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/SBC230124-03.pdf			
	Comment Period: 1/24/2023 - 2/9/2023 Public Hearing: N/A			
Industrial and Commercial	The project consists of construction of two 25,000 barrel crude oil storage tanks on six acres. The	Notice of	City of Long Beach	** Under
LAC230131-01	project is located at 1405 Pier C Street near the northwest corner of Pico Avenue and Pier C	Preparation	Harbor Department	submit
World Oil Tank Installation Project#	Beach community			written
	Reference LAC211014-02 and LAC201007-01			comments
	Comment Period: 1/30/2023 - 2/28/2023 Public Hearing: 2/8/2023			

*Sorted by Land Use Type (in order of land uses most commonly associated with air quality impacts), followed by County, then date received. # - Project has potential environmental justice concerns due to the nature and/or location of the project. ** 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.

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ATTACHMENT A INCOMING CEQA DOCUMENTS LOG January 1, 2023 to January 31, 2023

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
Industrial and Commercial RVC230103-01 Conditional Use Permit 21-05080	The project consists of construction of a 6,000 square foot industrial building on 5.97 acres. The project is located near the northwest corner of Mapes Road and Goetz Road.	Notice of Intent to Adopt Mitigated Negative Declaration	City of Perris	Document reviewed - No comments sent for this document received
	Comment Period: 12/30/2022 - 1/18/2023 Public Hearing: N/A			
Industrial and Commercial RVC230111-04 West Campus Upper Plateau Project	The project consists of demolition of 14 military bunkers, and construction of 65.32 acres of business park uses, 143.31 acres of industrial uses, 42.22 acres of commercial and retail uses, 37.91 acres of public streets, 60.28 acres of recreational uses, 17.72 acres of open space, 2.84 acres of public facilities, and 445.43 acres of conservation uses on 817.90 acres. The project is located on the southwest corner of Meridian Parkway and Alessandro Boulevard in Riverside. Reference RVC211123-02 Comment Period: 1/9/2023 - 3/10/2023 Public Hearing: N/A	Notice of Availability of a Draft Environmental Impact Report	March Joint Powers Authority	** Under review, may submit written comments
Industrial and Commercial RVC230111-05 Beaumont Pointe Specific Plan#	The project consists of construction of 4,995,000 square feet of industrial uses, 246,000 square feet of commercial uses, a 90,000 square foot hotel with 125 rooms, and 263.5 acres of open space on 539.9 acres. The project is located on the northwest corner of State Route 60 and Fourth Street. Reference RVC221201-08, RVC211112-01, RVC210901-01, RVC210401-05, and RVC200908- 03 Comment Period: 12/22/2022 - 2/8/2023 Public Hearing: N/A	Notice of Availability of a Draft Environmental Impact Report	City of Beaumont	** Under review, may submit written comments
Industrial and Commercial RVC230131-07 Robertson's Ready Mix's Request for a Determination of Vested Rights	The project consists of vested rights determination on approximately 792.22 acres and mining operations on 132 acres. The project is bounded by Corona to the north, Lake Matthews to the east, Arcilla to the south, and Interstate 15 to the west. Comment Period: 1/27/2023 - 2/27/2023 Public Hearing: 2/28/2023	Site Plan	Riverside County	** Under review, may submit written comments

- Project has potential environmental justice concerns due to the nature and/or location of the project.
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SOUTH COAST AQMD LOG-IN NUMBER PROJECT TITLE	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
Waste and Water-related LAC230103-02 Amendment of Conditional Use Permit Case No. 524	The project consists of an amendment to increase the processing capacity of construction, demolition, and inert materials from 24.9 tons per day to 49.9 tons per day to an existing green waste transfer facility. The project is located near the northeast corner of Imperial Highway and Bloomfield Avenue. Reference LAC161206-03	Other	City of Santa Fe Springs	Document reviewed - No comments sent for this document received
	Comment Period: 1/3/2023 - 1/8/2023 Public Hearing: 1/9/2023			
Waste and Water-related LAC230111-06 DeMenno-Kerdoon	Staff provided comments on the Permit Modification for the project, which can be accessed at: http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2021/june/LAC210415-06.pdf. The project consists of modifications to an existing hazardous waste facility permit to remove seven tanks, and install eight 42,000-gallon tanks 14 feet in diameter and 38 feet in height, a naphtha splitter column, an oil, water filter press, and an ethylene glycol filter press. The project is located at 2000 North Alameda Street on the southeast corner of North Alameda Street and East Pine Street in the City of Compton within the designated AB 617 South Los Angeles community. Reference LAC210415-06, LAC201215-04, LAC201117-11, LAC200623-08, and LAC190924- 05	Permit Modification	Department of Toxic Substances Control	Document reviewed - No comments sent for this document received
	Comment Period: N/A Public Hearing: N/A			
Waste and Water-related ORC230111-01 Kinsbursky Brothers Supply, Inc.	The project consists of renewal of an existing hazardous waste facility permit to continue storage, treatment, and disposal of hazardous waste and a tentative decision on the permit renewal. The project is located at 1314 North Anaheim Boulevard on the northeast corner of North Anaheim Boulevard and West Commercial Street in Anaheim. Reference ORC210401-08, ORC191227-07, ORC190827-07, ORC190702-12, ORC170523-02, ORC150501-03, and ORC140610-09	Permit Renewal	Department of Toxic Substances Control	** Under review, may submit written comments
	Comment Period: 1/9/2023 - 2/23/2023 Public Hearing: N/A			

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ATTACHMENT A INCOMING CEQA DOCUMENTS LOG January 1, 2023 to January 31, 2023

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
Waste and Water-related RVC230103-09 Draft Salton Sea Long-Range Plan	The project consists of plans to protect and improve air quality, water quality, and wildlife habitat and to prevent or reduce health and environmental consequences from the long-term recession of the Salton Sea. 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. Comment Period: 1/1/2023 - 2/13/2023 Public Hearing: N/A	Initial Project Consultation	U.S. Army Corps of Engineers Los Angeles District and the Salton Sea Authority	** Under review, may submit written comments
Waste and Water-related	The project consists of construction of a 14,000 linear feet of sewer main and lateral pipelines	Notice of Intent	Elsinore Valley	Document
RVC230124-04 Avenues Septic to Sewer Project	with a capacity to generate 62,500 gallons of wastewater per day on 99 acres. The project is bounded by Will Street to the north, Irwin Drive and Avenue 6 to the east, East Lakeshore Drive to the south, and Country Club Boulevard to the west in Lake Elsinore.	to Adopt a Mitigated Negative Declaration	Municipal Water District	reviewed - No comments sent for this document received
	Comment Period: 1/18/2023 - 2/17/2023 Public Hearing: N/A			
Waste and Water-related RVC230124-05 Sedco Hills Septic to Sewer Project	The project consists of construction of a 40,000 linear feet of sewer main and lateral pipelines with a capacity to generate 130,000 gallons of wastewater per day on 380 acres. The project is bounded by Malaga Road to the north, Interstate 15 to the east, Lemon Street to the south, and Mission Trail to the west in Wildomar. Comment Period: 1/18/2023 - 2/17/2023 Public Hearing: N/A	Notice of Intent to Adopt a Mitigated Negative Declaration	Elsinore Valley Municipal Water District	Document reviewed - No comments sent for this document received
Waste and Water-related	The project consists of construction of 16 groundwater monitoring wells ranging from 60 feet to	Notice of Intent	Eastern Municipal	Document
RVC230124-08 Perris North Groundwater Monitoring Project	515 feet in depth. The project is located near the southwest corner of Interstate 215 and Gregory Lane in cites of Moreno Valley and Perris. Reference RVC211216-04 and RVC200501-06	to Adopt a Mitigated Negative Declaration	Water District	reviewed - No comments sent for this document received
	Comment Period: 1/24/2023 - 2/9/2023 Public Hearing: N/A			

- Project has potential environmental justice concerns due to the nature and/or location of the project.
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SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
Waste and Water-related RVC230131-02 Los Alamos Hills Water System Project	The project consists of annexation of 50 parcels totaling 171.91 acres and construction of 10,685 linear feet of 8 and 12 inch water pipelines. The project is bounded by Los Alamos Road to the north, Mason Avenue and Mary Place to the east, Celia Road to the south, and Ruth Ellen Way to the west in Murrieta. Comment Period: 1/31/2023 - 2/23/2023 Public Hearing: N/A	Notice of Intent to Adopt a Mitigated Negative Declaration	Eastern Municipal Water District	** Under review, may submit written comments
Waste and Water-related	The project consists of a permit modification to install a detection monitoring well and a point of	Permit	Department of	** Under
SBC230131-05 Ducommun AeroStructures	compliance well on the Ducommun AeroStructures site on 120 acres. The project is located on the southwest corner of El Mirage Road and Sheep Creek Road in El Mirage.	Modification	Toxic Substances Control	review, may submit written comments
	Comment Period: 1/27/2023 - 3/27/2023 Public Hearing: 1/23/2023			
Utilities ORC230111-10 Oil and Gas Decommissioning Activities on the Pacific Outer Continental Shelf	The Environmental Protection Agency has submitted a comment for the project, which consists of decommissioning and removal of 23 oil and gas platforms and associated pipelines. The project is located offshore eight naturcal miles west of counties of Santa Barbara, Ventura, and Orange. Reference ORC210826-05	Other	United States Department of the Interior, Bureau of Safety and Environmental Enforcement	Document reviewed - No comments sent for this document received
Litilities	Comment Period: N/A Public Hearing: N/A The proposed project consists of construction of a 300-mergawatt photovoltaic solar facility on	Notice of	United States	Document
SBC230124-02 Soda Mountain Solar Project	1.490 acres. The project solutions of construction of a 300-integravan photovolitik Solar latting off 1.490 acres. The project is bounded by Baker to the north, Mojave National Preserve to the east, Rasor Off-Highway Vehicle Area to the south, and Interstate 15 to the west. Reference ODP150612-09 and ODP131224-01	Preparation	Bureau of Land Management	No comments sent for this document received
	Comment Period: 1/18/2023 - 2/16/2023 Public Hearing: 2/2/2023			

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ATTACHMENT A INCOMING CEQA DOCUMENTS LOG January 1, 2023 to January 31, 2023

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SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF DOC	LEAD AGENCY	COMMENT STATUS
PROJECT TITLE		DOC.		SIMIOS
Transportation	The project consists of rehabilitating and reopening a 4.4 mile segment of State Route 39 from	Notice of Preparation	California Department of	Document reviewed -
LAC230111-09	east. Burro Canvon Shooting Park to the south, and Angeles National Forest to the west in Los	rieparation	Transportation	No
SR-39 Reopening Project (EA 07-34770)	Angeles County.		r	comments
				document
				received
	Comment Period: 1/10/2023 - 1/16/2023 Public Hearing: 12/15/2022			
Transportation	The project consists of subdivision of 20.07 acres into 13 one acre lots for the future construction	Site Plan	City of Menifee	Document
RVC230120-02	of 3 detention basins and road improvements. The project is located on the northeast corner of			No
DEV2022-028 Bella Estates TTM 38592	waldon Road and Subset Avenue.			comments
				sent for this
				received
	Comment Period: 1/19/2023 - 2/19/2023 Public Hearing: N/A			
Institutional (schools, government, etc.)	The project consists of upgrading school facilities, updating technology, and increasing safety	Notice of	Los Angeles	Document
LAC230103-04	measures in the District schools. The project encompasses 710 square miles and is bounded by	Preparation	Unified School	reviewed -
District-Wide Redevelopment Program	Burbank to the north, 710 freeway to the east, San Pedro to the south, and the Pacific Ocean to		District	comments
	Heights West Commerce 2) Southeast Los Angeles 3) South Los Angeles and 4) Wilmington			sent for this
	Carson, West Long Beach.			document received
				locifica
	Commont Borio de 1/2/2022 2/2/2022 Bublic Harrison N/A			
Institutional (schools government etc.)	The project consists of construction of a 12 780 square foot fire station on 0.4 acres. The project	Final	City of Long Beach	Document
LAC220117 01	is located on the southwest corner of Long Beach Boulevard and East Randolph Place in the	Environmental	City of Long Beach	reviewed -
Erra Station No. 9 Project at 4101 Long	designated AB 617 Wilmington, Carson, West Long Beach community.	Impact Report		No
Beach Boulevard	Reference LAC220222-01			sent for this
				document
				received
1	Comment Period: N/A Public Hearing: 1/24/2023	1	1	1

- Project has potential environmental justice concerns due to the nature and/or location of the project.
 ** 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. A-6

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
Institutional (schools, government, etc.) LAC230117-03 McKinley Elementary School Campus Master Plan Project	The project consists of demolition of existing structures and construction of two school buildings totaling 50,910 square feet, 55,000 square feet of parking lot uses, 14,500 square feet of playground uses and 3,500 square feet of lunch shelter uses on 6.48 acres. The project is located on the southeast corner of Arizona Avenue and 23rd Court in Santa Monica.	Notice of Preparation	Santa Monica- Malibu Unified School District	Document reviewed - No comments sent for this document received
	Comment Period: 1/13/2023 - 2/12/2023 Public Hearing: 1/31/2023			
Institutional (schools, government, etc.) LAC230117-04 Grant Elementary School Campus Master Plan Project	The project consists of demolition of existing structures and construction of two school buildings totaling 34.271 square feet, 35,000 square feet of parking lot uses, and 73,700 square feet of playground uses on 6.01 acres. The project is located near the northwest corner of 24th Court and Ocean Park Place North in Santa Monica.	Notice of Preparation	Santa Monica- Malibu Unified School District	Document reviewed - No comments sent for this document received
	Comment Period: 1/13/2023 - 2/12/2023 Public Hearing: 2/7/2023			
Institutional (schools, government, etc.) LAC230120-01 1200 North Cahuenga Boulevard Project	The project consists of demolition of 8,941 square feet of an existing building and construction of three office campus buildings totaling 75,262 square feet. The project is located on southeast corner of North Cahuenga Boulevard and La Mirada Avenue.	Notice of Intent to Adopt a Mitigated Negative Declaration	City of Los Angeles	Document reviewed - No comments sent for this document received
Institutional (schools, government, etc.)	The project consists of demolition of an existing golf course and baseball field and transfer of	Notice of	Department of	** Under
LAC230126-02 Land Transfer from the Sepulveda Ambulatory Care Center to the Los Angeles National Cemetery	26.4 acres of land. The land will be transferred from the Sepulveda Ambulatory Care Center near the northeast corner of Plummer Street and Woodley Avenue to the Los Angeles National Cemetery on the southwest corner of Lassen Street and Haskell Avenue in Los Angeles.	Availability of a Draft Environmental Assessment	Veterans Affairs	review, may submit written comments
	Comment Period: 1/26/2023 - 2/26/2023 Public Hearing: N/A			1

- Project has potential environmental justice concerns due to the nature and/or location of the project.
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ATTACHMENT A INCOMING CEQA DOCUMENTS LOG January 1, 2023 to January 31, 2023

SOUTH COAST AOMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
Institutional (schools, government, etc.) RVC230131-04 Conditional Use Permit No. 220005	The project consists of construction of a 12,838 square feet pilot desalination facility on 2.78 acres. The project is located near the southeast corner of System Road and Vaughn Road.	Notice of Intent to Adopt a Mitigated Negative Declaration	Riverside County	** Under review, may submit written comments
	Comment Period: 1/24/2023 - 2/22/2023 Public Hearing: 3/1/2023			
Medical Facility RVC230103-08 SoCal Dental Partners, Inc. PLAN2022- 0896	The project consists of construction of two medical buildings totaling 6,916 square feet on 1.33 acres. The project is located near the northwest corner of North Highland Avenue and East 6th Street.	Site Plan	City of Beaumont	Document reviewed - No comments sent for this document received
	Comment Period: 12/28/2022 - 1/18/2023 Public Hearing: 1/19/2023			
Retail RVC220104-01 Planning Application - DEV2022-027: Major Plot Plan (PLN22-0289) Conditional Use Permit (PLN22-0288) for Mister Car Wash at the Shoppes	The project consists of construction of a 5,381 square foot car wash facility on 1.07 acres. The project located on the northwest corner of Rockport Road and Laguna Vista Drive.	Site Plan	City of Menifee	Document reviewed - No comments sent for this document received
Patail	Comment Period: 1/4/2023 - 1/16/2023 Public Hearing: 1/17/2023 The project consists of construction of a 2.748 square foot hydrogen station on 1.23 agrees. The	Site Plan	City of Beaumont	South Coast
RVC230103-07 Shell Neptune CUP2022-0067 and V2022-0114	project is located near the southwest corner of Pennsylvania Avenue and East 6th Street. http://www.agmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/RVC230103-07.pdf	Site I fail	City of Deaumont	AQMD staff commented on 1/11/2023
	Comment Derively 12/28/2022 1/11/2022 D 11: H .: 1/12/2022			

- Project has potential environmental justice concerns due to the nature and/or location of the project. ** 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. A-8

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
Retail RVC230111-08 Planning Application - DEV2022-024: Major Plot Plan (PLN22-0261)	The project consists of construction of a 4,844 square foot carwash facility and a 4,223 square foot office facility on 1.62 acres. The project is located near the northeast corner of Haun Road and New Hub Drive.	Initial Project Consultation	City of Menifee	Document reviewed - No comments sent for this document received
	Comment Period: 1/11/2023 - 1/30/2023 Public Hearing: N/A	27.1	G1. 6B	6 4 6 4
General Land Use (residential, etc.) LAC230103-05 North Paramount Gateway Specific Plan General Land Use (residential, etc.) LAC230111-07 The Bond Project	Ihe project consists of construction of 3,044 residential units and 31,171 square feet of retail and office uses on 279 acres. The project is bounded by South Gate to the north, Anderson Street to the east, Rosecrans Avenue to the south, and the Union Pacific Railroad to the west within the designated AB 617 Southeast Los Angeles community. Reference LAC220107-04 http://www.aqmd.gov/docs/defnult-source/ceqa/comment-letters/2023/january-2023/LAC230103-05.pdf Comment Period: 12/22/2022 - 2/6/2023 Public Hearing: N/A The proposed project consists of demolition of 10,000 square feet of cisiting structures, and construction of a 212,508 square foot building with 45 hotel rooms and 95 residential units, a restaurant, and an art gallery on 0.92 acres. The project is located on the northeast corner of Santa Monica Boulevard and North Orange Grove Avenue. Reference LAC190815-01	Notice of Availability of a Draft Environmental Impact Report Notice of Availability of a Revised Draft Environmental Impact Report	City of West Hollywood	South Coast AQMD staff commented on 1/27/2023 Document reviewed - No No comments sent for this sent for this
General Land Use (residential, etc.) LAC230124-01 8th, Grand and Hope	Comment Period: 1/5/2023 - 2/20/2023 Public Hearing: 2/2/2023 The project consists of demolition of a 36,178 square foot parking structure and construction of a 554,927 square foot building with 580 residential units and subterranean parking on 0.83 acres. The project is located on the northwest corner of Eighth Street and Grand Avenue in Central City. Reference LAC211119-03 and LAC190510-01	Final Environmental Impact Report	City of Los Angeles	Document received - No comments sent for this document received
	Comment Period: N/A Public Hearing: 2/15/2023			

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ATTACHMENT A INCOMING CEQA DOCUMENTS LOG January 1, 2023 to January 31, 2023

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF DOC.	LEAD AGENCY	COMMENT STATUS
General Land Use (residential, etc.) ORC230117-06 Pointe Common Affordable Housing Project	The project consists of construction of 65 residential units on 2.25 acres. The project is located near the southwest corner of West Commonwealth Avenue and North Basque Avenue.	Notice of Intent to Adopt a Mitigated Negative Declaration	City of Fullerton	Document reviewed - No comments sent for this document received
	Comment Period: 1/12/2023 - 2/10/2023 Public Hearing: N/A			
General Land Use (residential, etc.) ORC230124-09 Victoria Boulevard Apartments	The project consists of demolition of the Capistrano Unified School District and construction of 349 residential units and a seven level parking structure on a 5.5 acre portion of 80 acres. The project is located at 26126 Victoria Boulevard on the southeast corner of Victoria Boulevard and Sepulveda Boulevard. Reference ORC210720-03	Notice of Availability of a Draft Environmental Impact Report	City of Dana Point	** Under review, may submit written comments
	Comment Period: 1/20/2023 - 3/6/2023 Public Hearing: 2/27/2023			
General Land Use (residential, etc.)	The project consists of construction of 51 residential units, a 25,340 square foot medical office	Notice of	City of Seal Beach	** Under
ORC230131-03 Old Ranch Country Club Specific Plan Project	Tachify, a 109,015 square foot hotel with 150 rooms, a 2,650 maintenance tachify, and a 3-level parking structure. The project is located near the northwest corner of Lampson Avenue and Basswood Street.	Preparation		submit written comments
	Comment Period: 2/6/2023 - 3/7/2023 Public Hearing: 2/22/2023			
General Land Use (residential, etc.)	The project consists of construction of 319 residential units on 55.4 acres. The project is located	Site Plan	City of Menifee	South Coast
RVC230110-01 DEV2022-029 Salt Creek Planned Unit Development	on the southwest corner of Briggs Road and Simpson Road.			aQMD staff commented on 1/30/2023
	http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/RVC230110-01.pdf			
	Comment Period: 1/9/2023 - 1/31/2023 Public Hearing: N/A			

- Project has potential environmental justice concerns due to the nature and/or location of the project.
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SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
General Land Use (residential, etc.) RVC230111-03 General Plan Amendment No. 190009, Zone Change No. 1900026, Tentative Tract Map No. 37743, Plot Plan No. 200016 and 200017, and Conditional Use Permit No. 200030	The project consists of construction of 52 residential units, a 4,088 square foot convenience store, a 3,096 square foot service gas station with 6 fueling pumps, and a 8,373 square foot retail building on 9.17 acres. The project is located the northeast corner of Mount Vernon Avenue and Center Street in Riverside.	Notice of Intent to Adopt a Mitigated Negative Declaration	Riverside County	Document reviewed - No comments sent for this document received
	Comment Period: 1/5/2023 - 2/3/2023 Public Hearing: N/A			
General Land Use (residential, etc.) RVC230131-06 Golden Meadows	The project consists of subdivision of 46.5 acres for future development of 156 to 259 residential units. The project is located on the southwest corner of Garbani Road and Sherman Road. Reference RVC210525-02	Initial Project Consultation	City of Menifee	Document reviewed - No comments sent for this document received
	Comment Period: 1/27/2023 - 2/7/2023 Public Hearing: 2/8/2023			
Plans and Regulations ALL230106-01 Draft 2020 RTP Amendment #3	The amendment consists of priority updates on time-sensitive projects for the development of a long-range transportation plan and land use policies, strategies, actions, and programs to identify and accommodate current and future mobility goals, policies, and needs for the next 25 years. The project encompasses 38,000 square miles and includes counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The project also includes six designated AB 617 communities: 1) East Los Angeles, Boyle Heights, West Commerce, 2) Eastern Coachella Valley, 3) San Bernardino, Muscoy, 4) Southeast Los Angeles, 5) South Los Angeles, and 6) Wilmington, Carson, West Long Beach. Reference ALL221018-16, ALL200401-03, ALL191210-01, and ALL190123-01	Other	Southern California Association of Governments	Document reviewed - No comments sent for this document received
	Comment Period: 1/6/2023 - 2/5/2023 Public Hearing: 1/17/2023			

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ATTACHMENT A INCOMING CEQA DOCUMENTS LOG January 1, 2023 to January 31, 2023

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
Plans and Regulations ALL230106-02 Draft 2023 Federal Transportation Improvement Program (FTIP) Consistency Amendment #23-03	The amendment is to ensure the Federal Transportation Improvement Program (FTIP) for the 2020 Connect SoCal project remains consistent with the Regional Transportation Plan. The project consists of priority updates on time-sensitive projects for the development of a long-range transportation plan and land use policies, strategies, actions, and programs to identify and accommodate current and future mobility goals, policies, and needs for the next 25 years. The project encompasses 38,000 square miles and includes counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The project also includes six designated AB 617 communities: 1) East Los Angeles, Boyle Heights, West Commerce, 2) Eastern Coachella Valley, 3) San Bernardino, Muscoy, 4) Southeast Los Angeles, 5) South Los Angeles, and 6) Wilmington, Carson, West Long Beach. Reference ALL230106-01, ALL221018-16, ALL200401-03, ALL191210-01, and ALL190123-01 Comment Period: 1/6/2023 - 2/5/2023.	Other	Southern California Association of Governments	Document reviewed - No comments sent for this document received
Plans and Regulations LAC230103-03 Alhambra Zoning Code Update Project	The project consists of updates to the city's zoning designations to include development standards and design guidelines for housing development. The project encompasses 7.63 square miles and is bounded by cities of South Pasadena and San Marino to the north, City of Rosemead to the east, City of Monterey Park to the south, and unincorporated areas of Los Angeles County to the west. Comment Period: 12/29/2022 - 1/17/2023 Public Hearing: N/A	Notice of Intent to Adopt a Negative Declaration	City of Alhambra	Document reviewed - No comments sent for this document received
Plans and Regulations LAC230117-02 El Segundo Downtown Specific Plan Update	The project consists of construction of 300 residential units, 130,000 square feet of retail uses, 200,000 square feet of office uses, and 24,000 square feet of medical uses on 43.8 acres. The project is bounded by Mariposa Avenue to the north. Eucalyptus Drive to the east, EI Segundo Boulevard to the south, and Concord Street to the west. http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/LAC230117-02.pdf Comment Period: 1/12/2023 - 2/13/2023 Public Hearing: 2/2/2023	Notice of Preparation	City of El Segundo	South Coast AQMD staff commented on 1/30/2023

^{# -} Project has potential environmental justice concerns due to the nature and/or location of the project.
** 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.

SOUTH COAST AOMD LOG-IN NUMBER	PROJECT DESCRIPTION	•	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE	TROJECT DESCRIPTION		DOC.	EERD ROERCT	STATUS
Plans and Regulations LAC230124-06 Altamira Canyon Creek Restoration Project	The project consists of restoration, repairs, and improvements of eml square feet in Altamira Canyon Creek. The project is located near the Sweetbay Road and Narcissa Drive.	bankments totaling 4,192 e southeast corner of	Notice of Intent to Adopt a Mitigated Negative Declaration	City of Rancho Palos Verdes	Document reviewed - No comments sent for this document received
	Comment Period: 1/25/2023 - 2/24/2023	Public Hearing: N/A			
Plans and Regulations LAC230124-07 Brookside Golf Course Improvements Project	The project consists of expansion of an existing golf driving range at golf facility on 16 acres. The project is located near the northwest co and Rose Bowl Drive in Pasadena.	nd construction of a miniature rner of Rosemont Avenue	Notice of Intent to Adopt a Mitigated Negative Declaration	The Rose Bowl Operating Company	Document reviewed - No comments sent for this document received
	Comment Period: 1/17/2023 - 3/3/2023	Public Hearing: N/A			
Plans and Regulations RVC230126-01 City of Corona General Plan Housing Element Rezoning Program Update	The project consists of updates to the City's General Plan Housing E needs, densities, and development standards with a planning horizon encompasses 39.55 square miles and is bounded by Norco to the nor Arcilla to the south, and Chino Hills to the west. Reference RVC220921-07 and RVC220712-02	lement to assess housing of 2029. The project th, El Cerrito to the east,	Final Supplemental Environmental Impact Report Impact Report	City of Corona	** Under review, may submit written comments
	Comment Period: N/A	Public Hearing: N/A	L'ALD CA	U. 1. 1.00 A	Desument
rians and Regulations SBC230124-10 Section 368 Energy Corridors Resource Management Plan Amendment	The project consists of recommended updates to the 2009 land use p approximately 673 miles of eight specific energy corridors on public Land Management. The affected states include Arizona, California, (Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.	Consultation	United States Department of the Interior, Bureau of Land Management	No comments sent for this document received	
	Comment Period: N/A	Public Hearing: N/A			

- Project has potential environmental justice concerns due to the nature and/or location of the project.
 ** 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.

A-13

ATTACHMENT B^{*} ONGOING ACTIVE PROJECTS FOR WHICH SOUTH COAST AQMD HAS OR IS CONTINUING TO CONDUCT A CEQA REVIEW

			T	
SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
Warehouse & Distribution Centers RVC221213-03 Redlands West Industrial Project	Staff provided comments on the Notice of Intent to Adopt a Mitigated Negative Declaration for the project, which can be accessed at: http://www.aqnd.gov/docs/default-source/ceqa/ comment-letters/2022/december/RVC221108-02.pdf. The project consists of construction of a 334,040 square foot warehouse on 20.14 acres. The project is located near the northwest corner of Redlands Avenue and Placentia Avenue. Reference RVC221108-02 Comment Period: N/A Public Hearing: 12/21/2022	Notice of Availability of a Final Mitigated Negative Declaration	City of Perris	**Under review, may submit written comments
Warehouse & Distribution Centers	The project consists of construction of 10,597,178 square feet of business park uses, a 75,000	Notice of	Inland Valley	**Under
SBC221213-08 Airport Gateway Specific Plan#	square foot hotel with 150 rooms, 7,802,541 square feet of warehouse uses, 142,792 square feet of commercial uses, and 209.65 acres of road improvements on 679 acres. The project is located on the northeast corner of Interstate 10 and Tippecanoe Avenue in the cities of San Bernardino and Highland. Reference SBC220621-09	Availability of a Draft Environmental Impact Report	Development Agency	review, may submit written comments
	Comment Period: 12/12/2022 - 2/10/2023 Public Hearing: N/A			
Warehouse & Distribution Centers LAC221207-01 5037 Patata Street Industrial Development	The project consists of construction of a 435,420 square foot warehouse and a 16,173 square foot truck maintenance facility on 27,12 acres. The project is located near the northeast corner of Patata Street and Wilcox Avenue within the designated AB 617 Southeast Los Angeles community. http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/LAC221207-01.pdf Comment Period: 12/2/2022, 1/18/2023 Public Hearing: N/A	Draft Environmental Impact Report	City of South Gate	South Coast AQMD staff commented on 1/18/2023
Warehouse & Distribution Centers	The project consists of redevelopment of a 295,499 square foot warehouse on 13,49 acres. The	Notice of	City of Whittier	South Coast
LAC221220-04 Whittier Boulevard Business Center	project is located near the southwest corner of Whittier Boulevard and Penn Street.	Preparation	,	AQMD staff commented on 1/12/2023
	http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/LAC221220-04.pdf			
	Comment Period: 12/14/2022 - 1/13/2023 Public Hearing: N/A			
Warehouse & Distribution Centers	The project consists of construction of a 1,138,638 square foot warehouse on 43.94 acres. The	Notice of	City of Menifee	South Coast
RVC221206-01 The Motte Business Center#	project is located near the southeast corner of Ethanac Koad and Dawson Koad.	Preparation		commented on 1/16/2023
	http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/RVC221206-01.pdf			
	Comment Period: 12/6/2022 - 1/16/2023 Public Hearing: 12/12/2022			

*Sorted by Comment Status, followed by Land Use, then County, then date received. # - Project has potential environmental justice concerns due to the nature and/or location of the project. ** Disposition may change prior to Governing Board Meeting

ATTACHMENT B ONGOING ACTIVE PROJECTS FOR WHICH SOUTH COAST AQMD HAS OR IS CONTINUING TO CONDUCT A CEQA REVIEW

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE		DOC.		STATUS
Warehouse & Distribution Centers RVC221213-04 Development Plan Review 21-00008	The project consists of construction of a 142,995 square foot warehouse on 6.93 acres. The project is located on the northwest corner of Harley Knox Boulevard and North Perris Boulevard. http://www.aqmd.gov/docs/default-source/cequ/comment-letters/2023/january-2023/RVC221213-04.pdf	Notice of Intent to Adopt Mitigated Negative Declaration	City of Perris	South Coast AQMD staff commented on 1/6/2023
Wanahanna & Distailartian Cantana	Comment Period: 12/9/2022 - 1/18/2023 Public Hearing: N/A	Notice of	Discouri da Casanta	South Coast
RVC221220-01 Thousand Palms Warehouse Project#	The project consists of construction of a 1,258,592 square root warehouse and an electric substation on 83 acres. The project is located on the northeast corner of Rio Del Sol and 30th Avenue in Thousand Palms.	Preparation	Kiverside County	AQMD staff commented on 1/6/2023
	http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/RVC221220-01.pdf			
	Comment Period: 11/30/2022 - 1/6/2023 Public Hearing: 12/12/2022		a . (D: 11	6 4 C /
Warehouse & Distribution Centers RVC221220-02 Rider and Patterson Business Center	The project consists of construction of a 591,203 square foot warehouse on 37.46 acres. The project is located on the southwest corner of Rider Street and Patterson Avenue in North Perris. Reference RVC220823-05 http://www.agmd.gov/docs/defull.source/cons/comment_letters/2023/inuuars-2023/RVC221220.02 rdf	Notice of Preparation	County of Riverside	South Coast AQMD staff commented on 1/5/2023
	Comment Period: 11/28/2022 - 1/5/2023 Public Hearing: 1/9/2023			
Waste and Water-related LAC221213-02 Lincoln Heights Service Center	The project consists of establishment of a land use covenant to restrict future land use on 3.4 acres. The project is located on the northeast corner of West Avenue 26 and Humboldt Street in Los Angeles.	Draft Removal Action Work Plan	Department of Toxic Substances Control	South Coast AQMD staff commented on 1/25/2023
	http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/LAC221213-02.pdf			
	Comment Period: 12/12/2022 - 1/25/2023 Public Hearing: N/A			
Waste and Water-related LAC221213-09 F.E. Weymouth Water Treatment Plan and La Verne Site Improvements Program	The project consists of improvements to four existing facilities, construction of a 60,000 square foot warehouse, and construction of a 35,000 square foot engineering building on 135 acres. The project is located near the northwest corner of Wheeler Avenue and 5th Street in La Verne.	Notice of Preparation	The Metropolitan Water District of Southern California	South Coast AQMD staff commented on 1/21/2023
-	http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/LAC221213-09.pdf			
	Comment Period: 12/8/2022 - 1/23/2023 Public Hearing: N/A			

- Project has potential environmental justice concerns due to the nature and/or location of the project. ** Disposition may change prior to Governing Board Meeting

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ATTACHMENT B ONGOING ACTIVE PROJECTS FOR WHICH SOUTH COAST AQMD HAS OR IS CONTINUING TO CONDUCT A CEQA REVIEW

SOUTH COAST AOMD LOG-IN NUMBER	PPOJECT DESCRIPTION	TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE	I ROJECI DESCRII HON	DOC.	LEAD AGENCI	STATUS
Waste and Water-related SBC221206-04 The Replenish Big Bear Program	The project consists of construction of seven miles of drinking water pipelines, RO brine minimization, three pump stations, a groundwater recharge system, and four monitoring wells with a capacity of up to 2,210 acre feet per year on 138 square miles by 2040. The project is bounded by unincorporated areas of San Bernardino county in the north, east, south, and west in Big Bear. http://www.aqmd.gov/docs/default-source/cega/comment-letters/2023/january-2023/SBC221206-04.pdf Comment Period: 11/30/2022 - 1/17/2023 Public Hearing: 1/5/2023	Notice of Preparation	Big Bear Area Regional Wastewater Agency	South Coast AQMD staff commented on 1/17/2023
General Land Use (residential, etc.) RVC221206-08 Moreno Valley Mall Redevelopment	The project consists of construction of 1,627 residential units, two hotels with 270 rooms, 60,000 square feet of office uses, and 23,656 square feet of retail uses on 58.61 acres. The project is located on the southwest corner of Centerpoint Drive and Towne Circle. Reference RVC220412-12	Notice of Availability of a Draft Environmental Impact Report	City of Moreno Valley	South Coast AQMD staff commented on 1/11/2023
	http://www.aqmd.gov/docs/default-source/coqa/comment-letters/2023/january-2023/RVC221206-08.pdf Comment Period: 11/27/2022 - 1/11/2023 Public Hearing: N/A			
General Land Use (residential, etc.) SBC221206-02 Downtown Core Project	The project consists of construction of 10,920 residential units and 3,992,868 square feet of commercial uses on 478 acres. The project is bounded by Foothill Boulevard to the north, Mango Avenue to the east, and Randall Avenue to the south, and Juniper Avenue to the west. http://www.acmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/SEC21206-02.pdf	Notice of Preparation	City of Fontana	South Coast AQMD staff commented on 1/3/2023
Plans and Regulations LAC221118-02 Los Angeles County Metro Area Plan	The project consists of development of land use policies and implementation strategies to address affordable housing needs, transportation improvements, air quality, economic development, and environmental justice. The project encompasses seven unincorporated areas: 1) East Los Angeles, 2) Florence-Firestone, 3) Wildowbrock, 4) West Rancho Dominguez-Victoria, 5) East Rancho Dominguez, 6) Walnut Park, and 7) West Athens-Westmont. The project includes four designated AB 617 communities: 1) East Los Angeles, Boyle Heights, West Commerce, 2) Southeast Los Angeles, 3) South Los Angeles, and 4) Wilnington, Carson, West Long Beach. Reference LAC220217-09 http://www.aqnd.gov/docs/default-source/ccqa/comment-letters/2023/january-2023/LAC221118-02.pdf Comment Period: 11/17/2022 - 1/16/2023	Notice of Availability of a Draft Environmental Impact Report	County of Los Angeles	South Coast AQMD staff commented on 1/13/2023

- Project has potential environmental justice concerns due to the nature and/or location of the project. ** Disposition may change prior to Governing Board Meeting

ATTACHMENT B ONGOING ACTIVE PROJECTS FOR WHICH SOUTH COAST AQMD HAS OR IS CONTINUING TO CONDUCT A CEQA REVIEW

SOUTH COAST AQMD LOG-IN NUMBER	PROJECT DESCRIPTION		TYPE OF	LEAD AGENCY	COMMENT
PROJECT TITLE			DOC.		STATUS
Plans and Regulations	The project consists of updates to the General Plan to develop policies, goals, and guideli	ines for	Notice of	City of Lawndale	South Coast
LAC221213-07	housing, land use, transportation, and economic development elements with a planning he	orizon of	Preparation		AQMD staff commented on 1/5/2023
City of Lawndale General Plan Update	2043. The project encompasses 917 acres and is bounded by rawmore to the norm and Gardena and unincorporated areas of Los Angeles County to the east, and City of Torrard south, and Redondo Beach to the south and west.	ce to the			
	http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/LAC221213-07.	.pdf			
	Comment Period: 12/6/2022 - 1/5/2023 Public Hearing: 12/	15/2022			
Plans and Regulations	The project consists of construction of 1,576 residential units on 153 acres. The project is	s located	Notice of	City of Jurupa	South Coast
RVC221214-01	on the southwest corner of Bellegrave Avenue and Pats Ranch Road.		Preparation	Valley	AQMD staff commented
Vernola Ranch Specific Plan Project	Reference RVC210630-01				on 1/12/2023
	http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2023/january-2023/RVC221214-01	l.pdf			
	Comment Period: 12/14/2022 - 1/13/2023 Public Hearing: 1/9.	/2023			

- Project has potential environmental justice concerns due to the nature and/or location of the project. ** Disposition may change prior to Governing Board Meeting

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ATTACHMENT C ACTIVE SOUTH COAST AQMD LEAD AGENCY PROJECTS THROUGH JANUARY 31, 2023

	PROJECTS TH	IROUGH JANUARY	31, 2023	
PROJECT DESCRIPTION	PROPONENT	TYPE OF DOCUMENT	STATUS	CONSULTANT
Quemeteo 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 natural gas-fueled ICEs.	Quemetco	Environmental Impact Report (EIR)	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. Staff 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. Written comments submitted relative to the Draft EIR and oral comments made at the community meetings, along with responses will be included in the Final EIR which is currently being prepared by the consultant.	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 flares.	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.	SCS Engineers



BOARD MEETING DATE: March 3, 2023

REPORT: Stationary Source Committee

SYNOPSIS: The Stationary Source Committee held a remote meeting on Friday, February 17, 2023. The following is a summary of the meeting.

RECOMMENDED ACTION: Receive and file.

Larry McCallon, Chair Stationary Source Committee

JA:cr

Committee Members

Present: Mayor Larry McCallon, Chair Senator Vanessa Delgado (Ret.) Supervisor Holly J. Mitchell Board Member Veronica Padilla-Campos

Call to Order

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 <u>Webcast</u>.

INFORMATIONAL ITEMS:

1. Update on Proposed Amended Rule 219 – Equipment Not Requiring a Written Permit to Operate Pursuant to Regulation II and Proposed Amended Rule 222 -Filing Requirements for Specific Emission Sources Not Requiring a Written Permit to Operate Pursuant to Regulation II

Michael Krause, Assistant Deputy Executive Officer/Planning, Rule Development and Implementation, presented an update on the key remaining issues discussed at the January Stationary Source Committee meeting. Board Member Padilla-Campos inquired whether stakeholders were informed of the proposed grocery store food oven provisions. Mr. Krause confirmed that the proposals were discussed with grocery store representatives and the response was positive.

Rita Loof, RadTech International, commented that capture and control devices should be held to manufacturers' performance specifications rather than permitted specifications, and that industry cannot use the new exemption provision due to the requirement that a change in airflow in capture and control devices would require an engineering evaluation. Ms. Loof also commented that an engineering evaluation at a facility that had added an UV/EB/LED curing process to their existing coating line showed no changes in emissions.

Jason Aspell, Deputy Executive Officer/Engineering and Permitting, confirmed that the engineering evaluation showed no changes in emissions. Mr. Aspell stated that evaluations are necessary to demonstrate that such changes are done correctly, ensure emissions are being properly captured and vented to the air pollution control device, and that additional air introduced into an enclosure does not cause fugitive emissions. For additional details, please refer to the Webcast beginning at 3:06

2. Update on Proposed Rule 1110.3 – Emissions from Linear Generators and Proposed Amended Rule 1110.2 – Emissions from Gaseous- and Liquid-Fueled Engines

Michael Morris, Planning and Rules Manager/Planning, Rule Development and Implementation, provided a summary on Proposed Rule 1110.3 and Proposed Amended Rule 1110.2.

Chair McCallon expressed interest in linear generator technology being utilized for microgrids.

Board Member Padilla-Campos requested more information on the current application of linear generators and types of fuels. Mr. Morris responded that linear generators are primarily being used at grocery stores and logistics centers for electricity during peak hours and that existing units run on natural gas, but linear generators have multi-fuel capabilities.

Corrie Zupo, Mainspring Energy, explained the benefits of linear generator technology and expressed appreciation for staff's efforts on the proposed rule. She also commented that the proposed monitoring requirements are onerous when compared to microturbines and fuel cells but looks forward to working with staff to address these concerns. Chair McCallon reiterated concern over the source testing frequency. Mr. Krause replied that linear generators are a new technology, turbines have source testing requirements, and staff is considering a proposal to exempt from source test requirements if a CARB Distributed Generation certification is obtained. Mr. Krause also confirmed that linear generators are being considered for Santa Catalina Island. For additional details, please refer to the Webcast beginning at 8:50.

3. Quarterly Permitting Update for Rule 1109.1 - Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Operations

Bhaskar Chandan, Senior Engineering Manager/Engineering and Permitting, presented the quarterly Rule 1109.1 permitting updates.

Chair McCallon inquired why there were no applications shown for the years 2026 and 2027, on slide nine. Mr. Chandan explained that there were no deadlines for submittal of applications in 2026 and 2027 under Rule 1109.1. The application submittal deadlines for Phase 1 ends by 2025 and once those projects are implemented, the applications for Phase 2 and Phase 3 of the rule implementation will come later after 2027.

Harvey Eder, Public Solar Power Coalition, commented on the scoping plan and the cost effectiveness of solar power.

For additional details, please refer to the Webcast beginning at 26:55.

4. Annual RECLAIM Audit Report for 2021 Compliance Year

Jason Aspell, Deputy Executive Officer/Engineering and Permitting, presented an overview of the RECLAIM NOx and SOx Annual Report for Compliance Year 2021, and the actions required under Rule 2002 - Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx) and Rule 2015 - Backstop Provisions resulting from NOx RECLAIM Trading Credits (RTC) price threshold exceedances reflected in this most recent report. Staff is recommending to utilize the Rule 2002 and 2015 assessments from last year's audit to satisfy rule requirements; not make any changes to the RECLAIM program; and approve the Compliance Year 2021 RECLAIM audit.

There were no comments received by Committee members or from the public. For additional details, please refer to the Webcast beginning at 40:30.

WRITTEN REPORTS:

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

There was no comment to report.

9. Next Meeting Date

The next Stationary Source Committee meeting is scheduled for Friday, March 17, 2023 at 10:30 a.m.

Adjournment

The meeting was adjourned at 11:32 a.m.

Attachments

- 1. Attendance Record
- 2. 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
- 3. Notice of Violation Penalty Summary

ATTACHMENT 1

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT STATIONARY SOURCE COMMITTEE Attendance –February 17, 2023

Senator (Ret.) Vanessa Delgado	South Coast AQMD Board Member
Mayor Larry McCallon	South Coast AQMD Board Member
Supervisor Holly J. Mitchell	South Coast AQMD Board Member
Board Member Veronica Padilla-Campos	South Coast AQMD Board Member
Loraine Lundquist	Board Consultant (Mitchell)
Laura Muraida	Board Consultant (Mitchell)
Amy Wong	Board Consultant (Padilla-Campos)
Mark Abramowitz	Community Environmental Services
Curtis Coleman	Southern California Air Quality Alliance
Harvey Eder	Public Solar Power Coalition
Bill LaMarr	California Small Business Alliance
Rita Loof	
Peter Moore	Yorke Engineering
Bethmarie Quiambao	Southern California Edison
Patty Senecal	WSPA
Peter Whittingham	Whittingham Public Affairs Advisors
Corrie Zupo	Mainspring Energy
Derrick Alatorre	South Coast AQMD staff
Jason Aspell	South Coast AQMD staff
Barbara Baird	South Coast AQMD staff
Bhaskar Chandan	South Coast AQMD staff
Bayron Gilchrist	South Coast AQMD staff
Sheri Hanizavareh	South Coast AQMD staff
Anissa Heard-Johnson	South Coast AQMD staff
Mark Henninger	South Coast AQMD staff
Sujata Jain	South Coast AQMD staff
Aaron Katzenstein	South Coast AQMD staff
Michael Krause	South Coast AQMD staff
Jason Low	South Coast AQMD staff
Terrence Mann	South Coast AQMD staff
Michael Morris	South Coast AQMD staff
Ron Moskowitz	South Coast AQMD staff
Susan Nakamura	South Coast AQMD staff
Wayne Nastri	South Coast AQMD staff
Sarah Rees	South Coast AQMD staff
Catherine Rodriguez	South Coast AQMD staff
Lisa Tanaka O'Malley	South Coast AQMD staff
Jillian Wong	South Coast AQMD staff
Paul Wright	South Coast AQMD staff
Victor Yip	South Coast AQMD staff

February 2023 Update on Work with U.S. EPA and CARB 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. Key activities with U.S. EPA and CARB since the last report are summarized below.

- RECLAIM/NSR Working Group meeting was not held in February
- Next meeting scheduled for March 9, 2023 to discuss the latest considerations for proposed amendments to Regulation XIII and XX

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT General Counsel's Office

Settlement Penalty Report (01/01/2023 - 01/31/2023)

Total Penalties	
Civil Settlement: MSPAP Settlement:	\$1,447,662.81 \$3,813.00
Total Cash Settlements:	\$1,451,475.81
Fiscal Year through 01/31/2023 Cash Total:	\$3,891,019.44

Fac ID	Company Name	Rule Number	Settled Date	Init	Notice Nbrs/Case Nbrs	Total Settlement
Civil						
141126	AM/PM OF DIAMOND BAR	461, HSC 41960.2	01/04/2023	GV	P69615	\$2,789.66
183832	AST TEXTILE GROUP, INC.	1100, 2004, 2005, 2012	01/26/2023	SH	P66126, P68659, P74253, P74256, P74259, P74261, P74268	\$98,500.08
117912	AVIBANK MANUFACTURING INC.	2202	01/20/2023	SH	P66977	\$1,000.00
800030	CHEVRON PRODUCTS CO.	40 CFR 63.670, 218, 401, 1118, 1173, 1176, 3002, HSC 41701	01/24/2023	BT	P65625, P65626, P65627, P65628, P65629, P65630, P67837, P67839, P75051	\$266,000.00
186899	ENERY HOLDINGS LLC	2004, 2012, 2012 Appendix A, 3002(C)(1)	01/06/2023	SH	P66066, P66072, P66076, P66173	\$12,000.00
124838	EXIDE TECHNOLOGIES	203, 221, 430, 1407, 1420, 2004, 3002, 3004, HSC 42401	01/20/2023	BTG	In re: Exide Technologies, Inc., U.S. Bankruptcy Court, District of Delaware, Case No. 13-11482 (KJC) (Bankruptcy Case); Delaware District Court, Case No.: 19-00891 (Appellate Case); United States Court of Appeals, Third Circuit, Case No. 20-1858	\$349,923.07
176901	FARHA ENTERPRISERS, INC.	203, 461	01/05/2023	RM	P67212, P70358, P70364	\$1,250.00
113160	HILTON COSTA MESA	2004	01/19/2023	JL	P70003	\$5,400.00
183591	INDY'S DEMOLITION	1403	01/06/2023	SH	P69433	\$5,500.00

Fac ID	Company Name	Rule Number	Settled Date	Init	Notice Nbrs/Case Nbrs	Total Settlement
Civil						
8547	QUEMETCO INC.	40 CFR 63.544, 1420.1, 2004, 3002(C)(1)	01/24/2023	JL	P67058, P76066	\$35,000.00
174591	TESORO REF & MKTG CO LLC, CALCINER	1155, 1158, 2004, 3002	01/26/2023	КСМ	P67926, P67950, P74506	\$4,500.00
151798	TESORO REF & MKTG CO LLC CO.	221, 1118, 3002	01/24/2023	КСМ	P67805, P67806, P68969, P68970, P68990	\$5,000.00
195521	TRANE TECHNOLOGIES	1111	01/24/2023	MR	SRV2020-00060	\$660,800.00
Total Civ	vil Settlements: \$1,447,662.81					
MSPAP						
172792	EL SEGUNDO OIL, LLC	1173	01/06/2023	MT	P73352	\$2,477.00
156061	SAND CANYON SERVICE STATION, INC.	461	01/06/2023	MT	P69880	\$1,336.00
Total MS	SPAP Settlements: \$3,813.00					

SOUTH COAST AQMD'S RULES AND REGULATIONS INDEX FOR JANUARY 2023 PENALTY REPORT

REGULATION II - PERMITS

- Rule 203 Permit to Operate
- Rule 218 Continuous Emission Monitoring
- Rule 221 Plans

REGULATION IV - PROHIBITIONS

- Rule 401 Visible Emissions
- Rule 430 Breakdown Provisions
- Rule 461 Gasoline Transfer and Dispensing

REGULATION XI - SOURCE SPECIFIC STANDARDS

- Rule 1100 Implementation Schedule for NOx Facilities
- Rule 1111 NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces
- Rule 1118 Emissions from Refinery Flares
- Rule 1155 Particulate Matter Control Devices
- Rule 1158 Storage, Handling and Transport of Petroleum Coke
- Rule 1173 Fugitive Emissions of Volatile Organic Compounds
- Rule 1176 Sumps and Wastewater Separators

REGULATION XIV - TOXICS

- Rule 1403 Asbestos Emissions from Demolition/Renovation Activities
- Rule 1407 Control of Emissions of Arsenic, Cadmium, and Nickel from Non-Ferrous Metal Melting Operations
- Rule 1420 Emissions Standard for Lead
- Rule 1420.1 Emissions Standards for Lead from Large Lead-Acid Battery Recycling Facilities

REGULATION XX - REGIONAL CLEAN AIR INCENTIVES MARKET (RECLAIM)

- Rule 2004 Requirements
- Rule 2005 New Source Review for RECLAIM
- Rule 2012 Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NOx) Emissions
- Appendix A Protocol for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NOx) Emissions

Rule 2012

REGULATION XXII ON - ROAD MOTOR VEHICLE MITIGATION

Rule 2202 On-Road Motor Vehicle Mitigation Options

REGULATION XXX-TITLE V PERMITS

Rule 3002 Requirements Permit Types and Content Rule 3004

CODE OF FEDERAL REGULATIONS

40 CFR 60, QQQ Standards for Total Enclosure for NESHAPs from Secondary Lead Smelting

CALIFORNIA HEALTH AND SAFETY CODE

- 41701 **Restricted Discharges**
- 41960.2
- Gasoline Vapor Recovery Violation of Order for Abatement 42401



BOARD MEETING DATE: March 3, 2023

REPORT: Technology Committee

SYNOPSIS: The Technology Committee held a hybrid meeting on Friday, February 17, 2023. The following is a summary of the meeting.

RECOMMENDED ACTION: Receive and file.

Carlos Rodriguez, Chair Technology Committee

AK:psc

Committee Members

Present: Council Member Carlos Rodriguez, Chair Supervisor Andrew Do Board Member Gideon Kracov Mayor Larry McCallon Board Member Veronica Padilla-Campos

Absent: None

Call to Order

Carlos Rodriguez, Chair called the meeting to order at 12:00 p.m.

For additional details of the Technology Committee Meeting, please refer to the Webcast.

ACTION ITEMS:

1. Recognize Funds, Execute Contracts and Reimburse the General Fund for Zero-Emission School Bus Funding Using CARB Supplemental Environmental Project Funds

In December 2022, the Board recognized a \$2.9 million award from CARB in Supplemental Environmental Project (SEP) funds to replace diesel school buses with zero-emission buses by contracting with local school districts from a Boardapproved backup project list. CARB is providing an additional \$973,655 in SEP funding consisting of \$707,780 from Dr. Ing. H.C. F. Porsche AG and Porsche Cars North America, Inc. and \$265,875 from BP Products North America for South Coast AQMD to fund additional zero-emission school bus replacement projects. These actions are to: 1) recognize up to \$973,655 into the CARB SEP Special Revenue Fund (87); 2) execute contracts with local school districts to replace diesel school buses with zero-emission buses; and 3) reimburse the General Fund for administrative costs of up to \$68,154 from the CARB SEP Special Revenue Fund (87).

Board Member Kracov commented that he does not have a financial interest but is required to identify for the record that he is a Board Member of CARB, which is involved in this item.

Council Member Rodriguez commented that he does not have a financial interest but is required to identify for the record that he is a Committee Member for the Placentia-Yorba Linda Unified School District, which is involved in this item.

Mayor McCallon inquired on how projects are selected for funding from the backup school bus project list. Staff responded that projects will be selected from the three counties of Orange, Riverside, and San Bernardino since the list of electric school bus projects from Los Angeles County has been exhausted. Staff stated that the projects will be further selected based on project cost-effectiveness, school bus model years (oldest school buses first) and if located in a disadvantage community. Staff further emphasized that these SEPs will be combined with the Fiat Chrysler SEP that was approved by the Board two months ago and that the combined SEP funding is anticipated to fund three school buses per county.

Council Member Rodriquez inquired about the timing and deployment for the funded school buses, to which staff responded that pending manufacturer delivery times, the school buses are anticipated to be deployed in one to two years. For additional details, please refer to the <u>Webcast</u> beginning at 4:08.

Moved by McCallon; seconded by Padilla-Campos; unanimously approved.

Ayes:Do, Kracov, McCallon, Padilla-Campos, RodriguezNoes:NoneAbstain:NoneAbsent:None

2. Transfer Funds for the Voucher Incentive Program and Appropriate Funds for the Development of the Carl Moyer Program Grant Management System In 2022, projects were approved under the Voucher Incentive Program (VIP) and a transfer of \$4 million is needed to fund truck projects under VIP Fund (59). Additionally, in September 2021, the Board approved funds for the development of the Carl Moyer Program Grant Management System (GMS) to support the online application process for participants as well as streamline the application review process. The next phase in the development of the GMS is required to incorporate additional business and administrative processes. These actions are to: 1) transfer up to \$4 million from the Carl Moyer Program AB 923 Special Revenue Fund (80) to the VIP Fund (59); and 2) transfer and appropriate up to \$150,000 comprised of \$75,000 from the administrative portion of the Community Air Protection Program (Grant #G19-MCAP-03-1) Fund (77) and \$75,000 from the administrative portion of the Carl Moyer Program (Grant #G21-MO-27) Fund (32) into Information Management's FY 2022-23 and/or 2023-24 Budget, Services and Supplies and/or Capital Outlays Major Objects.

Board Member Kracov commented that he does not have a financial interest but is required to identify for the record that he is a Board Member of CARB, which is involved in this item.

Board Member Kracov expressed his support of the VIP Program and commented on its importance in the transition of drayage truck fleets towards zero-emission by the 2035 compliance deadline set forth by the Governor's Executive Order. Board Member Kracov also requested periodic updates from staff regarding the implementation and success statistics of the VIP program, particularly with respect to drayage truck fleets. For additional details, please refer to the <u>Webcast</u> beginning at 12:12.

Moved by Kracov; seconded by McCallon; unanimously approved.

Ayes:	Do, Kracov, McCallon, Padilla-Campos, Rodriguez
Noes:	None
Abstain:	None
Absent:	None

3. Approve and Adopt Technology Advancement Office Clean Fuels Program 2022 Annual Report and 2023 Plan Update, Resolution and Membership Changes for Clean Fuels Advisory Group

Each year by March 31, South Coast AQMD must submit to the California Legislative Analyst an approved Annual Report for the past year and a Plan Update for the current calendar year for the Clean Fuels Program. These actions are to: 1) approve and adopt the Technology Advancement Clean Fuels Program Annual Report for 2022 and 2023 Plan Update; 2) adopt the Resolution finding that proposed projects do not duplicate any past or present programs; 3) approve and adopt membership changes to the SB 98 Clean Fuels Advisory Group; and 4) receive and file membership changes to the Technology Advancement Advisory Group.

Board Member Kracov commented that he does not have a financial interest but is required to identify for the record that he is a Board Member of CARB, which is involved in this item.

Mayor McCallon commented that he was pleased to see the new funding category for the zero-emission infrastructure and the significant funding allocation for this category as infrastructure is critical for the zero-emission truck deployment.

Board Member Padilla-Campos commented that she was happy to see more ZE vs NZE projects and the progress the Clean Fuel Program has made.

Council Member Rodriquez encouraged continuous collaboration with the Hydrogen Fuel Cell Partnership (HFCP) and to make sure our efforts and activities are supported by the HFCP. Council Member Rodriquez also requested that staff develop factsheets for the completed projects to disseminate project information effectively to the general public and present examples of infographic within two months. For additional details, please refer to the <u>Webcast</u> beginning at 20:55.

Moved by McCallon; seconded by Do; unanimously approved.

Ayes:Do, McCallon, Padilla-Campos, RodriguezNoes:NoneAbstain:NoneAbsent:Kracov

OTHER MATTERS:

6. Other Business

There was no other business to report.

7. Public Comment Period

There was no public comment to report.

8. Next Meeting Date

The next regular Technology Committee meeting is scheduled for Friday, March 17, 2023, at noon.

Adjournment

The meeting adjourned at 12:47 p.m.

Attachment

Attendance Record

ATTACHMENT

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT TECHNOLOGY COMMITTEE MEETING Attendance Record – February 17, 2023

Supervisor Andrew Do	South Coast AQMD Board Member
Board Member Gideon Kracov	South Coast AQMD Board Member
Mayor Larry McCallon	South Coast AQMD Board Member
Board Member Veronica Padilla-Campos	South Coast AQMD Board Member
Council Member Carlos Rodriguez	South Coast AQMD Board Member
Debra Mendelsohn	Board Consultant (Rodriguez)
Chris Wangsaporn	Board Consultant (Do)
Amy Wong	Board Consultant (Padilla-Campos)
Mark Abramowitz	Public Member
Frank Forbes	Public Member
Gillian Kaas	Public Member
Bethmarie Quiambao	So Cal Edison
Patty Senecal	WSPA
Debra Ashby	South Coast AQMD Staff
Sam Cao	South Coast AQMD Staff
Marjorie Eaton	South Coast AQMD Staff
Dan Garcia	South Coast AQMD Staff
Bayron Gilchrist	South Coast AQMD Staff
Sheri Hanizavareh	South Coast AQMD Staff
Anissa Heard-Johnson	South Coast AQMD Staff
Mark Henninger	South Coast AQMD Staff
Aaron Katzenstein	South Coast AQMD Staff
Patricia Kwon	South Coast AQMD Staff
Ruby Laty	South Coast AQMD Staff
Joseph Lopat	South Coast AQMD Staff
Jason Low	South Coast AQMD Staff
Ron Moskowitz	South Coast AQMD Staff
Wayne Nastri	South Coast AQMD Staff
Susan Nakamura	South Coast AQMD Staff
Ash Nikravan	South Coast AQMD Staff
Kevin Perozo	South Coast AQMD Staff
Aisha Reyes	South Coast AQMD Staff
Ricardo Rivera	South Coast AQMD Staff
Penny Shaw Cedillo	South Coast AQMD Staff
Walter Shen	South Coast AQMD Staff
Yuh Jiun Tan	South Coast AQMD Staff
Donna Vernon	South Coast AQMD Staff
Kristina Voorhess	South Coast AQMD Staff
Mei Wang	South Coast AQMD Staff
Paul Wright	South Coast AQMD Staff
Fan Xu	South Coast AQMD Staff
Alyssa Yan	South Coast AQMD Staff

t	Back	to	Agenda	

BOARD MEETING DATE: March 3, 2023

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, February 16, 2023. The following is a summary of the meeting.

RECOMMENDED ACTION: Receive and file.

Larry McCallon Chair, MSRC

AK:CR:me

FYs 2021-24 Work Program

Receive Update Report on Results of Request for Information for Zero Emission Goods Movement Infrastructure

Staff provided a status update on the Publicly Accessible Goods Movement Zero Emission Infrastructure Request for Information (RFI). The MSRC identified up to \$50,000,000 for this effort. The RFI had a submittal deadline of November 30, 2022. A total of 23 responses were received with proposals ranging from technology vendor information to full proposals. The MSRC-TAC Goods Movement Subcommittee has developed a structured evaluation process to 1) document and categorize each response; 2) engage potential funding partners; and 3) develop options for future MSRC consideration.

Contract Modification Requests

The MSRC considered four contract modification requests and took the following actions:

1. Riverside County Transportation Commission, Contract #MS16094 to implement Metrolink First Mile/Last Mile Mobility Strategies, approval of ten-month no-cost term extension;

- 2. City of Torrance, Contract #ML16039 to install EV charging infrastructure, approval of nineteen-month no-cost term extension;
- 3. Volvo Financial Services, Contract #MS21019 to lease up to 14 zero emission trucks and provide charging infrastructure, approval to modify payment schedule; and
- 4. City of Long Beach, Contract #ML18055 to install EV charging infrastructure, approval to modify operational requirement.

Contracts Administrator's Report

The MSRC AB 2766 Contracts Administrator's report provides a written status report on all open contracts from FY 2008-09 to the present. The Contracts Administrator's Report for January 5 through January 25, 2023 is attached (*Attachment 1*).

Attachment

January 5 through January 25, 2023 Contracts Administrator's Report



MSRC Agenda Item No. 3

DATE:	February 16, 2023
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 January 5 to 25, 2023.
RECOMMENDATION:	Receive and file report

WORK PROGRAM IMPACT: None

Contract Execution Status

2018-21 Work Program

On April 5, 2019, the SCAQMD Governing Board approved an award under the Major Event Center Transportation Program. This contract is executed.

On September 6, 2019, the SCAQMD Governing Board approved an award under the Major Event Center Transportation Program. This contract is executed.

On December 6, 2019, the SCAQMD Governing Board approved an award under the Major Event Center Transportation Program. This contract is executed.

On September 4, 2020, the SCAQMD Governing Board approved an award under the Last Mile component of the MSRC's Regional Goods Movement Program. This contract is executed.

On April 2, 2021, the SCAQMD Governing Board approved five awards under the Zero and Near-Zero Emission Cargo Handling Equipment at Warehouse, Distribution and Intermodal Facilities in Riverside and San Bernardino Counties Program and ten awards under the Zero and Near-Zero Emission Trucking to Warehouse, Distribution and Intermodal Facilities in Riverside and San Bernardino Counties Program. These contracts are executed.

On June 4, 2021, the SCAQMD Governing Board approved an award under the Major Event Center Transportation Program. This award has been declined.

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 with the prospective contractor for signature.
Work Program Status

Contract Status Reports for Work Program years with open and/or pending contracts are attached.

FY 2010-11 Work Program Contracts

One contract from this Work Program year is open.

FY 2010-11 Invoices Paid

No invoices were paid during this period.

FY 2011-12 Work Program Contracts

4 contracts are 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

5 contracts from this Work Program year are open, and 12 are in "Open/Complete" status.

FYs 2012-14 Invoices Paid No invoices were paid during this period.

FYs 2014-16 Work Program Contracts

17 contracts from this Work Program year are open, and 20 are in "Open/Complete" status. 4 contracts closed during this period: City of Hermosa Beach, Contract #ML16018 – Purchase 2 Medium-Duty Natural Gas Vehicles & Conduct Bicycle Outreach; Burrtec Waste & Recycling Services, Contract #MS16087 – Construct New Limited Access CNG Station; Transit Systems Unlimited, Contract #MS16088 – Expand Existing CNG Station; and Riverside Transit Agency, Contract #MS16116 – Purchase One Transit Bus.

FYs 2014-16 Invoices Paid

No invoices were paid during this period.

FYs 2016-18 Work Program Contracts

63 contracts from this Work Program year are open, and 52 are in "Open/Complete" status. One contract closed during this period: City of Irwindale, Contract #ML18160 –Procure 2 Light-Duty Zero Emission Vehicles. One contract passed into "Open/Complete" status during this period: City of Santa Monica, Contract #ML18080 – Install EV Charging Stations.

FYs 2016-18 Invoices Paid

3 invoices totaling \$146,380.00 were paid during this period.

FYs 2018-21 Work Program Contracts

17 contracts from this Work Program year are open.

FYs 2018-21 Invoices Paid

One invoice in the amount of \$2,429.65 was paid during this period.

Administrative Scope Changes

One administrative scope change was initiated during the period from January 5 to 25, 2023:

• City of Santa Monica, Contract #ML18080 (Install EV Charging Infrastructure) – Reduce scope and value by \$77,211

Attachments

• FY 2010-11 through FYs 2018-21 (except FY 2009-10) Contract Status Reports



AB2766 Discretionary Fund Program Invoices

January 5 to January 25, 2023

Contract Admin.	MSRC Chair	MSRC Liaison	Finance	Contract #	Contractor	Invoice #	Amount
2016-	2018 Work Prog	ıram					
1/18/2023	1/20/2023	1/24/2023		ML18170	City of Laguna Niguel	INV00084	\$75,100.00
1/13/2023	1/20/2023	1/25/2023	1/31/2023	ML18142	City of La Quinta	1/FINAL	\$51,780.00
Total: \$126,8	80.00						
2018-	2021 Work Prog	ıram					
1/12/2023	2/2023 1/20/2023 1/24/2023 MS21002 E		Better World Group Advisors	WG-MSRC3	\$2,429.65		

Total: \$2,429.65

Total This Period: \$129,309.65



2/9/2023

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
FY 201	0-2011 Contracts								
Open Cont	racts								
ML11029	City of Santa Ana - Public Works Ag	9/7/2012	3/6/2020	3/6/2023	\$75,000.00	\$75,000.00	Install New LPG Station	\$0.00	Yes
Total: 1						I	-		-
Declined/C	ancelled Contracts								
ML11038	City of Santa Monica	5/18/2012	7/17/2018		\$400,000.00	\$0.00	Maintenance Facility Modifications	\$400,000.00	No
MS11013	Go Natural Gas, Inc.				\$150,000.00	\$0.00	New CNG Station - Huntington Beach	\$150,000.00	No
MS11014	Go Natural Gas, Inc.				\$150,000.00	\$0.00	New CNG Station - Santa Ana	\$150,000.00	No
MS11015	Go Natural Gas, Inc.				\$150,000.00	\$0.00	New CNG Station - Inglewood	\$150,000.00	No
MS11046	Luis Castro				\$40,000.00	\$0.00	Repower One Heavy-Duty Vehicle	\$40,000.00	No
MS11047	Ivan Borjas				\$40,000.00	\$0.00	Repower One Heavy-Duty Vehicle	\$40,000.00	No
MS11048	Phase II Transportation				\$1,080,000.00	\$0.00	Repower 27 Heavy-Duty Vehicles	\$1,080,000.00	No
MS11049	Ruben Caceras				\$40,000.00	\$0.00	Repower One Heavy-Duty Vehicle	\$40,000.00	No
MS11050	Carlos Arrue				\$40,000.00	\$0.00	Repower One Heavy-Duty Vehicle	\$40,000.00	No
MS11051	Francisco Vargas				\$40,000.00	\$0.00	Repower One Heavy-Duty Vehicle	\$40,000.00	No
MS11053	Jose Ivan Soltero				\$40,000.00	\$0.00	Repower One Heavy-Duty Vehicle	\$40,000.00	No
MS11054	Albino Meza				\$40,000.00	\$0.00	Repower One Heavy-Duty Vehicle	\$40,000.00	No
MS11059	Go Natural Gas				\$150,000.00	\$0.00	New Public Access CNG Station - Paramou	\$150,000.00	No
MS11063	Standard Concrete Products				\$310,825.00	\$0.00	Retrofit Two Off-Road Vehicles under Showc	\$310,825.00	No
MS11070	American Honda Motor Company				\$100,000.00	\$0.00	Expansion of Existing CNG Station	\$100,000.00	No
MS11072	Trillium USA Company DBA Californi				\$150,000.00	\$0.00	New Public Access CNG Station	\$150,000.00	No
MS11077	DCL America Inc.				\$263,107.00	\$0.00	Retrofit of 13 Off-Road Diesel Vehicles with	\$263,107.00	No
MS11083	Cattrac Construction, Inc.				\$500,000.00	\$0.00	Install DECS on Eight Off-Road Vehicles	\$500,000.00	No
MS11084	Ivanhoe Energy Services and Develo				\$66,750.00	\$0.00	Retrofit One H.D. Off-Road Vehicle Under S	\$66,750.00	No
MS11088	Diesel Emission Technologies				\$32,750.00	\$0.00	Retrofit Three H.D. Off-Road Vehicles Under	\$32,750.00	No
MS11089	Diesel Emission Technologies				\$9,750.00	\$0.00	Retrofit One H.D. Off-Road Vehicle Under S	\$9,750.00	No
MS11090	Diesel Emission Technologies				\$14,750.00	\$0.00	Retrofit One H.D. Off-Road Vehicle Under S	\$14,750.00	No
Total: 22									
Closed Co	ntracts								
ML11007	Coachella Valley Association of Gov	7/29/2011	7/28/2012		\$250,000.00	\$249,999.96	Regional PM10 Street Sweeping Program	\$0.04	Yes
ML11020	City of Indio	2/1/2013	3/31/2019	9/30/2020	\$15,000.00	\$9,749.50	Retrofit one H.D. Vehicles w/DECS, repower	\$5,250.50	Yes
ML11021	City of Whittier	1/27/2012	9/26/2018	6/26/2019	\$210,000.00	\$210,000.00	Purchase 7 Nat. Gas H.D. Vehicles	\$0.00	Yes
ML11022	City of Anaheim	3/16/2012	7/15/2018		\$150,000.00	\$150,000.00	Purchase of 5 H.D. Vehicles	\$0.00	Yes

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
ML11023	City of Rancho Cucamonga	4/20/2012	12/19/2018	9/19/2020	\$260,000.00	\$260,000.00	Expand Existing CNG Station, 2 H.D. Vehicl	\$0.00	Yes
ML11024	County of Los Angeles, Dept of Publi	12/5/2014	6/4/2022		\$90,000.00	\$90,000.00	Purchase 3 Nat. Gas H.D. Vehicles	\$0.00	Yes
ML11025	County of Los Angeles Department o	3/14/2014	9/13/2021		\$150,000.00	\$150,000.00	Purchase 5 Nat. Gas H.D. Vehicles	\$0.00	Yes
ML11026	City of Redlands	3/2/2012	10/1/2018		\$90,000.00	\$90,000.00	Purchase 3 Nat. Gas H.D. Vehicles	\$0.00	Yes
ML11027	City of Los Angeles, Dept. of Genera	5/4/2012	7/3/2015	1/3/2016	\$300,000.00	\$300,000.00	Maintenance Facility Modifications	\$0.00	Yes
ML11028	City of Glendale	1/13/2012	5/12/2018		\$300,000.00	\$300,000.00	Purchase 10 H.D. CNG Vehicles	\$0.00	Yes
ML11030	City of Fullerton	2/3/2012	3/2/2018		\$109,200.00	\$109,200.00	Purchase 2 Nat. Gas H.D. Vehicles, Retrofit	\$0.00	Yes
ML11031	City of Culver City Transportation De	12/2/2011	12/1/2018		\$300,000.00	\$300,000.00	Purchase 10 H.D. Nat. Gas Vehicles	\$0.00	Yes
ML11032	City of Gardena	3/2/2012	9/1/2018	10/1/2020	\$102,500.00	\$102,500.00	Purchase Heavy-Duty CNG Vehicle, Install	\$0.00	Yes
ML11033	City of Los Angeles, Bureau of Sanit	3/16/2012	1/15/2019		\$1,080,000.00	\$1,080,000.00	Purchase 36 LNG H.D. Vehicles	\$0.00	Yes
ML11034	City of Los Angeles Dept of General	5/4/2012	1/3/2019		\$630,000.00	\$630,000.00	Purchase 21 H.D. CNG Vehicles	\$0.00	Yes
ML11035	City of La Quinta	11/18/2011	11/17/2012		\$25,368.00	\$25,368.00	Retrofit 3 On-Road Vehicles w/DECS	\$0.00	Yes
ML11036	City of Riverside	1/27/2012	1/26/2019	3/26/2021	\$670,000.00	\$670,000.00	Install New CNG Station, Purchase 9 H.D. N	\$0.00	Yes
ML11037	City of Anaheim	12/22/2012	12/21/2019		\$300,000.00	\$300,000.00	Purchase 12 Nat. Gas H.D. Vehicles	\$0.00	Yes
ML11039	City of Ontario, Housing & Municipal	1/27/2012	9/26/2018		\$180,000.00	\$180,000.00	Purchase 6 Nat. Gas H.D. Vehicles	\$0.00	Yes
ML11040	City of South Pasadena	5/4/2012	1/3/2019	1/3/2022	\$30,000.00	\$30,000.00	Purchase 1 Nat. Gas H.D. Vehicle	\$0.00	Yes
ML11041	City of Santa Ana - Public Works Ag	9/7/2012	11/6/2018	1/6/2021	\$265,000.00	\$244,651.86	Purchase 7 LPG H.D. Vehicles, Retrofit 6 H.	\$20,348.14	Yes
ML11042	City of Chino	2/17/2012	4/16/2018		\$30,000.00	\$30,000.00	Purchase 1 Nat. Gas H.D. Vehicle, Repower	\$0.00	Yes
ML11043	City of Hemet Public Works	2/3/2012	2/2/2019		\$60,000.00	\$60,000.00	Purchase 2 H.D. Nat. Gas Vehicles	\$0.00	Yes
ML11044	City of Ontario, Housing & Municipal	1/27/2012	6/26/2019		\$400,000.00	\$400,000.00	Expand Existing CNG Station	\$0.00	Yes
ML11045	City of Newport Beach	2/3/2012	8/2/2018	3/2/2021	\$30,000.00	\$30,000.00	Purchase 1 Nat. Gas H.D. Vehicle	\$0.00	Yes
MS11001	Mineral LLC	4/22/2011	4/30/2013	4/30/2015	\$111,827.00	\$103,136.83	Design, Develop, Host and Maintain MSRC	\$8,690.17	Yes
MS11002	A-Z Bus Sales, Inc.	7/15/2011	12/31/2011	6/30/2013	\$1,705,000.00	\$1,705,000.00	Alternative Fuel School Bus Incentive Progra	\$0.00	Yes
MS11003	BusWest	7/26/2011	12/31/2011	12/31/2012	\$1,305,000.00	\$1,305,000.00	Alternative Fuel School Bus Incentive Progra	\$0.00	Yes
MS11004	Los Angeles County MTA	9/9/2011	2/29/2012		\$450,000.00	\$299,743.34	Clean Fuel Transit Service to Dodger Stadiu	\$150,256.66	Yes
MS11006	Orange County Transportation Autho	10/7/2011	2/29/2012	8/31/2012	\$268,207.00	\$160,713.00	Metrolink Service to Angel Stadium	\$107,494.00	Yes
MS11008	USA Waste of California, Inc.	10/24/2013	4/23/2020		\$125,000.00	\$125,000.00	Expansion of Existing LCNG Station	\$0.00	Yes
MS11009	USA Waste of California, Inc.	10/24/2013	4/23/2020		\$125,000.00	\$125,000.00	Expansion of Existing LCNG Station	\$0.00	Yes
MS11010	Border Valley Trading	8/26/2011	10/25/2017	4/25/2020	\$150,000.00	\$150,000.00	New LNG Station	\$0.00	Yes
MS11011	EDCO Disposal Corporation	12/30/2011	4/29/2019		\$100,000.00	\$100,000.00	New CNG Station - Signal Hill	\$0.00	Yes
MS11012	EDCO Disposal Corporation	12/30/2011	4/29/2019		\$100,000.00	\$100,000.00	New CNG Station - Buena Park	\$0.00	Yes
MS11016	CR&R Incorporated	4/12/2013	10/11/2019		\$100,000.00	\$100,000.00	New CNG Station - Perris	\$0.00	Yes
MS11017	CR&R, Inc.	3/2/2012	2/1/2018		\$100,000.00	\$100,000.00	Expansion of existing station - Garden Grove	\$0.00	Yes
MS11018	Orange County Transportation Autho	10/14/2011	1/31/2012		\$211,360.00	\$211,360.00	Express Bus Service to Orange County Fair	\$0.00	Yes
MS11019	City of Corona	11/29/2012	4/28/2020		\$225,000.00	\$225,000.00	Expansion of Existing CNG Station	\$0.00	Yes
MS11052	Krisda Inc	9/27/2012	6/26/2013		\$120,000.00	\$120,000.00	Repower Three Heavy-Duty Vehicles	\$0.00	Yes
MS11055	KEC Engineering	2/3/2012	8/2/2018	8/2/2019	\$200,000.00	\$200,000.00	Repower 5 H.D. Off-Road Vehicles	\$0.00	Yes

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
MS11056	Better World Group Advisors	12/30/2011	12/29/2013	12/29/2015	\$206,836.00	\$186,953.46	Programmatic Outreach Services	\$19,882.54	Yes
MS11057	Riverside County Transportation Co	7/28/2012	3/27/2013		\$100,000.00	\$89,159.40	Develop and Implement 511 "Smart Phone"	\$10,840.60	Yes
MS11058	L A Service Authority for Freeway E	5/31/2013	4/30/2014		\$123,395.00	\$123,395.00	Implement 511 "Smart Phone" Application	\$0.00	Yes
MS11060	Rowland Unified School District	8/17/2012	1/16/2019	1/16/2020	\$175,000.00	\$175,000.00	New Limited Access CNG Station	\$0.00	Yes
MS11061	Eastern Municipal Water District	3/29/2012	5/28/2015		\$11,659.00	\$1,450.00	Retrofit One Off-Road Vehicle under Showc	\$10,209.00	Yes
MS11062	Load Center	9/7/2012	1/6/2016	12/6/2016	\$175,384.00	\$169,883.00	Retrofit Six Off-Road Vehicles under Showc	\$5,501.00	Yes
MS11065	Temecula Valley Unified School Distr	8/11/2012	1/10/2019		\$50,000.00	\$48,539.62	Expansion of Existing CNG Station	\$1,460.38	Yes
MS11066	Torrance Unified School District	11/19/2012	9/18/2018		\$42,296.00	\$42,296.00	Expansion of Existing CNG Station	\$0.00	Yes
MS11067	City of Redlands	5/24/2012	11/23/2018	11/23/2019	\$85,000.00	\$85,000.00	Expansion of Existing CNG Station	\$0.00	Yes
MS11068	Ryder System Inc.	7/28/2012	10/27/2018		\$175,000.00	\$175,000.00	New Public Access L/CNG Station (Fontana)	\$0.00	Yes
MS11069	Ryder System Inc.	7/28/2012	8/27/2018		\$175,000.00	\$175,000.00	New Public Access L/CNG Station (Orange)	\$0.00	Yes
MS11071	City of Torrance Transit Department	12/22/2012	1/21/2019	1/21/2020	\$175,000.00	\$175,000.00	New Limited Access CNG Station	\$0.00	Yes
MS11073	Los Angeles Unified School District	9/11/2015	2/10/2022		\$175,000.00	\$175,000.00	Expansion of Existing CNG Station	\$0.00	Yes
MS11074	SunLine Transit Agency	5/11/2012	7/31/2012		\$41,849.00	\$22,391.00	Transit Service for Coachella Valley Festival	\$19,458.00	Yes
MS11079	Bear Valley Unified School District	2/5/2013	10/4/2019		\$175,000.00	\$175,000.00	New Limited Access CNG Station	\$0.00	Yes
MS11080	Southern California Regional Rail Au	4/6/2012	7/31/2012		\$26,000.00	\$26,000.00	Metrolink Service to Auto Club Speedway	\$0.00	Yes
MS11086	DCL America Inc.	6/7/2013	10/6/2016		\$500,000.00	\$359,076.96	Retrofit Eight H.D. Off-Road Vehicles Under	\$140,923.04	Yes
MS11087	Cemex Construction Material Pacific,	10/16/2012	2/15/2016		\$448,766.00	\$448,760.80	Retrofit 13 H.D. Off-Road Vehicles Under Sh	\$5.20	Yes
MS11092	Griffith Company	2/15/2013	6/14/2016	12/14/2017	\$390,521.00	\$78,750.00	Retrofit 17 H.D. Off-Road Vehicles Under Sh	\$311,771.00	Yes

Closed/Inco	mplete Contracts								
MS11064	City of Hawthorne	7/28/2012	8/27/2018	8/27/2019	\$175,000.00	\$0.00	New Limited Access CNG Station	\$175,000.00	No
MS11076	SA Recycling, LLC	5/24/2012	9/23/2015		\$424,801.00	\$0.00	Retrofit of 13 Off-Road Diesel Vehicles with	\$424,801.00	No
MS11081	Metropolitan Stevedore Company	9/7/2012	1/6/2016		\$45,416.00	\$0.00	Install DECS on Two Off-Road Vehicles	\$45,416.00	No
MS11082	Baumot North America, LLC	8/2/2012	12/1/2015		\$65,958.00	\$4,350.00	Install DECS on Four Off-Road Vehicles	\$61,608.00	Yes
MS11085	City of Long Beach	8/23/2013	12/22/2016		\$159,012.00	\$0.00	Retrofit Seven H.D. Off-Road Vehicles Unde	\$159,012.00	No
MS11091	California Cartage Company, LLC	4/5/2013	8/4/2016	2/4/2018	\$55,000.00	\$0.00	Retrofit Two H.D. Off-Road Vehicles Under	\$55,000.00	No

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
FY 2011	-2012 Contracts								
Declined/Ca	ancelled 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

Closed Col	ntracts								
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
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
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

Contit	Contractor	Stort Data	Original End Date	Amended End Date	Contract Value	Domittad	Drainat Departmention	Award Balance	Billing
	Contractor	Start Date	10/04/0010	Ena Date	¢40.000.00	Remitted	Project Description	fo oo	Complete?
ML12055	City of Manhattan Beach	3/1/2013	12/31/2018		\$10,000.00	\$10,000.00	One Medium-Duty Nat. Gas Venicle	\$0.00	Yes
ML12056	City of Cathedral City	3/26/2013	5/25/2014	4/07/0000	\$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 Stadiu	\$88,830.00	Yes
MS12002	Orange County Transportation Autho	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 Autho	7/20/2012	2/28/2013		\$234,669.00	\$167,665.12	Implement Metrolink Service to Angel Stadiu	\$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 Distric	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 Dist	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 Autho	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 Autho	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 Allov Light Metals, Inc.	8/16/2013	2/15/2020		\$100.000.00	\$100.000.00	Install New Limited Access CNG Station	\$0.00	Yes
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

			Original	Amended	Contract			Award	Billing
Cont.#	Contractor	Start Date	End Date	End Date	Value	Remitted	Project Description	Balance	Complete?
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
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: 71									
Closed/Inco	omplete 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/Com	plete Contracts								
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
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
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

\$59,454.00

\$59,454.00

Install New CNG Infrastructure

\$0.00

Yes

MS12083 Total: 4 Brea Olinda Unified School District

7/30/2015

2/29/2024

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
FY 2012	2-2014 Contracts								
Open Contr	acts								
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
ML14027	County of Los Angeles Dept of Publi	10/2/2015	5/1/2023	12/1/2025	\$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	10/6/2023	\$1,250,000.00	\$0.00	Implement Various Signal Synchronization P	\$1,250,000.00	No
MS14059	Riverside County Transportation Co	9/5/2014	3/4/2018	4/4/2023	\$1,250,000.00	\$899,594.08	Implement Various Signal Synchronization P	\$350,405.92	No
MS14072	San Bernardino County Transportatio	3/27/2015	3/26/2018	3/26/2024	\$1,250,000.00	\$1,148,376.17	Implement Various Signal Synchronization P	\$101,623.83	No
Total: 5									
Declined/Ca	ancelled 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 Con	tracts								
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
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

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
MI 14033	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
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, Bicv	\$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
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 Improveme	\$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
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
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
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: 62	· ·								1
Closed/Inco	omplete 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
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: 6									
Open/Com	olete 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
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
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
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
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
MS14075	Fullerton Joint Union High School Di	7/22/2016	11/21/2023		\$300,000.00	\$293,442.00	Expansion of Existing CNG Infrastructure/Ma	\$6,558.00	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
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
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
Total: 12									

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
FY 2014	4-2016 Contracts								
Open Cont	racts								
ML16006	City of Cathedral City	4/27/2016	4/26/2022	4/26/2023	\$25,000.00	\$0.00	Bicycle Outreach	\$25,000.00	No
ML16010	City of Fullerton	10/7/2016	4/6/2023	4/6/2024	\$78,222.00	\$27,896.71	Install EV Charging Stations	\$50,325.29	No
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
ML16022	Los Angeles Department of Water an	5/5/2017	3/4/2024	9/4/2027	\$240,000.00	\$0.00	Purchase 8 H.D. Nat. Gas Vehicles	\$240,000.00	No
ML16025	City of South Pasadena	6/22/2016	4/21/2023	10/21/2024	\$160,000.00	\$0.00	Purchase H.D. Nat. Gas Vehicle, Expand Ex	\$160,000.00	No
ML16039	City of Torrance Transit Department	1/6/2017	9/5/2022	9/5/2024	\$32,000.00	\$0.00	Install Eight Level II EV Chargers	\$32,000.00	No
ML16040	City of Eastvale	1/6/2017	7/5/2022	7/5/2026	\$110,000.00	\$53,908.85	Install EV Charging Infrastructure	\$56,091.15	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
ML16048	City of Placentia	3/26/2016	5/25/2021	12/25/2026	\$80,000.00	\$18,655.00	Install EV Charging Infrastructure	\$61,345.00	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	4/24/2023	\$1,909,241.00	\$0.00	MetroLink First Mile/Last Mile Mobility Strate	\$1,909,241.00	No
MS16110	City of Riverside	10/6/2017	2/5/2025	10/5/2026	\$270,000.00	\$71,250.00	Expansion of Existing CNG Station and Main	\$198,750.00	No
MS16120	Omnitrans	4/7/2017	5/6/2025		\$945,000.00	\$826,500.00	Repower 63 Existing Buses	\$118,500.00	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
MS16123	Orange County Transportation Autho	12/7/2018	11/6/2023		\$91,760.00	\$0.00	Install La Habra Union Pacific Bikeway	\$91,760.00	No

Declined/C	ancelled 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

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
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
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
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

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
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
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
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
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
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
MS16116	Riverside Transit Agency	3/3/2017	1/2/2023		\$10,000.00	\$9,793.00	Purchase One Transit Bus	\$207.00	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: 70									

Closed/Incomplete Contracts												
ML16005	City of Palm Springs	3/4/2016	10/3/2017		\$40,000.00	\$0.00	Install Bicycle Racks, and Implement Bicycle	\$40,000.00	No			
ML16035	City of Wildomar	4/1/2016	11/1/2017		\$500,000.00	\$0.00	Install Bicycle Lanes	\$500,000.00	No			

Cont #	Contractor	Start Data	Original End Date	Amended End Date	Contract Value	Pomittod	Project Description	Award Balance	Billing
MS16082	Riverside County Transportation Co	9/3/2016	8/2/2018		\$590 759 00	\$337 519 71	Extended Freeway Service Patrols	\$253 239 29	No.
MS160002	Los Angeles County MTA	10/27/2016	4/26/2020	10/26/2020	\$2,500,000,00	\$0.00	Expansion of the Willowbrook/Rosa Parks Tr	\$2,500,000,00	No
MS16001	San Bornardina County Transportatio	10/7/2016	4/20/2020	10/20/2020	\$2,500,000.00	\$0.00	Traffic Signal Synchronization Projects	\$2,500,000.00	No
Tatala E	San Bernardino County Transportatio	10/7/2010	11/0/2018		\$1,000,000.00	\$0.00	Traine Signal Synchronization Projects	\$1,000,000.00	INU
Total: 5									
Open/Comp	lete Contracts		1		1				
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
ML16008	City of Pomona	9/20/2016	11/19/2022	5/19/2025	\$60,000.00	\$60,000.00	Purchase 3 Medium-Duty and 1 Heavy-Duty	\$0.00	Yes
ML16013	City of Monterey Park	12/4/2015	7/3/2022	7/3/2024	\$90,000.00	\$90,000.00	Purchase 3 Heavy-Duty Nat. Gas Vehicles	\$0.00	Yes
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
ML16021	City of Santa Clarita	10/7/2016	6/6/2024		\$49,400.00	\$49,399.00	Install EV Charging Infrastructure	\$1.00	Yes
ML16041	City of Moreno Valley	9/3/2016	1/2/2021	4/2/2024	\$20,000.00	\$20,000.00	Install EV Charging Infrastructure	\$0.00	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
ML16058	Los Angeles County Department of P	10/7/2016	4/6/2024		\$371,898.00	\$371,898.00	Purchase 11 H.D. Nat. Gas Vehicles and Ins	\$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
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	No
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
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
MS16105	Huntington Beach Union High School	3/3/2017	7/2/2024		\$175,000.00	\$175,000.00	Expansion of Existing CNG Infrastructure	\$0.00	Yes
MS16112	Orange County Transportation Autho	4/14/2017	3/13/2024		\$1,470,000.00	\$1,470,000.00	Repower Up to 98 Transit Buses	\$0.00	Yes
MS16113	Los Angeles County MTA	5/12/2017	4/11/2024		\$1,875,000.00	\$1,875,000.00	Repower Up to 125 Transit Buses	\$0.00	Yes
MS16114	City of Norwalk	3/3/2017	6/2/2024		\$32,170.00	\$32,170.00	Purchase 3 Transit Buses	\$0.00	Yes
MS16115	City of Santa Monica	4/14/2017	7/13/2025		\$450,000.00	\$450,000.00	Repower 30 Transit Buses	\$0.00	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

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
FY 2016	5-2018 Contracts								
Open Cont	racts								
ML18030	City of Grand Terrace	6/28/2018	3/27/2022	3/27/2025	\$45,000.00	\$0.00	Install EVSE	\$45,000.00	No
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
ML18036	City of Indian Wells	8/8/2018	5/7/2023	5/7/2026	\$50,000.00	\$0.00	Install EV Charging Stations	\$50,000.00	No
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
ML18046	City of Santa Ana - Public Works Ag	11/9/2018	7/8/2026		\$385,000.00	\$0.00	Purchase 6 Light-Duty ZEVs, 9 Heavy-Duty	\$385,000.00	No
ML18047	City of Whittier	8/8/2018	4/7/2026	1/7/2029	\$113,910.00	\$68,346.00	Purchase 5 Heavy-Duty Near-Zero Emission	\$45,564.00	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	\$72,500.00	Purchase 6 Light-Duty ZEVs, Install 3 Limite	\$19,000.00	No
ML18055	City of Long Beach	11/29/2018	11/28/2026		\$622,220.00	\$302,401.53	Install EV Charging Stations	\$319,818.47	No
ML18057	City of Carson	10/5/2018	7/4/2023		\$106,250.00	\$50,000.00	Purchase 5 Zero-Emission Vehicles and Infr	\$56,250.00	No
ML18058	City of Perris	10/12/2018	11/11/2024		\$94,624.00	\$0.00	Purchase 1 Medium-Duty ZEV and EV Char	\$94,624.00	No
ML18059	City of Glendale Water & Power	2/1/2019	7/31/2026	1/31/2028	\$260,500.00	\$0.00	Install Electric Vehicle Charging Infrastructur	\$260,500.00	No
ML18060	County of Los Angeles Internal Servi	10/5/2018	8/4/2026	8/4/2028	\$1,367,610.00	\$599,306.31	Purchase 29 Light-Duty Zero Emission Vehi	\$768,303.69	No
ML18063	City of Riverside	6/7/2019	1/6/2027		\$383,610.00	\$0.00	Expand Existing CNG Stations	\$383,610.00	No
ML18064	City of Eastvale	11/29/2018	4/28/2026	4/28/2028	\$80,400.00	\$28,457.43	Purchase 2 Light-Duty, One Medium-Duty. Z	\$51,942.57	No
ML18067	City of Pico Rivera	9/7/2018	11/6/2022	7/6/2025	\$83,500.00	\$0.00	Install EVSE	\$83,500.00	No
ML18068	City of Mission Viejo	7/31/2019	6/30/2027		\$125,690.00	\$10,000.00	Purchase 2 Light-Duty ZEVs, Install EVSE &	\$115,690.00	No
ML18069	City of Torrance	3/1/2019	7/31/2027		\$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	9/17/2024	\$30,000.00	\$0.00	EV Charging Infrastructure	\$30,000.00	No
ML18089	City of Glendora	7/19/2019	4/18/2025	10/18/2028	\$50,760.00	\$0.00	Purchase a medium-duty ZEV	\$50,760.00	No
ML18091	City of Temecula	1/19/2019	7/18/2023		\$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
ML18093	City of Monterey Park	2/1/2019	2/28/2026		\$25,000.00	\$0.00	Purchase Heavy-Duty Near-ZEV	\$25,000.00	No
ML18094	City of Laguna Woods	7/12/2019	12/11/2024		\$50,000.00	\$0.00	Install Two EV Charging Stations	\$50,000.00	No
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	No
ML18101	City of Burbank	2/1/2019	4/30/2024	10/30/2024	\$137,310.00	\$0.00	Install Twenty EV Charging Stations	\$137,310.00	No
ML18129	City of Yucaipa	12/14/2018	3/13/2023	3/13/2026	\$63,097.00	\$0.00	Install Six EV Charging Stations	\$63,097.00	No
ML18132	City of Montclair	4/5/2019	9/4/2023		\$40,000.00	\$0.00	Install Eight EVSEs	\$40,000.00	No
ML18134	City of Los Angeles Dept of General	5/3/2019	5/2/2028		\$290,000.00	\$0.00	Purchase Five Medium-Duty ZEVs	\$290,000.00	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
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
ML18141	City of Rolling Hills Estates	2/14/2020	1/13/2024	1/13/2025	\$40,000.00	\$10,000.00	Purchase One Light-Duty ZEV and Install T	\$30,000.00	No

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
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
ML18144	City of Fontana Public Works	10/4/2019	12/3/2023		\$269,090.00	\$0.00	Install Twelve EVSEs	\$269,090.00	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	11/30/2025	\$127,400.00	\$50,000.00	Purchase Five Light-Duty ZEVs and Install T	\$77,400.00	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		\$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
ML18159	City of Rialto	12/13/2019	5/12/2024	9/19/2025	\$135,980.00	\$16,597.86	Purchase Nine Light-Duty ZEVs and EV Cha	\$119,382.14	No
ML18163	City of San Clemente	3/8/2019	12/7/2024	12/7/2025	\$85,000.00	\$70,533.75	Purchase Four Light-Duty ZEVs and EV Cha	\$14,466.25	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
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
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
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
MS18015	Southern California Association of G	7/13/2018	2/28/2021	5/31/2023	\$2,000,000.00	\$415,803.97	Southern California Future Communities Par	\$1,584,196.03	No
MS18023	Riverside County Transportation Co	6/28/2018	6/27/2021	3/31/2023	\$500,000.00	\$476,793.88	Weekend Freeway Service Patrols	\$23,206.12	No
MS18024	Riverside County Transportation Co	6/28/2018	8/27/2021	8/27/2023	\$1,500,000.00	\$812,660.00	Vanpool Incentive Program	\$687,340.00	No
MS18027	City of Gardena	11/2/2018	9/1/2026	1/1/2028	\$365,000.00	\$0.00	Install New Limited Access CNG, Modify Mai	\$365,000.00	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
MS18065	San Bernardino County Transportatio	3/29/2019	8/28/2023		\$2,000,000.00	\$2,000,000.00	Implement Metrolink Line Fare Discount Pro	\$0.00	No
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	No
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
MS18108	Capistrano Unified School District	2/1/2019	5/30/2025		\$116,000.00	\$0.00	Expansion of Existing Infrastructure & Train	\$116,000.00	No
MS18110	Mountain View Unified School Distric	2/1/2019	3/31/2025		\$275,000.00	\$0.00	Install New Limited-Access CNG Infrastructu	\$275,000.00	No
MS18115	City of Commerce	6/7/2019	12/6/2025	7/6/2026	\$275,000.00	\$0.00	Expansion of Existing L/CNG Infrastructure	\$275,000.00	No
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	No
MS18180	Omnitrans	8/4/2022	8/3/2023		\$83,000.00	\$0.00	Modify Vehicle Maintenance Facility and Trai	\$83,000.00	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: 62									

Pending Execution Contracts												
MS18181	San Bernardino County Transportatio		\$1,662,000.00	\$0.00	Construct Hydrogen Fueling Station	\$1,662,000.00	No					
MS18182	Air Products and Chemicals Inc.		\$1,000,000.00	\$0.00	Install Publicly Accessible Hydrogen Fueling	\$1,000,000.00	No					

Declined/Ca	ancelled 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

			Original	Amended	Contract			Award	Billing
Cont.#	Contractor	Start Date	End Date	End Date	Value	Remitted	Project Description	Balance	Complete?
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
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

Closed Con	ntracts								
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
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
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
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
ML18077	City of Orange	11/2/2018	10/1/2022		\$59,776.00	\$59,776.00	Four Light-Duty ZEV and EV Charging Infras	\$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
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

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
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
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
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
ML18160	City of Irwindale	3/29/2019	12/28/2022		\$14,263.00	\$14,263.00	Purchase Two Light-Duty ZEVs	\$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
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
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
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
Total: 33									
Closed/Inco	omplete 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
ML18133	City of Rancho Mirage	12/7/2018	11/6/2020		\$50,000.00	\$0.00	Traffic Signal Synchronization	\$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: 6	· · · · · · · · · · · · · · · · · · ·			l					
Open/Com	olete 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
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
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

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
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
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
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
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
ML18049	City of Downey	7/6/2018	5/5/2023		\$148,260.00	\$148,116.32	Install EV Charging Stations	\$143.68	Yes
ML18056	City of Chino	3/29/2019	9/28/2023		\$103,868.00	\$103,868.00	Install EV Charging Infrastructure	\$0.00	Yes
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
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
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
ML18079	City of Pasadena	12/7/2018	11/6/2023		\$183,670.00	\$183,670.00	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
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
ML18087	City of Murrieta	3/29/2019	3/28/2025		\$143,520.00	\$143,520.00	Install Four EV Charging Stations	\$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
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
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
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
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
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
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
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
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
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

			Original	Amended	Contract			Award	Billing
Cont.#	Contractor	Start Date	End Date	End Date	Value	Remitted	Project Description	Balance	Complete?
ML18169	City of Alhambra	6/14/2019	8/13/2024		\$111,980.00	\$111,980.00	Install EV Charging Infrastructure	\$0.00	Yes
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
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
ML18176	City of Coachella	3/1/2019	11/30/2024		\$58,020.00	\$58,020.00	Install EV Charging Stations	\$0.00	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
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
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
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



BOARD MEETING DATE: March 3, 2023

REPORT: California Air Resources Board Monthly Meeting

SYNOPSIS: The California Air Resources Board held a public meeting on February 23, 2023. The following is a summary of the meeting.

RECOMMENDED ACTION: Receive and file.

Gideon Kracov, Member South Coast AQMD Governing Board

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The California Air Resources Board (CARB or Board) held a public meeting on February 23, 2023 in Sacramento, California at the California Environmental Protection Agency Headquarters Building. The key items presented are summarized below.

DISCUSSION ITEMS

23-2-1: Public Meeting to Consider the Western Mojave Desert 70 Parts Per Billion Ozone Attainment Plan

The Board adopted the Western Mojave Desert Nonattainment Area (WMD) 70 parts per billion (ppb) Ozone Attainment Plan (Plan), along with the relevant portions of the accompanying CARB Staff Report. In 2015, the United States Environmental Protection Agency (U.S. EPA) strengthened the 8-hour ozone standard from 75 ppb to a more health-protective level of 70 ppb (70 ppb ozone standard). U.S. EPA designated and classified the WMD as a Severe nonattainment area for the 70 ppb ozone standard. The Plan incorporates the Mojave Desert Federal 70 ppb Ozone Nonattainment Plan for WMD adopted by the Mojave Desert Air Quality Management District and the Antelope Valley Federal 70 ppb Ozone Nonattainment Plan for WMD adopted by the Antelope Valley Air Quality Management District. The Board also adopted the State's 2032 aggregate emission reduction commitment for the WMD. The Plan demonstrates that the WMD will attain the 70-ppb ozone standard by the attainment date. The Board directed CARB staff to submit the Plan to the U.S. EPA for inclusion in the California State Implementation Plan.

23-2-2: Public Meeting to Consider Fifth Annual Community Recommendations and Update the Board on the Annual Assembly Bill 617 Implementation Memorandum

The Board approved the selection of two new communities for the Community Air Protection Program (Program). Assembly Bill 617 (AB 617) requires CARB to annually consider the selection of communities affected by a high cumulative exposure burden for inclusion in the Program. Communities included in the Program will develop Community Emissions Reduction Programs (CERPs) and/or Community Air Monitoring Plans (CAMPs). For 2023, the Board selected the Bayview Hunters Point/Southeast San Francisco community in the Bay Area, which will develop a CERP. The Board also selected the cities of Westmorland, Brawley and Calipatria, located in the northern portion of Imperial County and formally designated as the "North End Phase 1 Community." This community will develop both a CERP and CAMP. With the addition of these two communities, there are now nineteen communities across California in the Program. The Board also heard an update on the Annual AB 617 Implementation Memorandum. The update covered AB 617 funding, air quality monitoring, CERP strategies, community resources and related tools, along with a discussion on the AB 617 consultation group engagement.

South Coast AQMD Staff Comments/Testimony: Wayne Nastri, Executive Officer, provided an update on South Coast AQMD's experience in implementing AB 617 CERPs and CAMPs for its six communities and managing the complexities of community expectations. He addressed concerns surrounding the selection of additional AB 617 communities due to funding shortages and noted that the absence of sustainable funding is an impediment to air districts that would like to recommend additional communities for inclusion in the program. He urged CARB's Board to adopt policies and take actions aimed at ensuring sufficient funding for both AB 617 implementation and incentive programs.

Attachment CARB February 23, 2023 Meeting Ageneda

www.arb.ca.gov/ma022323





Public Meeting Agenda

Thursday, February 23, 2023

California Environmental Protection Agency 1001 I Street, Sacramento, California 95814 Byron Sher Auditorium, 2nd Floor

Webcast (Livestream/Watch Only) Zoom Webinar: Register Here

Phone Number: (669) 900-6833 Webinar ID: 842 4778 8224

The February 23, 2023, meeting of the California Air Resources Board (CARB or Board) will be held at 1001 I Street in Sacramento, with remote participation available to the public and Board members in accordance with Senate Bill 189 (Gov. Code § 11133). 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 verbal comments, we strongly recommend watching the webcast as this will free up space on the webinar for those who are providing verbal 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

In-person speakers signed up to comment will be called upon first, followed by public Zoom and phone participants wishing to comment.

The Chair will close speaker sign-ups 30 minutes after the public comment portion of an item has begun.

Spanish interpretation will be available for the February 23, Board Meeting.

- Agenda de la Reunión Pública
- Spanish Webcast

Thursday, February 23, 2023 @ 4:00 p.m.

Discussion Items:

The following agenda items may be heard in a different order at the Board meeting.

Hardcopies of the Public Agenda and Proposed Resolutions (when applicable) will be provided at the meeting; all other documents linked below will only be available upon request.

23-2-1: Public Meeting to Consider the Western Mojave Desert 70 Parts Per Billion Ozone Attainment Plan

The Board will consider adoption of the Western Mojave Desert 70 ppb Ozone Attainment Plan (Plan) including the State's aggregate emission reduction commitment. The Plan demonstrates that the Western Mojave Desert will attain the 70-ppb ozone standard by 2032. If adopted, the Plan will be submitted to U.S. Environmental Protection Agency for inclusion in the California State Implementation Plan.

- More Information
- Public Meeting Notice
- Staff Report
- Item Summary
- Proposed Resolution
- Submit Written Comments
- View Public Comments

23-2-2: Public Meeting to Consider Fifth Annual Community Recommendations and Update the Board on the Annual Assembly Bill 617 Implementation Memorandum

The Board will consider for selection staff's proposed list of communities for the development of community emission reduction programs and/or community monitoring via the Community Air Protection Program. The Board will also consider adopting a California Environmental Quality Act exemption as part of its action. The Board will also be presented with staff's update on the Annual Assembly Bill 617 Implementation Memorandum.

- More Information
- Public Meeting 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:

California Air Resources Board v. Best Energy Solutions & Technology Corp. Los Angeles Superior Court, Case No. 22STCV32487.

California Air Resources Board v. Key Disposal, Inc. and John Katangian Los Angeles Superior Court, Case No. BC650014.

California Natural Gas Vehicle Coalition v. California Air Resources Board, et al., Fresno County Superior Court, Case No. 20CECG02250; industry appeal California Court of Appeal, Fifth District, Case No. F084229. California Trucking Association v. California Air Resources Board, et al. Fresno County Superior Court, Case No. 22CECG00919.

California Trucking Association v. South Coast Air Quality Mgmt. District United States District Court, Central District of California, Case No. 2:21-cv-6341.

Central California Environmental Justice Network, et al. v. Randolph, et al., United States District Court, Eastern District of California, Case No. 2:22-cv-01714-TLN-CKD.

Competitive Enterprise Inst. v. NHTSA, United States Court of Appeals, District of Columbia Circuit, Case No. 20-1145, consolidated with No. 20-1167.

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 Coastal Commission, et al., U.S. District Court for the Central District of California, Case No. 2:17-cv-8733.

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.

Natural Resources Defense Council v. National Highway Traffic Safety Admin., et al., United States Court of Appeal, District of Columbia Circuit, Case No. 22-1080, consolidated with Nos. 22-1144, 22-1145.

People ex rel. California Air Resources Board v. Noil Energy Group, Inc. & Speedy Fuel, Inc. Los Angeles Superior Court Case Nos. 20STCV30142/20STCV30292.

People ex rel. California Air Resources Board v. Wholesale Harvest Supply, Inc. Mendocino County Superior Court, Case No. 22CV00491.

State of California v. Andrew Wheeler et. al., District of Columbia Circuit, Case No. 19-1239, consolidated under No. 19-1230 along with other cases.

State of California, et al., v. Andrew Wheeler, et al., United States Court of Appeals, District of Columbia Circuit, Case No. 20-1359.

State of California v. Andrew Wheeler, et al., United States Court of Appeals, District of Columbia Circuit, Case No. 19-1239.

State of California, et al. v. David Bernhardt, et al., United States District Court, Northern District of California, Case No. 3:18-cv-5712-DMR; United States Court of Appeals, Ninth Circuit, Case No. 20-16793.

State of California, et al. v. United States Environmental Protection Agency, United States Court of Appeals for the District of Columbia Circuit, Case No. 21-1024

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 California, et al. v. United States Environmental Protection Agency, United States Court of Appeals, District of Columbia Circuit, Case No. 21-1018.

State of Massachusetts v. EPA, United States Court of Appeals, District of Columbia Circuit, Case No. 20-1265.

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 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.

State of New York, et al. v. Andrew Wheeler and the United States Environmental Protection Agency, U.S. District Court, District of Columbia, Case No. 1:18-cv-00773.

State of North Dakota v. United States Environmental Protection Agency, U.S. Court of Appeals, District of Columbia Circuit, Case No. 15-1381.

State of North Dakota, et al. v. United States Environmental Protection Agency, U.S. Court of Appeals, District of Columbia Circuit, Case No. 16-1242.

State of Ohio, et al., v. Environmental Protection Agency, 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 Texas, et al., v. Environmental Protection Agency, et al. United States Court of Appeals, District of Columbia Circuit, Case No. 22-1031.

State of Wyoming, et al. v. United States Department of the Interior, et al., U.S. District Court, District of Wyoming, Case No. 16-CV-285-SWS; United States Court of Appeals, Tenth Circuit, Case No. 20-8073.

The Two Hundred for Homeownership, et al. v. California Air Resources Board, et al. United States District Court, Eastern District of California, Fresno, Case No. 1:22-cv-01474-ADA-BAM.

The Two Hundred, et al. v. California Air Resources Board, et al., Fresno County Superior Court, Case No. 18CECG01494.

Western States Petroleum Association v. California Air Resources Board, et al., Superior Court of the State of California for the County of Fresno, Case No. 22CECG03603.

Western States Petroleum Association v. California Air Resources Board, Los Angeles County Superior Court, Case No. 20STCP03138x.

W.O. Stinson & Son LTD. v. Western Climate Initiative, Inc., Ontario Canada Superior Court, Case No. CV-20-00083726-0000.

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.

People v. Southern California Gas Company. (Los Angeles Superior Court, Case No. BC602973).

Setton Pistachio of Terra Bella, Inc. v. California Air Resources Board, et al., Superior Court of California, County of Tulare, Case No. VCU293869.

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 three 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

<u>Please Note</u>: 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 alterno 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 electronico 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.

Back to Agenda AGENDA NO. 24

BOARD MEETING DATE: March 3, 2023

PROPOSAL: Determine That Proposed Amended Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II, and Proposed Amended Rule 222 – Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II, Are Exempt from CEQA; and Amend Rule 219 and Rule 222

SYNOPSIS: Proposed Amended Rule 219 will add or clarify permit exemption requirements and includes enhanced recordkeeping provisions to address comments by U.S. EPA. Proposed Amended Rule 219 also includes targeted exemptions per the Board's direction to encourage the usage of low-emission technologies. Proposed amendments to Rule 222 are necessary to align with the proposed revisions in Rule 219 and address certain sources with negligible emissions.

COMMITTEE: Stationary Source, January 20 and February 17, 2023, Reviewed

RECOMMENDED ACTIONS:

Adopt the attached Resolution:

- Determining that Proposed Amended Rule 219 Equipment Not Requiring a Written Permit Pursuant to Regulation II, and Proposed Amended Rule 222 – Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II, are exempt from the requirements of the California Environmental Quality Act; and
- 2. Amending Rule 219 Equipment Not Requiring a Written Permit Pursuant to Regulation II, and Rule 222 Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II.

Wayne Nastri Executive Officer

Background

Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II is an administrative rule that provides equipment, processes, and operations that emit small amounts of air contaminants an exemption from South Coast AQMD permitting requirements under Regulation II - Permits, unless those equipment, processes, and operations are excluded from exemption pursuant to subdivision (s) – Exceptions. Proposed Amended Rule 219 (PAR 219) is needed to address comments by U.S. EPA and the Board's direction to encourage the use of low-emission technologies. New exemptions for low emitting sources are also added in response to stakeholders' requests.

Rule 222 – Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II provides an alternative to South Coast AQMD permits by allowing specific emission sources that meet predetermined criteria to register the emission source in the Rule 222 filing program. These sources do not require a written permit but are required to meet the filing requirements pursuant to the Rule 222 filing program and are subject to operating conditions as specified in Rule 222. Proposed Amended Rule 222 (PAR 222) will be updated to align with the changes contained in PAR 219 and include an additional recordkeeping option for food ovens.

PAR 219 and PAR 222 will also incorporate other minor revisions to improve clarity.

Public Process

PAR 219 and PAR 222 were developed through a public process. A Working Group was formed, which included representatives from industry, consultants, public agencies, and community and environmental groups. Four working group meetings were held on March 25, 2022, June 1, 2022, August 3, 2022, and September 22, 2022. Staff also met individually with industry stakeholders. In addition, a Public Workshop was held on January 4, 2023 to present the proposed amended rules and receive public comment.

PAR 219 Proposal

To address comments from U.S. EPA in 2021 as part of the State Implementation Plan review process, PAR 219 includes enhanced recordkeeping requirements, removes conditional permit exceptions based on Rule 222 filings, adds a provision to clarify equipment replacement requirements at federal major sources, and updates emission thresholds for non-Title V agricultural sources.

During public hearings and committee meetings, stakeholders have stated ultraviolet (UV)/electron beam (EB)/UV light emitting diodes (LED) technology are low-emission technologies. South Coast AQMD Board directed staff to evaluate Rule 219 for opportunities to encourage the use of low-emission technologies. To address this issue, PAR 219 contains two new provisions that exempt, from the permitting process, the addition of UV/EB/LED and other low-emission curing technologies to existing permitted graphic arts or coating operations, provided that certain criteria are met. These criteria ensure that the existing operations comply with existing permits, no changes are

made to air pollution capture/control systems, and materials do not contain toxic air contaminants and have low VOC content.

Stakeholders' Requests

During the rule development process, staff received several requests from stakeholders to consider incorporating new exemption provisions in PAR 219. Staff met with all stakeholders to discuss the requests, and while most could not be accommodated, a new exemption was incorporated into PAR 219 for VOC-containing gas-insulated equipment (GIE) used for electricity transmission and distribution, rated 245 kilovolts or less. This exemption addresses electric utilities' request to exempt this equipment from permitting requirements and has been added due to the limited emission potential. While food ovens under 2 million British thermal units per hour (Btu/hr) are already exempt from permitting, these food ovens are required to register pursuant to Rule 222 if VOC emissions are below 1 pound per day. A separate exemption is carved out for small food ovens rated 325,000 Btu/hr or less provided that these ovens do not bake uncooked yeast-containing products. This new exemption will allow these types of ovens to be exempt from registration, as these food ovens are not anticipated to generate VOC emissions.

PAR 222 Proposal

PAR 222 updates several existing references to Rule 219 provisions, which have changed due to the proposed reformatting and reorganization in PAR 219. PAR 222 also includes minor changes to streamline recordkeeping requirements, to correct grammatical errors and to improve rule clarity, such as adding specific references to PAR 219, Table 1 where appropriate. An exemption was also added to clarify that Rule 222 registration requirements are not applicable to emission sources at residential dwelling units for not more than four families. This is consistent with South Coast AQMD permitting procedures. Additionally, the small food ovens specified in the new proposed PAR 219 exemption would not require a Rule 222 registration.

Key Remaining Issue

Through the rulemaking process, staff has worked with stakeholders to address and resolve a number of issues that were raised. Staff is aware of one key remaining issue regarding the new provisions in PAR 219 for UV/EB/LED and other low-emission curing technologies.

Stakeholders expressed concerns that the new provisions do not provide the intended permitting relief as the criteria is too restrictive. Specifically, stakeholders have commented that adding UV/EB/LED curing technology to an existing process does not increase emissions and should not be subject to permitting evaluation, and that the addition of ducting and cooling air into an existing air pollution control device should not require permitting or an engineering evaluation. Rule 219 currently includes provisions that relieve UV/EB/LED curing technologies from permitting requirements under specified emission or throughput thresholds. The new provisions include additional permitting relief for the addition of a UV/EB/LED curing technology into an

existing permitted operation provided the operation and equipment remains in compliance with existing permits, there are no physical changes to existing capture and control devices, and all materials associated with the technology contain no toxic air contaminants and are low emissions. These criteria are necessary to ensure that an engineering evaluation is conducted and conditions are applied if there is an emissions increase with the addition of a UV/EB/LED curing technology to an existing operation.

California Environmental Quality Act

Pursuant to the California Environmental Quality Act (CEQA) Guidelines Sections 15002(k) and 15061, the proposed project (PAR 219 and PAR 222) is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3). A Notice of Exemption has been prepared pursuant to CEQA Guidelines Section 15062 and is included as Attachment I to this Board Letter. If the proposed project is approved, the Notice of Exemption will be filed for posting with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino counties, and with the State Clearinghouse of the Governor's Office of Planning and Research.

Socioeconomic Assessment

PAR 219 includes clarifications for certain equipment categories which could result in minimal additional cost, with potential cost-savings from the addition of new equipment categories that are exempt from the requirement to obtain a written permit. PAR 222 removes a one-time filing option, so the additional cost for the one applicable facility to return to annual filing renewals is estimated to be less than \$300 per year.

Implementation and Resource Impact

Existing South Coast AQMD resources will be used to implement PAR 219 and PAR 222.

Attachments

- A. Summary of Proposal
- B. Key Issues and Responses
- C. Rule Development Process
- D. Key Contacts List
- E. Resolution
- F. Proposed Amended Rule 219
- G. Proposed Amended Rule 222
- H. Final Staff Report
- I. Notice of Exemption from CEQA
- J. Board Meeting Presentation

ATTACHMENT A

SUMMARY OF PROPOSAL

Proposed Amended Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II, and

Proposed Amended Rule 222 – Equipment Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II

PAR 219 - New permit exempt equipment, processes or operations

PAR 219 includes the following new equipment, processes, or operations that would be exempt from permitting:

- Gas-insulating equipment that use a VOC-containing gas as an insulating medium, with a voltage of 245 kilovolts or less, and with a maximum leak rate of less than one percent per year [(d)(4)(M)]
- Existing permitted graphics arts equipment or operation, and coating equipment or operation, that are adding other low-emitting curing or drying technologies, provided:
 - The facilities remain in compliance with existing permits
 - o Emissions do not increase
 - Existing capture and/or control devices continue to perform at their permitted efficiencies [(d)(8)(H) and (d)(12)(L)]
- Small food ovens fired on natural gas, provided the ovens do not bake uncooked yeastcontaining products. The food ovens exempted under this provision are a subset of food ovens that are already exempt under existing provision, but these small food ovens would not be subject to the Rule 222 filing requirements. [(d)(9)(O)]
- Negative air machine is added in PAR 219 to clarify that this equipment is exempt from permitting [(d)(16)(X)]

PAR 219 - Exceptions

Rule 219 includes existing provisions that establish instances where otherwise exempt equipment, processes, and operations are required to obtain written permits. PAR 219 includes the following additional circumstances when a permit is required for otherwise exempt equipment:

- Equipment not maintained or operated pursuant to exemption provisions or results in preventable excess emissions [(e)(2)(C)]
- Requirement to submit permit application when additional information needed to determine health risk over a specified threshold [(e)(3)]

PAR 219 - Clarifications of existing provisions

PAR 219 includes clarifications to the following existing provisions for equipment, processes, or operations that do not require a written permit:

- Routine maintenance, repairs, or replacements at federal major source facilities [(d)(3)(D)]
- Manually operated abrasive blasting cabinets vented to dust filters [(d)(6)(B)]
- Updating emissions thresholds for Non-Title V Agricultural Sources [(d)(17)(C)]

- Notification of PERP equipment used in the OCS [(d)(18)(B)(i)]
- Recordkeeping [(f)]

PAR 222 Summary

PAR 222 includes updates to align with the changes in PAR 219, minor changes to streamline recordkeeping requirements, to correct grammatical errors and to improve rule clarity, such as adding specific references to PAR 219, Table 1 where appropriate. The option for facilities to submit a low-VOC verification form has been removed to align with PAR 219 revisions and in response to U.S. EPA comments.
ATTACHMENT B

KEY ISSUES AND RESPONSES

Proposed Amended Rule: 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II, &

Proposed Amended Rule: 222 – Equipment Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II

Staff worked to address and resolve a number of issues raised by stakeholders in the rule development process. These issues have been addressed through either proposed rule language or through clarifications added in the staff report. Staff is aware of one remaining issue.

Issue:

Stakeholders expressed concerns that proposed exemption criteria for the addition of ultraviolet (UV)/electron beam (EB)/UV light emitting diodes (LED) (UV/EB/LED) curing technology to existing permitted graphic arts or coating operations is too restrictive and would discourage businesses from adding UV/EB/LED curing technology to their existing operations. Specifically:

- Comment A. UV/EB/LED curing is a zero- or low-emission technology, and adding it to an existing process does not increase emissions and should not be subject to permitting; and
- Comment B. Adding ducting and cooling air into an existing air pollution control device does not increase emissions and should not require an engineering evaluation or be subject to the permitting process.

Staff Responses:

Response to Comment A: Rule 219 currently includes provisions that relieve UV/EB/LED curing technologies used in graphic arts, coating, and adhesive operations from permitting requirements under specified emission or throughput thresholds:

- Total quantity of UV/EB/LED materials and associated VOC containing solvents is six gallons per day or less or 132 gallons per calendar month or less; or
- Total VOC emissions from an operation are three pounds per day or less or 66 pounds per calendar month or less.

PAR 219 includes additional permitting relief for the addition of a UV/EB/LED curing technology into an existing permitted operation provided the following criteria is met:

- The operation and equipment remain in compliance with existing permits;
- There are no physical changes to the configurations of existing capture and control devices; and
- All materials associated with the technology contain no toxic air contaminants and are low emissions.

The criteria included in PAR 219 is necessary and consistent with South Coast AQMD permitting practices (see also response to comment B for a discussion of capture and control devices).

Response to Comment B: The use of capture and control devices usually indicate that the operation has high VOC emissions that require air pollution controls to comply with permit conditions. PAR 219 includes criteria that must be met to ensure that physical changes to existing capture and control device configurations are not exempt from permit review. The addition of ducting and cooling air to vent and/or cool UV/EB/LED equipment requires an engineering evaluation to ensure the efficiencies of air pollution capture/control devices are not affected, and that the devices are performing as intended. Balancing the airflows for these air pollution control systems is vital to ensure emissions are collected and controlled at the permitted efficiencies. In addition, faster curing times can increase production and use of VOC-containing materials, leading to an increase in actual emissions that can result in additional emissions when compounded with a decrease in air pollution control device capture and control efficiency. As such, an engineering evaluation, through the permitting process, is necessary to ensure there is no emission increase and the permitted capture and control device remain effective at the permitted efficiencies.

ATTACHMENT C

RULE DEVELOPMENT PROCESS

Proposed Amended Rule: 219 –	Equipment Not Requiring a Written Permit Pursuant to Regulation II, and
Proposed Amended Rule: 222 –	Equipment Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II



Eleven (11) months spent in rule development

- Four (4) Working Group Meetings
- **One (1) Public Workshop**

Two (2) Stationary Source Committee Meetings

ATTACHMENT D

KEY CONTACTS LIST

- Action Filtration Inc.
- Albertsons Companies, Inc.
- Anaheim Public Utilities
- Boeing
- California Grocers Association
- Disneyland Resort
- Eastern Municipal Water District
- Ecotek
- General Electric
- Hampford Research Inc
- HCS, LLC
- Heraeus Noblelight America LLC.
- Hitachi Global
- Keyland Polymer Material Sciences, LLC
- Latham & Watkins LLP
- Los Angeles County Sanitation Districts
- Los Angeles Department of Water & Power
- Mainspring Energy
- Marathon Petroleum Corporation
- Metropolitan Water District
- Orange County Sanitation District
- PRINTING United Alliance
- RadTech
- S&C Electric Company
- Saint Clair Systems

- South California Alliance of Publicly Owned Treatment Works
- Southern California Edison
- SurfacePrep
- T-Mobile
- Transfer Flow, Inc.
- U.S. EPA
- UV Specialties, LLC
- Yorke Engineering, LLC

ATTACHMENT E

RESOLUTION NO 23-____

A Resolution of the South Coast Air Quality Management District (South Coast AQMD) Governing Board determining that Proposed Amended Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II, and Proposed Amended Rule 222 – Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II, are exempt from the requirements of the California Environmental Quality Act (CEQA).

A Resolution of the South Coast AQMD Governing Board amending Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II, and Rule 222 – Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II.

WHEREAS, the South Coast AQMD Governing Board finds and determines that the Proposed Amended Rule 219 (PAR 219) and Proposed Amended Rule 222 (PAR 222) are 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 after conducting a review of the proposed project in accordance with CEQA Guidelines Section 15002(k) – General Concepts, the three-step process for deciding which document to prepare for a project subject to CEQA, and CEQA Guidelines Section 15061 – Review for Exemption, procedures for determining if a project is exempt from CEQA, that PAR 219 and PAR 222 are exempt from CEQA; and

WHEREAS, the South Coast AQMD Governing Board finds and determines that, because the proposed project: 1) contains revisions in PAR 219 and PAR 222 to improve clarity and enforceability of both rules without requiring physical modifications, 2) adds new equipment categories to PAR 219 that are eligible to be exempted from permitting requirements because they have low potential to emit, and 3) will continue to encourage the use of equipment with fewer emissions relative to other equipment that would require an air permit, resulting in a potential but unquantifiable benefit to air quality, it can be seen with certainty that implementing the proposed project would not cause a significant adverse effect on the environment, and is therefore exempt from CEQA pursuant to CEQA Guidelines section 15061(b)(3) – Common Sense Exemption; and

WHEREAS, South Coast AQMD staff has prepared a Notice of Exemption for the proposed project, that is completed in compliance with CEQA Guidelines Section 15062 - Notice of Exemption; and

WHEREAS, PAR 219 and PAR 222 and supporting documentation, including but not limited to, the Notice of Exemption, the Socioeconomic Impact Assessment that is contained in the Final Staff Report, and the Final Staff Report 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 any modifications to PAR 219 and PAR 222 since the Notice of Public Hearing was published, are not so substantial as to significantly affect the meaning of PAR 219 and PAR 222 within the meaning of Health and Safety Code Section 40726 because the changes to subparagraph (d)(9)(O) of PAR 219 are to clarify the intent to exclude food ovens that do not bake uncooked yeast-containing products from permits under Rule 219, the changes to subparagraph (d)(17)(C) of PAR 219 are to align the emission limits for non-Title V agricultural sources with potential future changes that make major source thresholds more stringent, and: (a) the changes do not impact emission reductions, (b) the changes do not affect the number or type of sources regulated by the rules, (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 PAR 219 and PAR 222 are exempt from CEQA; 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 219 in order to incorporate suggested revisions made by U.S. EPA that are necessary to facilitate State Implementation Plan approval of Rule 219 and that revisions to Rule 222 are necessary to align with PAR 219; and

WHEREAS, PAR 219 and PAR 222 are not control measures in the 2022 Air Quality Management Plan (AQMP) and thus, were not ranked by cost-effectiveness relative to other AQMP control measures in the 2022 AQMP; and

WHEREAS, the South Coast AQMD Governing Board obtains its authority to adopt these proposed amended rules pursuant to Health and Safety Code Sections 40000, 40001, 40440, and 42300 et. seq.; and

WHEREAS, the South Coast AQMD Governing Board has determined that the PAR 219 and PAR 222 are written and displayed so that the meaning can be easily understood by persons directly affected by them; and

WHEREAS, the South Coast AQMD Governing Board has determined that Rule 219 and Rule 222, as proposed to be amended, are both 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 Rule 219 and Rule 222, as proposed to be amended, do not impose the same requirements as any existing state or federal regulation, and the proposed amended rules are 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 has determined that Rule 219 and Rule 222, as proposed to be amended, reference the following statutes which the South Coast AQMD hereby implements, interprets or makes specific: Health and Safety Code Sections 40001(a) and (b) (air quality standards and air pollution episodes), 40440 (adoption of rules and regulations), 40701 (rules regarding district's authority to collect information), 40702 (adoption of rules and regulations), and 40440 (rules and regulations to carry out the air quality management plan and to require regarding South Coast AQMD's authority to collect information), 41508 (authority over non-vehicular sources), 41511 (rules for determination of emissions), 42300 et. seq. (authority for permit system), and 42320 (rules implementing the Air Pollution Permit Streamlining Act of 1992); and 42301.16 (permit requirements for agricultural sources) and California Code of Regulations, Title 17, Sections 93115.3(a) and 93115.8(c) (CARB ATCM for Agricultural Diesel-Fueled Engines); 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 PAR 219 and PAR 222 is included in the Final Staff Report; and

WHEREAS, the South Coast AQMD Governing Board has determined that the Socioeconomic Impact Assessment, contained in the Final Staff Report for PAR 219 and PAR 222, 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 Socioeconomic Impact Assessment, contained in the Final Staff Report for PAR 219 and PAR 222, 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 PAR 219 and PAR 222 do not include new Best Available Retrofit Control Technology (BARCT) requirements nor a feasible measure pursuant to Health and Safety Code Section 40914, therefore analyses for cost-effectiveness and incremental cost-effectiveness consistent with the Health and Safety Code Section 40920.6 are not applicable; and

WHEREAS, the South Coast AQMD Governing Board has determined that cost of compliance for proposed amendments to Rule 219 and Rule 222 to be minimal and such costs are considered to be reasonable, as specified in the Final Staff Report; and

WHEREAS, the South Coast AQMD Governing Board has actively considered the Socioeconomic Impact Assessment, contained in the Final Staff Report for PAR 219 and PAR 222, and has made a good faith effort to minimize such impacts; and

WHEREAS, the South Coast AQMD Governing Board has determined that PAR 219 does not interfere with any Clean Air Act (CAA) requirements concerning attainment, as is demonstrated in the CAA Section 110(l) analysis that was conducted and included in the Staff Report; and

WHEREAS, a public workshop was held on January 4, 2023 in accordance with all provisions of law; 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 law; and

WHEREAS, the South Coast AQMD specifies the Planning, Rule Development and Implementation Manager overseeing the rule development of proposed amendments to Rule 219 and Rule 222 as the custodian of the documents or other materials which constitute the record of proceedings upon which the adoption of the proposed amended rules is based, which are located at the South Coast Air Quality Management District, 21865 Copley Drive, Diamond Bar, California; and

WHEREAS, PAR 219 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, PAR 222 will be not be submitted for inclusion into the State Implementation Plan; and

WHEREAS, the South Coast AQMD Governing Board has determined the PAR 219 and PAR 222, should be adopted for the reasons contained in the Final Staff Report, 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 proposed project (PAR 219 and PAR 222) is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption. This information was 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 the proposed project;

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board does hereby adopt, pursuant to the authority granted by law, the proposed amendments to Rule 219 and Rule 222, as set forth in the attached, and incorporated herein by this reference.

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board requests that Proposed Amended Rule 219 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, Proposed Amended Rule 219 to CARB for approval and subsequent submittal to U.S. EPA for inclusion into the State Implementation Plan.

DATE

CLERK OF THE BOARDS

PROPOSED AMENDED RULE 219

EQUIPMENT NOT REQUIRING A WRITTEN PERMIT PURSUANT TO REGULATION II

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(Adopted Jan. 9, 1976)(Amended Oct. 8, 1976)(Amended February 2, 1979) (Amended Oct. 5, 1979)(Amended Sept. 4, 1981)(Amended June 3, 1988) (Amended September 11, 1992)(Amended August 12, 1994) (Amended December 13, 1996)(Amended September 11, 1998) (Amended August 13, 1999)(Amended May 19, 2000) (Amended November 17, 2000)(Amended July 11, 2003) (Amended December 3, 2004)(Amended May 5, 2006)(Amended July 14, 2006) (Amended June 1, 2007)(Amended May 3, 2013) (Amended May 5, 2017)(Amended April 6, 2018)(Amended January 7, 2022) (PAR 219 March 3, 2023)

[Rule Index to be Added After Rule Amendment]

PROPOSED AMENDED RULE 219

EQUIPMENT NOT REQUIRING A WRITTEN PERMIT PURSUANT TO REGULATION II

(a) Purpose

The purpose of this rule is to identify equipment, processes, or operations that emit small amounts of air contaminants that shall not require written permits, unless such equipment, process or operation is subject to subdivision (<u>es</u>) – Exceptions. Certain equipment, processes, or operations that do not require written permits may be subject to Rule 222 – Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II.

(b) Applicability

This rule applies to owners or operators of the equipment, processes, or operations listed in subdivision (d).

(c) Definitions

For the purpose of this rule, the following definitions shall apply:

- (1) COMMUNITY LEASE UNITS Facilities used for multiple-well units (three or more wells), whether for a group of wells at one location or for separate wells on adjoining leases.
- (2) GRAMS OF VOC PER LITER OF MATERIAL is the weight of VOC per volume of material and can be calculated by the following equation:

 $\underline{\text{Grams of VOC per liter of material}} = \frac{W_{s} - W_{w} - W_{es}}{V_{m}}$

Where:	\underline{W}_{s}	Ξ	weight of volatile compounds, in grams
	$\underline{\mathbf{W}}_{\mathbf{w}}$	Ξ	weight of water, in grams
	<u>Wes</u>	Ξ	weight of exempt compounds, in grams
	\underline{V}_{m}	Ξ	volume of material, in liters

(3) GRAMS OF VOC PER LITER OF REGULATED PRODUCT, LESS WATER AND LESS EXEMPT COMPOUNDS is the weight of VOC per combined volume of VOC and product solids, and can be calculated by the following equation:

Grams of VOC per liter of regulated product, less water and less

Exempt Co	ompour	nds =	$\frac{W_{s} W_{w} W_{es}}{V_{m} V_{w} V_{es}}$
Where:	$\underline{\mathbf{W}_{s}}$	Ξ	weight of volatile compounds, in grams
	\underline{W}_{w}	Ξ	weight of water, in grams
	<u>W</u> es	Ξ	weight of exempt compounds, in grams
	$\underline{V}_{\underline{m}}$	Ξ	volume of material, in liters
	\underline{V}_{w}	Ξ	volume of water, in liters
	Ves	Ξ	volume of exempt compounds, in liters

- (4) PRIMARY RECOVERY Crude oil or natural gas production from "freeflow" wells or from well units where only water, Produced Gas or purchased quality gas is injected to repressurize the production zone.
- (5) PRODUCED GAS Organic compounds that are both gaseous at standard temperature and pressure and are associated with the production, gathering, separation or processing of crude oil.
- (6) PURCHASED QUALITY NATURAL GAS Natural gas that meets the quality and specification of natural gas supplied by the local gas utility.
- (7) SHIPPING TANKS Fixed roof tanks, which operate essentially as "run down" tanks for separated crude oil where the holding time is 72 hours or less.

Written permits are not required for:

- (d) The following equipment, processes, or operations do not require a written permit:
 - (a<u>1</u>) Mobile Equipment

This paragraph does not apply to air contaminant emitting equipment that are mounted and operated on motor vehicles, marine vessels, mobile hazardous material treatment systems, or mobile day tankers.

- (1<u>A</u>) <u>motor Motor vehicle or vehicle as defined by the California Vehicle</u> Code as it exists on [*Date of Rule Amendment*].; or
- (2<u>B</u>) marine Marine vessel as defined by Health and Safety Code Section 39037.1 as it exists on [*Date of Rule Amendment*].; or
- (3C) a <u>A</u> motor vehicle or a marine vessel that uses one internal combustion engine to propel the motor vehicle or marine vessel, and <u>the same engine to operate other equipment mounted on the motor</u> vehicle or marine vessel.; or
- (4<u>D</u>) equipment which <u>Equipment that</u> is mounted on a vehicle, motor vehicle or marine vessel if such equipment does not emit air contaminants.;
- (5E) asphalt <u>Asphalt</u> pavement heaters (which are any mobile equipment used for the purposes of road maintenance and new road construction) provided a filing pursuant to Rule 222 is submitted to the Executive Officer. <u>Rule 222 may be applicable.</u>
- (F) 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).

This subdivision does not apply to air contaminant emitting equipment which is mounted and operated on motor vehicles, marine vessels, mobile hazardous material treatment systems, mobile day tankers [except those carrying solely fuel oil with an organic vapor pressure of 5 mm Hg (0.1 psi) absolute or less at 21.1 °C (70 °F)].

- (b2) Combustion and Heat Transfer Equipment
 - (1<u>A</u>) Internal combustion engines that:
 - (i) <u>withHave</u> a manufacturer's rating of 50 brake horsepower or less; or
 - (ii) internal combustion engines, <u>Are</u> used exclusively for electrical generation at remote two-way radio transmission towers where no utility, electricity or natural gas is available within a <u>1/2-half</u> mile radius and:
 - (A) <u>, with Have a manufacturer's rating of 100 brake</u> horsepower or less<u>;</u> and

(B) <u>are</u> <u>Are</u> fired exclusively on diesel #2 fuel, compressed natural gas (CNG), <u>or</u> liquefied petroleum gas (LPG), <u>or any combination thereof.</u>; or

Rule 222 may be applicable to internal combustion engines exempt pursuant to clause (d)(2)(A)(ii).

- (B) <u>stationary Stationary</u> gas turbine engines including micro-turbines, with a rated maximum heat input capacity of 3,500,000 British thermal units (Btu) per hour or less, provided that:
 - (i) <u>the The cumulative power output of all such engines at a</u> facility is less than two megawatts, ; and
 - (ii) that the <u>The</u> engines <u>are</u> were certified at the time of manufacture with the state of <u>California</u>with the <u>California</u> <u>Air Resources Board</u> or were in operation prior to May 3, 2013 provided a filing pursuant to <u>Rule 222</u> is submitted to the Executive Officer.

Rule 222 may be applicable.

- (2<u>C</u>) Boilers, process heaters, or any combustion equipment that has with a rated maximum heat input capacity of 2,000,000 Btu per hour (gross) or less and –are equipped to be heated exclusively with natural gas, methanol, liquefied petroleum gas, or any combination thereof. Rule 222 may be applicable for boilers, steam generators, or process heaters with rated heat input capacities from 1,000,000 up to and including 2,000,000 Btu per hour. This exemption does not apply to:
 - (i) Internal combustion engines;
 - (ii) Turbines; or
 - (iii) Boilers, process heaters, or any combustion equipment whenever there are emissions other than products of fuel combustion, except for food ovens with a rated maximum heat input capacity of 2,000,000 Btu/hour or less, that are fired exclusively on natural gas and where the process VOC emissions are less than one pound per day. Rule 222 may be applicable.
- (D) <u>diesel_Diesel</u> fueled boilers that have with a rated maximum heat input capacity of 2,000,000 Btu per hour or less, are fueled

exclusively with diesel #2 fuel, and are located more than 4,000 feet above sea level or more than 15 miles offshore from the mainland, and where the maximum <u>Oxides of Nitrogen (NOx)</u> emission output of the equipment is less than one pound per day and uses less than 50 gallons of fuel per day, and have been in operation prior to May 3, 2013. provided a filing pursuant to Rule 222 is submitted to the Executive Officer. This exemption does not apply whenever there are emissions other than products of combustion. Rule 222 may be applicable.

- This exemption does not apply to internal combustion engines or turbines. This exemption does not apply whenever there are emissions other than products of combustion, except for food ovens with a rated maximum heat input capacity of 2,000,000 Btu/hour or less, that are fired exclusively on natural gas and where the process VOC emissions are less than one pound per day, and provided a filing pursuant to Rule 222 is submitted to the Executive Officer.
 - (3E) Portable diesel fueled heaters, with a rated maximum heat input capacity of 250,000 Btu per hour or less, and that are equipped with burner(s) designed to fire exclusively on diesel fuel only-provided a filing pursuant to Rule 222 is submitted to the Executive Officer. Rule 222 may be applicable.
 - (4<u>F</u>) Power pressure washers and hot water or steam washers and cleaners, that are equipped with a heater or burner that is designed to be fired on diesel fuel, has a rated maximum heat input capacity of 550,000 Btu per hour or less, is equipped with non-resettable chronometer, and the maximum NOx emission output of the equipment is less than one pound per day and uses no more than 50 gallons of fuel per day-provided a filing pursuant to Rule 222 is submitted to the Executive Officer.- This exemption does not apply to internal combustion engines or turbines. <u>Rule 222 may be applicable.</u>
 - (5<u>G</u>) Fuel cells, which produce electricity in an electro-chemical reaction and use phosphoric acid, molten carbonate, proton exchange

membrane, or solid oxide technologies; and associated heating equipment, provided the heating equipment:

- (Ai) does <u>Does</u> not use a combustion source; or
- (B<u>ii</u>) notwithstanding paragraph (b)(2), i<u>I</u>s fueled exclusively with natural gas, methanol, liquefied petroleum gas, or any combination thereof, including heaters that have a rated maximum heat input capacity of greater than 2,000,000 Btu per hour, provided that the supplemental heat used is 90,000 therms per year or less<u>- and provided a filing pursuant to Rule 222 is submitted to the Executive Officer. Rule 222 may be applicable.</u>
- (6<u>H</u>) Test cells and test stands used for testing burners or internal combustion engines provided that the equipment uses less than 800 gallons of diesel fuel and 3,500 gallons of gasoline fuel per year, or uses other fuels with equivalent or less emissions.
- (7<u>I</u>) Internal combustion engines used exclusively for training at educational institutions.
- (8J) Portable combustion equipment, pursuant to subdivision (r)paragraph (d)(18) – Registered Equipment.
- (e<u>3</u>) Structures and Equipment General
 - (<u>1A</u>) Structural changes which cannot change the quality, nature or quantity of air contaminant emissions.
 - $(2\underline{B})$ Repairs or maintenance not involving structural changes to any equipment for which a permit has been granted.
 - (3C) Identical replacement in whole or in part of any equipmentReplacement of identical equipment, as defined in Rule 301 - Permitting and Associated Fees, at a facility that is not a federal major source, as defined in 40 CFR 51.165 or 52.21 as these regulations exist on [Date of Rule Amendment], where a permit to operate had previously been granted for such equipment under Rule 203, except seals for external or internal floating roof storage tanks.
 - (D) Routine maintenance, repair or replacement of a part of any equipment at a facility that is a federal major source, as defined in 40 CFR 51.165 or 52.21 as these regulations exist on [Date of Rule

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<u>Amendment</u>], where a permit to operate had previously been issued for such equipment, based on U.S. EPA guidance in determining routine maintenance, repair, or replacement.

- (4<u>E</u>) Replacement of floating roof tank seals provided that the replacement seal is of a type and model which the Executive Officer has determined is capable of complying with the requirements of Rule 463 – Organic Liquid Storage.
- (5<u>F</u>) Equipment utilized exclusively in connection with 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. $\frac{1}{2}$
- (6G) Laboratory testing and quality control testing equipment used exclusively for chemical and physical analysis, non-production bench scale research equipment, and the control equipment used to exclusively venting such equipment. -Laboratory testing equipment does not include engine test stands or test cells unless such equipment is also exempt pursuant to paragraph (b)(4)subparagraph (d)(2)(H).
- (H) Non-production bench scale research equipment, and the control equipment used to exclusively vent such equipment.
- (7<u>1</u>) Vacuum-producing devices used in laboratory operations or in connection with other equipment not requiring a written permit.
- (8<u>J</u>) Vacuum-cleaning systems used exclusively for industrial, commercial, or residential housekeeping purposes.
- $(9\underline{K})$ Hoods, stacks, or ventilators.
- (10L) Passive and intermittently operated active venting systems used at and around residential structures to prevent the accumulation of naturally occurring methane and associated gases in enclosed spaces.
- (11M) Sub-slab <u>v</u>-ventilation systems including associated air pollution control equipment with an aggregate flow rate of less than 200 standard cubic feet per minute (scfm) where vacuum suction pits do not penetrate more than 18 inches below the bottom of the slab, provided the inlet total organic compounds concentration does not exceed 15 ppmv, measured as hexane, and provided the ventilations system is connected to air pollution control equipment consisting of

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a carbon adsorber sized to handle at least 200 scfm, or equivalent air pollution control.

- (d<u>4</u>) Utility Equipment General
 - (<u>4A</u>) Comfort air conditioning or ventilating systems which are not designed or used to remove air contaminants generated by, or released from, specific equipment units, provided such systems are <u>also</u> exempt pursuant to <u>paragraph (b)(2)subparagraphs (d)(2)(C) or (d)(2)(D)</u>.
 - (2<u>B</u>) Refrigeration units except those used as or in conjunction with air pollution control equipment.
 - (3C) Water cooling towers and water cooling ponds, both that are not used for evaporative cooling of process water or used for evaporative cooling of water from barometric jets or from barometric condensers, and in which no chromium compounds are contained, including:
 - (Ai) Cooling towers used for comfort cooling; and
 - (Bii) Industrial cooling towers located in a chemical plant, refinery or other industrial facility, provided a filing pursuant to Rule 222 is submitted to the Executive Officer. Rule 222 may be applicable.
 - (4<u>D</u>) Equipment used exclusively to generate ozone and associated ozone destruction equipment for the treatment of cooling tower water or for water treatment processes.
 - (5E) Equipment used exclusively for steam cleaning provided such equipment is also exempt pursuant to paragraph (b)(2)-subparagraphs (d)(2)(C) or (d)(2)(D).
 - (6<u>F</u>) Equipment used exclusively for space heating provided such equipment is <u>also</u> exempt pursuant to paragraph (b)(2).subparagraphs (d)(2)(C) or (d)(2)(D).
 - (7<u>G</u>) Equipment used exclusively to compress or hold <u>pP</u>urchased <u>qQuality nNatural gGas</u>, <u>provided any except</u> internal combustion engines <u>not</u><u>is also</u> exempted pursuant to <u>paragraph</u> (b)(1)subparagraph (d)(2)(A).

- (8<u>H</u>) Emergency ventilation systems used exclusively to scrub ammonia from refrigeration systems during process upsets or equipment breakdowns.
- (9<u>I</u>) Emergency ventilation systems used exclusively to contain and control emissions resulting from the failure of a compressed gas storage system.
- (10J) Passive carbon adsorbers, with a maximum vessel capacity of no more than 120 gallons, without mechanical ventilation, and used exclusively for odor control at wastewater treatment plants, food waste slurry storage tanks, or sewer collection systems, including sanitary sewers, manholes, and pump stations.
- (11<u>K</u>) Refrigerant recovery and/or recycling units. -This exemption does not include refrigerant reclaiming facilities.
- (12<u>L</u>) Carbon arc lighting equipment provided such equipment is <u>also</u> exempt pursuant to <u>paragraph (b)(1)</u><u>subparagraph (d)(2)(A)</u>.
- (M) Gas-insulated equipment with a voltage of 245 kilovolts or less, used in electrical power generation, transmission and distribution operations, that use a VOC-containing gas as an insulating medium and is manufactured to have a maximum leak rate of less than one percent per year under normal operating conditions.
- (e5) Glass, Ceramic, Metallurgical Processing, and Fabrication Equipment
 - (1<u>A</u>) Crucible-type or pot-type furnaces with a brimful capacity of less than 7,400 cubic centimeters (452 cubic inches) of any molten metal, and <u>the control equipment used to</u> exclusively venting the <u>equipmentfurnace</u>.
 - (2B) Crucible furnaces, pot furnaces, or induction furnaces with a capacity of 450 kilograms (992 pounds) or less each, and <u>the control equipment used to exclusively vent the equipment furnaces</u>, where:
 (i) no Na superting or distilling is can ducted, and where
 - (i) <u>-no-No</u> sweating or distilling is conducted; and where
 - (ii) The furnaces are also exempt pursuant to subparagraph (d)(2)(C); and
 - (iii) <u>only Only</u> the following materials are poured or held in a molten state, and these materials do not contain alloying elements of arsenic, beryllium, cadmium, chromium and/or lead:

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- (A) Aluminum or any alloy containing over 50 percent aluminum₇;
- (B) Magnesium or any alloy containing over 50 percent magnesium;
- (C) Tin or any alloy containing over 50 percent $tin_{\overline{z}}$;
- (D) Zinc or any alloy containing over 50 percent $zinc_{\overline{3}}$:
- (E) Copper or any alloy containing over 50 percent copper,;
- (F) Precious metals,; and
- (G) -Ceramic materials, including glass and porcelain.

Provided these materials do not contain alloying elements of arsenic, beryllium, cadmium, chromium and/or lead and such furnaces are exempt pursuant to paragraph (b)(2).

- (<u>3C</u>) Molds used for the casting of metals and <u>the</u> control equipment used to exclusively vent the equipment.
- (4<u>D</u>) Inspection equipment used exclusively for metal, plastic, glass, or ceramic products and <u>the</u> control equipment used to exclusively vent such equipment.
- (5<u>E</u>) Ovens used exclusively for curing potting materials or castings made with epoxy resins, provided such ovens are <u>also</u> exempt pursuant to <u>paragraph (b)(2)subparagraph (d)(2)(C)</u>.
- (6<u>F</u>) Hand-held or automatic brazing and soldering equipment, and <u>the</u> control equipment <u>that-used to</u> exclusively vents such equipment, provided that the equipment uses one quart per day or less or 22 quarts per calendar month or less of material containing VOC. -This exemption does not include hot oil, hot air, or vapor phase solder leveling equipment, and <u>related associated</u> control equipment.
- (7G) Brazing ovens where no volatile organic compounds<u>VOC</u> (except flux) are present in the materials processed in the ovens, provided such ovens are <u>also</u> exempt pursuant to paragraph (b)(2)subparagraph (d)(2)(C).
- (8<u>H</u>) Welding equipment, oxygen gaseous fuel-cutting equipment, handheld plasma-arc cutting equipment, hand-held laser cutting equipment, laser etching or engraving equipment and associated air pollution control equipment.– This exemption does not include cutting equipment described in this paragraph that is used to cut

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stainless steel, or alloys containing 0.1%-<u>percent</u> by weight or more of chromium, nickel, cadmium or lead, unless the equipment is used exclusively for maintenance or repair operations.- In addition this exemption does not include laser- cutting, etching and engraving equipment that are rated <u>at</u> more than 400 watts₅.

- (9I) Sintering equipment used exclusively for the sintering of metal (excluding lead) or glass where no coke or limestone is used, and <u>the control equipment used to exclusively venting such equipment</u>, provided such equipment is <u>also exempt pursuant to paragraph</u> (b)(2) subparagraph (d)(2)(C).
- (10J) Mold forming equipment for foundry sand to which no heat is applied, and where no volatile organic materials are used in the process, and <u>the control equipment used to exclusively vent such equipment</u>.
- (44K) Metal forming equipment or equipment used for heating metals for forging, rolling, pressing, or drawing of metals provided that any lubricants used have contain 50 grams or less of VOC per liter of materialGrams of VOC Per Liter of Material or less, or a VOC composite partial pressure of 20 mm Hg or less at 20 °C (68 °F), provided such heaters are exempt pursuant to paragraph (b)(2) and the control equipment used to exclusively venting the equipment, provided such metal forming equipment or equipment used for heating metals are also exempt pursuant to subparagraph (d)(2)(C) or (d)(2)(D).
- (<u>12L</u>) Heat treatment equipment and associated water quench tanks used exclusively for heat treating glass or metals (provided no volatile organic compound<u>VOC</u> materials are present), or equipment used exclusively for case hardening, carburizing, cyaniding, nitriding, carbonitriding, siliconizing or diffusion treating of metal objects, provided any combustion equipment involved is <u>also</u> exempt pursuant to-<u>paragraph (b)(2)</u> subparagraph (d)(2)(C) or (d)(2)(D).
- (13M) Ladles used in pouring molten metals.
- (14<u>N</u>) Tumblers used for the cleaning or deburring of solid materials, and <u>the associated air pollution control equipment.</u>
- (15<u>O</u>) Die casting machines. This exemption does not apply to die casting machines, except those used for copper base alloys, those with an

integral furnace having a brimful capacity of more than 450 kg (992 lbs.), or those die casting machines using a furnace not exempt pursuant to paragraph (b)(2) subparagraph (d)(2)(C).

- (16P) Furnaces or ovens used for the curing or drying of porcelain enameling, or vitreous enameling, provided such furnaces or ovens are <u>also</u> exempt pursuant to <u>paragraph (b)(2)</u> <u>subparagraph</u> (d)(2)(C).
- (17Q) Wax burnout kilns where the total internal volume is less than 0.2 cubic meter (7.0 cubic feet) or kilns used exclusively for firing ceramic ware, and the control equipment used to exclusively vent the equipment, provided such kilns are also exempt pursuant to subparagraph (d)(2)(C)paragraph (b)(2) and control equipment used to exclusively vent the equipment.
- $(18\underline{R})$ Shell-core and shell-mold manufacturing machines.
- (19<u>S</u>) Furnaces used exclusively for melting titanium materials in a closed evacuated chamber where no sweating or distilling is conducted, provided such furnaces are <u>also</u> exempt pursuant to <u>paragraph (b)(2)</u> <u>subparagraph (d)(2)(C)</u>.
- $(20\underline{T})$ Vacuum metallizing chambers which are electrically heated or heated with equipment that is <u>also</u> exempt pursuant to paragraph (b)(2) <u>subparagraphs</u> (d)(2)(C) or (d)(2)(D), and <u>the</u> control equipment used to exclusively vent such equipment, provided the control equipment is equipped with a mist eliminator or the vacuum pump used with control equipment demonstrates operation with no visible emissions from the vacuum exhaust.
- (21<u>U</u>) Notwithstanding the exemptions in paragaraph (e)(12)subparagraph (d)(5)(L), equipment existing as of May 5, 2017 that is subject toqualifies for the exemption in paragraph (e)(12) subparagraph (d)(5)(L), that is an integral part of an operation requiring a written permit shall continue to be exempt, provided the equipment is identified, described in detail and submitted for inclusion into the permit equipment description with any associated application for Permit to Construct or Permit to Operate.- Equipment described in this subparagraph includes, but is not limited to, quench tanks that are part of a heat treating operation.

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- (f<u>6</u>) Abrasive Blasting Equipment
 - (<u>1A</u>) Blast cleaning cabinets in which a suspension of abrasive in water is used and <u>the control</u> equipment used to exclusively vent such equipment.
 - (2B) Manually operated abrasive blast cabinets, vented to a dust-filter with at least 90 percent overall control efficiency (capture and collection efficiency) where the total internal volume of the blast section is 1.5 cubic meters (53 cubic feet) or less, and any dust the dust filter exclusively venting such equipment.
 - (3C) Enclosed equipment used exclusively for shot blast removal of flashing from rubber and plastics at sub-zero temperatures and <u>the</u> control equipment <u>used to exclusively venting</u> such equipment.
 - (4<u>D</u>) Shot peening operations <u>using a flywheel</u>, flywheel type and <u>the</u> control equipment used to exclusively vent such equipment.
 - (5<u>E</u>) Portable sand/water blaster equipment and associated internal combustion engine provided the water in the mixture is <u>maintained</u> <u>at</u> 66 percent or more by volume is <u>maintained</u>-during operation of such equipment₁- provided the -iInternal combustion engines <u>must-is</u> <u>also be exempt pursuant to paragraph (b)(1)subparagraph (d)(2)(A)</u>.
- (<u>g7</u>) Mechanical Equipment
 - (4<u>A</u>) Equipment used exclusively for buffing (except tire buffers), polishing, carving, mechanical cutting, drilling, machining, pressing, routing, sanding, stamping, surface grinding or turning provided that any lubricants, coolants, or cutting oils used have contain 50 grams or less of VOC per liter of materialGrams of VOC Per Liter of Material or less or a VOC composite partial pressure of 20 mm Hg or less at 20 °C (68 °F)-and, and the control equipment used to exclusively vent such equipment. -This exemption does not include asphalt pavement grinders, or portable asphalt recycling equipment.
 - (2B) Wood Products: Equipment used exclusively for shredding of wood, or the extruding, handling, or storingage of wood chips, sawdust, or wood shavings and the control equipment used to exclusively to vent such equipment, provided the source of the wood does not include wood that is painted, or treated for exterior exposure, or wood that

is comingled with other construction and demolition materials. -This exemption does not include:

- (i) <u>internal Internal</u> combustion engines over 50 <u>bhpbrake</u> <u>horsepower</u>, <u>which that</u> are used to supply power to <u>such the</u> equipment <u>in subparagraph (d)(7)(B);</u>, or
- (<u>ii</u>)-<u>In addition, this exemption does not include t</u><u>T</u>he shredding, extruding, handling or storage of any organic waste material generated from gardening, agricultural, or landscaping activities including, but not limited to, leaves, grass clippings, tree and shrub trimmings and plant remains.
- (<u>3C</u>) Equipment used exclusively to mill or grind, coatings or molding compounds, where all materials charged are in the paste form.
- (4<u>D</u>) Equipment used for separation- or segregation of plastic materials intended for recycling, provided there is no mechanical cutting, shredding or grinding, and where no odors are emitted.

(h8) Printing and Reproduction Equipment

- (4<u>A</u>) <u>Graphic arts operations including p</u>Printing, and related coating and/or laminating equipment, and associated dryers and curing equipment, <u>andas well as the</u> associated air pollution control equipment, provided such dryers and curing equipment are <u>also</u> exempt pursuant to paragraph (b)(2)<u>subparagraph (d)(2)(C)</u>, and <u>the</u> air pollution control equipment is not required for source specific rule compliance, and provided that:
 - (Ai) the <u>The uncontrolled VOC</u> emissions from such equipment (including clean-up) are three pounds per day or less or 66 pounds per calendar month or less; or
 - (Bii) the <u>The</u> total quantity of plastisol type inks, coatings and adhesives and associated VOC containing solvents (including clean-up) used is six (6) gallons per day or less or 132 gallons per calendar month or less;-or
 - (C<u>iii</u>) the <u>The</u> total quantity of UV/EB/LED (non-solvent based and non-waterborne) inks, coatings, and adhesives, fountain solutions (excluding water) and associated VOC containing solvents (including clean-up) <u>used</u> is six-(6) gallons per day or less, or 132 gallons per calendar month or less; or

- (Đ<u>iv</u>) the <u>The</u> total quantity of inks, coatings and adhesives not specified in (B) or (C) clauses (d)(8)(A)(ii) or (d)(8)(A)(iii) above, fountain solutions (excluding water) and associated VOC containing solvents (including clean-up) used is two (2) gallons per day or less or 44 gallons per calendar month or less; or
- (Ev) all-<u>All</u> inks, coatings and adhesives, fountain solutions, and associated VOC containing solvents (excluding cleanup solvents) contain fifty (50) grams or less of VOC per liter of materialGrams of VOC Per Liter of Material or less and all cleanup solvents contain twenty five (25) grams or less of VOC per liter of Material or less, and the total quantity of VOC Per Liter of Material or less, and the total quantity of VOC emissions do not exceed one ton per calendar year. Rule 222 may be applicable., and provided that either:

(i) a filing pursuant to Rule 222 is submitted to the Executive Officer; or

(ii) within 60 days after start up for new, relocated, or modified facilities, or by March 1, 2018 for facilities existing as of May 5, 2017, a low VOC verification is submitted to the Executive Officer, in a format approved by the Executive Officer, to demonstrate compliance with material and cleanup solvent VOC concentration limits, and the annual VOC emission limit.

If <u>a</u> combination of the inks, coatings, and adhesives identified in clauses (d)(8)(A)(ii), (d)(8)(A)(iii), and/or (d)(8)(A)(iv) (B), (C) and/or (D) are used in any equipment, this exemption is only applicable if the operations meet the criteria specified in <u>clauses</u> (d)(8)(A)(i) or (d)(8)(A)(v)(A) or (E), or the total usage of inks, coatings, adhesives, fountain solutions (excluding water) and associated VOC containing solvents (including cleanup) meets the most stringent applicable limit in <u>clauses</u> (d)(8)(A)(ii), (d)(8)(A)(ii), or (d)(8)(A)(iv)(B) (C) or (D). For exemptions based on usage, solvent based UV and waterborne UV materials are subject to the usage limits in <u>clause</u> (d)(8)(A)(iv) (D). VOC emissions shall be determined using test methods approved by the District, CARB and U.S. EPA. In the absence of approved test

methods, the applicant can submit VOC calculation procedures acceptable to the District.

- $(\underline{2B})$ Photographic process equipment by which an image is reproduced upon material sensitized by radiant energy and <u>the</u> control equipment exclusively venting such equipment, excluding wet gate printing utilizing perchloroethylene, and its associated control equipment.
- $(3\underline{C})$ Lithographic printing equipment which uses laser printing.
- (4<u>D</u>) Printing equipment used exclusively for training and nonproduction at educational institutions.
- (5E) Flexographic plate making and associated processing equipment.
- (6<u>F</u>) Corona treating equipment and <u>the</u> associated air pollution control equipment used for surface treatment in printing, laminating and coating operations.
- (7G) Hand application of materials used in printing operations including but not limited to the use of squeegees, screens, stamps, stencils, any hand tools, and <u>the</u> associated air pollution control equipment used to exclusively vent the hand application of materials in printing operations, unless such air pollution control equipment is required for source specific rule compliance.
- (H) The addition of UV/EB/LED curing technology, or other curing or drying technology, to an existing permitted graphics arts equipment or operation if:
 - (i) The equipment remains consistent with the description in the existing Permit to Operate, excluding the addition of curing or drying equipment operated exclusively using electrical power;
 - (ii) The equipment complies with the conditions specified in the existing Permit to Operate;
 - (iii) There is no physical change to the configuration of the existing air pollution control equipment associated with the equipment or operation;
 - (iv) There is no physical change to the configuration of an existing permanent total enclosure associated with the equipment or operation;

- (v) All inks, coatings, solvents, or other materials associated with the technology do not contain any toxic air contaminants pursuant to Rule 1401 – New Source Review of Toxic Air Contaminants, as listed on the Safety Data Sheet, except as allowed under the existing Permit to Operate; and
- (vi) All inks, coatings and adhesives, fountain solutions, and VOC containing solvents associated with the technology (excluding cleanup solvents) contain 50 Grams of VOC Per Liter of Material or less and all cleanup solvents associated with the technology contain 25 Grams of VOC Per Liter of Material or less.
- (i<u>9</u>) Pharmaceuticals, Cosmetics, and Food Processing and Preparation Equipment
 - (4<u>A</u>) Smokehouses for preparing food in which the maximum horizontal inside cross-sectional area does not exceed <u>two</u>² square meters (21.5 square feet) and control equipment exclusively venting the equipment.
 - $(2\underline{B})$ Smokehouses exclusively using liquid smoke, and which are completely enclosed with no vents to either a control device or the atmosphere.
 - (3C) Confection cookers where products are edible and intended for human consumption, provided such equipment is <u>also</u> exempt pursuant to <u>subparagraph (d)(2)(C)(b)(2)</u>.
 - (4<u>D</u>) Grinding, blending, or packaging equipment used exclusively for tea, cocoa, roasted coffee, flavor, fragrance extraction, dried flowers, or spices, provided that the facility uses less than one gallon per day or twenty two (22) gallons per month of VOC containing solvents, and <u>the control equipment used to exclusively vent such</u> equipment.
 - (5<u>E</u>) Equipment used in eating establishments for the purpose of preparing food for human consumption. Rule 222 may apply to commercial charbroilers and associated air pollution control equipment at eating establishments.

(6E) Equipment used to convey or process materials in bakeries, or used to produce noodles, macaroni, pasta, food mixes, and drink mixes where <u>the</u> products are edible and intended for human consumption and the control equipment used exclusively to vent such equipment, provided that the facility uses less than one gallon per day or twenty two (22) gallons per month of VOC containing solvents and the equipment is also exempt pursuant to subparagraphs (d)(2)(C) or (d)(2)(D), and control equipment exclusively venting such equipment.

This exemption does not include storage bins located outside buildings, or equipment not exempt pursuant to paragraph (b)(2).

- (7G) Cooking kettles where the entire product in the kettle is edible and intended for human consumption. This exemption does not include deep frying equipment used in facilities other than eating establishments.
- (8<u>H</u>) Coffee roasting equipment with a maximum <u>batch</u> capacity of 15 kilograms or less, and <u>the</u> control equipment used to-exclusively to vent the equipment.
- (9I) Equipment used exclusively for tableting, or packaging vitamins, or coating vitamins, herbs, or dietary supplements and the control equipment used exclusively to vent such equipment, provided that the equipment uses waterborne solutions that contain 25 Grams of VOC Per Liter of Material or lessa maximum VOC content of no more than 25 grams per liter, or the facility uses less than one gallon per day or twenty two (22) gallons per month of VOC containing solvents, and control equipment used exclusively to vent such equipment.
- (10J) Equipment used exclusively for tableting or packaging pharmaceuticals and cosmetics, or coating pharmaceutical tablets and the control equipment used exclusively to vent such equipment, provided that the equipment uses waterborne solutions that contain 25 Grams of VOC Per Liter of Material or lessa maximum VOC content of no more than 25 grams per liter, or the facility uses less than one gallon per day or twenty two (22) gallons per month of VOC containing solvents, and control equipment used exclusively to vent such equipment.

- (11<u>K</u>) Modified atmosphere food packaging equipment using mixture of gases of <u>that contain</u> no more than 0.4% <u>percent of</u> carbon monoxide by volume.
- (12L) Charbroilers, barbecue grills, and other underfired grills fired on solid or gaseous fuels used in multi-family_residential units, provided the equipment is only-if used by the owner or occupant of such dwelling for non-commercial purposes.
- (13<u>M</u>) Equipment used to brew beer for human consumption at breweries that produce less than 1,000,000 gallons of beer per calendar year and associated <u>cleaning</u> equipment <u>cleaning</u>, provided all equipment used in the manufacturing operation is <u>also</u> exempt pursuant to <u>paragraph (b)(2)subparagraphs (d)(2)(C)</u>, and the cleaning equipment is also exempt pursuant to paragraph (d)(15). This exemption does not apply to boilers.
- (14<u>N</u>) Equipment used to manufacture dehydrated meat for human or pet consumption, provided:
 - (i) The dehydrating oven is either electric or has a maximum rated heat input capacity of 2,000,000 Btu/hour or less and is fired exclusively on natural gas;
 - (ii) The operating temperature for the dehydrating oven is less than 190 degrees Fahrenheit; and
 - (iii) <u>The</u> non-combustion VOC and <u>particulate matter</u> (PM) emissions, including emissions from materials used for cleaning, are each one pound per day or less, and the operating temperature is less than 190 degrees Fahrenheit for dehydrating ovens, and provided such equipment is either fired exclusively on natural gas with a maximum heat input capacity of 2,000,000 Btu/hour or less, or is electric.
- (O) Food ovens with a rated maximum heat input capacity of 325,000 Btu/hour or less, that are fired exclusively on natural gas, where no baking occurs, and no emissions other than products of combustion occur. This exemption does not apply to food ovens used to bake uncooked yeast-containing products.
- (j10) Plastics, Composite, and Rubber Processing Equipment

- (<u>1A</u>) Presses or molds used for curing, post curing, or forming composite products and plastic products where no VOC or chlorinated blowing agent is present, and <u>the</u> control equipment is used exclusively to vent these presses or molds.
- (2<u>B</u>) Presses or molds with a ram diameter of less than or equal to 26 inches used for curing or forming rubber products and composite rubber products, excluding those operating above 400 $^{\circ}$ F.
- (3<u>C</u>) Ovens used exclusively for the forming of plastics or composite products, where no foam forming or expanding process is involved, provided such ovens are also exempt pursuant to subparagraph (d)(2)(C).
- (4<u>D</u>) Equipment used exclusively for softening or annealing plastics, provided such equipment is <u>also</u> exempt pursuant to <u>subparagraphs</u>
 (d)(2)(C) or (d)(2)(D)paragraph (b)(2). This exemption does not include equipment used for recycling of expanded polystyrene.
- (5E) Extrusion equipment used exclusively for extruding rubber products or plastics where no organic plasticizer is present, or for pelletizing polystyrene foam scrap., except-This exemption does not apply to equipment used to extrude or to pelletize acrylics, polyvinyl chloride, polystyrene, and their copolymers.
- (6<u>F</u>) Injection or blow molding equipment for rubber or plastics where no blowing agent is used, or where -only compressed air, water or carbon dioxide is used as a blowing agent, and control equipment used to exclusively vent such equipment.
- (7G) Mixers, roll mills and calendars for rubber or plastics where no material in powder form is added and no VOC containing solvents, diluents or thinners are used.
- (8<u>H</u>) Ovens used exclusively for the curing of vinyl plastisols by the closed-mold curing process, provided such ovens are <u>also</u> exempt pursuant to paragraph (b)(2)subparagraph (d)(2)(C).
- (9<u>I</u>) Equipment used exclusively for conveying and storing plastic materials, provided they are not in powder form and <u>the control</u> equipment <u>used</u> exclusively <u>to venting</u> the equipment.
- (10J) Hot wire cutting of expanded polystyrene foam and woven polyester film.

- (11<u>K</u>) Photocurable stereolithography equipment and associated post curing equipment.
- (12L) Laser sintering equipment used exclusively for the sintering of nylon or plastic powders and <u>the</u> control equipment <u>used</u> exclusively <u>to</u> venting such equipment, provided such equipment is <u>also</u> exempt pursuant to <u>paragraph (b)(2)subparagraph (d)(2)(C)</u>.
- (13<u>M</u>) Roller to roller coating systems that create 3<u>three</u>-dimensional images provided:
 - (Ai) the <u>The VOC</u> emissions from such equipment (including cleanup) are three (3) pounds per day or less or 66 pounds per calendar month or less;
 - (Bii) the <u>The</u> coatings contain twenty five (25) grams or less of <u>VOC</u> per liter of materialGrams of VOC Per Liter of <u>Material or less</u> provided that the coating used on such equipment is 12 gallons per day or less or 264 gallons per calendar month or less; or
 - (C<u>iii</u>) the <u>The</u> coatings contain fifty (50) grams or less of VOC per liter of material<u>Grams of VOC Per Liter of Material or less</u>, and <u>using exclusivelyall</u> cleanup solvents <u>used</u> containing twenty five (25) grams or less of VOC per liter of material<u>Grams of VOC Per Liter of Material or less</u>, and the total quantity of VOC emissions do not exceed one ton per calendar year, and provided a filing pursuant to Rule 222 is submitted to the Executive Officer. Rule 222 may be applicable.

VOC emissions shall be determined using test methods approved by the District, CARB and U.S. EPA. In the absence of approved test methods, the applicant can submit VOC calculation procedures acceptable to the District.

(k11) Mixing, Blending, and Packaging Equipment

(<u>1A</u>) Batch mixers, which have a <u>brimful_maximum</u> capacity of 55 gallons or less (7.35 cubic feet) and <u>the</u> control equipment used exclusively to vent the equipment, and <u>the</u> associated filling equipment.

- (2B) Equipment used exclusively for mixing and blending of-materials, and the associated filling equipment, provided where no VOC containing solvents are used and no materials in powder form are added, and associated filling equipment.
- (3C) Equipment used exclusively for mixing and blending of materials to make water emulsions of asphalt, grease, oils, or waxes where no materials in powder or fiber form are added.
- (4<u>D</u>) Equipment used to blend, grind, mix, or thin liquids to which powders may be added, with a capacity of 950 liters (251 gallons) or less, where no supplemental heat is added and no ingredient charged (excluding water) exceeds 135 °F and <u>the</u> control equipment <u>used</u> exclusively to venting the equipment.
- (5<u>E</u>) Cosmetics filling stations where the filling equipment is hard piped to the cosmetics mixer or <u>and</u> the holding tank feeding the filling equipment provided that the mixer and holding tank is are also exempt under this rule.
- (6<u>F</u>) Concrete mixers, with a rated working capacity of one cubic yard or less and <u>the</u> control equipment used exclusively to vent the equipment.
- (7<u>G</u>) Equipment used exclusively for the-packaging of-lubricants or greases.
- (8<u>H</u>) Equipment used exclusively for the packaging of sodium hypochlorite-based household cleaning or sodium hypochlorite-based pool products and <u>the control equipment used exclusively to</u> vent the equipment.
- (9<u>I</u>) Foam packaging equipment using twenty (20) gallons per day or less or 440 gallons per calendar month or less of liquid foam material or containing fifty (50) <u>gG</u>rams of VOC <u>pP</u>er <u>lLiter</u> of <u>mM</u>aterial, or less.
- (112) Coating and Adhesive Process/Equipment
 - (4<u>A</u>) Equipment used exclusively for coating objects with oils, melted waxes or greases which contain no VOC containing materials, including diluents or thinners.

- (2<u>B</u>) Equipment used exclusively for coating objects by dipping in waxes or natural and synthetic resins which contain no VOC containing materials including, diluents or thinners.
- (3C) Batch ovens with 1.5 cubic meters (53 cubic feet) or less internal volume where no melting occurs, provided such equipment is <u>also</u> exempt pursuant to <u>paragraph (b)(2)subparagraph (d)(2)(C)</u>. -This exemption does not include ovens used to cure vinyl plastisols or debond brake shoes.
- (4<u>D</u>) Ovens used exclusively to cure 30 pounds per day or less or 660 pounds per calendar month or less of powder coatings, provided that such equipment is <u>also</u> exempt pursuant to paragraph (b)(2)subparagraph (d)(2)(C).
- $(5\underline{E})$ Spray coating equipment operated within control enclosures.
- (6<u>F</u>) Coating or adhesive application or laminating equipment such as air, airless, air-assisted airless, high volume low pressure (HVLP), air brushes, electrostatic spray equipment, roller coaters, dip coaters, vacuum coaters, flow coaters and spray machines provided that:
 - (Ai) the <u>The</u> VOC emissions from such equipment (including clean-up) are three (3)-pounds per day or less or 66 pounds per calendar month or less; or
 - (Bii) the <u>The</u> total quantity of UV/EB/LED (non-solvent based and non-waterborne) coatings, adhesives and associated VOC containing solvents (including clean-up) used in such equipment <u>operations</u> is six (6)-gallons per day or less or 132 gallons per calendar month or less;-or
 - (C<u>iii</u>) the <u>The</u> total quantity of organic solvent based coatings and adhesives and associated VOC containing solvents (including clean-up) used in such equipment is one (1) gallon per day or less or 22 gallons per calendar month or less;-or
 - (Đ<u>iv</u>) the <u>The</u> total quantity of water reducible or waterborne coatings and adhesives and associated VOC containing solvents (including clean-up) used in such equipment is three (3)-gallons per day or less or 66 gallons per calendar month or less;-or

- (Ev) the <u>The</u> total quantity of polyester resin and gel coat type materials and associated VOC containing solvents (including clean-up) used in such equipment is one (1) gallon per day or less or 22 gallons per calendar month or less; or
- (Fvi) all-<u>All</u> coatings, adhesives, polyester resin and gel coat type materials and associated VOC containing solvents (excluding cleanup solvents) contain fifty (50) grams or less of VOC per liter of materialGrams of VOC Per Liter of <u>Material or less</u> and all cleanup solvents contain twenty five (25) grams or less of VOC per liter of materialGrams of <u>VOC Per Liter of Material or less</u>, and the total quantity of VOC emissions do not exceed one ton per calendar year. <u>Rule 222 may be applicable.</u>, and provided that:
- (i) a filing pursuant to Rule 222 is submitted to the Executive Officer; or
- (ii) within 60 days after start up for new, relocated, or modified facilities, or by March 1, 2018 for facilities existing as of May 5, 2017, a low VOC verification is submitted to the Executive Officer, in a format approved by the Executive Officer, to demonstrate compliance with material and cleanup solvent VOC concentration limits, and the annual VOC emission limit.

If combination of the coatings, adhesives and polyester resin and gel coat type materials identified in <u>clauses (d)(12)(F)(ii)</u>, (d)(12)(F)(iv), and/or (d)(12)(F)(v) (B), (C), (D) and/or (E) are used in any equipment, this exemption is only applicable if the operations meet the criteria specified in <u>clauses</u> (d)(12)(F)(i) or (d)(12)(F)(vi)(A) or (F), or the total usage of coatings, adhesives, polyester resin and gel coat type materials and associated VOC containing solvents (including cleanup) meets the most stringent applicable limit in <u>clauses (d)(12)(F)(ii)</u>, (d)(12)(F)(iv), or (d)(12)(F)(v) (B), (C), (D) or (E). For exemptions based on usage, solvent-based UV and waterborne UV materials are subject to the usage limits in <u>clauses (d)(12)(F)(iii)</u> and (d)(12)(F)(iv)(C) and (D), respectively. VOC emissions shall be determined using test methods approved by the District, CARB

and U.S. EPA. In the absence of approved test methods, the applicant can submit VOC calculation procedures acceptable to the District.

- (7<u>G</u>) Spray coating and associated drying equipment and control enclosures, used exclusively for educational purposes in educational institutions.
- (8<u>H</u>) Control enclosures with an internal volume of 27 cubic feet or less, provided that aerosol cans, air brushes, or hand applications are used exclusively.
- (9<u>I</u>) Portable coating equipment and pavement stripers used exclusively for the application of architectural coatings, and associated internal combustion engines provided such equipment is <u>also</u> exempt pursuant to <u>subdivision (a)paragraph (d)(1)</u> or <u>paragraph</u> (b)(1)<u>subparagraph (d)(2)(A)</u>, and provided no supplemental heat is added during pavement striping operations.
- (10J) Hand application of resins, adhesives, dyes, and coatings using devices such as brushes, daubers, rollers, and trowels.
- (11<u>K</u>) Drying equipment such as flash-off ovens, drying ovens, or curing ovens associated with coating or adhesive application, or laminating equipment provided the drying equipment is <u>also</u> exempt pursuant to <u>paragraph (b)(2)</u><u>subparagraph (d)(2)(C)</u>, and provided that:
 - (Ai) the <u>The</u> total quantity of VOC emissions from all coating and/or adhesive application, and laminating equipment that the drying equipment serves is three (3) pounds per day or less or 66 pounds per calendar month or less; or
 - (Bii) the <u>The</u> total quantity of UV/EB/LED (non-solvent based and non-waterborne) coatings and adhesives, and associated VOC containing solvents (including clean-up) used in all coating and/or adhesive application, and laminating equipment that the drying equipment serves is six (6)-gallons per day or less or 132 gallons per calendar month or less; or
 - (C<u>iii</u>) the <u>The</u> total quantity of solvent based coatings and adhesives and associated VOC containing solvents (including clean-up) used in all coating and/or adhesive application, and laminating equipment that the drying
equipment serves is one (1)-gallon per day or less or 22 gallons per calendar month or less;-or

- $(\underline{\text{Div}})$ the <u>The</u> total quantity of water reducible or waterborne coating and adhesives and associated VOC containing solvents (including clean-up) used in all coating and/or adhesive application, and laminating equipment that the drying equipment serves is three (3)-gallons per day or less or 66 gallons per calendar month or less;-or
- (Ev) the <u>The</u> total quantity of polyester resin and gel coat type materials and associated VOC containing solvents (including clean-up) used in all coating, adhesive application, and laminating equipment that the drying equipment serves is one (1)-gallon per day or less or 22 gallons per calendar month or less; or
- (Fvi) all-<u>All</u> coatings, adhesives, polyester resin and gel coat type materials and associated VOC containing solvents (excluding cleanup solvents) contain fifty (50) grams or less of VOC per liter of materialGrams of VOC Per Liter of Material or less and all cleanup solvents contain twenty five (25) grams or less of VOC per liter of materialGrams of VOC Per Liter of Material or less, and the total quantity of VOC Per Liter of Material or less, and the total quantity of VOC emissions do not exceed one ton per calendar year. <u>Rule 222 may be applicable.</u>, and provided that either:
- (i) a filing pursuant to Rule 222 is submitted to the Executive Officer; or
- (ii) within 60 days after start up for new, relocated, or modified facilities, or by March 1, 2018 for facilities existing as of May 5, 2017, a low-VOC verification is submitted to the Executive Officer, in a format approved by the Executive Officer, to demonstrate compliance with material and cleanup solvent VOC concentration limits and the annual VOC emission limit.

If <u>a</u> combination of the coatings, adhesives and polyester resin and gel coat type materials identified in <u>clauses (d)(12)(K)(ii)</u>, (d)(12)(K)(iv), and/or (d)(12)(K)(v) (B), (C), (D) and/or (E) are used in any equipment, this exemption is only

applicable if the operations meet the criteria specified in <u>clauses</u> (d)(12)(K)(i) or (d)(12)(K)(vi) (A) or (F), or the total usage of coatings, adhesives, polyester resin and gel coat type materials and associated VOC containing solvents (including cleanup) meets the most stringent applicable limit in <u>clauses</u> (d)(12)(K)(ii), (d)(12)(K)(iii), (d)(12)(K)(iv), or (d)(12)(K)(v) (B), (C), (D) or (E). For exemptions based on usage, solvent-based UV and waterborne UV materials are subject to the usage limits in <u>clauses</u> (d)(12)(K)(iii) and (d)(12)(K)(iv)(C) and (D), respectively. VOC emissions shall be determined using test methods_approved by the District, CARB and US EPA. In the absence of approved test methods, the applicant can submit VOC calculation procedures acceptable to the District.

- (L) The addition of UV/EB/LED curing technology, or other curing or drying technology, to an existing permitted coating equipment or operation if:
 - (i) The equipment remains consistent with the description in the existing Permit to Operate, excluding the addition of curing or drying equipment operated exclusively using electrical power;
 - (ii) The equipment complies with the conditions specified in the existing Permit to Operate;
 - (iii) There is no physical change to the configuration of the existing air pollution control equipment associated with the equipment or operation;
 - (iv) There is no physical change to the configuration of an existing permanent total enclosure associated with the equipment or operation;
 - (v) All coatings, solvents, or other materials associated with the technology do not contain any toxic air contaminants pursuant to Rule 1401, as listed on the Safety Data Sheet, except as allowed under the existing Permit to Operate; and
 - (vi)All coatings, solvents, or other materials associated with the
technology (excluding cleanup solvents) contain 50 Grams
of VOC Per Liter of Material or less and all cleanup solvents
associated with the technology contain 25 Grams of VOC
Per Liter of Material or less.

- (m<u>13</u>) Storage and Transfer Equipment
 - (4<u>A</u>) Equipment used exclusively for the storage and transfer of fresh, commercial or purer grades of:
 - (Ai) Sulfuric acid or phosphoric acid with an acid strength of 99 percent or less, by weight-;
 - (B<u>ii</u>) Nitric acid with an acid strength of 70 percent or less, by weight-; or
 - (Ciii) Water based solutions of salts or sodium hydroxide.
 - (2<u>B</u>) Equipment used exclusively for the storage and/or transfer of liquefied gases, not including:
 - (Ai) LPG with a capacity of greater than 10,000 pounds-;
 - (B<u>ii</u>) Hydrogen fluoride <u>with a capacity of greater</u> than 100 pounds; or-
 - (C<u>iii</u>) Anhydrous ammonia <u>with a capacity of greater than 500</u> pounds.
 - (3C) Equipment used exclusively for the transfer of less than 75,700 liters (20,000 gallons) per day of unheated VOC containing materials, with an initial boiling point of 150 °C (302 °F) or greater, or with an organic vapor pressure of <u>five</u> 5-mm Hg (0.1 psi) absolute or less at 21.1 °C (70 °F).
 - (4<u>D</u>) Equipment used exclusively for the storage <u>and/or including</u> dispensing of unheated VOC containing materials with an initial boiling point of 150 °C (302 °F) or greater, or with an organic vapor pressure of <u>five5 mm Hg</u> (0.1 psi) absolute or less at 21.1 °C (70 °F). This exemption does not include liquid fuel storage greater than 160,400 liters (40,000 gallons).
 - (5E) Equipment used exclusively for transferring VOC containing liquids, materials containing VOCs, or compressed gases into containers with a capacity of less than 225 liters (60 gallons) capacity., This exemption does not includeexcept equipment used for transferring more than 4,000 liters (1,057 gallons) of materials per day with a vapor pressure greater than 25.8 mm Hg (0.5 psia) at operating conditions.
 - (6<u>F</u>) Equipment used exclusively for the storage and transfer of liquid soaps, liquid detergents, vegetable oils, fatty acids, fatty esters, fatty alcohols, waxes and wax emulsions.

- (7G) Equipment used exclusively for the storage and transfer of refined lubricating or hydraulic oils and <u>the control equipment used to</u> exclusively <u>to vent such equipment</u>.
- (8<u>H</u>) Equipment used exclusively for the storage and transfer of crankcase drainage oil and <u>the</u> control equipment used to exclusively to vent such equipment.
- Equipment used exclusively for VOC containing liquid storage or (9I) transfer to and from such storage, with a holding capacity of less than 950 liters (251 gallons); capacity or equipment used exclusively for the storage of odorants for natural gas, propane, or oil with a holding capacity of less than 950 liters (251 gallons) capacity and associated transfer and control equipment used exclusively for such equipment provided a filing pursuant to Rule 222 is submitted to the Executive Officer. -Rule 222 may be applicable for equipment used exclusively for the storage of odorants. This exemption does not include asphalt. -In addition, this exemption does not apply to a group of more than one VOCcontaining liquid or odorant tank where a single product is stored, where the combined storage capacity of all tanks exceeds 950 liters (251 gallons), and where the tanks are mounted on a shared mobile platform and stored at a facility.
- (10J) A retail mobile fueler with a cumulative storage capacity less than or equal to 10 gallons of gasoline, excluding one individual portable fuel container with a capacity up to 6.6 gallons of gasoline.
- (11K) A non-retail mobile fueler with a cumulative storage capacity less than or equal to 120 gallons of gasoline, excluding one individual portable fuel container with a capacity up to 6.6 gallons of gasoline.
- (12) Until July 1, 2022, a mobile fueler with a cumulative storage capacity less than 251 gallons of gasoline. This exemption does not apply to a mobile fueler where the combined gasoline storage capacity of all mounted tanks exceeds 251 gallons.
- (<u>13L</u>) Equipment used exclusively for the storage and transfer of "top white" (i.e., Fancy) or cosmetic grade tallow or edible animal fats intended for human consumption and of sufficient quality to be certifiable for United States markets.

- (14<u>M</u>) Equipment, including tar pots (or tar kettles), used exclusively for the storage, holding, melting and transfer of asphalt or coal tar pitch with a maximum holding capacity of less than 600 liters (159 gallons); or equipment, including tar pots (or tar kettles), used exclusively for the storage, holding, melting and transfer of asphalt or coal tar pitch with a maximum holding capacity of no more than 3,785 liters (1,000 gallons), <u>if such equipment</u> is equipped with burner(s) designed to fire exclusively on liquefied petroleum gases, and provided a filing pursuant to Rule 222 is submitted to the Executive Officer. Rule 222 may be applicable.
- (15N) Pumps used exclusively for pipeline transfer of liquids.
- (16<u>O</u>) Equipment used exclusively for the unheated underground storage of 23,000 liters (6,077 gallons) or less, and equipment used exclusively for the transfer to or from such storage of organic liquids with a vapor pressure of 77.5 mm Hg (1.5 psi) absolute or less at actual storage conditions.
- Equipment used exclusively for the unheated underground storage of organic liquids with a vapor pressure of 77.5 mm Hg (1.5 psi) absolute or less at actual storage conditions with a capacity of 23,000 liters (6,077 gallons) or less, and equipment used exclusively for the transfer to or from such storage of organic liquids.
- (17<u>P</u>) Equipment used exclusively for the storage and/or transfer of an asphalt-water emulsion heated to 150 °F or less.
- (18Q) Liquid fuel storage tanks piped exclusively to emergency internal combustion engine-generators, turbines or pump drivers.
- (<u>19R</u>) Bins used for temporary storage and transport of material with a capacity of 2,080 liters (550 gallons) or less.
- (20S) Equipment used for material storage where no venting occurs during filling or normal use.
- (21<u>T</u>) Equipment used exclusively for storage, blending, and/or transfer of water emulsion intermediates and products, including latex, with a VOC content of <u>five 5%percent</u> by volume or less, or a VOC composite partial pressure of <u>five 5-mm Hg</u> (0.1 psi) or less at 20 °C (68 °F).
- (22<u>U</u>) Equipment used exclusively for storage and/or transfer of sodium hypochlorite solution.

- (23V) Equipment used exclusively for the storage of VOC containing materials which are stored at a temperature at least 130 °C (234 °F) below its initial boiling point, or have an organic vapor pressure of five5 mm Hg (0.1 psia) absolute or less at the actual storage temperature. To qualify for this exemption, the operator shall, iIf the stored material is heated, the owner or operator shall install and maintain a device to measure the temperature of the stored VOC containing material to qualify for this exemption. This exemption does not include liquid fuel storage greater than 160,400 liters (40,000 gallons), asphalt storage, or coal tar pitch storage.
- (24<u>W</u>) Stationary equipment used exclusively to store and/or transfer organic compounds that do not contain VOCs.
- (25X) Unheated equipment including <u>the</u> associated control equipment used exclusively for the storage and transfer of fluorosilicic acid at a concentration of 30% <u>percent</u> or less by weight and a vapor pressure of 24 mm Hg or less at 77 °F -(25 °C). -The hydrofluoric acid concentration within the fluorosilicic acid solution shall not exceed <u>one percent</u>^{1%} by weight.
- (26Y) Equipment, including asphalt day tankers, used exclusively for the storingage, holding, melting, and transferring of asphalt or coal tar pitch, that is mounted on a motor vehicle with a maximum holding capacity of :
 - (i) <u>lessLess</u> than 600 liters (159 gallons) [Rule 222 may be <u>applicable</u>]; or
 - (ii) equipment, including asphalt day tankers, used exclusively for the storage, holding, melting, and transfer of asphalt or coal tar pitch, that is mounted on a motor vehicle, with a maximum holding capacity of no more than Less than or equal to 18,925 liters (5,000 gallons), provided the equipment in subparagraph (d)(13)(Y) is equipped with burner(s) designed to fire exclusively on liquefied petroleum gases only, and provided a filing pursuant to Rule 222 is submitted to the Executive Officer. [Rule 222 may be applicable].
- (<u>27Z</u>) Tanks for aqueous urea solutions with a capacity of 6,500 gallons or less, provided a filing pursuant to Rule 222 is submitted to the

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Executive Officer. This exemption does not include tanks used for blending powdered urea and water. <u>Rule 222 may be applicable.</u>

- (28AA) Replacement of a pole float used to control emissions from slotted guidepoles in floating roof storage tanks with a pole sleeve or a pole sleeve in combination with a flexible enclosure system. The exceptions provided in Pparagraph (se)(1) does not apply to equipment utilizing this provision for replacing equipment. In addition, but-this provision does not excuse the duty to exempt such equipment from complying with any requirements orf regulations listed in paragraph (se)(1), as those requirements may separately apply to the equipment.
- (n14) Natural Gas and Crude Oil Production Equipment
 - (1<u>A</u>) Well heads and well pumps, provided a filing pursuant to Rule 222
 is submitted to the Executive Officer. Rule 222 may be applicable.
 - (2B) Crude oil and natural gas pipeline transfer pumps, provided a filing pursuant to Rule 222 is submitted to the Executive Officer for natural gas pipeline transfer pumps. Rule 222 may be applicable to natural gas pipeline transfer pumps.
 - (3C) Gas, hydraulic, or pneumatic repressurizing equipment., provided a filing pursuant to Rule 222 is submitted to the Executive Officer for natural gas repressurizing equipment Rule 222 may be applicable to natural gas repressurizing equipment.
 - (4<u>D</u>) Equipment used exclusively as water boilers, water or hydrocarbon heaters, and/or closed heat transfer systems (does not include steam generators used for oilfield steam injection) excluding steam generators used for oilfield steam injection, that have:
 - (A<u>i</u>) <u>Have</u> a maximum heat input rate of 2,000,000 Btu per hour or less;, and
 - (B<u>ii</u>) Have been<u>Are</u> equipped to be fired exclusively with <u>pPurchased</u> <u>qQuality</u> <u>nNatural</u> <u>gG</u>as, liquefied petroleum gas, <u>pP</u>roduced <u>gG</u>as which contains less than 10 ppm hydrogen sulfide, or any combination thereof.
 - (5<u>E</u>) The following equipment used exclusively for <u>pP</u>rimary <u>FR</u>ecovery, and not associated with <u>eC</u>ommunity <u>H</u>ease <u>HU</u>nits:
 - (Ai) Gas separators and boots-;

- (Bii) Initial receiving, gas dehydrating, storage, washing and <u>sShipping tTanks</u> with an individual capacity of 34,069 liters (9,000 gallons) or less-<u>;</u>
- (Ciii) Crude oil tank truck loading facilities (does not include a loading rack), and gas recovery systems exclusively serving tanks exempted under subparagraph (n)(5)(B)clause (d)(14)(E)(ii)-; or
- (\underline{Div}) Produced <u>gG</u>as dehydrating equipment.
- (6<u>F</u>) Gravity-type oil/-water separators with a total air/liquid interfacial area of less than 45 square feet, separating and the oil with a specific gravity of 0.8251 or higher (40.0 API or lower).

The following definitions will apply to subdivision (n) above:

- PRIMARY RECOVERY Crude oil or natural gas production from "freeflow" wells or from well units where only water, produced gas or purchased quality gas is injected to repressurize the production zone.
- COMMUNITY LEASE UNITS Facilities used for multiple well units (three or more wells), whether for a group of wells at one location or for separate wells on adjoining leases.
- SHIPPING TANKS Fixed roof tanks, which operate essentially as "run down" tanks for separated crude oil where the holding time is 72 hours or less.
- WASH TANKS Fixed roof tanks which are used for gravity separation of produced crude oil/water, including single tank units, and which are used concurrently for receipt, separation, storage and shipment.

$(\Theta 15)$ Cleaning

The exemptions in this subdivision paragraph (d)(15) do not include any equipment or operations regulated under Rule 1122 – Solvent Degreasers using solvents that are greater than five 5-percent by weight, or 0.01 percent by weight for non-Rule 1122 equipment or operations, of perchloroethylene, methylene chloride, carbon tetrachloride, chloroform, 1,1,1-trichloroethane, trichloroethylene, or any combination thereof, with either a capacity of more than 7.6 liters (2-two gallons) or was-designed as a solvent cleaning and drying machine regardless of size. -In addition, the exemptions specified in this subdivision apply only if the equipment is also

exempt pursuant to paragraph (b)(2) subparagraphs (d)(2)(C) or (d)(2)(D) of this rule.

- (<u>1A</u>) <u>The following solvent c</u>Cleaning equipment and associated waste storage tanks, used exclusively to store the solutions drained from this equipment:
 - (Ai) unheated <u>Unheated</u> batch, provided:
 - (A) the <u>The</u> volume of the solvent reservoir is one (1) gallon or less, or
 - (B) the The VOC emissions from the equipment are not more than three 3-pounds per day or 66 pounds per calendar month.
 - (ii) <u>devices Devices used for cleaning of equipment used for the</u> application of inks, adhesives, and coatings provided:
 - (A) the The volume of the device's solvent reservoir is five (5) gallons or $less_{\overline{5}}$ or
 - (iiB) the <u>The VOC</u> emissions from the equipment are not more than three (3) pounds per day or 66 pounds per calendar month.
 - (C<u>iii</u>) <u>remote <u>Remote</u> reservoir cleaners <u>with a maximum sink</u> <u>opening area of seven square feet or less</u>, provided the solvent from the sink-like area immediately drains into an enclosed solvent container while the parts are being cleaned.</u>
- (2B) Vapor degreasers with an air/vapor interface surface area of <u>one 1.0</u> square foot or less, provided such degreasers have an organic solvent loss of <u>three 3</u>-gallons per day or less excluding water or 66 gallons per calendar month or less excluding water.
- (3C) Cleaning equipment using materials with a VOC content of twentyfive (25) gGrams of VOC pPer ILiter of mMaterial, or less, and associated dryers exclusively serving these cleaners, provided such equipment is also exempt pursuant to paragraph (b)(2)subparagraphs (d)(2)(C) or (d)(2)(D). -This exemption does not include equipment used for cleaning of diesel particulate filters (DPFs) or associated control equipment used exclusively to vent such equipment used for cleaning DPFs.
- (4<u>D</u>) Hand application of solvents for cleaning purposes including, but not limited to, the use of rags, daubers, swabs, and squeeze bottles,

<u>and the as well as associated air pollution control equipment used</u> <u>exclusively to vent such operations</u>, unless <u>the air pollution control</u> equipment is required for source specific rule compliance.

- (p<u>16</u>) Miscellaneous Process Equipment
 - (4<u>A</u>) Equipment, including dryers, used exclusively for dyeing, stripping, or bleaching of textiles <u>and the control equipment used exclusively</u> to vent the equipment, provided:
 - (i) where nNo VOC containing materials, including diluents or thinners, are used, and
 - (ii) provided such <u>The</u> equipment is also exempt pursuant to paragraph (b)(2)subparagraphs (d)(2)(C) or (d)(2)(D) and control equipment exclusively venting the equipment.
 - (2B) Equipment used exclusively for bonding lining to brake shoes and the control equipment used exclusively to vent such equipment, provided where no VOC containing materials are used and control equipment exclusively venting such equipment.
 - (3C) Equipment used exclusively to liquefy or separate oxygen, nitrogen, or the rare gases from air, provided such equipment is also except equipment not exempt pursuant to paragraphs (b)(1) or (b)(2)subparagraphs (d)(2)(A), (d)(2)(B), (d)(2)(C), or (d)(2)(D).
 - (4D) Equipment used exclusively for surface preparation, including, but not limited to, paint stripping, pickling, desmutting, de-scaling, passivation, and/or deoxidation, and any water and associated rinse tanks and waste storage tanks <u>used</u> exclusively to store the solutions drained from the equipment, that exclusively uses any one or combination of the materials in subparagraphs (p)(4)(A) through (p)(4)(H)clauses (d)(16)(D)(i) through (d)(16)(D)(viii). —This exemption does not include any rectified, air sparged or heated tank that contains chromium, or contains-nickel, lead or cadmium, and is rectified, sparged or heated. This exemption also does not include chemical milling or circuit board etching using ammonia-based etchants.
 - (Ai) organic Organic materials containing 50 grams or less of VOCs per liter of material;

- (B<u>ii</u>) <u>formic_Formic_acid</u>, acetic acid, boric acid, citric acid, phosphoric acid, and sulfuric acids;
- (C<u>iii</u>) <u>hydrochloric Hydrochloric</u> acid in concentrations of 12 percent by weight or less;
- (Div) alkaline <u>Alkaline</u> oxidizing agents;
- (Ev) hydrogen Hydrogen peroxide;
- (Fvi) salt_Salt_solutions, except for air-sparged, heated or rectified processes with salt solutions containing hexavalent chromium, chromates, dichromates, nickel, cadmium, or lead;
- (G<u>vii</u>) sodium <u>Sodium</u> hydroxide, provided the process is not sparged or rectified; or
- (H<u>viii</u>) nitric <u>Nitric</u> acid, hydrochloric acid, or hydrofluoric acid, provided that the equipment in which it is used has an open surface area of one square foot or less, is unheated, and produces no visible emissions.

This exemption does not include chemical milling or circuit board etching using ammonia based etchants.

- (5E) Equipment used exclusively for the plating, stripping, or anodizing of metals as described in subparagraphs (p)(5)(A) through (p)(5)(G)clauses (d)(16)(E)(i) through (d)(16)(E)(vii). —This exemption does not include any rectified, air sparged or heated tank that contains chromium, or contains nickel, lead or cadmium and is rectified, sparged or heated.
 - (A<u>i</u>) <u>electrolytic Electrolytic plating of exclusively of brass</u>, bronze, copper, iron, tin, zinc, and precious metals;
 - (B<u>ii</u>) <u>electroless</u>_<u>Electroless</u>_nickel plating, provided that the process is not air__sparged_or_heated, and no electrolytic reverse plating occurs;
 - (C<u>iii</u>) the electrolytic <u>Electrolytic</u> stripping of brass, bronze, copper, iron, tin, zinc, and/<u>or</u> precious metals, provided no chromic, hydrochloric, nitric or sulfuric acid is used;
 - (Đ<u>iv</u>) the non<u>Non</u>-electrolytic stripping of metals, provided the stripping solution is not sparged and does not contain nitric acid-<u>:</u>

- (Ev) anodizing <u>Anodizing using exclusively using sulfuric acid</u> and/or boric acid with a total bath concentration of 20 percent acids or less by weight and using 10,000 amp-hours per day or less of electricity;
- (Fvi) anodizing <u>Anodizing using</u> exclusively <u>using</u> phosphoric acid with a bath concentration of 15 percent or less phosphoric acid by weight and using 20,000 amp-hours per day or less of electricity; or
- (G<u>vii</u>) water <u>Water</u> and associated rinse tanks, and waste storage tanks used exclusively to store the solutions drained from equipment used for the plating, stripping, or anodizing of metals.
- (6F) Closed loop solvent recovery systems used for recovery of waste solvent generated on-site using <u>a</u> refrigerated or liquid-cooled condenser, or <u>an</u> air-cooled <u>condenser with a(where the</u> solvent reservoir capacity is-of less than 10 gallons) condenser.
- (7G) Equipment used exclusively for manufacturing soap or detergent bars, including mixing tanks, roll mills, plodders, cutters, wrappers, where no heating, drying or chemical reactions occur.
- (8<u>H</u>) Inert gas generators, <u>provided such equipment is also except</u> equipment not exempt pursuant to paragraph (b)(2)subparagraphs (d)(2)(C) or (d)(2)(D).
- (9<u>I</u>) Hammermills used exclusively to process aluminum and/or tin cans, and <u>the control equipment used exclusively to venting such</u> equipment.
- (10J) Paper shredding, and carpet and paper shearing, fabric brushing and sueding as well as associated conveying systems, baling equipment, and <u>the control equipment used to exclusively to venting</u> such equipment. –This exemption does not include carpet and fabric recycling operations.
- (11<u>K</u>) Chemical vapor type sterilization equipment where no Ethylene <u>ethylene Oxide oxide</u> is used, and with a chamber volume of two (2) cubic feet or less, used by healthcare facilities and <u>the</u> control equipment <u>used</u> exclusively <u>to</u> venting the equipment. —This exemption does not include equipment used for incineration.
- $(\underline{12L})$ Hot melt adhesive equipment.

- (13<u>M</u>) Pyrotechnic equipment, special effects or fireworks paraphernalia equipment used for entertainment purposes, provided such equipment is <u>also</u> exempt pursuant to <u>subdivision (b)paragraph</u> (d)(2).
- $(14\underline{N})$ Ammunition or explosive testing equipment.
- (15<u>O</u>) Fire extinguishing equipment using halons.
- (16P) Industrial wastewater treatment equipment which only does <u>conducts</u> pH adjustment, precipitation, gravity separation and/or filtration of the wastewater, including equipment used for reducing hexavalent chromium and/or destroying cyanide compounds. -This exemption does not include treatment processes where VOCs and/or toxic materials are emitted, or where the inlet concentration of cyanide salts through the wastewater treatment process prior to pH adjustment exceeds 200 mg/liter.
- (17Q) Rental equipment operated by a lessee and which is not located more than twelve12 consecutive months at any one facility in the District South Coast AQMD provided that the owner of the equipment has a permit to operate issued by the District South Coast AQMD and that the lessee complies with the terms and conditions of the permit to operate.
- (<u>18R</u>) Industrial wastewater evaporators treating water generated from onsite processes only, where no VOCs and/or toxic materials are emitted, and provided that the equipment is also exempt pursuant to paragraph (b)(2)subparagraphs (d)(2)(C) or (d)(2)(D).
- (19<u>S</u>) Foam application equipment using two-component polyurethane foam <u>and the control equipment used exclusively to vent this</u> <u>equipment provided the blowing agent does not contain VOCs,</u> <u>chlorofluorocarbons, or methylene chloride</u>where no containing <u>blowing agent is used, excluding chlorofluorocarbons or methylene</u> <u>chloride, and control equipment exclusively venting this equipment</u>.
- (20T) Toner refilling and <u>the</u> associated control equipment.
- (21<u>U</u>) Evaporators used at dry cleaning facilities to dispose of separator wastewater and <u>the control equipment used exclusively to venting the equipment.</u>
- (22V) Equipment used to recycle aerosol cans by puncturing the can in an enclosed system which is vented through an activated carbon filter.

This exemption shall only apply to aerosol recycling systems where the aerosol can to be recycled was used as part of the ir operation at the facility or <u>a facility</u> from facilities under common ownership.

- (23W) Notwithstanding the exemptions in subdivision (p)paragraph (d)(16), equipment existing as of May 5, 2017 that is subject to the aforementioned exemptions and that is an integral part of an operation requiring a written permit shall continue to be exempt, provided the equipment is identified, described in detail, and submitted for inclusion into the permit equipment description with any associated application for Permit to Construct or Permit to Operate. -Equipment described in this paragraph includes, but is not limited to, rinse tanks, dye tanks and seal tanks that are part of a metal finishing operation, including but not limited to, plating, anodizing, and surface preparation.
- (X) Negative air machines and associated HEPA filtration systems that are primarily used to remove asbestos-laden air from isolated work areas at residential or commercial abatement projects, where the air is passed to the HEPA filtration system. Rule 222 may be applicable.
- (q<u>17</u>) Agricultural Sources
 - (1<u>A</u>) Notwithstanding the exemption under this subdivisionparagraph, any internal combustion engines, or gasoline transfer and dispensing equipment purchased or modified after July 7, 2006 that are not exempt pursuant to subparagraphs (d)(2)(A), (d)(2)(H), and (d)(13)(I) paragraphs (b)(1), (b)(6), and (m)(9) of this rule shall be subject to permit requirements. Rule 222 may be applicable.
 - (B) Emergency internal combustion engines are exempt from permit requirements for theseat agricultural sources. Rule 222 may be applicable.
 - (2C) Except as provided in paragraph (q)(1), aAgricultural permit units at agricultural sources not subject to Title V with actual emissions less than the amounts listed in the following table<u>Table 1 below or</u> <u>based on the amounts representing one-half of any applicable</u> <u>emissions threshold for a major source in the applicable planning</u> area in South Coast AQMD, whichever is lower.÷

Table 1*							
(Tons/Year)							
Pollutant (Tons/Year)	South Coast Air Basin	Riverside County Portion of Salton Sea Air Basin	Riverside County Portion of Mojave Desert Air Basin				
VOC	5.0	12.5 5.0	50.0				
NOx	5.0	12.5 5.0	50.0				
SOx	35.0	35.0	50.0				
СО	25.0	50.0	50.0				
PM10	35.0	35.0	50.0				
<u>PM2.5</u>	<u>35.0</u>	<u>50.0</u>	<u>50.0</u>				
Single Hazardous Air Pollutant	5.0	5.0	5.0				
Combination Hazardous Air Pollutants	12.5	12.5	12.5				

* Emissions of fugitive dust and emissions from soil amendments and fertilizers at agricultural sources are not to be counted when evaluating emissions for purposes of this paragraph.

Rule 222 may be applicable to internal combustion engines.

Emissions of fugitive dust and emissions from soil amendments and fertilizers are not to be counted when evaluating emissions for purposes of this subdivision.

- (<u>3D</u>) Orchard wind machines powered by an internal combustion engine with a manufacturer's rating greater than 50 brake horsepower provided the engine is operated no more than 30 hours per calendar year.
- (4<u>E</u>) Orchard heaters approved by the California Air Resources Board to produce no more than one gram per minute of unconsumed solid carbonaceous material.

(<u>**#**18</u>) Registered Equipment and Filing Program

(4<u>A</u>) Any portable equipment, including any turbines qualified as military tactical support equipment under Health and Safety Code Section 41754 registered in accordance with the Statewide Portable Equipment Registration Program (PERP) adopted pursuant to California Health and Safety Code Sections 41750 *et seq* as they exist on [*Date of Rule Amendment*].

- (2B) PERP registered engines used in the Outer Continental Shelf (OCS) as defined in 40 CFR, Part 55 as it exists on [Date of Rule <u>Amendment</u>] [Rule 222 may be applicable], provided that:
 - (Ai) _______ notification is submitted to the Executive Officer via submittal of a filing pursuant to Rule 222;The owner or operator notifies the Executive Officer;
 - (B<u>ii</u>) the <u>The</u> equipment shall not reside at one location for more than 12 consecutive months; and
 - (Ciii) notwithstanding <u>Notwithstanding</u> the exemption applicability under Health and Safety Code <u>Section </u>\$2451, <u>as it exists on [Date of Rule Amendment]</u>, of the Statewide Portable Equipment Registration Program (PERP) for engines operating in the OCS, all<u>any owner or</u> operators using this permit exemption shall comply with PERP and with California Air Resources Board-issued registration requirements.
- PERP registered equipment operated at a RECLAIM Facility shall (3C)be classified as a Major Source, Large Source or Process Units in accordance with Rule 2011 - Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Sulfur (SOx) Emissions subdivisions (c) and (d) for SOx emissions and Rule 2012 - Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NOx) Emissions subdivisions (c), (d), and (e) for NOx emissions for purposes of determining the applicable requirements for Monitoring, Reporting and Recordkeeping (MRR). Use of RECLAIM MRR Protocols for Rule 219 equipment as specified in Rule 2011 (Rule 2011 Protocol, Appendix A, Chapter 3, Subsection F) and Rule 2012 (Rule 2012 Protocol, Appendix A, Chapter 4, Subsection F) is only allowed if the registered PERP equipment also qualifies for an exemption from permit requirements under a separate provision of this Rulerule.
- (4) Any equipment listed in Rule 222 Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II.

(se) Exceptions

Notwithstanding equipment identified in (a) through (r) subdivision (d) of this rule, written permits are required pursuant to the provisions of paragraphs (se)(1), (se)(2), and (se)(4), and filings are required under Rule 222 pursuant to paragraph (s)(3):

- (1) Equipment, process materials or air contaminants subject to:
 - (A) Regulation IX Standards of Performance for New Stationary Sources (NSPS), except for internal combustion engines with a manufacturer's rating of 50 brake horsepower or less;-or
 - (B) Regulation X National Emission Standards for Hazardous Air Pollutants (NESHAP - Part 61, Chapter I, Title 40 of the Code of Federal Regulations40 CFR 61), except for internal combustion engines with a manufacturer's rating of 50 brake horsepower or less; or
 - (C) Emission limitation requirements of either the state Air Toxic Control Measure (ATCM) or NESHAP - Part 63, Title 40 of the Code of Federal Regulations<u>40 CFR 63; or.</u>
- (2) Equipment when When the Executive Officer has determined that the provisions in subparagraphs (e)(2)(A) through (e)(2)(C) apply and written notification has been given to the owner or operator of the equipment, the equipment shall thereafter be subject to Rules 201 and 203 for non-RECLAIM sources, Rule 2006 for RECLAIM sources, and/or Regulation XXX Title V Permits for facilities subject to Title V permitting requirements:
 - (A) the <u>The</u> risk from uncontrolled emissions will be greater than identified in subparagraph (d)(1)(A), or paragraphs (d)(2) or (d)(3) in Rule 1401—New Source Review of Toxic Air Contaminants; or,
 - (B) the <u>The</u> equipment may not operate in compliance with all applicable <u>District-South Coast AQMD</u> <u>R</u>rules and <u>R</u>regulations, including but not limited to <u>SCAQMD</u> Rule 402 – Nuisance; or.
 - (C) The equipment or the air pollution control system venting the equipment has been modified, operated, or maintained in a manner that:
 - (i) Is inconsistent with the applicable exemption under any provisions of this rule; or
 - (ii) Results in otherwise preventable excess emissions that have been detected or observed by the Executive Officer.

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Once the Executive Officer makes such a determination and written notification is given to the equipment owner or operator, the equipment shall thereafter be subject to Rules 201 and 203 for non-RECLAIM sources, Rule 2006 for RECLAIM sources, and Regulation XXX — Title V Permits for major sources.

- (3) If the Executive Officer determines the information to evaluate health risk is inadequate, or if additional information or review is required, upon written notification from the Executive Officer, the owner or operator shall, within 60 days of the written notification, submit (a) complete permit application(s) to demonstrate the equipment operates below the risk thresholds in subparagraph (e)(2)(A).
- (3) The following equipment, processes or operations that are located at a single facility, which does not hold a written permit for any other equipment, processes or operations, and emit four (4.0) tons or more of VOCs in any Fiscal Year (July 1 to June 30) beginning July 1, 2007 or emitted four (4.0) tons or more of VOCs in the Fiscal Year July 1, 2006 June 30, 2007. The four (4.0) ton per Fiscal Year threshold shall be calculated cumulatively for all categories of equipment, processes or operations listed in subparagraphs (A) through (C) below. One filing shall be required for all of the categories of equipment, processes or operations subject to this provision as listed in subparagraphs (A) through (C) below. Associated VOC emissions shall be reported under the Annual Emissions Reporting program and fees shall be paid pursuant to Rule 301, subdivision (u).
 - (A) Printing operations individually exempted under paragraph (h)(1) and (h)(7).
 - (B) Coating or adhesive application or laminating equipment and devices individually exempted under paragraphs (1)(6) and (1)(10).
 - (C) Hand applications of VOC containing materials individually exempted under paragraph (o)(4).
- (4) Equipment or control equipment subject to permitting requirements pursuant to Regulation XIV Toxics and Other Non-criteria Pollutants.

(t) Recordkeeping

Any person claiming exemptions under the provisions of this Rule shall provide adequate records pursuant to Rule 109 and any applicable Material Safety Data Sheets (MSDS), to verify and maintain any exemption. Any

(f) Recordkeeping

- (1) Any owner or operator claiming an exemption under any provision of this rule shall maintain documentation and/or calculations sufficient to demonstrate that the stated exemption provision, parameter, requirement or limitation applies. Documentation may include, as applicable, but not be limited to:
 - (A) VOC-containing material throughput and emissions;
 - (B) VOC content of each VOC-containing material, including:
 - (i) The Grams of VOC Per Liter of Regulated Product, Less Water and Exempt Compounds; and
 - (ii) The Grams of VOC Per Liter of Material, including water and exempt compounds;
 - (C) Hours of operation;
 - (D) Materials used or processed;
 - (E) Fuel type and usage;
 - (F) Throughput;
 - (G) Operating parameters;
 - (H) Manufacturer specifications;
 - (I) Rating plate; and
 - (J) Safety Data Sheets.
- (2) All documentation and/or records pursuant to paragraph (f)(1) shall be maintained onsite for three years and made available to the Executive Officer upon request.

(g) Test Methods

- (1) <u>All</u> test methods used to verify the percentages, concentrations, vapor pressures, etc., shall be the approved test methods as contained in the <u>District's South Coast AQMD's</u> Test Method Manual or any methods approved by the Executive Officer, <u>CARBthe California Air Resources</u> <u>Board</u>, and the <u>United States Environmental Protection Agency (U.S.</u> <u>EPA)EPA</u>.
- (2) In the absence of an approved method as identified in paragraph (g)(1), an owner or operator claiming an exemption using the VOC emission limits in subparagraphs (d)(8)(A), (d)(10)(M), (d)(12)(F), or (d)(12)(K) shall use VOC calculation procedures acceptable to the Executive Officer based on

U.S. EPA guidance, including, but not limited to, calculation procedures using product formulation data.

- (uh) Compliance Dates
 - (1) The owner<u>/ or operator of equipment previously not requiring a permit pursuant to Rule 219 shall comply with Rule 203 Permit to Operate within one year from the date the rule<u>Rule 219</u> is amended to remove the exemption unless compliance is required before this time by written notification by the Executive Officer. Effective on or after July 11, 2003 for purpose of Rule 301(e), emissions from equipment that has been removed from an exemption shall be considered "permitted" beginning January 1 or July 1, whichever is sooner, after Rule 219 is amended to remove the exemption, even if an application has not been submitted to obtain a permit.</u>
 - (2) Agricultural sources constructed or operating prior to January 1, 2004 requiring Title V permits shall submit Title V permit applications on or before June 29, 2004.
 - (3) Existing agricultural permit units constructed or operating prior to January 1, 2004 at agricultural sources requiring Title V permits and requiring written permits pursuant to paragraph (q)(1) shall submit applications for a Permit to Operate by December 17, 2004. For the purpose of Rule 301(e), emissions from agricultural permit units subject to this paragraph shall be considered "permitted" July 1, 2005.(4) Existing agricultural permit units constructed or operating prior to January 1, 2004 at agricultural sources not subject to Title V with actual emissions equal to or greater than the amounts listed in the table in subdivision (q) and requiring written permits pursuant to paragraph (q)(2) shall submit applications for a Permit to Operate by June 30, 2005. For the purpose of Rule 301(e), emissions from agricultural permit units subject to this paragraph shall be considered "permitted" July 1, 2005.(5) Agricultural permit units built, erected, altered, modified, installed or replaced after January 1, 2004, but prior to January 1, 2005 if written permits are required pursuant to subdivision (q), shall submit applications for a Permit to Operate by March 5, 2005. For the purpose of Rule 301(e), emissions from agricultural permit units subject to this paragraph shall be considered "permitted" July 1, 2005.(6) Agricultural permit units built, erected, altered, modified, installed or replaced on or after January 1, 2005, if written permits are required

pursuant to subdivision (q) shall comply with Rule 201. For the purpose of Rule 301(e), emissions from agricultural permit units subject to this paragraph shall be considered "permitted" July 1, 2005.(72)

Notwithstanding paragraph $(\underline{uh})(1)$, effective July 5, 2017, an owner<u>/ or operator submitting an application for Permit to Construct or</u> Permit to Operate pursuant to Rules 201 or 203 shall comply with paragraphs (e)(21) and (p)(23)subparagraphs (d)(5)(U) and (d)(16)(W).

ATTACHMENT G

(Adopted September 11, 1998)(Amended May 19, 2000)(Amended March 5, 2004) (Amended December 5, 2008)(Amended May 3, 2013)(Amended May 5, 2017) (PAR 222 March 3, 2023)

[Rule Index to be Added After Rule Amendment]

PROPOSED AMENDED RULE 222

FILING REQUIREMENTS FOR SPECIFIC EMISSION SOURCES NOT REQUIRING A WRITTEN PERMIT PURSUANT TO REGULATION II

(a) Purpose

The purpose of this rule is to provide an alternative to written permits. This rule requires owners<u>/ or operators of specified emission sources to submit information</u> regarding the source, including, but not limited to:

- (1) $\frac{\mathbf{A} \mathbf{A}}{\mathbf{A}}$ description of the source;
- (2) data-<u>Data</u> necessary to estimate emissions from the source; and
- (3) <u>information Information</u> to determine whether the <u>equipment emission</u> <u>source</u> is operating in compliance with applicable <u>DistrictSouth Coast</u> <u>AQMD</u>, state and federal rules and regulations.
- (b) Applicability
 - (1) This rule applies to owners<u>or</u> /operators of the emission sources listed in Table <u>4I and the equipment, processes, and operations listed in paragraph</u> (b)(2)., which are exempt from written permits pursuant to Rule 219, unless the Executive Officer determines that the source cannot operate in compliance with applicable rules and regulations. This rule also applies to agricultural diesel-fueled engines subject to the California Air Resources Board Airborne Toxic Control Measure (CARB ATCM) for Stationary Compression Ignition Engines. Owners/<u>or</u> operators authorized to operate emission sources pursuant to this rule shall operate those emissions sources in compliance with any and all operating conditions imposed by the DistrictSouth Coast AQMD.

TABLE I

EMISSION SOURCE/EQUIPMENT	EFFECTIVE DATE
Boilers or Steam Generators & Process Heaters with a rated heat input capacity from 1,000,000 up to and including 2,000,000 Btu/hr and produce less than one pound of NOx emissions per day, excluding equipment subject to Regulation XX – Regional Clean Air Incentives Market (RECLAIM), exempt from a written permit pursuant to Rule $219 (d)(2)(C)$.	1/1/2001
Commercial Charbroilers and associated air pollution control equipment, exempt from a written permit pursuant to Rule 219 $(d)(9)(E)$.	1/1/1999
Negative Air Machines (Asbestos), exempt from a written permit pursuant to Rule 219 (d)(16)(X).	1/1/1999
Natural gas and crude oil production equipment, including: well heads and well pumps; natural gas pipeline transfer pumps; <u>oil production</u> <u>well groups;</u> and natural gas repressurizing equipment , exempt from a <u>written permit pursuant to Rule 219 (d)(14)(A), (d)(14)(B), or</u> (d)(14)(C).	5/5/2017
Printing and related coating and/or laminating equipment and associated dryers and curing equipment exempt from a written permit pursuant to Rule 219 $(d)(8)(A)(v)(h)(1)(E)$, unless a low-VOC verification is submitted to the Executive Officer in accordance with Rule 219 (h)(1)(E)(ii).	5/5/2017
Roller to roller coating systems that create 3-dimensional images, exempt from a written permit pursuant to Rule $219 (d)(10)(M)(iii)$ (j)(13)(C).	12/5/2008
Coating or adhesive application, or laminating equipment exempt from a written permit pursuant to Rule 219 (d)(12)(F)(vi)(l)(6)(F)., unless a low VOC verification is submitted to the Executive Officer in accordance with Rule 219 (l)(6)(F)(ii).	5/5/2017
Drying equipment such as flash-off ovens, drying ovens, or curing ovens associated with coating or adhesive application, or laminating equipment exempt from a written permit pursuant to Rule 219 (d)(12)(K)(vi)(1)(11)(F), unless a low-VOC verification is submitted to the Executive Officer in accordance with Rule 219 (1)(11)(F)(ii).	5/5/2017
Agricultural Diesel-Fueled Engines rated greater than 50 brake horse power used in Agricultural Operations exempt from a written permit pursuant to Rule 219 $(d)(17)(A)$, $(d)(17)(B)$, or $(d)(17)(C)$ $(q)(1)$ and	12/5/2008

EMISSION SOURCE ÆQUIPMENT	EFFECTIVE DATE
(q)(2), and subject to CARB <u>Airborne Toxic Control Measure</u> (ATCM).	
Equipment, processes or operations located at a facility holding no written permit and emitting four tons or more of VOCs per year as specified in Rule 219(s)(3).	12/5/2008
Gasoline storage tanks and dispensing equipment with capacity greater than or equal to 251 gallons, and installed on or before July 7, 2006 at agricultural operations, exempt from a written permit pursuant to Rule $219 (d)(17)(A)$.	12/5/2008
Asphalt Day Tankers, with a maximum holding capacity equal to or greater than 600 liters (159 gallons) but no more than 18,925 liters (5,000 gallons) and are equipped with a demister and burner(s) designed to fire exclusively on liquefied petroleum gases, exempt from a written permit pursuant to Rule 219 (d)(13)(Y).	5/3/2013
Asphalt Pavement Heaters (which are any mobile equipment used for the purposes of road maintenance and new road construction), exempt from a written permit pursuant to Rule 219 (d)(1)(E).	5/3/2013
Diesel Fueled Boilers that have a rated maximum heat input capacity of 2,000,000 Btu per hour or less, are fueled exclusively with diesel #2 fuel, <u>use less than 50 gallons of fuel per day</u> , and are located more than 4,000 feet above sea level or more than 15 miles offshore from the mainland, and where the maximum NOx emission output of the equipment is less than one pound per day, and have been in operation prior to May 3, 2013, exempt from a written permit pursuant to Rule 219 (d)(2)(D).	5/3/2013
Food Ovens with a rated maximum heat input capacity of 2,000,000 Btu per hour or less, are-fired exclusively on natural gas, and where the process VOC emissions are less than one pound per day, exempt from a written permit pursuant to Rule $219 (d)(2)(C)(b)(2)$.	5/5/2017
Fuel Cells, which produce electricity in an electro-chemical reaction and use phosphoric acid, molten carbonate, proton exchange membrane, or solid oxide technologies; and associated heating equipment provided the heating equipment is fueled exclusively with natural gas, methanol, liquefied petroleum gas, or any combination thereof, including heaters that have a rated maximum heat input capacity of greater than 2,000,000 Btu per hour, provided that the supplemental heat used is 90,000 therms per year or less, exempt from a written permit pursuant to Rule 219 (d)(2)(G)(ii).	5/5/2017

EMISSION SOURCE/EQUIPMENT	EFFECTIVE DATE
Internal combustion engines used exclusively for electrical generation at remote two-way radio transmission towers where no utility, electricity or natural gas is available within a <u>1/2-half</u> mile radius, <u>has</u> <u>have</u> a manufacturer's rating of 100 brake horsepower or less, and are fired exclusively on diesel #2 fuel, compressed natural gas (CNG) or liquefied petroleum gas (LPG), or any combination thereof, exempt from a written permit pursuant to Rule 219 (d)(2)(A)(ii).	5/5/2017
Micro-Turbines, with a rated maximum heat input capacity of 3,500,000 Btu per hour or less, provided that the cumulative power output of all such engines at a facility is less than two megawatts, and that the engines are certified at the time of manufacture with the state of California or were in operation prior to May 3, 2013, exempt from a written permit pursuant to Rule 219 (d)(2)(B).	5/3/2013
Portable Diesel Fueled Heaters <u>used for space heating</u> , with a rated maximum heat input capacity of 250,000 Btu per hour or less and are equipped with burner(s) designed to fire exclusively on diesel #2 fuel, <u>exempt from a written permit pursuant to Rule 219 (d)(2)(D)</u> .	5/3/2013
Power Pressure Washers and Hot Water or Steam Washers and Cleaners, that are equipped with a heater or burner that is designed to be fired on diesel fuel, <u>has have</u> a rated maximum heat input capacity of 550,000 Btu per hour or less, <u>is are</u> equipped with a non-resettable chronometer, <u>use no more than 50 gallons of fuel per day</u> , and the maximum NOx emission output of the equipment is less than one pound per day and uses no more than 50 gallons of fuel per day , exempt from a written permit pursuant to Rule 219 (d)(2)(F).	5/3/2013
Storage of odorants for natural gas, propane, or oil with a holding capacity of less than 950 liters (251 gallons) and associated transfer and control equipment, exempt from a written permit pursuant to Rule $219(d)(13)(I)$.	5/3/2013
Tar Pots or Tar Kettles, with a maximum holding capacity equal to or greater than 600 liters (159 gallons) but no more than 3,785 liters (1,000 gallons) and are equipped with burner(s) designed to fire exclusively on liquefied petroleum gases, exempt from a written permit pursuant to Rule 219 (d)(13)(M).	5/3/2013
Industrial water cooling towers <u>located in a chemical plant</u> , refinery or <u>other industrial facility</u> , that are not used for evaporative cooling of process water or not used for evaporative cooling of water from barometric jets or from barometric condensers and in which no chromium compounds are contained , located in a chemical plant,	5/5/2017

EMISSION SOURCE EQUIPMENT	EFFECTIVE DATE
refinery or other industrial facility., exempt from a written permit pursuant to Rule 219 (d)(4)(C)(ii).	
Storage of aqueous urea solutions, exempt from a written permit pursuant to Rule 219 (d)(13)(Z).	5/5/2017
Engines registered under the statewide Portable Equipment Registration Program (PERP) used in the Outer Continental Shelf (OCS), exempt from a written permit pursuant to Rule 219 (d)(18)(B).	5/5/2017

If a determination is made that the source cannot operate in compliance with applicable rules and regulations, a permit shall be required pursuant to Rule 203.

- (2) This rule applies to owners or operators of the following emission sources in subparagraphs (b)(2)(A) through (b)(2)(C) that are located at a single facility, which does not hold a written permit for any other emission sources and emits 4.0 tons or more of VOCs in any calendar year, or emitted 4.0 tons or more of VOCs in the Fiscal Year July 1, 2006 – June 30, 2007:
 - (A) Printing operations individually exempted from written permits pursuant to Rule 219 (d)(8)(A) and (d)(8)(G);
 - (B) Coating or adhesive application or laminating equipment and devices individually exempted from written permits pursuant to Rule 219 (d)(12)(F) and (d)(12)(J); and
 - (C) Hand application of VOC-containing materials operations individually exempted from written permits pursuant to Rule 219 (d)(15)(D).
- (c) Definitions

For the purpose of this rule, the following definitions shall apply:

- (1) AGRICULTURAL OPERATIONS means the growing and harvesting of crops or the raising of fowl or animals for the primary purpose of making a profit, providing a livelihood, or conducting agricultural research or instruction by an educational institution. Agricultural operations do not include activities involving the processing or distribution of crops or fowl or animals.
- (2) AGRICULTURAL DIESEL-FUELED ENGINE is a stationary or portable engine used for agricultural operations. For the purpose of this rule, a

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portable engine owned by the agricultural source owner is considered to be part of the agricultural stationary source. An engine used in the processing or distribution of crops or fowl or animals is not an agricultural engine.

- (3) APPROVED OPERATING PARAMETERS mean a set of operating requirements the equipment must operate under to comply with the requirements of any applicable federal, state, or <u>South Coast AQMD</u> District rules.
- (4) ASPHALT DAY TANKER is a storage tank mounted on a motor vehicle and is used exclusively for the storage, holding, melting, and transfer of asphalt or coal tar pitch with a maximum holding capacity equal to or greater than 600 liters (159 gallons) but no more than 18,925 liters (5,000 gallons), is equipped with a demister and burner(s) designed to fire exclusively on liquefied petroleum gases.
- (5) ASPHALT PAVEMENT HEATER is any mobile equipment used to heat asphalt or coal tar pitch for purposes of road maintenance or new road construction.
- (6) BOILER OR STEAM GENERATOR means any combustion 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.
- (7) BTU means British thermal unit or units.
- (8) CHARBROILER means a cooking device composed of a grated grill or skewer and a heat source. The heat source is <u>either entirely or partly</u> located beneath the food being cooked or may be located above and below the food. Fuels for the heat source include, but are not limited to, electricity, natural gas, liquefied petroleum gas, charcoal, or wood.
- (9) DIESEL FUELED BOILER is any boiler that has a rated maximum heat input capacity of 2,000,000 Btu per hour or less, is fired exclusively with diesel #2 fuel, <u>uses less than 50 gallons of fuel per day</u>, and is located more than 4,000 feet above sea level or more than 15 miles offshore from the mainland, and where the maximum NOx emission output of the equipment

is less than one pound per day, and has been in operation prior to May 3, 2013.

- (10) EMISSION SOURCE (SOURCE) means any equipment, or processes, or <u>operations</u>, which emits air pollutants for which ambient air quality standards have been adopted, or which emits their precursor pollutants.
- (11) FACILITY is any equipment emission source or group of equipment emission sources or other VOC-emitting activities, which are located on one or more contiguous properties within the <u>DistrictSouth Coast AQMD</u>, 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 as it exists on [Date of Rule <u>Amendment</u>]. Such above-described groups, if noncontiguous, but connected only by land carrying a pipeline, shall not be considered one facility.
- (12) FOOD OVEN is any equipment used exclusively for food preparation, has a rated maximum heat input capacity of 2,000,000 Btu per hour or less, and is exclusively fired on natural gas and where the process VOC emissions are less than one pound per day., exempt from a written permit pursuant to Rule 219 (b)(2).
- (13) FUEL CELL is any equipment which produces electricity in an electrochemical reaction, uses phosphoric acid, molten carbonate, proton exchange membrane, or solid oxide technologies; and associated heating equipment, including heaters that hasve a rated maximum heat input capacity of greater than 2,000,000 Btu per hour provided that the supplemental heat used is 90,000 therms per year or less.
- (14) HEAT INPUT means the higher heating value of the fuel to the unit measured as Btu/hr.
- (15) HEPA means High Efficiency Particulate Air filter which is capable of trapping and retaining at least 99.97 percent of all monodispersed particles of 0.3 micrometer in diameter or larger.
- (16) INTERNAL COMBUSTION ENGINE is any spark or compression ignited reciprocating internal combustion engine used exclusively for electrical generation at remote two-way radio transmission towers where no utility, electricity or natural gas is available within a <u>1/2half</u> mile radius, has a

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manufacturer's rating of 100 brake horsepower or less, and is fired exclusively on diesel #2 fuel, compressed natural gas (CNG), or liquefied petroleum gas (LPG).

- (17) INDUSTRIAL COOLING TOWER means a cooling tower located at a chemical plant, refinery or other industrial facility that is not used for comfort cooling.
- (18) ISOLATED WORK AREA means the immediate enclosed containment area in which the asbestos abatement activity takes place.
- (19) MICRO-TURBINE is a stationary gas turbine engine, with a rated maximum heat input capacity of 3,500,000 Btu per hour or less, provided that the cumulative power output of all such engines at a facility is less than two megawatts, and that the engines are certified at the time of manufacture with the state of California or were in operation prior to May 3, 2013.
- (20) NEGATIVE AIR MACHINE (<u>ASBESTOS</u>) means a machine or contrivance whose primary use is to remove asbestos emissions from residential or commercial abatement projects by passing asbestos containing air from an isolated work area by means of negative air pressure to a HEPA filtration system.
- (21) OIL PRODUCTION WELL GROUP is no more than four well pumps located at a facility subject to Rule 1148.1 – Oil and Gas Production Wells at which crude petroleum production and handling are conducted, as defined in the Standard Industrial Classification Manual as Industry No. 1311, Crude Petroleum and Natural Gas as it exists on [*Date of Rule Amendment*].
- (22) PORTABLE DIESEL FUELED HEATER is any combustion equipment which transfers heat from the combustion process for space heating and is designed to be fired exclusively with diesel #2 fuel and has a rated maximum heat input capacity of 250,000 Btu per hour or less.

(23) POWER PRESSURE WASHER AND HOT WATER OR STEAM

WASHER AND CLEANER is any equipment equipped with a heater or burner that is designed to be fired on diesel fuel, has a rated maximum heat input capacity of 550,000 Btu per hour or less, is equipped with a non-resettable chronometer, <u>uses no more than 50 gallons of fuel per day, and</u> has a maximum NOx emission output of less than one pound per day-and uses no more than 50 gallons of fuel per day.

- (24) PROCESS HEATER means any combustion equipment fired with or designed to be fired with natural gas and which transfers heat from combustion gases to water or process streams. 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.
- (25) RATED HEAT INPUT CAPACITY means the gross rated heat input specified on the nameplate of the combustion device.
- (26) REPRESSURIZING EQUIPMENT means combustion-based equipment used for processing natural gas for reinjection for reservoir repressurization, or used during enhanced recovery methods such as water flooding, steam flooding, or CO₂ flooding to increase reservoir pressure.
- (27) STORAGE OF ODORANTS FOR NATURAL GAS, PROPANE, OR OIL is equipment used exclusively for the storage of odorants for natural gas, propane, or oil odorant storage, with a holding capacity of less than 950 liters (251 gallons) and associated transfer and control equipment.
- (28) STORAGE OF AQUEOUS UREA SOLUTIONS is equipment used exclusively to store aqueous solutions of urea $[CO(NH_2)_2]$ with a holding capacity of 6,500 gallons or less.
- (29) TAR POT (also known as a tar kettle) is any mobile equipment used exclusively for the storage, holding, melting, and transfer of asphalt or coal tar pitch and has a maximum holding capacity greater than 600 liters (159 gallons) but no more than 3,785 liters (1,000 gallons) and is equipped with burner(s) that fire exclusively on liquefied petroleum gases.
- (30) WELL CELLAR is a lined or unlined containment surrounding one or more oil wells, allowing access to the wellhead components for servicing and/or installation of blowout prevention equipment.
- (31) WELLHEAD is an assembly of valves mounted to the casing head of an oil well through which a well is produced. The wellhead is connected to an oil production line and in some cases to a gas casing.
- (32) WELL PUMP is a pump used to bring crude oil from the subsurface to surface. A well pump is connected to a well head and can be located in or above a well cellar.
- (d) Requirements

- (1) Owners/<u>or</u> operators of sources subject to this rule shall:
 - (A) <u>comply_Comply_with all applicable South Coast AQMDDistrict</u>, state, and federal rules and regulations;
 - (B) <u>comply Comply</u> with all operating conditions as specified by the <u>District South Coast AQMD</u> on a new emission source or equipment filing;
 - (C) submit Submit applicable information for each emission source described in this rule to the **District**South Coast AQMD, in a format determined by the Executive Officer, which shall provide a description of the source and shall include all associated air pollution control equipment, any and all pertinent data as necessary to estimate emissions from the source, and a determination that the emission source or equipment meets all compliance requirements with applicable rules and regulations. For an owner or operator of a emission source subject to paragraph (b)(2), a single, consolidated filing covering all of the categories of equipment, processes, or operations listed in subparagraphs (b)(2)(A) through (b)(2)(C) is required. For change of location or change of owner/ or operator, a new emission source or equipment filing shall be required prior to operation of the emission source or equipment. This information shall include, if applicable, but not be limited to:
 - (i) <u>hours-Hours of operation;</u>
 - (ii) materials-Materials used or processed;

(iii) <u>fuel-Fuel</u> usage;

(iii)(iv)-Tthroughput; and

(v)operating Operating parameters;-

- (D) On May 3, 2013, and each subsequent January 1 thereafter, Maintain records shall be kept and made make available to the Executive Officer District upon request, records to provide operation data and any updated information on the emission sources or equipment, applicable to this rule, including, but not limited to:
 - (i) <u>hours Hours of operation;</u>
 - (ii) <u>materials Materials</u> used or processed;
 - (iii) fuel Fuel usage;
 - (iv) throughput<u>Throughput</u>; and

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(v) operating Operating parameters;-

Owners or operators of facilities filing for registration under Rule 219 paragraphs (h)(1)(E), (l)(6)(F) or (l)(11)(F) shall comply with the recordkeeping provisions of this subparagraph unless a low-VOC verification is submitted to the Executive Officer in accordance with PAR 219 (h)(1)(E)(ii), (l)(6)(F)(ii) or (l)(11)(F)(ii).

- (E) <u>pay Pay all required fees pursuant to Rule 301;</u>
- (F) maintain Maintain a copy on-site of the filing receipt for all emission sources and equipment applicable to this rule for the life of the emission sources or equipment and make available to the Executive Officer upon request;
- (G) maintain Maintain records sufficient to verify the description of the emission sources or equipment, subject to this rule, all data necessary to estimate output of emissions sources, and records used to demonstrate compliance with operating conditions and with all other applicable rules and regulations.- Documents to demonstrate compliance with a daily emission limit for food ovens may be based on the calendar monthly emissions divided by 30. The records shall be maintained for five (5)three years and made available to the Executive Officer upon request;
- (H) not<u>Not</u> remove any air pollution control equipment associated with applicable equipment emission sources described in this rule unless it can be demonstrated that the replacement air pollution control equipment will reduce emissions at equal to or greater efficiency than the prior unit, and such replacement air pollution control equipment is first approved in writing by the Executive Officer; and
- (I) For facilities subject to paragraph (b)(2), report associated VOC emissions from all of the categories of equipment, processes or operations listed in subparagraphs (b)(2)(A) through (b)(2)(C) under the Annual Emissions Reporting program, pursuant to Rule 301.
- (2) Owners <u>and/oror</u> operators of agricultural sources subject to this rule shall comply with the registration requirements in the CARB ATCM for stationary diesel-fueled agricultural engines rated at greater than 50 brake horsepower pursuant to California Code of Regulations, Title 17, Sections 93115.3(a) and 93115.8(c), as they exist on [*Date of Rule Amendment*].

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- (3) Failure to comply with the provisions set forth in paragraph (d)(1) shall constitute a violation of this rule.
- (e) Compliance Dates
 - (1) A person shall not install, alter, replace, operate, or use any equipment <u>emission source</u> subject to this rule, initially installed on or after the effective date in Table I, without first complying with the requirements in subparagraphs (d)(1)(A), (B), (C), (E) and (H).
 - (2) The owner<u>/ or operator of an emission source installed prior to the effective date in Table I and not currently possessing a valid Permit to Operate or open application for a Permit to Operate, shall comply with the requirements of subdivision (d) within six (6)-months of the effective date in Table I, or when an emission source becomes subject to the provisions of this rule.</u>
 - (3) The owner<u>/ or operator of an emission source installed prior to the effective date in Table I and possessing a valid Permit to Operate or open application for a Permit to Operate will be notified by the Executive Officer of the transfer of the Permit to Operate or open application to the filing system and shall comply with the requirements of subdivision (d) within sixty (60) days of notification.</u>
 - (4) Failure to comply with the provisions set forth in paragraphs (b)(1), (b)(2),
 (e)(1), (e)(2), or through (e)(3) shall constitute a violation of this rule.
- (f) Exemptions

The provisions of this rule shall not apply to:

- (1) Emission sources utilized exclusively in connection with any structure that 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; **andor**
- (2) Emission sources with a Permit to Operate issued by South Coast AQMD.

ATTACHMENT H

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Staff Report Proposed Amended Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II Proposed Amended Rule 222 – Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II

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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:	Yunnie Osias – Air Quality Specialist
Contributors:	Jason Aspell – Deputy Executive Officer Chwen-Jy Chang – Air Quality Engineer II Erwin dela Cruz – Supervising Air Quality Engineer Heather Farr – Planning and Rules Manager Mitch Haimov – Senior Air Quality Engineering Manager David Lui – Supervising Air Quality Engineer Simin Mehrabani, Ph.D Supervising Air Quality Engineer David Ono – Senior Air Quality Engineering Manager Kevin Orellana – Senior Enforcement Manager Barbara Radlein – Program Supervisor Farzaneh Khalaj, Ph.D. – Assistant Air Quality Specialist Angela Shibata – Senior Air Quality Engineering Manager Tiffani To – Air Quality Specialist Susan Tsai – Senior Air Quality Engineer Mark VonDerAu – Air Quality Analysis & Compliance Supervisor
Reviewed by:	Michael Laybourn – Program Supervisor Barbara Baird – Chief Deputy Counsel Josephine Lee – Senior Deputy District Counsel

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EXECUTIVE OFFICER:

WAYNE NASTRI

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EXECUTIVE SUMMARY

Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II is an administrative rule that provides equipment, processes, and operations that emit small amounts of air contaminants an exemption from South Coast AQMD permitting requirements under Regulation II - Permits, unless those equipment, processes, and operations are excluded from exemption pursuant to subdivision (s) – Exceptions. The 2018 amendment to Rule 219 was submitted to U.S. EPA for approval into the State Implementation Plan (SIP). In 2021, U.S. EPA provided an initial review of Rule 219 and identified potential deficiencies that may prevent SIP approval. Proposed Amended Rule 219 (PAR 219) addresses comments raised by the U.S. EPA as well as the Governing Board's direction to encourage the usage of low-emission technologies. PAR 219 also seeks to include additional exemptions for equipment categories with small potential for criteria pollutant emissions and low toxic emission profiles and limited potential for further reductions from permitting requirements. Additionally, PAR 219 includes revisions to <u>the</u> structure of the current rule to match the format of other rules, as well as clarifications and editorial corrections.

Rule 222 – Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II provides an alternative to South Coast AQMD permits by allowing specific emission sources that meet predetermined criteria to register the emission source in the Rule 222 filing program. These sources do not require a written permit but are required to meet the filing requirements pursuant to the Rule 222 filing program and are subject to operating conditions. Proposed Amended Rule 222 (PAR 222) will align the rule with the changes in PAR 219. PAR 222 also includes other minor revisions to streamline recordkeeping requirements and to improve rule clarity. **CHAPTER 1 – BACKGROUND**

INTRODUCTION REGULATORY HISTORY NEED FOR PROPOSED AMENDMENTS AFFECTED INDUSTRIES PUBLIC PROCESS

INTRODUCTION

South Coast AQMD's permitting program (Regulation II – Permits) implements requirements of the federal and state Clean Air Act (CAA), the Air Quality Management Plan (AQMP), and air quality rules and regulations by specifying operating and compliance requirements for stationary sources that emit air contaminants. Air contaminants are generally categorized into criteria pollutants and toxic air contaminants. The six criteria pollutants are ozone, particulate matter (PM), carbon monoxide, lead, nitrogen dioxide, and sulfur dioxide. A toxic air contaminant (TAC) is "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health."¹

If a permit is deemed necessary, the owner or operator of the equipment, process, or operation is required to submit an application, including the necessary information to calculate potential emissions. The owner or operator must pay an application fee to account for costs of the permit evaluation process and an annual permit renewal fee.² Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II is an administrative rule that provides equipment, processes, and operations that emit small amounts of air contaminants an exemption from South Coast AQMD permitting requirements under Regulation II - Permits, unless those equipment, processes, and operations are excluded from exemption pursuant to subdivision (s) - Exceptions. In addition, an exemption from a written permit requirement provided by this rule is only applicable if the owner or operator of the equipment, process, or operation is in compliance with subdivision (t) - Recordkeeping.

Rule 222 – Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II provides an alternative to South Coast AQMD permits by allowing specific emission sources that meet predetermined criteria to register the emission source in the Rule 222 filing program. These sources do not require a written permit but are required to meet the filing requirements pursuant to the Rule 222 filing program and are subject to operating conditions. Emission sources eligible for the Rule 222 filing program are estimated to have lower emissions. The information collected via the filing program can be used for emissions inventory development, as well as to aid in future rulemaking activities and nuisance investigations. Processing a Rule 222 filing is typically faster and less costly than a traditional South Coast AQMD permit.

REGULATORY HISTORY

Rule 219 was adopted on January 9, 1976, and has subsequently been amended 21 times; this proposed amendment will be the twenty-second amendment to the rule. The most recent amendment was on January 7, 2022, to exempt small mobile fuelers.

Rule 222 was adopted on September 11, 1998 and has subsequently been amended five times; this proposed amendment will be the sixth amendment to the rule. The most recent amendment was on May 5, 2017, to add several equipment categories to the Rule 222 filing program.

¹ Health and Safety Code Section 36955

² South Coast AQMD Rule 301 - Permitting and Associated Fees

NEED FOR PROPOSED AMENDMENTS

Proposed Amended Rule 219

Proposed Amended Rule 219 (PAR 219) will address: 1) comments made by U.S. EPA; 2) the Governing Board's direction to encourage the usage of low-emission technologies; 3) rule ambiguities and improve clarity; and 4) requests from stakeholders. A description of each is summarized in the following sections.

U.S. EPA Comments

A State Implementation Plan (SIP) is a collection of regulations and documents used by a state, territory, or local air district to implement, maintain, and enforce the federal air quality standards and to fulfill other requirements of the federal CAA. South Coast AQMD is required to submit its rules and regulations relevant to controlling the six criteria air pollutants (carbon monoxide, lead, nitrogen oxides, ozone, particulate matter, and sulfur dioxide) to U.S. EPA for SIP approval.

The version of Rule 219 that was last reviewed by U.S. EPA and approved into the SIP is dated September 4, 1981. In 2021, U.S. EPA provided an initial review of Rule 219 and found several potential deficiencies that would prevent the rule from being approved into the SIP. U.S. EPA has also proposed a series of recommendations to improve enforceability and clarity. An expanded discussion of U.S. EPA comments is provided in Chapter 2. PAR 219 will address the issues raised by U.S. EPA.

Promote the Use of Low-Emission Technologies

During public hearings and committee meetings, stakeholders have commented that ultraviolet (UV), electron beam (EB), and UV light emitting diodes (LED) technology can are a low-emission technology. Staff agrees that materials manufactured for UV/EB/LED curing can potentially be formulated to reduce or eliminate the presence of volatile organic compounds (VOCs). As a result, the South Coast AQMD Governing Board has directed staff to evaluate Rule 219 to encourage the adoption and proliferation of low-emission technologies.

Rule Ambiguities and Improve Clarity

Staff has identified ambiguities in the existing rule language that may, at times, complicate the implementation of Rule 219. Staff is proposing to address these ambiguities by refining existing exemption provisions, as well as adding new provisions to subdivision (e) – Exceptions. In addition, the structure of Rule 219 is not consistent with the other recently adopted South Coast AQMD rules. For example, test methods are referenced throughout the rule and definitions are currently included within an individual equipment category. PAR 219 restructures the existing rule by establishing separate subdivisions for applicability, definitions and test methods to be consistent with other recently adopted South Coast AQMD rules. This restructuring is intended to improve rule clarity and does not change rule requirements.

Stakeholder Requests

Throughout the rule development process, staff has received stakeholder requests to consider revisions to Rule 219 permit exemption provisions. Staff has held four working group meetings, as well as multiple individual meetings with stakeholders, to address these requests, however not

all of them could be accommodated in PAR 219. A discussion of the stakeholder requests is included in Chapter 2.

Proposed Amended Rule 222

Proposed Amended Rule 222 (PAR 222) will be updated to align with the changes contained in PAR 219. PAR 222 also includes minor rule language revisions such as the streamlining of recordkeeping requirements, and the establishment of a rule exemptions provision to improve rule clarity. Specific revisions to PAR 222 are described in Chapter 3.

AFFECTED INDUSTRIES

PAR 219

Rule 219 affects any industry that uses equipment, processes, or operations that produce small amounts of air contaminants by providing an exemption to a written permit for such equipment. These equipment, processes, or operations can be at small business operations or large source operations. The equipment categories in Rule 219 are:

- Mobile Equipment
- Combustion and Heat Transfer Equipment
- Structures and Equipment General
- Utility Equipment General
- Glass, Ceramic, Metallurgical Processing and Fabrication Equipment
- Abrasive Blasting Equipment
- Mechanical Equipment
- Printing and Reproduction Equipment
- Pharmaceuticals, Cosmetics and Food Processing and Preparation Equipment
- Plastics, Composite and Rubber Processing Equipment
- Mixing, Blending and Packaging Equipment
- Coating and Adhesive Process/Equipment
- Storage and Transfer Equipment
- Natural Gas and Crude Oil Production Equipment
- Cleaning
- Miscellaneous Process Equipment
- Agricultural Sources
- Registered Equipment

PAR 222

Rule 222 applies to owners and operators of emission sources that meet specific criteria to qualify for the South Coast AQMD Rule 222 filing program, as an alternative to written permits. The rule requires owners and operators of specified emission sources to submit information regarding the source, including but not limited to a description of the source, data necessary to estimate emissions from the source, and information to determine whether the equipment is operating in compliance with applicable South Coast AQMD, state, and federal rules and regulations. The

emission sources currently required to submit a registration under the Rule 222 filing program are identified in Table I of Rule 222.

PUBLIC PROCESS

The development of PAR 219 and PAR 222 has been conducted through a public process. A Working Group for PAR 219 and PAR 222 was formed to allow the public and stakeholders to discuss details of the proposed amendments and provide South Coast AQMD staff with input during the rule development process. The Working Group includes business representatives, environmental and community groups, public agencies, and consultants. South Coast AQMD held four Working Group Meetings via Zoom videoconference and teleconference due to COVID-19. The meetings held via Zoom were on March 31, 2022, June 1, 2022, August 3, 2022 and September 22, 2022. A Public Workshop was held on January 4, 2023, via Zoom to present preliminary draft rule language for PAR 219 and PAR 222 and to receive public comment. The South Coast AQMD Stationary Source Committee received a PARs 219/222 briefing at a public meeting on January 20, 2023 and February 17, 2023.

CHAPTER 2 – SUMMARY OF PROPOSED AMENDED RULE 219

OVERVIEW

U.S. EPA COMMENTS

GOVERNING BOARD DIRECTION TO ENCOURAGE LOW EMISSION TECHNOLOGIES

RULE AMBIGUITIES AND IMPROVE CLARITY

STAKEHOLDER REQUESTS

NON-ADMINISTRATIVE AMENDMENTS

OVERVIEW

PAR 219 includes revisions to address multiple issues, which can be separated into the following categories:

- U.S. EPA comments
- Governing Board direction to encourage the usage of low-emission technologies
- Rule ambiguities and improve clarity
- Stakeholder requests

The following sections will summarize the issues in each of the categories. Detailed discussions of the specific rule language changes are included under Chapter 2 – Non-Administrative Amendments.

U.S. EPA COMMENTS

The 2018 amendment to Rule 219 was submitted to U.S. EPA for SIP approval. In 2021, U.S. EPA provided an initial review of Rule 219 and identified potential deficiencies that may prevent SIP approval. Accordingly, staff has proposed changes that are incorporated into PAR 219 to address U.S. EPA's comments. A discussion of the U.S. EPA comments and a summary of the proposed changes are provided below.

Inadequate Recordkeeping Requirements

Rule 219 contains exemption provisions that are based on equipment, size, material, operating, or emission limitations. U.S. EPA commented that the current recordkeeping provisions in Rule 219 only referred to VOC recordkeeping requirements in Rule 109 – Recordkeeping for Volatile Organic Compound Emissions, and that consistent recordkeeping is necessary for all sources. To respond to U.S. EPA comments, PAR 219 clarifies that recordkeeping provisions are inclusive of all applicable emission sources. U.S. EPA also pointed out two compliance options specific to the Printing and Reproduction Equipment and Coating and Adhesive Process/Equipment provisions where the absence of continuous recordkeeping requirements may be a potential deficiency. In lieu of continuous recordkeeping, a facility using these compliance options may submit a verification that VOC emissions are less than one ton per year, and that all associated VOC-containing solvents (excluding clean up solvents) used in the equipment must contain 50 grams or less of VOC per liter of material. These compliance options have been removed from PAR 219.

Removal of Rule 222 Requirements in Rule 219

Several permit exemption provisions in Rule 219 require that the equipment complies with Rule 222 filing program (also referred to as a registration) in order to qualify for the exemption. U.S. EPA commented that the requirement is not necessary as registration is not the basis for determining if specific equipment should be exempted from permit requirements. U.S. EPA further commented that removing the registration requirement from Rule 219 also removes the need to submit Rule 222 for SIP approval, thus allowing the filing program to remain a local program,

giving South Coast AQMD the flexibility to revise it as necessary without the SIP approval process.

Staff agrees with U.S. EPA's assessment and is proposing to remove provisions where a Rule 219 exemption is conditional on submittal of a Rule 222 registration. Staff is also proposing to add language to PAR 219 that indicates where Rule 222 requirements may still apply to clarify to the regulated community that removal of references to Rule 222 in Rule 219 do not change existing Rule 222 registration requirements.

Equipment Replacements at Federal Major Sources

Paragraph (c)(3) in Rule 219 exempts permitting for identical replacement in whole or in part of any equipment that has been issued a permit, with the exception of seals for external or internal floating roof storage tanks. U.S. EPA commented that equipment replacements at federal major sources cannot be exempted from permit requirements solely on the basis of being identical and must meet the standards for "routine maintenance, repair, and replacement" (RMRR) pursuant to U.S. EPA's New Source Review (NSR) regulations. Staff is proposing to add a new exemption in PAR 219 to clarify that the exemption at federal major sources must be based on U.S. EPA guidance in determining RMRR.

Other Edits for Clarity, Consistency, and Enforceability

Rule 219 has been amended multiple times since the 1981 amendment, the last SIP-approved version of the rule. U.S. EPA made proposed edits throughout the rule to improve clarity, consistency, and enforceability. Staff reviewed the edits for accuracy and necessity and has included them in PAR 219. These include removing provisions with effective dates that have passed. U.S. EPA provided other comments and suggestions to improve implementation of PAR 219. Edits made to PAR 219 to address these comments and suggestions include amending the exemption provision for remote reservoir cleaners and adding examples of recordkeeping documents that may be needed to demonstrate the applicability of threshold limits.

Federal Clean Air Act Section 110(1) Analysis

In addition to the comments above, U.S. EPA is requiring South Coast AQMD to conduct an analysis of Rule 219 as required by federal CAA Section 110(1) (42 U.S.C. 7410(1)) to demonstrate that changes made to a SIP-approved rule do not interfere with any federal CAA requirements concerning attainment. This analysis was conducted as a part of the rule development process and is included in Appendix A.

GOVERNING BOARD DIRECTION TO ENCOURAGE LOW EMISSION TECHNOLOGIES

PAR 219 contains new provisions that address both the Governing Board's direction and stakeholders' requests to exempt low emissions UV/EB/LED curing technology. These provisions allow the addition of UV/EB/LED and other low emissions curing technologies to already permitted graphic arts and coating equipment or operations without the need to apply for a permit modification when certain criteria are met.

RULE AMBIGUITIES AND IMPROVE CLARITY

To address ambiguities in the existing rule language, PAR 219 contains updates to the following provisions to improve clarity.

- The exemption provision for small abrasive blasting cabinets and associated dust filters has been updated to specify a minimum control efficiency of 90% for the dust filters.
- New language was added to subparagraph (d)(17)(C) to align the emission limits for non-<u>Title V agricultural sources with potential future changes that make major source</u> <u>thresholds more stringent.</u>
- New provisions have also been added to the Exceptions provisions, in subdivision (e). These provisions address instances where:
 - Otherwise permit-exempt equipment is operated or modified in a manner that is inconsistent with the applicable exemption provision or leads to preventable excess emissions; and
 - More information is needed for equipment that might qualify for a permit exemption but a health risk assessment is needed to ensure that the health risks do not preclude the use of the exemption under existing Rule 219 provisions.
- Edits have been made to improve rule language clarity that were identified by U.S. EPA as follows:
 - Inconsistent use of common phrases;
 - o Inconsistent use of adjectives for capacity thresholds;
 - o Lack of effective dates when citing external regulations; and
 - The need for other minor edits.
- PAR 219 has been reformatted to be consistent with other recently adopted or amended South Coast AQMD rules. These reformatting revisions include:
 - 1) Adding an Applicability subdivision and adding a label to identify the "Purpose" text
 - o 2) Grouping each exempt equipment category into subdivision (d)
 - 3) Consolidating existing test method requirements located throughout the rule into one standalone subdivision

These reformatting changes represent clarifications and do not change existing provisions for facilities. Table 2-1 provides an overview of the reformatted structure of PAR 219.

Table 2-1: Overview of PAR 219 Structure

(a) Purpose

(b) Applicability

(c)	Defir	nitions	
(d)	Equipment, Processes, or Operations Not Requiring a Written Permit		
	(1)	Mobile Equipment	
	(2)	Combustion and Heat Transfer Equipment	
	(3)	Structures and Equipment – General	
	(4)	Utility Equipment – General	
	(5)	Glass, Ceramic, Metallurgical Processing and Fabrication Equipment	
	(6)	Abrasive Blasting Equipment	
	(7)	Mechanical Equipment	
	(8)	Printing and Reproduction Equipment	
	(9)	Pharmaceuticals, Cosmetics and Food Processing and Preparation Equipment	
	(10)	Plastics, Composite and Rubber Processing Equipment	
	(11)	Mixing, Blending and Packaging Equipment	
	(12)	Coating and Adhesive Process/Equipment	
	(13)	Storage and Transfer Equipment	
	(14)	Natural Gas and Crude Oil Production Equipment	
	(15)	Cleaning	
	(16)	Miscellaneous Process Equipment	
	(17)	Agricultural Sources	
	(18)	Registered Equipment	
(e)	Exceptions		
(f)	Reco	rdkeeping	
(g)	Test Methods		
(h)	Compliance Dates		

STAKEHOLDER REQUESTS

During the rule development process, staff received several requests from stakeholders to consider incorporating new exemption provisions in PAR 219. Staff met with all stakeholders to discuss the requests. A summary of these requests is presented in Table 2-2 below, along with a brief discussion and current disposition of the requested change.

Equipment or Process	Proposal	Analysis	Disposition of Request
Gas-Insulated Equipment Used in Electrical Power Generation, Transmission and Distribution Operations	Add an exemption for gas-insulated equipment (GIE) using VOC- containing gases.	Following discussions with GIE stakeholders and vendors, and analysis of estimated equipment size and leak rates, staff agrees that the emissions from each GIE is small as GIE are kept sealed, and VOC is a small fraction of the gas mixture, typically ranging from three to thirteen percent. ³ See Non-Administrative Amendments section for more detailed discussion.	Incorporated proposal. Added subparagraph (d)(4)(M) in PAR 219.
Hydrochloric Acid Storage Tanks	Add an exemption for hydrochloric acid storage tanks.	Hydrochloric acid storage tanks are used to maintain the water quality at pools and other recreational water features. Hydrochloric acid is listed as a TAC in Rule 1401 and without throughput limits in place, the usage of hydrochloric acid may exceed the health risk threshold in Rule 1401 which are location_—specific based on modeling that considers parameters such as receptor distances and local meteorological data and are typically established in a permit to operate.	Did not incorporate proposal.
Aqueous Ammonia Storage Tanks	Expand PAR 219 (d)(13)(C)(iii) to exempt storage and/or transfer equipment of 500 pounds or less of aqueous ammonia.	Ammonia, as a regulated substance subject to the California Accidental Release Prevention (CalARP) Program, is subject to a 500-pound facility-wide threshold quantity for accidental release prevention. ⁴ In the event a facility proposes to increase the amount of ammonia to be stored on-site to greater than 500 pounds, a CEQA analysis is required to determine if there is a potentially significant impact to the environmental topic of hazards and hazardous materials. As such, the request is not incorporated.	Did not incorporate proposal.

 Table 2-2: Stakeholder Requests to Consider in PAR 219 and PAR 222

³ Meeting with GIE stakeholders and vendors, October 28, 2022.
⁴ California Code of Regulations (CCR), Title 19, Division 2, Chapter 4.5, Article 8, Section 2770.5.

Equipment or Process	Proposal	Analysis	Disposition of Request
Sulfuric Acid and Nitric Acid Storage/Transfer Equipment	Remove the maximum 99 percent by weight sulfuric acid concentration threshold in PAR 219 (d)(13)(A)(i) so that the exemption would apply to equipment used exclusively for the storage and transfer of sulfuric acid above 99 percent. For rule consistency, staff should also consider increasing the maximum 70 percent by weight concentration threshold for storage and transfer equipment of nitric acid in clause (d)(13)(A)(ii).	These exemptions have been in the rule since the first iteration (1976) of Rule 219. Sulfuric acid and nitric acid are both TACs, as listed in Rule 1401. Therefore, it is not recommended to remove the maximum percent weight of the acid concentrations.	Did not incorporate proposal.
Filters (e.g., fuel gas, amine, oil) at Refineries	Exempt filters used in refinery equipment from permitting requirements	Filters used in refinery equipment are permitted units that are listed and described in a refinery's facility permit, which includes conditions for replacement. Replacing a filter with an identical unit would not require a permit application, however stakeholders commented that there are instances where filters are no longer manufactured or available and thus cannot be replaced with an identical make and model. Staff's determination is that under these circumstances the appropriateness of the replacement filter must be evaluated. The permitting process would ensure that the potential emissions from this modification are evaluated and applicable emission reduction measures are included.	Did not incorporate proposal.
Knockout Vessels at Refineries	cout VesselsExempt all knockout vessels used in refinery equipment from permitting requirements.Condition F25.1 is a universal condition in refinery facility permit and allows certain permitted knockout vessels, as well as othe specific equipment, to be excluded from being listed in facilit permits. The condition was developed following extensiv discussions held between industry representatives and South Coar AQMD staff. The expansion of condition F25.1 is beyond the scop of PAR 219. Knockout vessels are also potential sources of fugitive		Did not incorporate proposal.

Equipment or Process	Proposal	Analysis	Disposition of Request
		VOC emissions and are not recommended to be exempt from permitting requirements.	
Curing Technologies to Permitted Graphic Arts or Coating Operations	Exemptions for permitted graphic arts and coating operations listed in PAR 219 (d)(8)(H) and PAR 219 (d)(12)(L) should not be dependent on the use of low-VOC materials.	New subparagraphs in PAR 219—(d)(8)(H) and (d)(12)(L)—will exempt permitted graphic arts or coating operations from requiring permit modifications when adding curing equipment if the provisions in clauses (d)(8)(H)(i) through (vi) or clauses (d)(12)(L)(i) through (vi), respectively, are met. Clauses (d)(8)(H)(vi) and (d)(12)(L)(vi) require materials associated with the curing technology to be low VOC. Staff believes the low-VOC material requirement should remain in the provisions as it is in line with Governing Board's directive to encourage deployment of clean technologies beyond emission limits already required by a VOC source-specific rule.	Did not incorporate proposal.
Linear Generators	Exempt linear generators that meet CARB Distributed Generation requirements from permitting requirements.	Linear generators are currently subject to the permitting process that establishes operating conditions to limit emissions. No equipment or models have obtained the CARB certifications to date. There is limited emissions data available to support the request.	Did not incorporate proposal.
Emergency Backup Engines at Telecommunication Facilities	Exempt all emergency backup engines used at telecommunication facilities from permitting requirements.	Rule 219 currently excludes engines 50 horsepower and less from requiring permits. Permits for engines greater than 50 horsepower is a long-standing requirement that applies to all sources including essential services (police, fire, etc.) and to health care facilities.	Did not incorporate proposal.
Food Ovens	Amend Rule 222 recordkeeping provisions for food ovens.	Following discussions with a grocery store and their representatives, a new recordkeeping alternative has been added to Rule 222 for food ovens.	Rule 222, paragraph (d)(1)(G) updated.
Food Ovens at Grocery Stores	Amend Rule 219 and 222 provisions related to "Eating Establishments" to include grocery stores.	Food ovens, including those at grocery stores, are currently exempt from permit requirements conditioned upon Rule 222 registrations. PAR 219 does not change these provisions but for the purposes of Rule 219, eating establishments do not include facilities where food	Partially Incorporated Proposal. Added subparagraph

Equipment or Process	Proposal	Analysis	Disposition of Request
		is prepared and packaged for subsequent sale, such as retail stores. In response to stakeholder requests an exemption was added in Rule 219 for food ovens with a maximum rated heat input capacity of 325,000 Btu/hr or less, fired exclusively on natural gas, provided the oven is not used to bake uncooked yeast-containing products with no emissions other than emissions from combustion, with a maximum rated heat input capacity of 325,000 Btu/hr. These ovens would not be subject to a Rule 222 filing. The 2022 AQMP calls for over 60% reduction in NOx emissions from stationary sources including food ovens. The registration of food ovens pursuant to existing Rule 222 provisions provides more accurate inventory information to facilitate the rule development process. The existing provisions for eating establishments should not be extended to food (such as bakery) ovens in grocery stores.	(d)(9)(O) in PAR 219.

NON-ADMINISTRATIVE AMENDMENTS

Changes have been made throughout PAR 219, most of which are for clarification or consistency, or are grammatical edits. This section will provide background and reasoning for the more substantive amendments to the rule, which are summarized in Table 2-3:

Rule Citation	Description	Category
(a)	Purpose provision	Restructuring
(b)	Applicability provision	Restructuring
(c)	Definitions provision	Restructuring
(d)(2)	Combustion and heat transfer equipment	Rule Ambiguity
(d)(3)(D)	Routine maintenance, repairs, or replacements at federal major source facilities	U.S. EPA Comment
(d)(4)(M)	M) Electricity transmission and distribution equipment that use a VOC-containing gas as an insulating medium	
(d)(6)(B)	Manually operated abrasive blasting cabinets vented to dust filters	Rule Ambiguity
(d)(8)(H) and (d)(12)(L)	Existing permitted graphics arts equipment or operation, and coating equipment or operation, that are adding other low-emitting curing or drying technologies	Governing Board Direction
(d)(9)(O)	Small food ovens where no baking of uncooked yeast-containing products occurs	Stakeholder Request
(d)(15)(A)(iii)	Remote reservoir cleaners	U.S. EPA Comment
(d)(16)(X)	Negative air machines (Asbestos)	Rule Ambiguity
(d)(17)(C)	Updating emissions thresholds for non-Title V agricultural sources	U.S. EPA Comment
(d)(18)(B)(i)	Notification of PERP equipment used in the OCS	U.S. EPA Comment
Multiple provisions	Removal of Rule 222 filing requirements from individual exemption provisions	U.S. EPA Comment
(e)(2)(C)	Exception for equipment not maintained or operated pursuant to exemption provisions or results in preventable excess emissions	Rule Ambiguity

 Table 2-3: Non-Administrative Amendments to PAR 219

(e)(3)	Requirement to submit permit application when additional information needed to determine health risk	Rule Ambiguity
(f)	Recordkeeping provision	U.S. EPA Comment

Purpose - subdivision (a)

To make clear that while Rule 219 may exempt equipment from permitting requirements, registration may still be required pursuant to Rule 222, the Purpose subdivision is proposed to be updated to include language describing that Rule 222 may apply to permit-exempt equipment:

"Certain equipment, processes, or operations that do not require written permits may be subject to Rule 222 – Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II."

Applicability - subdivision (b)

An Applicability subdivision is proposed to be added to be consistent with recently adopted or amended South Coast AQMD rules:

"This rule applies to owners or operators of the equipment, processes, or operations listed in subdivision (d)."

Definitions - subdivision (c)

Rule 219 included definitions for provisions related to oil and gas facilities. To match the format in other South Coast AQMD rules, these definitions were consolidated into subdivision (c). To improve rule clarity, subdivision (c) also includes definitions for determining grams of VOC per liter of material and grams of VOC per liter of regulated product, less water and exempt compounds.

Combustion and Heat Transfer Equipment [paragraph (d)(2)]

Existing Rule 219 exempts stationary gas turbines including microturbines, with a rated maximum heat input capacity of 3,500,000 British thermal units (Btu) per hour or less, provided that the cumulative power is less than two megawatts and the engines were certified at the time of manufacture with the California Air Resources Board. For the purposes of Rule 219, this certification refers to the California Air Resources Board Distributed Generation Certification Program.

Existing Rule 219 includes a clarifying statement that the permit exemption provisions do not apply when there are emissions other than products of combustion, except for food ovens with a rated maximum heat input capacity of 2,000,000 Btu/hour or less, that are fired exclusively on natural gas and where the process VOC emissions are less than one pound per day. This clarifying statement has been incorporated into PAR 219 clause (d)(2)(C)(iii). It should be noted that the clarifying statement relating to food ovens fueled by natural gas also extends to electric food ovens, or other food ovens that do not have any products of combustion. As described in paragraph (f)(1), it is the responsibility of the owner or operator claiming an exemption under any provision of Rule

219 to maintain documentation and/or calculations sufficient to demonstrate that the stated exemption provision, parameter, requirement, or limitation is applicable. This may involve documentation that the worst case or highest emission potential for any equipment, processes, or operations is below the stated exemption provision, parameter, requirement, or limitation.

Routine maintenance, repairs, or replacements at federal major source facilities [subparagraph (d)(3)(D)]

Federal major source⁵ facilities are subject to U.S. EPA New Source Review (NSR) requirements, and a major modification⁶ conducted at a major source would be subject to permit review.⁷ A major modification does not include any activity considered to be RMRR. U.S. EPA determines the applicability of RMRR standards on a case-by-case basis, and has provided a compilation of guidance documents that are available in their NSR Policy Guidance Database.⁸

The current language in Rule 219 subparagraph (d)(3)(C) exempts identical equipment replacements from permitting requirements but does not clearly state that these RMRR standards already apply to federal major source facilities. In response to U.S. EPA's comments that equipment replacements at federal major sources cannot be exempted from permit requirements solely on the basis of being identical and must meet U.S. EPA's NSR regulations' standards for "routine maintenance, repair, and replacement" (RMRR), PAR 219 subparagraph (d)(3)(C) is updated and subparagraph (d)(3)(D) has been added. Staff is proposing to clarify that subparagraph (d)(3)(C) applies only to identical equipment replacements at non-federal major source facilities. Staff is also proposing to add subparagraph (d)(3)(D) to specifically exempt RMRR activities at federal major source facilities.

To determine applicability for this provision, facilities may contact Engineering staff for a written response or could schedule a pre-application meeting. If an in-depth analysis is needed to evaluate whether the exemption applies, a facility may be required to submit a permit application with the necessary information.

The proposed language for subparagraphs (d)(3)(C) and (d)(3)(D) is as follows:

- (C) "Replacement of identical equipment, as defined in Rule 301 Permitting and Associated Fees, at a facility that is not a federal major source, as defined in 40 CFR 51.165 or 52.21 as they exist on [Date of Rule Amendment], where a permit to operate had previously been granted for such equipment....
- (D) "Routine maintenance, repair or replacement of a part of any equipment at a facility that is a federal major source, as defined in 40 CFR 51.165 or 52.21 as they exist on [Date of Rule Amendment], where a permit to operate had previously been

⁵ Under the federal CAA, a federal major source is a stationary source that emits or has the potential to emit any pollutant regulated under the Clean Air Act at a significant emission rate, as defined by 40 CFR 70.

⁶ A major modification is defined as "any physical change in or change in the method of operation of a major stationary source that would result in: a significant emissions increase of a regulated NSR pollutant...; and a significant net emissions increase of that pollutant from the major stationary source" - 40 CFR 51.165(a)(1)(v)(A)

^{7 40} CFR 51.165(a)(2)(i)

⁸ U.S. EPA's New Source Review Policy and Guidance Document Index. <u>https://www.epa.gov/nsr/new-source-review-policy-and-guidance-document-index</u>. Accessed November 9, 2022.

issued for such equipment, based on U.S. EPA guidance in determining routine maintenance, repair, or replacement."

Electricity transmission and distribution equipment that use a VOC-containing gas as an insulating medium [subparagraph (d)(4)(M)]

Sulfur hexafluoride (SF6) is a potent greenhouse gas (GHG), and is being used by the electric power industry in circuit breakers, gas-insulated substations, and other switchgear in the transmission system to manage the high voltages carried between generation stations and customer load centers. Fugitive emissions of SF6 can escape from gas insulated substations and switchgear through seals and be released during equipment installation and when equipment is opened for servicing. As part of a program to achieve GHG emissions reductions, CARB amended the Regulation for Reducing Greenhouse Gas Emissions from Gas-Insulated Equipment (GIE)⁹ in 2021. Key provisions of CARB's regulation include a phase-out schedule for new sulfur hexafluoride gas-insulated equipment. Electric utilities are currently making plans to replace SF6-containing GIE. One replacement under consideration includes GIE with alternative gases that contain VOCs. GIE equipment is widely used, and with estimates of more than 40,000 units within the jurisdictional boundaries of South Coast AQMD. Electric utilities have requested consideration to exempt VOC-containing GIE from permitting requirements due to the limited VOC emission potential.

Depending on the size of the equipment, the amount of insulating gas mixture could vary from a few pounds for low voltage units rated less than 17 kV, to 2,000 pounds for high voltage units rated greater than 245 kV. Although GIE are closed systems, fugitive emissions can result from leaks through seals and be released during equipment installation and servicing. Based on information collected from vendors and manufacturers, VOCs are a small fraction of the insulating gas mixture with a typical range of three to 13-<u>thirteen</u> percent while the remainder is comprised of oxygen and carbon dioxide. In addition, historical leak rates on this type of equipment were less than one percent per year. CARB's regulation requires GIE operators to maintain a detailed inventory of gas usage and to report annual emissions to CARB.

Based on the preceding information, the fugitive VOC emissions are estimated to be less than 0.09 pound per year per equipment rated at or less than 245 kV, and less than 0.0001 pound per year per equipment rated at or less than 38kV. This is likely an upper bound estimate as fugitive emissions of the insulating gas mixture consist primarily of carbon dioxide given that the permeation rate for carbon dioxide is higher than that of VOC.¹⁰ Given the potential fugitive emissions from GIE equipment rated at or less than 245 kV are minimal, PAR 219 contains a proposed exemption from permitting requirements as included in subparagraph (d)(4)(M):

(M) "Gas-insulated equipment with a voltage of 245 kilovolts or less, used in electrical power generation, transmission and distribution operations, that use a VOC-

⁹ CARB. Electricity Transmission and Distribution Greenhouse Gas Emissions: Current and Past Regulations and Regulatory Documents. <u>https://ww2.arb.ca.gov/our-work/programs/elec-tandd/regulation</u>. Accessed on November 9, 2022.

¹⁰ <u>https://e-cigre.org/publication/871-current-interruption-in-sf6-free-switchgear</u>

containing gas as an insulating medium and is manufactured to have a maximum leak rate of less than one percent per year under normal operating conditions."

For the purposes of PAR 219, the leak rate specified in subparagraph (d)(4)(M) can be demonstrated through the equipment specification provided by a GIE manufacturer.

Manually operated abrasive blasting cabinets vented to dust filters [subparagraph (d)(6)(B)]

Abrasive blasting is the cleaning or preparation of a surface by forcibly propelling a stream of abrasive material, such as sand, steel shot, or walnut shells, against the surface. An abrasive blasting cabinet controls particulate emissions by enclosing the blasting environment and preventing the abrasive material and particulates from the blasted surface from escaping. Dust-filters that vent abrasive blasting cabinets pull the particulate-laden air from the cabinet into a canister, where it is run through a filter before exhausting into the ambient air.

Subparagraph (d)(6)(B) currently exempts small manually operated abrasive blasting cabinets where the internal volume of the blast section is 1.5 cubic meters or less and that are vented to a dust filter. The dust filter itself is also exempt under this provision.

In order to ensure that permit-exempt abrasive blasting cabinets and the associated dust filters are effectively controlling particulates, PAR 219 subparagraph (d)(6)(B) will clarify that the dust filter should have at least a 90 percent overall control efficiency:

(B) "Manually operated abrasive blast cabinets, vented to a dust filter with at least 90 percent overall control efficiency (capture and collection) where the total internal volume of the blast section is 1.5 cubic meters (53 cubic feet) or less, and the dust filter exclusively venting such equipment."

The dust filter control efficiency can be verified in the manufacturer's specifications or via the documentation of a test conducted to measure control efficiency. If a facility submits a permit application as a result of this or other PAR 219 amendments that remove exemptions from the rule, submittal of a complete permit application within one year of the effective date of PAR 219 would comply with the compliance date established under paragraph (h)(1).

Existing permitted graphics arts equipment or operation, and coating equipment or operation, that are adding curing or drying technologies [subparagraphs (d)(8)(H) and (d)(12)(L)]

New provisions have been added to PAR 219 in response to the Governing Board's direction to encourage the use of low-emission technologies, as well as in response to stakeholders that requested permit exemptions for UV/EB/LED technologies. While UV/EB/LED curing has been identified as a potentially low-emission technology, these provisions also apply to other curing technologies so long as the requirements are met. The provisions in subparagraphs (d)(8)(H) and (d)(12)(L) contain identical exemption requirements but apply to permitted graphic arts equipment or operations and permitted coating equipment or operations, respectively. The intent of these provisions is to exempt the addition of low-emission curing technologies to permitted graphic arts and coating lines from permit modification requirements under specified conditions. The proposed rule language is in Table 2-4.

To ensure that the exemption applies to low emitting technologies that go above and beyond existing rule requirements, PAR 219 contains criteria that must be met in order for equipment or modifications to be exempt from requirements to obtain permits. The criteria included in subparagraphs (d)(8)(H) and (d)(12)(L) are summarized below.

Clause (i) in subparagraphs (d)(8)(H) and (d)(12)(L) requires that the permitted equipment, excluding the addition of electric curing or drying equipment, remains consistent with the description in the existing permit. If the equipment, other than the added curing or drying equipment, is modified so that it no longer aligns with the permit description, is replaced with non-identical equipment that does not match with the permit description, or if other equipment is added to the permitted operation and is not reflected in the permit, then the provisions of clause (i) would not be satisfied.

(d)(8)(H) - Graphic Arts Equipment or Operations	(d)(12)	(L) - Coating Equipment or Operations
"The d or othe permit	addition of UV/EB/LED curing technology, er curing or drying technology, to an existing ted graphics arts equipment or operation if:	"The ac or other permitte	dition of UV/EB/LED curing technology, curing or drying technology, to an existing ed coating equipment or operation if:
(<i>i</i>)	"The equipment remains consistent with the description in the existing Permit to Operate, excluding the addition of curing or drying equipment operated exclusively using electrical power;	(i)	"The equipment remains consistent with the description in the existing Permit to Operate, excluding the addition of curing or drying equipment operated exclusively using electrical power;
(ii)	"The equipment complies with the conditions specified in the existing Permit to Operate;	(ii)	"The equipment complies with the conditions specified in the existing Permit to Operate;
(iii)	"There is no physical change to the configuration of the existing air pollution control equipment associated with the equipment or operation;	(iii)	"There is no physical change to the configuration of the existing air pollution control equipment associated with the equipment or operation;
(iv)	"There is no physical change to the configuration of an existing permanent total enclosure associated with the equipment or operation;	(iv)	"There is no physical change to the configuration of an existing permanent total enclosure associated with the equipment or operation;
(v)	"All inks, coatings, solvents, or other materials associated with the technology do not contain any toxic air contaminants pursuant to Rule 1401 – New Source Review of Toxic Air Contaminants, as listed on the Safety Data Sheet, except as allowed under the existing Permit to Operate; and	(v)	"All coatings, solvents, or other materials associated with the technology do not contain any toxic air contaminants pursuant to Rule 1401, as listed on the Safety Data Sheet, except as allowed under the existing Permit to Operate; and

Table 2-4: Proposed Subparagraphs (d)(8)(H) and (d)(12)(L)

(vi) "All inks, coatings and ad	thesives, fountain	(vi) "All coatings, solvents	s, or other materials
solutions, and VOC con	taining solvents	associated with the tec	chnology (excluding
associated with the techn	ology (excluding	cleanup solvents) cont	ain 50 grams or less
cleanup solvents) contain	50 grams or less	of VOC per liter of	f material and all
of VOC per liter of n	naterial and all	cleanup solvents as	sociated with the
cleanup solvents assoc	iated with the	technology contain 2.	5 grams or less of
cleanup solvents assoc technology contain 25 g VOC per liter of material.	iated with the rams or less of	technology contain 2. VOC per liter of mater	5 grams or less of ial."

Clause (ii) in subparagraphs (d)(8)(H) and (d)(12)(L) requires that permitted equipment still comply with the existing permit conditions. If the addition of the curing or drying equipment results in non-compliance with the existing permit conditions (e.g., the added curing technology increases production capacity and causes an exceedance of a permitted throughput or emission limit), the provisions of clause (ii) of subparagraphs (d)(8)(H) and (d)(12)(L) would not be met.

Clause (iii) of subparagraphs (d)(8)(H) and (d)(12)(L) requires that no physical changes be made to the configuration of existing air pollution control equipment (APCE). Physical changes include adjustments to the APCE operating parameters or adding new ducting to the APCE. Physical changes to APCE would require a permit application submittal so South Coast AQMD engineers can conduct an evaluation to determine if the modifications to the APCE adversely affect its operation and ability to meet applicable rule requirements, and to add permit conditions to ensure compliance, as appropriate. South Coast AQMD evaluates APCEs based on operating specifications that were submitted with the permit application. Therefore, whenever those specifications are proposed to be changed, a permit application is needed for a South Coast AQMD engineering evaluation in order to verify that the APCE's operation will not be compromised by the physical change and will continue to perform consistently with the information provided in the original permit application. This includes the need for a permit application and engineering evaluation to review the impact of any proposed ducting changes on the performance of the existing APCE. For example, engineering evaluations are necessary to determine if either increased air flows exceed the capacity of the APCE to which they are vented or if existing exhaust fan(s) are appropriately sized to provide adequate air flows throughout the modified ducting system. In summary, applications and engineering evaluations are necessary to ensure that equipment modifications including ducting changes do not result in unintended emissions increases.

Clause (iv) of subparagraphs (d)(8)(H) and (d)(12)(L) requires that no physical changes be made to the configuration of existing permanent total enclosures (PTEs). Physical changes include adjustments operating parameters or changes to existing openings or the additions of openings. As with the requirements in clause (iii) in subparagraphs (d)(8)(H) and (d)(12)(L), physical changes to a PTE may not necessarily conflict with the permit description, however, the changes would still require a permit application submission to conduct an evaluation for South Coast AQMD permitting staff to determine if the PTE's operation would be compromised.

Clause (v) of subparagraphs (d)(8)(H) and (d)(12)(L) requires all materials associated with the curing or drying technology to not contain any TACs pursuant to South Coast AQMD Rule 1401 – New Source Review of Toxic Air Contaminants (Rule 1401), unless the TACs are already

allowed under the existing permit(s). This includes trace amounts of TACs. This provision serves to ensure that any addition of TACs beyond what is already accounted for in the existing permit(s) be evaluated for health risk potential. Safety data sheets can be used to determine whether TACs are present in the materials.

Clause (vi) in subparagraphs (d)(8)(H) and (d)(12)(L) requires that all materials and cleanup solvents have a low VOC content (50 and 25 g/L of VOC, respectively). This provision is consistent with the Governing Board's direction to encourage the development and deployment of clean technologies.

In regard to clauses (v) and (vi), when considering if all the materials associated with the UV/EB/LED technology contain TACs or VOCs, staff will evaluate the fully formulated materials as applied and not just the component of the ink or coating that is chemically responsible for the UV/EB/LED chemical reaction. For example, a high-VOC coating containing TACs that is reformulated with a photoinitiator to make that coating UV/EB/LED curable would not qualify for the Rule 219 permit exemption. South Coast AQMD regulations apply to the fully formulated coating, not individual ingredients of the inks or coatings. The Rule 219 permit exemption would apply if a high-VOC coating was replaced with a low-VOC UV/EB/LED curing coating, a low-VOC coating was converted to a UV/EB/LED coating, or a new low-VOC UV/EB/LED coating process was added to an existing coating line.

If any of the clauses (i) through (vi) in subparagraphs (d)(8)(H) and (d)(12)(L) are not satisfied, the exemption for adding low-emitting curing technologies to permitted coating or printing equipment does not apply.

Small Food Ovens Where No Baking of Yeast Containing Products Occurs [(d)(9)(O)]

Subparagraph (d)(9)(O) addresses the applicability of Rule 222 registration requirements for food ovens. Existing Rule 219 includes an exemption from permits for food ovens with a maximum rated heat input capacity of 2,000,000 Btu/hour or less, that are fired exclusively on natural gas and where the process VOC emissions are less than one pound per day provided a Rule 222 registration is submitted. As previously described, PAR 219 removes conditional exemptions that require Rule 222 filings in order to maintain a Rule 219 exemption. Accordingly, food oven registration requirements are included in Rule 222 Table I and reference PAR 219 subparagraph (d)(2)(C). During the rule development process, stakeholders described an oven that is used to heat food but does not involve baking or the formation of process emissions. The stakeholder's concern was that although these ovens are exempted from permits under existing Rule 219 [now included in PAR 219 subparagraph (d)(2)(C)] they could be subject to the filing requirement and the associated recordkeeping requirement under Rule 222. Accordingly, a new Rule 219 exemption was added in subparagraph (d)(9)(O) for food ovens where no baking of yeast-containing products occurs, and where no process emissions are generated, provided such equipment has a maximum rated heat input capacity of 325,000 Btu/hour. For the purposes of this discussion, baking refers to the baking of foods containing yeast where VOCs are emitted from the process. Rule 222 requires registration for equipment that is exempt from PAR 219 subparagraph (d)(2)(C). Separating out these specific types of ovens where no baking of uncooked yeast-containing products occurs from food ovens identified in (d)(2)(C) will result in a clarification that these ovens with no process emissions are not subject to Rule 222 filing requirements.

Remote reservoir cleaners [clause (d)(15)(A)(iii)]

A remote reservoir cleaner is a cleaning device in which liquid solvent is pumped from a solvent container to a sink-like work area and the solvent from the sink-like area drains into an enclosed solvent container while parts are being cleaned. Operators of remote reservoir cleaners must comply with requirements in South Coast AQMD Rule 1171 – Solvent Cleaning Operations, which establishes VOC content limits for cleaning solvents and operational requirements that minimize solvent loss.

The current provision in Rule 219 exempts remote reservoir cleaners. In response to U.S. EPA's comment that the current exemption would not be approvable without a size limit, PAR 219 clause (d)(15)(A)(iii) is updated. The proposed language in PAR 219 sets the size limit for a permitexempt remote reservoir cleaner's sink opening area at a maximum of seven square feet:

(iii) "Remote reservoir cleaners with a maximum sink opening area of seven (7) square feet or less, provided the solvent from the sink-like area immediately drains into an enclosed solvent container while the parts are being cleaned."

An evaluation of the available equipment for purchase indicates this is inclusive of most remote reservoir cleaners, and staff does not anticipate that the rule language will impact current owners or operators of this equipment.

Negative Air Machines (Asbestos) [(d)(16)(X)]

Existing Rule 222 contains a filing requirement for negative air machines used for asbestos removal. PAR 219 includes a clarification that this equipment is exempt from permits.

Updating Emissions Thresholds for Non-Title V Agricultural Sources [subparagraph (d)(17)(C)]

Subparagraph (d)(17)(C) of existing Rule 219 exempts agricultural permit units that are at non-Title V agricultural sources where the emissions are below the annual thresholds in Table 1. The values originally included in Table 1 represent half of the Title V emission thresholds. In December 2020, U.S. EPA reclassified the Riverside County Portion of the Salton Sea Air Basin (the Coachella Valley) from a Severe nonattainment area for ozone to an Extreme nonattainment area and this action resulted in changing the major source Title V thresholds for VOC and NOx, the precursors to ozone, for the Coachella Valley to be the same as the thresholds applicable to the South Coast Air Basin.¹¹

Thus, the VOC and NOx thresholds for the Coachella Valley in PAR 219, Table 1 have been lowered in accordance with the redesignation. Additionally, Table 1 has been updated to include thresholds for PM2.5. The updates to Table 1 of Rule 219 are presented in Table 2-5. Language was also added to PAR 219, subparagraph (d)(17)(C) that allows the emission thresholds to be

¹¹ South Coast AQMD Rule 3001 – Applicability. Paragraph (b)(2), Table 2 - Potential to Emit Emission Threshold Levels Per Facility Location Accessed on October 25, 2022 from <u>http://www.aqmd.gov/docs/default-source/rule-book/reg-xxx/rule-3001-applicability.pdf?sfvrsn=</u>

aligned with potential future, more stringent, major source threshold changes, in order to avoid amending Rule 219 solely for this purpose.

Pollutant (Tons/Year)	South Coast Air Basin	Portion of Salton Sea Air Basin	Portion of Mojave Desert Air Basin		
VOC	5.0	12.5 - <u>5.0</u>	50.0		
NOx	5.0	12.5 - <u>5.0</u>	50.0		
S <u>O</u> ex	35.0	35.0	50.0		
СО	25.0	50.0	50.0		
PM10	35.0	35.0	50.0		
<u>PM2.5</u>	<u>35.0</u>	<u>50.0</u>	<u>50.0</u>		
Single Hazardous Air Pollutant	5.0	5.0	5.0		
Combination Hazardous Air Pollutants	12.5	12.5	12.5		

Table 2-5: Updates to Table 1

Table 1

Notification of PERP equipment used in the OCS [clause (d)(18)(B)(i)]

CARB's Statewide Portable Equipment Registration Program (PERP)¹² allows owners or operators of portable engines and other types of equipment to register their units in PERP in order to operate their equipment throughout California without have to obtain individual permits from local air districts. When PERP equipment is used in the Outer Continental Shelf (OCS), Rule 219 currently requires the owner or operator of the equipment to notify South Coast AQMD via submitting a Rule 222 filing.

In response to U.S. EPA's suggestion to remove Rule 222 requirements from PAR 219 clause (d)(18)(B)(i) has been updated. With the removal of all Rule 222 filing requirements from PAR 219, this notification method is replaced with the requirement for the owner or operator of the equipment to notify the Executive Officer. Under current practices, this notification involves sending an email to perp@aqmd.gov.

¹² CARB. <u>https://ww2.arb.ca.gov/our-work/programs/portable-equipment-registration-program-perp</u>. Accessed November 3, 2022.

Removal of Rule 222 filing requirements from individual exemption provisions [Multiple provisions]

Multiple exemption provisions in Rule 219 require the equipment to be registered with the Rule 222 filing program. In response to U.S. EPA's recommendation to allow Rule 222 registration program to remain as a local program, provisions with conditions based on Rule 222 have been removed from PAR 219. It is proposed to replace the Rule 222 requirement language in each exemption provision with language that states that Rule 222 may be applicable to the equipment: *"Rule 222 may be applicable."* The intent of using this language in the specific provisions is to clearly indicate to both the regulated community and South Coast AQMD staff that the equipment exempted in the provisions remain subject to the requirements of Rule 222.

Exceptions - subdivision (e)

Subdivision (e) is an existing provision that establishes instances where otherwise exempt equipment, processes, and operations are required to obtain written permits, such as equipment, process materials, and air contaminants that are subject to a State Air Toxic Control Measure, or when a source is not in compliance with Rule 402 – Nuisance or other existing South Coast AQMD rules. Staff has identified the following additional circumstances when a permit is required for otherwise exempt equipment:

Exception for equipment not maintained or operated pursuant to exemption provisions or results in preventable excess emissions [subparagraph (e)(2)(C)]

Under the provisions of proposed subparagraph (e)(2)(C), a permit would be required when a facility operates equipment that has been modified, operated, or maintained in a manner inconsistent with the applicable exemption in PAR 219, or results in preventable excess emissions. During the PAR 219 development process, staff received comments that the provisions could be broadly interpreted to include very small amounts of excess emissions. Additional language was added to clause (e)(2)(C)(ii) to specify that the excess emissions would have to be detected or observed by the Executive Officer.

- (C) "The equipment or the air pollution control system venting the equipment has been modified, operated, or maintained in a manner that:
 - *(i) "Is inconsistent with the applicable exemption under any provisions of this rule; or*
 - (ii) "Results in otherwise preventable excess emissions that have been detected or observed by the Executive Officer."

Requirement to submit permit application when additional information is needed to determine health risk [219 paragraph (e)(3)]

To determine whether an exemption in PAR 219 applies, supporting information such as operating hours and materials used is needed. Health and Safety Code Section 40701(g) allows the Executive Officer to require information necessary to calculate emissions for criteria pollutants, but these provisions do not apply to all situations. PAR 219 paragraph (e)(3) clarifies that in instances where there is inadequate information to evaluate health risk, a requirement to submit a permit application within 60 days of receiving a written notification from the Executive Officer will be triggered.

(3) "If the Executive Officer determines the information to evaluate health risk is inadequate, or if additional information or review is required, upon written notification from the Executive Officer, the owner or operator shall, within 60 days of the written notification, submit (a) complete permit application(s) to demonstrate the equipment operates below the risk thresholds in subparagraph (e)(2)(A)."

Fees for permit applications are determined from the equipment type and the existing Rule 301 fee structure. In instances where there is no equipment- or process-specific fee, the fee would be based on Schedule C from Rule 301.

Recordkeeping [subdivision (f)]

The current recordkeeping language in Rule 219 refers to the provisions in Rule 109 – Recordkeeping for Volatile Organic Compound Emissions, which regulates recordkeeping for materials containing VOCs. There are no explicit recordkeeping requirements in Rule 219 for exemption provisions with non-VOC emissions. Additionally, the provisions in Rule 109 do not apply to cleaning solvents containing 50 grams of VOC per liter (g/L of VOC) of material or less, or to any material containing 50 g/L of VOC used at facilities that can demonstrate that the total facility VOC emissions do not exceed four tons in any calendar year as shown by annual VOC records. This is deemed inadequate as several exemption provisions are contingent on the use of cleaning solvents that contain 25 g/L of VOC or less and materials containing 50 g/L of VOC or less. In response to U.S. EPA's comment that the recordkeeping requirements in Rule 219 are inadequate, the provisions in PAR 219 have been updated.

The proposed Recordkeeping provisions provide clarifications to include examples of documents that an owner or operator may need to maintain to demonstrate ongoing exemption applicability. The proposed language also requires that the necessary documents be maintained onsite for three years and be made available upon request. The three-year timeframe is consistent with document retention requirements in other South Coast AQMD rules. The language referring to Rule 109 has been replaced with language that requires, if applicable, documentation of VOC-containing material throughput and emissions and VOC content of each material.

Records must be maintained according to the requirements in subdivision (f) in order to qualify equipment for exemption. The proposed recordkeeping requirements language in subdivision (f) is as follows:

- (1) "Any owner or operator claiming an exemption under any provision of this rule shall maintain documentation and/or calculations sufficient to demonstrate that the stated exemption provision, parameter, requirement or limitation applies. Documentation may include, as applicable, but not be limited to:
 - (A) VOC-containing material throughput and emissions;
 - (B) VOC content of each VOC-containing material, including:
 - (i) The Grams of VOC Per Liter of Regulated Product, Less Water and Exempt Compounds; and

- (ii) The Grams of VOC Per Liter of Material, including water and exempt compounds;
- (C) Hours of operation;
- (D) Materials used or processed;
- (E) Fuel type and usage;
- (F) Throughput;
- (G) Operating parameters;
- (H) Manufacturer specifications;
- (I) Rating plate; and
- (J) Safety Data Sheets.
- (2) "All documentation and/or records pursuant to paragraph (f)(1) shall be maintained onsite for three years and made available to the Executive Officer upon request."

As described in paragraph (f)(1), it is the responsibility of the owner or operator claiming an exemption under any provision of Rule 219 to maintain documentation and/or calculations sufficient to demonstrate that the stated exemption provision, parameter, requirement, or limitation is applicable. This may involve documentation that the worst case or highest emission potential for any equipment, processes, or operations is below the stated exemption provision, parameter, requirement, or limitation.

Other Clarifications

Eating Establishments [(d)(9)]

Existing Rule 219 subparagraph (d)(9)(E) excludes equipment used in eating establishments for the purpose of preparing food for human consumption from permits. Subparagraph (d)(9)(G) clarifies that the cooking kettle exemption does not include deep frying equipment used in facilities other than eating establishments. PAR 219 does not change these provisions but for the purposes of Rule 219, eating establishments do not include facilities where food is prepared and packaged for subsequent sale, such as retail stores.

Compliance with Rule 203 [(h)(1)]

If a facility submits a permit application as a result of this or other PAR 219 amendments that remove exemptions from the rule, submittal of a complete permit application within one year of the effective date of PAR 219 would comply with the compliance date established under paragraph (h)(1).

CHAPTER 3 – SUMMARY OF PROPOSED AMENDED RULE 222

OVERVIEW OF PAR 222 REVISIONS TO EXISTING RULE PROVISIONS

OVERVIEW OF PAR 222

Existing Rule 222 includes references to specific Rule 219 provisions. Due to proposed reformatting and reorganization of multiple provisions in PAR 219, references within the rule have been updated. Accordingly, PAR 222 also reflects the revised references in PAR 219. Updating references in PAR 222 do not change requirements or implementation procedures for facilities. PAR 222 also includes minor changes to streamline recordkeeping requirements, to correct grammatical errors and to improve rule clarity, such as adding specific references to PAR 219, Table 1 where appropriate.

REVISIONS TO EXISTING RULE PROVISIONS

The following is a summary of PAR 222 revisions. Implementation of existing Rule 222 provisions is clarified at the end of this chapter.

Applicability [paragraph (b)(1)]

The existing Rule 222 subdivision (b) applicability section includes references to equipment that are exempt from Rule 219 and to agricultural diesel-fueled engines subject to the California Air Resources Board Airborne Toxic Control Measure (CARB ATCM) for Stationary Compression Ignition Engines. To improve clarity, the PAR 222 applicability description is separated into two sections with paragraph (b)(1) specifying that the rule is applicable to owners or operators of the emission sources listed in Table I. As previously mentioned, PAR 219 includes a restructuring that has changed all rule references; accordingly, references related to Rule 219 have been updated. PAR 222 also includes non-administrative revisions to Table I. The following is a summary of the proposed non-administrative revisions to Table I.

References to Low-VOC Verification Forms

Table I provisions allow certain equipment (e.g., specific printing, laminating, drying equipment) to submit a low-VOC verification in lieu of a Rule 222 registration. The provision was added during a 2017 amendment to Rule 219 and a low-VOC verification form (Form 109-LVM) was subsequently added to the South Coast AQMD web site. This form represents a one-time submittal and facilities submitting this information are not required to maintain records. During U.S. EPA review of Rule 219, a one-time notification was identified as inconsistent with the necessity for facilities to ensure the necessary records will be maintained to demonstrate applicability of a specific exemption provision. Accordingly, Rule 219 references to a low-VOC verification report have been modified to ensure facilities are required to maintain records on site on an ongoing basis to verify all material used continues to meet VOC content limits or the annual emission limit. To ensure consistency with PAR 219, Table I of PAR 222 removes the option for facilities to submit a low-VOC verification. Below is an example from PAR 222 Table I that removes the low-VOC verification option and includes updated Rule 219 references.

"Printing and related coating and/or laminating equipment and associated dryers and curing equipment exempt from a written permit pursuant to Rule 219 (d)(8)(A)(ii), (h)(1)(E), unless a low-VOC verification is submitted to the Executive Officer in accordance with Rule 219 (h)(1)(E)(ii)."

Staff has reviewed Rule 222 submittals and has identified one facility that has submitted a low-VOC verification form since the provisions were added in 2017. Under PAR 222, if the facility continued to be subject to a Rule 222 registration, the facility would need to revert to the original registration process that was in effect since 2008. Costs for facilities to submit Rule 222 registration are \$241.95 (effective 7/1/2022 - 6/30/2023) and annual renewals are subject to the same submittal fee.

Equipment, Processes, or Operations Located At a Facility Holding No Written Permit and Emitting Four Tons or More of VOCs Per Year

Registration requirements for facilities without permits that emit four tons or more of VOCs per year have been removed from Table I. This change is necessary because PAR 219 removes provisions [including Rule 219 paragraph (s)(3)] that require a Rule 222 submittal as a condition of being exempted from requirements to obtain written permits. Specifically, Rule 219 paragraph (s)(3) currently specifies that facilities that operate the exempt VOC-emitting equipment listed below may require a Rule 222 registration filing if the total emission from this equipment is four tons or more of VOCs per year and the facility does not hold a permit for any other emission sources:

- Printing equipment exempt pursuant to Rule 219 paragraphs (h)(1) and (h)(7);
- Coating or adhesive application or laminating equipment and devices exempt pursuant to Rule 219 paragraphs (l)(6) and (l)(10); and
- Hand applications of VOC-containing materials are exempt pursuant to Rule 219 paragraph (o)(4).

The provisions of Rule 219 paragraph (s)(3) also require the facility to report VOC emissions under the Annual Emissions Reporting (AER) program.

To ensure that the provisions of Rule 219 paragraph (s)(3) remain in effect, paragraph (b)(2) is added in the applicability section to address the filing requirements for facilities without permits that emit four tons or more of VOCs per year from the above listed equipment.

Other Minor Revisions to Table I

Other changes made to Table I clarify the existing registration requirements by adding language that is currently present in the definitions of the equipment in subdivision (c) or in the corresponding Rule 219 exemption, and by removing redundant language. Table 3-1 provides a summary of the minor revisions to Table I of Rule 222.

Applicability [subdivision (b)(2)]

Paragraph (b)(2) contains the requirements that were in the main paragraph of Rule 219 paragraph (s)(3). As specified below, the reporting period is updated to align with the AER calendar year reporting timeframe, and the references to Rule 219 are updated.

(2) "This rule applies to owners or operators of the following emission sources that are located at a single facility, which does not hold a written permit for any other emission sources and emits 4.0 tons or more of VOCs in any calendar year, or emitted 4.0 tons or more of VOCs in the Fiscal Year July 1, 2006 – June 30, 2007:

- (A) "Printing operations individually exempted from written permits pursuant to Rule 219 (d)(8)(A) and (d)(8)(G);
- (B) "Coating or adhesive application or laminating equipment and devices individually exempted from written permits pursuant to Rule 219 (d)(12)(F) and (d)(12)(J); and
- (C) "Hand applications of VOC-containing materials individually exempted from written permits pursuant to Rule 219 (d)(15)(D)."

Equipment Description	Rule Language Changes	
Natural gas and crude oil production equipment	Clarified that oil well pumps may be registered in groups of four or less, which are defined as oil production well groups, (see definition for Oil Production Well Group in Rule 222). This is currently allowed in the Rule 222 filing program.	
Asphalt pavement heaters	Revised to match rule language in Rule 219 subparagraph $(d)(1)(E)$ and clarified the equipment is any mobile equipment used for the purposes of road maintenance and new road construction, including road stripers.	
Specified diesel fueled boilers rated less than two (2) million Btu per hour	Added existing fuel usage and NOx emissions thresholds to harmonize the language with the language in the exemption provisions in PAR 219 subparagraph $(d)(2)(D)$.	
Fuel Cells	Removed "including heaters," which is redundant with "heating equipment" earlier in the paragraph.	
Portable Diesel Fueled Heaters	Added existing language from the definition of Portable Diesel Fueled Heater in Rule 222 to clarify that the registration requirements apply to heaters used for space heating.	

Table 3-1: Minor Revisions to Table I

- (B) "Coating or adhesive application or laminating equipment and devices individually exempted from written permits pursuant to Rule 219 (d)(12)(F) and (d)(12)(J); and
- (C) "Hand applications of VOC-containing materials individually exempted from written permits pursuant to Rule 219 (d)(15)(D)."

Definitions [subdivision (c)]

Subdivision (c) specifies the definitions for Rule 222. PAR 222 includes minor revisions to definitions for clarity and Table 3-2 includes a description of the non-administrative revisions.

Rule Paragraph	Term	Definition Revision
(c)(8)	Charbroiler	Amended to clarify that the heat source of a charbroiler is located either entirely or partly beneath the food being cooked.
(c)(9)	Diesel Fueled Boiler	Added the thresholds of 50 gallons of fuel used per day and maximum NOx emissions of less than one pound per day to harmonize with existing language in the diesel fueled boiler exemption requirement in PAR 219 subparagraph (d)(2)(D).
(c)(13)	Fuel Cell	Removed "including heaters," which is redundant with "heating equipment" earlier in the paragraph.
(c)(16)	Internal Combustion Engine	Added language that is consistent with the existing language in Table I and the exemption provision in PAR 219 subclause (d)(2)(A)(ii)(B), which specifies that internal combustion engines may also be fired exclusively on compressed natural gas or liquified petroleum gas.

Table 3-2: Minor Revisions to Definitions

Requirements [subdivision (d)]

Paragraph (d)(1) includes general requirements for facilities that register under Rule 222 (e.g., comply with operating conditions, maintain records, etc.). Revisions to subparagraph (d)(1)(C)and the addition of subparagraph (d)(1)(I) are necessary due to the removal of Rule 219 paragraph (s)(3) provisions. Specifically, under subparagraph (d)(1)(C), a revision is necessary to clarify that one filing is required for all the categories of equipment, processes, or operations listed in subparagraphs (b)(2)(A) through (b)(2)(C). A clarification is included in subparagraph (d)(1)(G)to indicate the daily limit of process VOC emissions for food ovens may be verified through the calendar monthly emissions divided by 30, a methodology used to determine daily emission increases used for offset requirements in Rule 1306 Emission Calculations. Food ovens with low process VOC emissions may also demonstrate compliance with the daily limit by calculating the maximum potential to emit assuming full operations including 24 hours of operating hours and maximum loading/throughput. Alternatively, a survey of emissions from food ovens based on representative worst-case operating parameters (e.g., oven size, operating hours) may be used to demonstrate that maximum potential VOC emissions are below the daily limit. The maximum potential to emit calculation shall be re-assessed when any of the assumptions or parameters are changed. If the equipment's maximum potential to emit is below the daily limit, a daily operation log is not required but an annual records, such as annual or monthly production and purchase records is are needed to verify compliance. The daily limit is applicable for each piece of equipment. Verifications/records that are based on emissions from all food ovens at a facility are

considered acceptable as long as the facility-wide emissions from this source category are below the daily limit for each piece of equipment.

Subparagraph (d)(1)(I) has been added to ensure that facilities subject to PAR 222 paragraph (b)(2) continue to report emissions under the Annual Emissions Reporting program, pursuant to Rule 301.

Exemptions [subdivision (f)]

PAR 222 includes a new subdivision for exemptions to list instances where a registration is not required. Paragraph (f)(1) clarifies that Rule 222 registrations are not applicable to equipment for specified residential dwellings provided such equipment is used by an owner or occupant of the identified dwelling:

"The provisions of this rule shall not apply to emission sources utilized exclusively in connection with 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."

Excluding emission sources at residential dwelling units for not more than four families is consistent with South Coast AQMD permitting procedures and the addition of subdivision (f) is intended to clarify the same procedures for Rule 222 registrations.

Paragraph (f)(2) clarifies that emissions sources with a Permit to Operate issued by South Coast AQMD are not subject to Rule 222 filing provisions.

Rule 222 Clarifications on RECLAIM facilities

Boilers or Steam Generators, and Process Heaters at RECLAIM Facilities

As listed in Table I, boilers/steam generators and process heaters with rated heat inputs from 1,000,000 up to and including 2,000,000 British thermal units (Btu) per hour and that produce less than one pound per day of NOx emissions are required to be registered, except for those that are subject to Regulation XX – Regional Clean Air Incentives Market (RECLAIM). The NOx RECLAIM program is transitioning to a command-and-control regulatory structure. Once a facility exits RECLAIM, a registration filing is required to be submitted for each applicable boilers/steam generator, or process heater within six months of exiting RECLAIM in order to maintain compliance with Rule 222 requirements. Paragraph (e)(2) of Rule 222 currently specifies that an owner or operator of an emission source installed prior to the effective date in Table I and not currently possessing a valid Permit to Operate or open application for a Permit to Operate, shall comply with the requirements of subdivision (d) within six months of the effective date in Table I. PAR 222 includes a clarification that incorporates the same six-month compliance period for an emission source to the provisions of this rule. A filing can be submitted via the online registration system, or by submitting Form 222-B, both of which are available at http://www.aqmd.gov/home/permits/rule-222-filing-program.

Food Ovens

As listed in Table I, food ovens with maximum rated heat inputs of 2,000,000 Btu per hour or less, that are fired exclusively with natural gas, and where the process VOC emissions are less than one pound per day are required to be registered. Registration is not required for food ovens that are fired with fuels other than natural gas, such as electric or propane food ovens.
CHAPTER 4 - IMPACT ASSESSMENT

IMPACT ASSESSMENT CALIFORNIA ENVIRONMENTAL QUALITY ACT SOCIOECONOMIC IMPACT ASSESSMENT DRAFT FINDINGS UNDER HEALTH AND SAFETY CODE SECTION 40727 COMPARATIVE ANALYSIS

IMPACT ASSESSMENT

Rule 219 is an administrative rule that identifies equipment, processes, or operations that emit small amounts of air contaminants to be exempted from written permits. The PAR 219 equipment categories proposed for exemption from written permits all have very small criteria and toxic emissions profile. Amendments to Rule 222 are necessary to update rule references resulting from amendments to Rule 219 and includes editorial and clarification revisions. The following paragraphs summarize available cost impact information.

Impacts of PAR 219

Under existing permitting procedures, affected equipment requiring a written permit is subject to a one-time permit processing fee when applying for a permit, and an annual operating fee thereafter. The proposed amendments do not remove any specific exemptions, except for provisions that are based on compliance dates that have passed. PAR 219 does contain one clarification regarding the filter efficiency for small abrasive blasting cabinets that may result in an increase in permits. In a few instances, PAR 219 would add new equipment for exemption from the requirement to obtain a written permit.

Additional Costs

As mentioned, small manually operated abrasive blasting cabinets are currently exempt from requirements to obtain written permits provided the equipment is vented to a filtration system. PAR 219 subparagraph (d)(6)(B) clarifies that the exemption for small manually operated abrasive blast cabinets and the dust filters venting the cabinets requires the use of dust filters with at least a 90 percent control efficiency. Most equipment are expected to have filters meeting the 90 percent control efficiency, and would not be affected by this revision. For facilities that need to upgrade equipment, dust filters that meet this control efficiency are readily available for purchase but are expected to be more expensive than filters with lower control efficiencies.

Abrasive blasting cabinets are widely used in many types of facilities throughout the South Coast AQMD, such as machine shops, repair shops, and various manufacturing businesses.

Additional Savings

The proposed amendments would add new equipment categories that would not be required to obtain a written permit, the results of which would eliminate or reduce permitting costs of equipment. Affected equipment in these categories potentially includes UV/EB/LED printing and coating equipment that meet the criterial included in subparagraphs (d)(8)(H) and (d)(12)(L) and GIE equipment under subparagraph (d)(4)(M). As mentioned, GIE equipment is currently not required to submit permits to South Coast AQMD. Because the number of facilities that potentially may elect to replace equipment under the new PAR 219 UV/EB/LED provisions is unknown and the fact that GIE equipment is currently not subject to permitting, the PAR 219 potential cost savings have not been estimated.

Impacts of PAR 222

Rule 222 is an administrative rule that provides a simplified filing process in lieu of permitting for certain equipment that have a low emissions profile. Under existing Rule 222, affected equipment

requiring a written permit is subject to an initial filing fee and an annual renewal fee thereafter, as established in the provisions of Rule 301 subdivision (u).

PAR 222 will remove the low-emission verification form option for specified printing, laminating, and drying equipment, which did not have associated fees. Based on a review of Rule 222 filings, one facility has submitted the low-VOC verification form. If the facility continued to be subject to a Rule 222 registration, the facility would need to revert to the original registration process that was in effect since 2008. Costs for facilities to submit Rule 222 registration are \$241.95 (effective 7/1/2022 - 6/30/2023) and annual renewals are subject to the same submittal fee.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

Pursuant to the California Environmental Quality Act (CEQA) Guidelines Sections 15002(k) and 15061, the proposed project (PAR 219 and PAR 222) is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3). A Notice of Exemption <u>has will been</u> prepared pursuant to CEQA Guidelines Section 15062, and if the proposed project is approved, the Notice of Exemption will be filed with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino counties, and with the State Clearinghouse of the Governor's Office of Planning and Research.

SOCIOECONOMIC IMPACT ASSESSMENT

California-Health and Safety Code Sections §40440.8 and §40728.5 require a socioeconomic impact assessment for proposed and amended rules resulting in significant impacts to air quality or emission limitations. This assessment shall include affected industries and range of probable costs, effectiveness of control alternatives and emission reduction potential, and make a good faith effort to minimize adverse socioeconomic impacts by analyzing the following elements:

(1) The type of industries or business, including small business, affected by the rule or regulation.

(2) The impact of the rule or regulation on employment and the economy of the region affected by the adoption of the rule or regulation.

(3) The range of probable costs, including costs to industry or business, including small business, of the rule or regulation.

(4) The availability and cost-effectiveness of alternatives to the rule or regulation being proposed or amended.

(5) The emission reduction potential of the rule or regulation.

(6) The necessity of adopting, amending, or repealing the rule or regulation to attain state and federal ambient air standards.

Proposed Amended Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II adds a clarification that a permit exemption for small manually operated abrasive blast cabinets (ABC) and the dust filters venting the cabinets require the use of dust filters with at least 90 percent control efficiency. Proposed Amended Rule 222 – Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II is administrative in nature and is not expected to increase costs as a result of the proposed amendments.

Affected Facilities and Industries

Small manually operated abrasive blast cabinets (ABCs) exempted in PAR 219 are used in a variety of industries from machine shops, repair shops, and various manufacturing businesses. The applicable industries within the North American Industrial Classification System (NAICS) include but are not limited to manufacturing (NAICS 31-33), technical services (NAICS 54), and other services (NAICS 81). Some of the affected industries may be classified as small businesses. Since the requirement pertains to maintaining exemption to the permitting requirement, it is not known how many affected and permit-exempt ABCs (and therefore the associated industries) would be subject to the requirements for dust filters.

Compliance Costs

Staff consulted filter manufacturers for information on the filter control efficiency of dust filters used in small ABCs and found that all available filters currently exceed the 90 percent efficiency requirement. As such, staff foresees no additional cost as a result of the proposed amendment to PAR 219. Since there are no anticipated additional costs, a detailed industry impact and cost quantification is not necessary. Some currently exempt small ABCs used in permitted facilities *could* have possibly installed filters below the required 90 percent efficiency and would potentially incur additional costs to maintain the permit exemption of PAR 219.¹³ Staff assumes this to be a negligible number of affected ABCs, but the cost of acceptable filters for PAR 219 would range from \$100 to \$250 each, depending on size. <u>PAR 222 removes a one-time filing option, so the additional cost for the one applicable facility to return to annual filing renewals is estimated to be less than \$300 per year.</u>

Regional Macroeconomic Impacts

Staff expects the cost of compliance for PAR 219/222 to be minimal. It has been a standard practice for South Coast AQMD's socioeconomic impact assessments that, when the annual compliance cost is less than or close to one million current U.S. dollars annually, the Regional Economic Models Inc. (REMI)'s Policy Insight Plus Model is not used to simulate jobs and macroeconomic impacts, as is the case here. This is because the resultant impacts would be too small relative to the baseline regional economy to reliably determine any impacts from the modeling analysis.

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,

¹³ Since small abrasive blasting cabinets are currently exempt from permitting under Rule 219, it is possible that a dust filter rated below 90 percent control efficiency could be used. However, all manufactured dust filters investigated by staff (Action Filtration <u>https://www.actionfiltration.com</u>, Surface Prep <u>https://surfaceprep.com/</u>) were found to meet the minimum control efficiency of the proposed amendments.

authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing and in the staff report.

Necessity

The South Coast AQMD Governing Board finds and determines that Proposed Amended Rules 219 and 222; Equipment and Not Requiring a Written Permit Pursuant To Regulation II and Filing Requirements for Specific Emission Sources Not Requiring A Written Permit Pursuant To Regulation II, is necessary to clarify recordkeeping and reporting, and provide a simpler, more expeditious and cost-effective option to local facilities and the South Coast AQMD.

Authority

The South Coast AQMD Governing Board obtains its authority to adopt, amend or repeal rules and regulations from Health and Safety Code Sections 40000, 40001, 40440, and 42300 et seq.

Clarity

The South Coast AQMD Governing Board finds and determines that PAR 219 and PAR 222 are written and displayed so that the meaning can be easily understood by persons directly affected by it.

Consistency

The South Coast AQMD Governing Board finds and determines that PAR 219 and PAR 222 are in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or federal or state regulations.

Non-Duplication

The South Coast AQMD Governing Board has determined that PAR 219 and PAR 222 do not impose the same requirement as any existing state or federal regulation, and the proposed amendments are necessary and proper to execute the powers and duties granted to, and imposed upon, the South Coast AQMD.

Reference

In adopting PAR 219 and PAR 222, the South Coast AQMD Governing Board references the following statutes which South Coast AQMD hereby implements, interprets or makes specific: Health and Safety Code Sections 40000, 40001, 40440, and 42300 et seq.

COMPARATIVE ANALYSIS

Health and Safety Code Section 40727.2 requires written analysis identifying any federal or other South Coast AQMD rules or requirements that apply to the same equipment or source type as the proposed amendments. The proposed amended rules do not impose a new emission limit or standard, make an existing emission limit or standard more stringent, or impose new or more stringent monitoring, reporting or recordkeeping requirements and, therefore, further written analysis is not required pursuant to Health and Safety Code Section 40727.2(g).

APPENDIX A – CLEAN AIR ACT SECTION 110(L) ANALYSIS

INTRODUCTION ANALYSIS OF RULE SECTIONS CONCLUSIONS

INTRODUCTION

A State Implementation Plan (SIP) is a collection of regulations and documents used by a state, territory, or local air district to implement, maintain, and enforce the National Ambient Air Quality Standards (NAAQS) and to fulfill other requirements of the Clean Air Act (CAA). South Coast AQMD is required to submit its rules and regulations relevant to controlling the six criteria air pollutants (carbon monoxide, lead, nitrogen oxides, ozone, particulate matter, and sulfur dioxide) to U.S. EPA for SIP approval. The CAA requires areas which have been designated nonattainment with the NAAQS to develop a permitting program to ensure that the preconstruction review requirements for new or modified stationary sources of air contaminants are met. The South Coast Air Basin (Basin) and the Coachella Valley are in nonattainment with the federal ozone standards; the Basin is also in nonattainment with the federal PM2.5 standards.

The underlying basis for the South Coast AQMD's permitting programs is found in Regulation II – Permits. Rule 201 – Permits to Construct and Rule 203 – Permits to Operate set forth the scope of the South Coast AQMD's jurisdictional and permitting authority under the applicable statutes. Regulation XIII was adopted in compliance with the 1990 amendments to the Federal Clean Air Act for approval into the SIP to specify preconstruction review requirements for new or modified stationary sources of air contaminants. As a part of such preconstruction review program, 40 CFR 51.160(e) allows a state (in this case the South Coast AQMD) to "identify types and sizes of facilities, buildings, structures, or installations which will be subject to review" and "discuss the basis for determining which facilities will be subject to review."

CAA Section 110(1) (42 U.S.C. 7410(1)) requires that any SIP submission which might be construed as a relaxation of a requirement provide a demonstration that the change not interfere with any CAA requirements concerning attainment. This appendix provides a justification regarding the amount of potential emissions change, if any, expected from the addition/change of specific permit-exempt equipment in Proposed Amended Rule 219 (PAR 219) relative to the SIP approved version of Rule 219, and serves as the analysis required under CAA Section 110(1).

ANALYSIS OF RULE SECTIONS

The version of Rule 219 last reviewed by U.S. EPA and approved into the SIP is dated September 4, 1981. Rule 219 has been revised many times since then and was submitted to U.S. EPA review and approval into the SIP, but U.S. EPA has not taken action to approve any of these revisions. PAR 219 will be submitted to U.S. EPA for approval to replace the SIP-approved Rule 219.

The following paragraphs provide a description of Rule 219 revisions made since the regulation was SIP-approved in 1981. The discussion includes an assessment to determine if the Rule 219 revisions made since 1981 could interfere with any CAA requirements concerning attainment with applicable NAAQS. Subdivision (d) of PAR 219 lists equipment, processes, and operations that are exempted from obtaining permits. As previously mentioned, Rule 219 has been subject to many revisions since 1981. To facilitate the evaluation of revisions to the list of equipment, processes, and operations made since 1981, an evaluation matrix has been developed and is presented in Table A-1.

Subdivision (a) – Purpose

Subdivision (a) is a new addition to Rule 219 since the SIP-approved version that clarifies that the purpose of Rule 219 is to identify equipment, processes, or operations that emit small amounts of air contaminants that do not require permits, unless they fall under an exception in subdivision (e) of the rule. The second sentence in this subdivision informs stakeholders that select equipment may also require registration pursuant to Rule 222. Subdivision (a) does not contain any requirements that may relax SIP-approved Rule 219 requirements.

Subdivision (b) – Applicability

Subdivision (b) is a new addition to Rule 219 since the SIP-approved version that clarifies the applicability of Rule 219.

Subdivision (c) – Definitions

Subdivision (c) is a new addition to Rule 219 since the SIP-approved version that consolidates definitions into a separate subdivision, consistent with other South Coast AQMD rules. Subdivision (c) provides additional clarity to the rule and does not contain any requirements that may relax the requirements in SIP-approved Rule 219.

Subdivision (d) - Equipment, Processes, or Operations Not Requiring a Written Permit

Subdivision (d) of PAR 219 contains 18 groups of exempted equipment, where each group lists similar types of equipment. Almost all new listed exemptions, as compared with the SIP-approved version of Rule 219, have been placed into one of the following five emission-based exemption categories:

- A. Equipment that is not subject to NSR;
- B. Equipment or processes not subject to a corresponding South Coast AQMD emission control rule;
- C. Area-wide sources regulated under state or federal law;
- D. Equipment, operations or processes with trivial emissions; or
- E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or amount of material used.

The evaluation for each of the five category is discussed below.

A. Equipment that is not subject to NSR

NSR programs are required to apply to new and modified stationary sources. The U.S. EPA has defined stationary source as "any building, structure, facility or installation which emits or may emit a regulated NSR pollutant." Accordingly, NSR programs do not apply to mobile sources, which are regulated under title II of the CAA.

B. Equipment or processes not subject to a corresponding South Coast AQMD emission control rule

This category includes equipment, processes, or operations that are exempt from South Coast AQMD emission control rule requirements due to output size, low emissions, or type of fuel used. The thresholds in the exemptions in this category are set at levels below which any environmental benefit would be trivial or not cost-effective to regulate because of the small size or nature of the equipment, process or operation.

C. Area-wide sources regulated under State or federal law

Area-wide sources include source categories associated with human activity and emissions that occur over a wide geographic area. Some examples include consumer products and architectural coatings. It is often easier to regulate such sources at the point of sale, rather than when they are used. This category exempts such area-wide sources which are regulated by state or federal law prior to use.

D. Equipment, operations, or processes with trivial emissions

The U.S. EPA has previously provided a list of activities and units it considers to be trivial as part of the "White Paper for Streamlined Development of Part 70 Permit Applications" (July 10, 1995)¹⁴. Trivial activities are typically those with extremely small emissions where there is no size or material restriction used as the basis for exempting such equipment. Examples of trivial units and activities include ink jet printers, bench scale laboratory equipment and laundry activities. Exempting these types of sources from NSR permit requirements is consistent with the flexibility allowed to states to exempt sources that do not need to be regulated in order to attain and/or maintain any of the NAAQS. Emissions from these types of operations and processes are not expected to impact the South Coast AQMD's ability to attain or maintain any NAAQS.

E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used

This grouping includes equipment or processes that contain limitations on their size, type of material or fuel used. These equipment or processes are limited below the threshold that would trigger any South Coast AQMD emission control rule requirements. Additionally, even if such emission units were subject to permit requirements, they are not subject to any emission control requirements and therefore permitting would not result in any emission reductions. Accordingly, the addition of these exemptions should have no effect on the South Coast AQMD's ability to attain or maintain any NAAQS.

The following three exemption provisions in the Agricultural Sources subdivision do not fall in any of the above five categories:

• Subparagraph (d)(17)(A), which exempts unmodified existing (July 7, 2006 and prior) internal combustion engines (ICEs) and gasoline transfer and dispensing equipment at agricultural sources;

¹⁴ U.S. EPA. https://www.epa.gov/title-v-operating-permits/white-paper-streamlined-development-part-70-permitapplications

- Subparagraph (d)(17)(B), which exempts emergency ICEs at agricultural sources; and
- Subparagraph (d)(17)(C), which exempts agricultural permit units at agricultural sources not subject to Title V with actual emissions less than the amounts listed in Table 1.

Senate Bill 700 (SB 700)¹⁵ was enacted on January 1, 2004, which removed the state-wide permitting exemption for agricultural sources from state law, and authorized the air pollution control districts to issue permits for agricultural sources and equipment as required. Subsequent amendments to Rule 219 included exemptions for specified agricultural sources and equipment that were deemed to have relatively lower emissions. Any potential additional emissions from these exemptions would be offset by the removal of the general exemption for agricultural sources and equipment.

Table A-1, located at the end of Appendix A, provides additional discussion regarding the individual exemptions in PAR 219.

Subdivision (e) – Exceptions

Subdivision (e) is a new addition to Rule 219 since the SIP-approved version that establishes instances where otherwise exempt equipment, processes, and operations are required to obtain written permits. The rule language in subparagraphs (e)(1)(A) and (B) was previously in the opening paragraph of the rule. Language was added to clarify that they do not apply to ICEs rated below 50 bhp, which are exempt from permitting pursuant to clause (d)(2)(A)(i). Subparagraph (e)(1)(C) was added to exclude from exemption equipment that are subject to emission limitation requirements in an Air Toxic Control Measure (ATCM) or in the National Emission Standards for Hazardous Air Pollutants (NESHAP).

The provisions in paragraph (e)(2) apply when the Executive Officer has determined that otherwise-exempt equipment, processes, and operations require permits due to the following:

- Exceedance of the health risk limits established in Rule 1401 New Source Review of Toxic Air Contaminants.
- Non-compliance with South Coast AQMD rules or regulations.
- The equipment is operated or maintained in a manner that is inconsistent with any exemption in Rule 219 and results in excess emissions.

Paragraph (e)(3) clarifies that South Coast AQMD may request information as needed to determine health risk. This paragraph requires that the requested information be submitted via a completed permit application within 60 days of the South Coast AQMD's request.

Paragraph (e)(4) excludes from exemption equipment or control equipment that are subject to permitting requirements pursuant to Regulation XIV - Toxics and Other Non-criteria Pollutants.

These provisions have been added to Rule 219 to ensure that equipment, processes, or operations listed as exempt, pursuant to subdivision (d), do not negatively impact air quality. The provisions provide guardrails so that the subject equipment do not emit air contaminants that could cause an

¹⁵ CARB. https://ww3.arb.ca.gov/ag/sb700/sb700.htm

exceedance of health risk limits or are not in compliance with South Coast AQMD rules. The revised rule is at least as stringent of air quality as the SIP-approved version.

Subdivision (f) – Recordkeeping

Subdivision (f) is a new addition to Rule 219 since the SIP-approved version that clarifies the recordkeeping requirements needed to demonstrate applicability of any exemption provision in the rule. Paragraph (f)(1) requires any owner or operator claiming an exemption to maintain sufficient documentation to verify its applicability and provides examples of documents that could be provided to make a demonstration. Paragraph (f)(2) requires records to be maintained for three (3) years and made available upon request.

Subdivision (f) provides additional clarity and increase enforceability of the rule and does not contain any requirements that may relax the requirements in SIP-approved Rule 219.

Subdivision (g) – Test Methods

Subdivision (g) is a new addition to Rule 219 since the SIP-approved version that requires that test methods used to verify the composition and characteristics of materials and equipment that validate an exemption are approved by U.S. EPA, CARB, or South Coast AQMD. The previous SIP-approved rule does not contain test methods. The addition of these test methods provides additional clarity and enforceability to the rule and does not contain any requirements that may relax the requirements in SIP-approved Rule 219.

Subdivision (h) – Compliance Dates

Subdivision (h) is a new addition to Rule 219 since the SIP-approved version. The requirements in this subdivision are administrative in nature, setting the compliance dates that permit applications must be submitted for specified instances when exemptions are no longer applicable. Paragraph (h)(1) provides a year to comply with South Coast AQMD's permitting rules when Rule 219 is amended to remove an exemption. Paragraph (h)(2) establishes a compliance date for subparagraphs (d)(5)(U) and (d)(16)(W). The provisions in this subdivision do not affect emissions.

CONCLUSIONS

While new exemptions have been added to Rule 219 since the SIP-approved version of the rule, the potential emission increases from these new exemptions are offset by potential emission reductions from existing exemptions that have been made much more stringent. Additionally, the applicability of several existing exemptions has been significantly narrowed or have been removed. As included in Table A-1, the following are examples where thresholds have been reduced or cases when exemptions have been removed from Rule 219 since the SIP-approved version:

- Reduced rating for ICEs: from 500 brake horsepower (bhp) to 50 bhp;
- Reduced rating for boilers, steam generators, and heaters: from 20 million British Thermal Units (Btu) to two (2) million Btu;
- Removed exemptions for most printing operations, and added exemptions based on thresholds for low usage, emissions, or VOC content of materials;

- Removed exemption for furnaces that hold lead or any alloy containing over 50 percent lead; and
- Removed exemption for metal finishing tanks that contain nickel, lead, or cadmium.

As potential emission increases due to the new permit exemptions are offset by potential emission reductions from existing exemptions having been made significantly more stringent, it is concluded that the changes made since the SIP-approved version of Rule 219 do not interfere with NAAQS attainment efforts or any other applicable requirement of the CAA.

Table A-1: PAR 219 Clean Air Act Section 110(l) Analysis
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Sections	Changes Since 1981 SIP- Approval	Analysis
(a) Purpose		
The purpose of this rule is to identify equipment, processes, or operations that emit small amounts of air contaminants that shall not require written permits, unless such equipment, process or operation is subject to subdivision (e) – Exceptions. Certain equipment, processes, or operations that do not require written permits may be subject to Rule 222 – Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II.	New language. Original language at the top of the SIP-approved version has been moved to subdivision (e), Exceptions.	Language is new and describes the purpose of Rule 219 and is new compared to the SIP-approved version of the rule. Second sentence informs stakeholders that select equipment may also require registration pursuant to Rule 222. This section does not include a relaxation of requirements.
(b) Applicability		
This rule applies to owners or operators of the equipment, processes, or operations listed in subdivision (d).	New	Language is new to improve rule clarity and does not include a relaxation of requirements.
(c) Definitions		
For the purpose of this rule, the following definitions shall apply: [See provisions in PAR 219 (c)(1) through (7)]	New. SIP-approved version of Rule 219 did not list any definitions.	Definitions added for clarity and this section does not result in relaxation of requirements.

Sections	Changes Since 1981 SIP- Approval	Analysis
(d) Equipment, Processes, or Operations Not Requiring a Written	n Permit	
(1) Mobile Equipment	Subdivision (a) now listed in paragraph (d)(1).	
This paragraph does not apply to air contaminant emitting equipment which is mounted and operated on motor vehicles, marine vessels, mobile hazardous material treatment systems, or mobile day tankers.	Language was revised to state more specifically that provision does not apply to air contaminant emitting equipmentrather than equipment requiring a permitthat are mounted on vehicles. Language was removed that exempted equipment mounted on vehicles used exclusively to transport materials.	Removed language that limited the vehicles equipment could be mounted and operated on. Equipment that do not emit air contaminants are exempt from permitting, and may be mounted on any vehicle, regardless of whether the vehicles are used to exclusive transport materials. See 110(1) analysis for subdivision (d), Category A. Equipment or operations which are not subject to NSR program requirements because they are not stationary sources.
(A) Motor vehicle or vehicle as defined by the California Vehicle Code	New	See 110(1) analysis for subdivision (d), Category A. Equipment or operations which are not subject to NSR program requirements because they are not stationary sources.

Sections	Changes Since 1981 SIP- Approval	Analysis
(B) Marine vessel as defined by Health and Safety Code Section 39037.1	New	See 110(1) analysis for subdivision (d), Category A. Equipment or operations which are not subject to NSR program requirements because they are not stationary sources.
(C) 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.	New	See 110(1) analysis for subdivision (d), Category A. Equipment or operations which are not subject to NSR program requirements because they are not stationary sources.
(D) Equipment that is mounted on a vehicle, motor vehicle or marine vessel if such equipment does not emit air contaminants.	New	See 110(1) analysis for subdivision (d), Category B. Equipment or processes not subject to a South Coast AQMD emission control rule.
(E) Asphalt pavement heater, which is any mobile equipment used to heat asphalt or coal tar pitch for purposes of road maintenance or new road construction.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(F) Mobile day tankers which 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).	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
(2) Combustion and Heat Transfer Equipment	Subdivision (b) now listed in paragraph (d)(2)	

Sections	Changes Since 1981 SIP- Approval	Analysis
(A)(i) Internal combustion engines that have a manufacturer's rating of 50 brake horsepower or less	Formerly located in paragraph (b)(1). Exemption was tightened from 500 bhp or less.	Exemption was tightened; ICEs rated over 51 bhp now require permits. ICEs rated 50 bhp are also exempt from emissions requirements in Rules 1110.2, 1470, and 1472.
(A)(ii) Internal combustion engines that are used exclusively for electrical generation at remote two-way radio transmission towers where no utility, electricity or natural gas is available within a half mile radius and the internal combustion engine:(A) Have a manufacturer's rating of 100 brake horsepower or less; and	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or amount of material used.
(B) Are fired exclusively on diesel #2 fuel, compressed natural gas (CNG), liquefied petroleum gas (LPG).		
(B) Stationary gas turbine engines including micro-turbines, with a rated maximum heat input capacity of 3,500,000 British thermal units (Btu) per hour or less, provided that	Formerly located in paragraph (b)(1). Exemption was tightened from 5,950,000 Btu/hr or less.	Exemption was tightened.
(i) The cumulative power output of all such engines at a facility is less than two (2) megawatts; and		
(ii) The engines were certified at the time of manufacture with CARB or were in operation prior to May 3, 2013.		
(C) Boilers, process heaters, or any combustion equipment with a rated maximum heat input capacity of 2,000,000 Btu per hour (gross) or less and are equipped to be heated exclusively with natural gas, methanol, liquefied petroleum gas, or any combination thereof. This exemption does not apply to internal	Formerly located in paragraph (b)(2). Exemption was tightened from 20,000,000 Btu/hr or less.	Exemption was tightened.

Sections	Changes Since 1981 SIP- Approval	Analysis
combustion engines or turbines. This exemption does not apply to:		
(i) Internal combustion engines;		
(ii) Turbines; or		
(iii) Boilers, process heaters, or any combustion equipment whenever there are emissions other than products of fuel combustion, except for food ovens with a rated maximum heat input capacity of 2,000,000 Btu/hour or less, that are fired exclusively on natural gas and where the process VOC emissions are less than one pound per day.		
(D) Diesel fueled boilers with a rated maximum heat input capacity of 2,000,000 Btu per hour or less, are fueled exclusively with diesel #2 fuel, and are located more than 4,000 feet above sea level or more than 15 miles offshore from the mainland, and where the maximum Oxides of Nitrogen (NOx) emission output of the equipment is less than one (1) pound per day and uses less than 50 gallons of fuel per day, and have been in operation prior to May 3, 2013. This exemption does not apply whenever there are emissions other than products of combustion.	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or amount of material used.
(E) Portable diesel fueled heaters, with a rated maximum heat input capacity of 250,000 Btu per hour or less, and that are equipped with burner(s) designed to fire exclusively on diesel fuel only.	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or amount of material used.

Sections	Changes Since 1981 SIP- Approval	Analysis
(F) Power pressure washers and hot water or steam washers and cleaners, that are equipped with a heater or burner that is designed to be fired on diesel fuel, has a rated maximum heat input capacity of 550,000 Btu per hour or less, is equipped with non-resettable chronometer, and the maximum NOx emission output of the equipment is less than one (1) pound per day and uses no more than 50 gallons of fuel per day. This exemption does not apply to internal combustion engines or turbines.	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or amount of material used.
(G)(i) Fuel cells, which produce electricity in an electro- chemical reaction and use phosphoric acid, molten carbonate, proton exchange membrane, or solid oxide technologies; and associated heating equipment, provided the heating equipment does not use a combustion source.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(G)(ii) Fuel cells, which produce electricity in an electro- chemical reaction and use phosphoric acid, molten carbonate, proton exchange membrane, or solid oxide technologies; and associated heating equipment, provided the heating equipment is fueled exclusively with natural gas, methanol, liquefied petroleum gas, or any combination thereof, including heaters that have a rated maximum heat input capacity of greater than 2,000,000 Btu per hour, provided that the supplemental heat used is 90,000 therms per year or less.	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or amount of material used.
(H) Test cells and test stands used for testing burners or internal combustion engines provided that the equipment uses less than 800 gallons of diesel fuel and 3,500 gallons of gasoline fuel per year, or uses other fuels with equivalent or less emissions.	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the

Sections	Changes Since 1981 SIP- Approval	Analysis
		equipment, the type of material used or amount of material used.
(I) Internal combustion engines used exclusively for training at educational institutions.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(J) Portable combustion equipment, pursuant to paragraph (d)(18) – Registered Equipment.	New	Provision points to combustion equipment that would be exempt pursuant to paragraph (d)(18), and is used to clarify rule intent.
(3) Structures and Equipment - General	Subdivision (c) now listed in paragraph (d)(3).	
(A) Structural changes which cannot change the quality, nature or quantity of air contaminant emissions.	Formerly in (c)(1)	No change from SIP-approved Rule 219.
(B) Repairs or maintenance not involving structural changes to any equipment for which a permit has been granted.	Formerly in (c)(2)	No change from SIP-approved Rule 219.
(C) Replacement of identical equipment, as defined in Rule 301 - Permitting and Associated Fees, at a facility that is not a federal major source, as defined in 40 CFR 51.165 or 52.21, where a permit to operate had previously been granted for such equipment, except seals for external or internal floating roof storage tanks.	Formerly in (c)(3)	No change from SIP-approved Rule 219.
(D) Routine maintenance, repair or replacement of a part of any equipment at a facility that is a federal major source, as defined in 40 CFR 51.165 or 52.21, where a permit to operate had previously been issued for such equipment, based on U.S. EPA	New	As part of the definition of "Major Modification" in 40 CFR 51.165(a)(1)(v)(C), U.S. EPA explicitly excludes certain types of physical

Sections	Changes Since 1981 SIP- Approval	Analysis
guidance in determining routine maintenance, repair, or replacement.		changes or changes in the method of operation, such as routine maintenance, repair and replacement, from being considered modifications for the purpose of the NSR program.
(E) Replacement of floating roof tank seals provided that the replacement seal is of a type and model which the Executive Officer has determined is capable of complying with the requirements of Rule 463 – Organic Liquid Storage.	New	As part of the definition of "Major Modification" in 40 CFR 51.165(a)(1)(v)(C), U.S. EPA explicitly excludes certain types of physical changes or changes in the method of operation, such as routine maintenance, repair and replacement, from being considered modifications for the purpose of the NSR program. Rule 463 lists compliant types and models of seals.
(F) Equipment utilized exclusively in connection with 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.	Formerly in (c)(4). Added clarification that equipment is used by dwelling owners or occupants.	No change in requirements from SIP- approved Rule 219.
(G) Laboratory testing and quality control testing equipment used exclusively for chemical and physical analysis, and the control equipment used to exclusively vent such equipment. Laboratory testing equipment does not include engine test stands or test cells unless such equipment is also exempt pursuant to subparagraph (d)(2)(H).	Formerly in (c)(5). Added clarification to language, which exempted laboratory equipment used exclusively for chemical and physical analysis and bench scale or laboratory test equipment.	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.

Sections	Changes Since 1981 SIP- Approval	Analysis
(H) Non-production bench scale research equipment, and the control equipment used to exclusively vent such equipment.	Bench scale test equipment formerly exempted in (c)(5), now given its own provision, and exemption now includes associated control equipment.	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(I) Vacuum-producing devices used in laboratory operations or in connection with other equipment not requiring a written permit.	Formerly in (c)(6)	No change from SIP-approved Rule 219.
(J) Vacuum-cleaning systems used exclusively for industrial, commercial, or residential housekeeping purposes.	Formerly in (c)(7)	No change from SIP-approved Rule 219.
(K) Hoods, stacks, or ventilators.	Formerly in (c)(8), which exempted natural-draft hoods, natural-draft stacks, and natural- draft ventilators.	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(L) Passive and intermittently operated active venting systems used at and around residential structures to prevent the accumulation of naturally occurring methane and associated gases in enclosed spaces.	New	See 110(1) analysis for subdivision (d), Category C. Area-wide sources regulated under State or federal law.
(M) Sub-slab ventilation systems including associated air pollution control equipment with an aggregate flow rate of less than 200 standard cubic feet per minute (scfm) where vacuum suction pits do not penetrate more than 18 inches below the bottom of the slab, provided the inlet total organic compounds concentration does not exceed 15 ppmv, measured as hexane, and provided the ventilation system is connected to air pollution	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or amount of material used.

Sections	Changes Since 1981 SIP- Approval	Analysis
control equipment consisting of a carbon adsorber sized to handle at least 200 scfm, or equivalent air pollution control.		
(4) Utility Equipment - General	Subdivision (d) now listed in paragraph (d)(4)	
(A) Comfort air conditioning or ventilating systems which are not designed or used to remove air contaminants generated by, or released from, specific equipment units, provided such systems are also exempt pursuant to subparagraphs $(d)(2)(C)$ or (d)(2)(D).	Formerly in $(d)(1)$, with added language to limit the exemption to equipment also exempt pursuant to (d)(2)(C) or $(d)(2)(D)$.	Tightened existing exemption; does not allow exemptions for equipment that does not meet parameters of $(d)(2)(C)$ or (d)(2)(D).
(B) Refrigeration units except those used as or in conjunction with air pollution control equipment.	Formerly in (d)(2)	No change from SIP-approved Rule 219.
 (C) Water cooling towers and water cooling ponds that are not used for evaporative cooling of process water or used for evaporative cooling of water from barometric jets or from barometric condensers, and in which no chromium compounds are contained, including: (i) Cooling towers used for comfort cooling; and (ii) Industrial cooling towers located in a chemical plant, refinery or other industrial facility. 	Formerly in (d)(3). Removed exemption for cooling towers or ponds containing chromium compounds. Added language to clarify types of equipment included in the exemption.	Tightened existing exemption; removes exemption for equipment containing chromium compounds.
(D) Equipment used exclusively to generate ozone and associated ozone destruction equipment for the treatment of cooling tower water or for water treatment processes.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.

Sections	Changes Since 1981 SIP- Approval	Analysis
(E) Equipment used exclusively for steam cleaning provided such equipment is also exempt pursuant to subparagraphs (d)(2)(C) or (d)(2)(D).	Formerly in $(d)(4)$, with added language to limit the exemption to equipment also exempt pursuant to (d)(2)(C)	Tightened existing exemption; does not allow exemptions for equipment that does not meet parameters of $(d)(2)(C)$.
(F) Equipment used exclusively for space heating provided such equipment is also exempt pursuant to subparagraphs (d)(2)(C) or (d)(2)(D).	Formerly in $(d)(5)$, with added language to limit the exemption to equipment also exempt pursuant to (d)(2)(C)	Tightened existing exemption; does not allow exemptions for equipment that does not meet parameters of $(d)(2)(C)$.
(G) Equipment used exclusively to compress or hold purchased Quality Natural Gas, provided any internal combustion engine is also exempt pursuant to subparagraph (d)(2)(A).	Formerly in $(d)(6)$, with added language to limit the exemption to ICEs also exempt pursuant to (d)(2)(A)	Tightened existing exemption; does not allow exemptions for ICEs that do not meet parameters of $(d)(2)(A)$.
(H) Emergency ventilation systems used exclusively to scrub ammonia from refrigeration systems during process upsets or equipment breakdowns.	New	See 110(1) analysis for subdivision (d), Category C. Area-wide sources regulated under State or federal law.
(I) Emergency ventilation systems used exclusively to contain and control emissions resulting from the failure of a compressed gas storage system.	New	See 110(1) analysis for subdivision (d), Category C. Area-wide sources regulated under State or federal law.
(J) Passive carbon adsorbers, with a maximum vessel capacity of no more than 120 gallons, without mechanical ventilation, and used exclusively for odor control at wastewater treatment plants, food waste slurry storage tanks, or sewer collection systems, including sanitary sewers, manholes, and pump stations.	New	See 110(1) analysis for subdivision (d), Category C. Area-wide sources regulated under State or federal law.
(K) Refrigerant recovery and/or recycling units. This exemption does not include refrigerant reclaiming facilities.	New	See 110(1) analysis for subdivision (d), Category C. Area-wide sources regulated under State or federal law.

Sections	Changes Since 1981 SIP- Approval	Analysis
(L) Carbon arc lighting equipment provided such equipment is also exempt pursuant to subparagraph (d)(2)(A).	New	See 110(1) analysis for subdivision (d), Category C. Area-wide sources regulated under State or federal law.
(M) Gas-insulated equipment with a voltage of 245 kilovolts or less, used in electrical power generation, transmission and distribution operations, that use a VOC-containing gas as an insulating medium, with a maximum leak rate of less than one percent per year under normal operating conditions.	New	See 110(l) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(5) Glass, Ceramic, Metallurgical Processing and Fabrication Equipment	Subdivision (e) now listed in paragraph (d)(5)	
(A) Crucible-type or pot-type furnaces with a capacity of less than 7,400 cubic centimeters (452 cubic inches) of any molten metal, and the control equipment used to exclusively vent the furnace.	Formerly in (e)(1). Added language to include control equipment venting the furnaces.	Addition of control equipment to the exemption does not change emissions.
 (B) Crucible furnaces, pot furnaces, or induction furnaces with a capacity of 450 kilograms (992 pounds) or less each, and the control equipment used to exclusively vent the furnaces, where: (i) No sweating or distilling is conducted; (ii) The furnaces are also exempt pursuant to subparagraph (d)(2)(C); and (iii) Only the following materials are poured or held in a molten state, and these materials do not contain alloying elements of arsenic, beryllium, cadmium, chromium and/or lead: (A) Aluminum or any alloy containing over 50 percent aluminum; (B) Magnesium or any alloy containing over 50 percent magnesium; 	Formerly in (e)(2). Added language to limit exemption to furnaces that meet parameters in (d)(2)(C), and to remove exemption if materials contain alloying elements of arsenic, beryllium, cadmium, chromium and/or lead. Removed exemption for furnaces processing lead. Added processing of ceramic materials to exemption	Tightened existing exemption. Does not allow exemptions for furnaces that don't also meet parameters of (d)(2)(C), or that process the specified toxic metals. This is expected to offset any additional emissions resulting from the inclusion of furnaces that process ceramic materials to the exemption.

Sections	Changes Since 1981 SIP- Approval	Analysis
 (C) Tin or any alloy containing over 50 percent tin; (D) Zinc or any alloy containing over 50 percent zinc; (E) Copper or any alloy containing over 50 percent copper; (F) Precious metals; and (G) Ceramic materials, including glass and porcelain. 		
(C) Molds used for the casting of metals and the control equipment used to exclusively vent the equipment.	Formerly in (e)(3). Added language to include control equipment.	Addition of control equipment to the exemption does not change emissions.
(D) Inspection equipment used exclusively for metal, plastic, glass, or ceramic products and the control equipment used to exclusively vent such equipment.	Formerly in (e)(4). Exemptions added for inspection equipment used for plastic, glass, or ceramic products.	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(E) Ovens used exclusively for curing potting materials or castings made with epoxy resins, provided such ovens are also exempt pursuant to subparagraph $(d)(2)(C)$.	Formerly in (e)(5), with added language to limit the exemption to ovens also exempt pursuant to (d)(2)(C)	Tightened existing exemption; does not allow exemptions for equipment that does not meet parameters of $(d)(2)(C)$.
(F) Hand-held or automatic brazing and soldering equipment, and the control equipment used to exclusively vent such equipment, provided that the equipment uses one (1) quart per day or less or 22 quarts per calendar month or less of material containing VOC. This exemption does not include hot oil, hot air, or vapor phase solder leveling equipment, and associated control equipment.	Exemption for brazing and soldering equipment and the associated control equipment was formerly in (e)(6). Language clarifies that equipment may be hand-held or automatic. VOC material threshold added. Descriptive language added to exception for solder leveling equipment. Plasma arc cutting addressed in (d)(5)(H).	Tightened existing exemption by adding a VOC material threshold.

Sections	Changes Since 1981 SIP- Approval	Analysis
(G) Brazing ovens where no VOCs (except flux) are present in the materials processed in the ovens, provided such ovens are also exempt pursuant to subparagraph $(d)(2)(C)$.	New	See 110(1) analysis for subdivision (d), Category B. Equipment or processes not subject to a South Coast AQMD emission control rule.
(H)Welding equipment, oxygen gaseous fuel-cutting equipment, hand-held plasma-arc cutting equipment, hand-held laser cutting equipment, laser etching or engraving equipment and associated air pollution control equipment. This exemption does not include cutting equipment described in this paragraph that is used to cut stainless steel, or alloys containing 0.1 percent by weight or more of chromium, nickel, cadmium or lead, unless the equipment is used exclusively for maintenance or repair operations. In addition this exemption does not include laser cutting, etching and engraving equipment that are rated at more than 400 watts.	Exemption for welding equipment, oxygen gaseous fuel-cutting equipment, and associated APCE was formerly in (e)(6). Added exemption for plasma-arc cutting equipment. Also adds exceptions for equipment used to cut metals containing specified toxic metals (unless used exclusively for maintenance or repairs). Added size threshold for equipment.	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
(I) Sintering equipment used exclusively for the sintering of metal (excluding lead) or glass where no coke or limestone is used, and the control equipment used to exclusively vent such equipment, provided such equipment is also exempt pursuant to subparagraph (d)(2)(C).	Formerly in (e)(7). Removed exemption for sintering of lead, and added language to limit exemption to equipment that meet parameters in (d)(2)(C).	Tightened existing exemption by removing exemption for lead sintering and does not allow exemptions for equipment that does not meet parameters of $(d)(2)(C)$.
(J) Mold forming equipment for foundry sand to which no heat is applied, and where no volatile organic materials are used in the process, and the control equipment used to exclusively vent such equipment.	Formerly in (e)(8). Added language to require that no VOCs are used in the process.	Tightened existing exemption by removing exemption for processes that use VOC materials.

Sections	Changes Since 1981 SIP- Approval	Analysis
(K) Metal forming equipment or equipment used for heating metals for forging, rolling, pressing, or drawing of metals provided that any lubricants used contain 50 Grams of VOC Per Liter of Material or less, or a VOC composite partial pressure of 20 mm Hg or less at 20 °C (68 °F), and the control equipment used to exclusively vent the equipment, provided such metal forming equipment or equipment used for heating metals are also exempt pursuant to subparagraph (d)(2)(C) or (d)(2)(D).	Formerly in (e)(9). Added thresholds for VOC content and composite partial pressure for lubricants. Also added language to limit exemption to equipment that meet parameters in (d)(2)(C) or (d)(2)(D). Included associated APCE with the exemption.	Tightened existing exemption with requirements for VOC content and composite partial pressure of VOC- containing materials. Addition of control equipment to the exemption does not change emissions.
(L) Heat treatment equipment and associated water quench tanks used exclusively for heat treating glass or metals (provided no VOC materials are present), or equipment used exclusively for case hardening, carburizing, cyaniding, nitriding, carbonitriding, siliconizing or diffusion treating of metal objects, provided any combustion equipment involved is also exempt pursuant to subparagraph (d)(2)(C) or (d)(2)(D).	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(M) Ladles used in pouring molten metals.	Formerly in (e)(11).	No change from SIP-approved Rule 219.
(N) Tumblers used for the cleaning or deburring of solid materials, and the associated air pollution control equipment.	Formerly in (e)(12). Changed from the cleaning or deburring of metal to that of solid materials, and added exemption of associated APCE.	Cleaning or deburring of solid materials creates no more emissions than does the work on metals. Addition of control equipment to the exemption does not change emissions.
(O) Die casting machines. This exemption does not apply to die casting machines used for copper base alloys, with an integral furnace having a capacity of more than 450 kg (992 lbs.), or die casting machines using a furnace not exempt pursuant to subparagraph (d)(2)(C).	Formerly in (e)(13). Added language to limit exemption to furnaces that meet parameters in (d)(2)(C).	Tightened existing exemption by not allow exemptions for equipment that does not meet parameters of $(d)(2)(C)$.

Sections	Changes Since 1981 SIP- Approval	Analysis
(P) Furnaces or ovens used for the curing or drying of porcelain enameling or vitreous enameling, provided such furnaces or ovens are also exempt pursuant to subparagraph (d)(2)(C).	Formerly in (e)(14). Removed exception for units fired with fuel oil, and added language to limit exemption to equipment that meet parameters in (d)(2)(C).	Tightened existing exemption by not allow exemptions for equipment that does not meet parameters of (d)(2)(C), which includes a fuel requirement that equipment be heated exclusively with natural gas, methanol, liquefied petroleum gas, or any combination thereof.
(Q) Wax burnout kilns where the total internal volume is less than 0.2 cubic meter (7.0 cubic feet) or kilns used exclusively for firing ceramic ware, and the control equipment used to exclusively vent the equipment, provided such kilns are also exempt pursuant to subparagraph (d)(2)(C).	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or amount of material used.
(R) Shell-core and shell-mold manufacturing machines.	New	See 110(1) analysis for subdivision (d), Category B. Equipment or processes not subject to a South Coast AQMD emission control rule.
(S) Furnaces used exclusively for melting titanium materials in a closed evacuated chamber where no sweating or distilling is conducted, provided such furnaces are also exempt pursuant to subparagraph (d)(2)(C).	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or amount of material used.
(T) Vacuum metallizing chambers which are electrically heated or heated with equipment that is also exempt pursuant to subparagraphs $(d)(2)(C)$ or $(d)(2)(D)$, and the control equipment	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of

Sections	Changes Since 1981 SIP- Approval	Analysis
used to exclusively vent such equipment, provided the control equipment is equipped with a mist eliminator or the vacuum pump used with control equipment demonstrates operation with no visible emissions from the vacuum exhaust.		limitations based on the size of the equipment, the type of material used or amount of material used.
(U) Notwithstanding the exemptions in subparagraph (d)(5)(L), equipment existing as of May 5, 2017 that qualifies for the exemption in subparagraph (d)(5)(L), that is an integral part of an operation requiring a written permit shall continue to be exempt, provided the equipment is identified, described in detail and submitted for inclusion into the permit equipment description with any associated application for Permit to Construct or Permit to Operate. Equipment described in this subparagraph includes, but is not limited to, quench tanks that are part of a heat treating operation.	New	This is an administrative provision that requires exempt equipment that is integral to a heat treating operation be added to an existing permit, when the permit is required to be amended (e.g., a change in operating conditions). Intent of this provision is to clearly identify equipment in heat treating operations, which may consist of numerous quench tanks and other types of equipment. This provision does not contain any new exemptions.
(6) Abrasive Blasting Equipment	Subdivision (f) now listed in paragraph (d)(6)	
(A) Blast cleaning cabinets in which a suspension of abrasive in water is used and the control equipment used to exclusively vent such equipment.	Formerly in (f)(1)	No change from SIP-approved Rule 219.
(B) Manually operated abrasive blast cabinets, vented to a dust filter with at least 90 percent overall control efficiency (capture and collection efficiency) where the total internal volume of the blast section is 1.5 cubic meters (53 cubic feet) or less, and the dust filter venting such equipment.	Formerly in (f)(2). Language added to specify that manually operated abrasive blast cabinets are exempt. Language also exempts dust filters with at least a 90 percent overall control efficiency.	Tightens the exemption by: limiting it to only manually operated cabinets, and requiring the cabinets to be vented to dust filters that meet the required control efficiency.

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(C) Enclosed equipment used exclusively for shot blast removal of flashing from rubber and plastics at sub-zero temperatures and the control equipment used to exclusively vent such equipment.	Formerly in (f)(3).	No change from SIP-approved Rule 219.
(D) Shot peening operations using a flywheel, and the control equipment used to exclusively vent such equipment.	Shot peening exemption was formerly in (f)(4), which exempted shot peening operations on non- ferrous materials, provided no surface material is removed. Exemption is now just for flywheel shot peening operations.	Tightens exemption by limiting only shot peening operations using a flywheel to be exempt, rather than a typical shot peening operation that uses a forced air, which creates more particulate emissions.
(E) Portable sand/water blaster equipment and associated internal combustion engine provided the water in the mixture is maintained at 66 percent or more by volume during operation of such equipment, provided the internal combustion engine is also exempt pursuant to subparagraph (d)(2)(A).	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or amount of material used. Abrasive blasting must also comply with the provisions of South Coast AQMD Rule 1140.
(7) Mechanical Equipment	Subdivision (g) now listed in paragraph (d)(7)	
(A) Equipment used exclusively for buffing (except tire buffers), polishing, carving, mechanical cutting, drilling, machining, pressing, routing, sanding, stamping, surface grinding or turning provided that any lubricants, coolants, or cutting oils used contain 50 Grams of VOC Per Liter of Material or less or a VOC composite partial pressure of 20 mm Hg or less at 20 °C (68 °F),	Formerly in (g)(1). Added VOC content/composite partial pressure threshold for lubricants, coolants, and cutting oils. Clarified that asphalt pavement grinders or portable asphalt recycling	Tightens the exemption by adding the VOC threshold, as well as with the clarification that asphalt pavement grinders and portable asphalt recycling equipment are not exempt.

Sections	Changes Since 1981 SIP- Approval	Analysis
and the control equipment used to exclusively vent such equipment. This exemption does not include asphalt pavement grinders or portable asphalt recycling equipment.	equipment are not exempt under this provision.	
 (B) Equipment used exclusively for shredding of wood, or the extruding, handling, or storage of wood chips, sawdust, or wood shavings and the control equipment used to exclusively vent such equipment, provided the source of the wood does not include wood that is painted or treated for exterior exposure, or wood that is comingled with other construction and demolition materials. This exemption does not include: (i) Internal combustion engines over 50 brake horsepower, which are used to supply power to the equipment in subparagraph (d)(7)(B); or (ii) The shredding, extruding, handling or storage of any organic waste material generated from gardening, agricultural, or landscaping activities including, but not limited to, leaves, grass clippings, tree and shrub trimmings and plant remains. 	Formerly in (g)(2). Added language that does not allow equipment processing painted or treated wood, or wood comingled with construction or demolition materials to qualify for this exemption. Added language to clarify that ICEs must be rated 50 bhp or below. Also added language to clarify that the exemption does not include equipment processing gardening, agricultural or landscaping material.	Tightens the exemption and reduces emissions by not allowing the processing of contaminated wood. Clarification added to ensure that ICEs must be rated 50 bhp or lower to meet the rating limit in (d)(2)(A)(i), and that this exemption does not apply to equipment processing gardening, agricultural or landscaping material.
(C) Equipment used exclusively to mill or grind, coatings or molding compounds, where all materials charged are in paste form.	Formerly in (g)(3)	No change from SIP-approved Rule 219.
(D) Equipment used for separation or segregation of plastic materials intended for recycling, provided there is no mechanical cutting, shredding or grinding, and where no odors are emitted.	New	See 110(1) analysis for subdivision (d), Category B. Equipment or processes not subject to a South Coast AQMD emission control rule.

Sections	Changes Since 1981 SIP- Approval	Analysis
(8) Printing and Reproduction Equipment	 Subdivision (h) now listed in paragraph (d)(8). All of the provisions in this subdivision are new. SIP-approved version of the rule had only 4 exemptions: (1) Printing equipment without dryers. (2) Photographic process equipment by which an image is reproduced upon material sensitized by radiant energy and control equipment venting exclusively such equipment. 	The exemptions in the SIP-approved version of the rule were broad and covered an extensive amount of printing equipment, including all printing equipment without dryers and printing equipment with dryers rated 20,000,000 Btu/hr or less, which was the exemption rating threshold for combustion equipment. There were no exemptions based on VOC limits or thresholds. All of these exemptions have been removed. The new provisions contain more tailored exemptions that apply to smaller, low-emission operations.
	(3) Printing equipment with dryers, electrically heated, or with a rating of 20,000,000 BTU per hour or less, equipped to fire natural gas or liquefied petroleum gas, used exclusively for the drying or baking of surface coatings which contain no volatile organic compounds.	
	(4) Platen presses used in laminating.	
	(1), (3), and (4) have been removed. (2) is now listed in (d)(8)(B), but with exceptions added to the provision.	

Sections	Changes Since 1981 SIP- Approval	Analysis
(A) Graphic arts operations including printing, coating and/or laminating equipment, and associated dryers and curing equipment, and the associated air pollution control equipment, provided such dryers and curing equipment are also exempt pursuant to subparagraph (d)(2)(C), and the air pollution control equipment is not required for source specific rule compliance, and provided that:	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
(i) The uncontrolled VOC emissions from such equipment (including clean-up) are three pounds per day or less or 66 pounds per calendar month or less;		
(ii) The total quantity of plastisol type inks, coatings and adhesives and associated VOC containing solvents (including clean-up) used is six gallons per day or less or 132 gallons per calendar month or less;		
(iii) The total quantity of UV/EB/LED (non-solvent based and non-waterborne) inks, coatings, and adhesives, fountain solutions (excluding water) and associated VOC containing solvents (including clean-up) used is six gallons per day or less, or 132 gallons per calendar month or less;		
(iv) The total quantity of inks, coatings and adhesives not specified in clauses (d)(8)(A)(ii) or (d)(8)(A)(iii) above, fountain solutions (excluding water) and associated VOC containing solvents (including clean-up) used is two gallons per day or less or 44 gallons per calendar month or less; or		
(v) All inks, coatings and adhesives, fountain solutions, and associated VOC containing solvents (excluding cleanup solvents) contain 50 grams or less of VOC per liter of material		

Sections	Changes Since 1981 SIP- Approval	Analysis
and all cleanup solvents contain 25 grams or less of VOC per liter of material, and the total quantity of VOC emissions do not exceed one ton per calendar year.		
If a combination of the inks, coatings, and adhesives identified in clauses (d)(8)(A)(ii), (d)(8)(A)(iii), and/or (d)(8)(A)(iv) are used in any equipment, this exemption is only applicable if the operations meet the criteria specified in clauses (d)(8)(A)(i) or (d)(8)(A)(v), or the total usage of inks, coatings, adhesives, fountain solutions (excluding water) and associated VOC containing solvents (including cleanup) meets the most stringent applicable limit in clauses (d)(8)(A)(ii), (d)(8)(A)(iii), or (d)(8)(A)(iv). For exemptions based on usage, solvent based UV and waterborne UV materials are subject to the usage limits in clause (d)(8)(A)(iv).		
(B) Photographic process equipment by which an image is reproduced upon material sensitized by radiant energy and the control equipment exclusively venting such equipment, excluding wet gate printing utilizing perchloroethylene and its associated control equipment.	Formerly in (h)(2). Added exception for wet gate printing utilizing perchloroethylene and its associated control equipment.	Tightened by removing exemption for wet gate printing utilizing perchloroethylene, which is a TAC.
(C) Lithographic printing equipment which uses laser printing.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(D) Printing equipment used exclusively for training and non- production at educational institutions.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.

Sections	Changes Since 1981 SIP- Approval	Analysis
(E) Flexographic plate making and associated processing equipment.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(F) Corona treating equipment and the associated air pollution control equipment used for surface treatment in printing, laminating and coating operations.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(G) Hand application of materials used in printing operations including but not limited to the use of squeegees, screens, stamps, stencils, any hand tools, and the associated air pollution control equipment used to exclusively vent the hand application of materials in printing operations, unless such air pollution control equipment is required for source specific rule compliance.	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
 (H) The addition of UV/EB/LED curing technology, or other curing or drying technology, to an existing permitted graphics arts equipment or operation if: (i) The equipment remains consistent with the description in the existing Permit to Operate, excluding the addition of curing or drying equipment operated exclusively using electrical power; 	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
(ii) The equipment complies with the conditions specified in the existing Permit to Operate;		
(iii) There is no physical change to the configuration of the existing air pollution control equipment associated with the equipment or operation;		

Sections	Changes Since 1981 SIP- Approval	Analysis
(iv) There is no physical change to the configuration of an existing permanent total enclosure associated with the equipment or operation;		
(v) All inks, coatings, solvents, or other materials associated with the technology do not contain any toxic air contaminants pursuant to Rule 1401 – New Source Review of Toxic Air Contaminants, as listed on the Safety Data Sheet, except as allowed under the existing Permit to Operate; and		
(vi) All inks, coatings and adhesives, fountain solutions, and VOC containing solvents associated with the technology (excluding cleanup solvents) contain 50 grams or less of VOC per liter of material and all cleanup solvents associated with the technology contain 25 Grams of VOC Per Liter of Material or less.		
(9) Pharmaceuticals, Cosmetics and Food Processing and Preparation Equipment	Subdivision (i) for Food Processing and Preparation Equipment and pharmaceuticals and cosmetics provision from (m)(7) now listed in paragraph (d)(9)	
(A) Smokehouses for preparing food in which the maximum horizontal inside cross-sectional area does not exceed two square meters (21.5 square feet) and control equipment exclusively venting the equipment.	Formerly in (i)(1). Control equipment added to the exemption	No change from SIP-approved Rule 219. Addition of control equipment to the exemption does not change emissions.
(B) Smokehouses exclusively using liquid smoke, and which are completely enclosed with no vents to either a control device or the atmosphere.	Formerly in (i)(2).	No change from SIP-approved Rule 219.
Sections	Changes Since 1981 SIP- Approval	Analysis
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(C) Confection cookers where products are edible and intended for human consumption, provided such equipment is also exempt pursuant to subparagraph (d)(2)(C).	Formerly in (i)(3). Added language to ensure cookers that meet the food ovens exemption in $(d)(2)(C)$	Tightened exemption by ensuring exemption is applicable to confection cookers that meet the rating and VOC emissions thresholds in (d)(2)(C).
(D) Grinding, blending, or packaging equipment used exclusively for tea, cocoa, roasted coffee, flavor, fragrance extraction, dried flowers, or spices, provided that the facility uses less than one gallon per day or 22 gallons per month of VOC containing solvents, and the control equipment used to exclusively vent such equipment.	Tea, cocoa, and roasted coffee processing equipment and associated control equipment formerly listed in (i)(4). Spices processing equipment formerly listed in (i)(7). Added exemptions for equipment processing flavor, fragrance extraction, and dried flowers. Added facility threshold for use of VOC containing solvents.	Tightened exemption by including a limit on VOC-containing solvent usage, which applies to all processing equipment listed here, even equipment processing the new categories of materials (flavor, fragrance extraction, and dried flowers).
(E) Equipment used in eating establishments for the purpose of preparing food for human consumption.	Formerly in (i)(5).	No change from SIP-approved Rule 219.
(F) Equipment used to convey or process materials in bakeries, or used to produce noodles, macaroni, pasta, food mixes, and drink mixes where the products are edible and intended for human consumption and the control equipment used exclusively to vent such equipment, provided that the facility uses less than one gallon per day or 22 gallons per month of VOC containing solvents and the equipment is also exempt pursuant to subparagraphs (d)(2)(C) or (d)(2)(D). This exemption does not include storage bins located outside buildings.	Former provision in (i)(6) exempted ovens, mixers, scales and blenders used in bakeries where products are edible and intended for human consumption and control equipment venting exclusively such equipment. Broadened language to include all equipment. Added VOC solvent usage threshold. Added language to ensure boilers/heaters and food	Tightened exemption by including a limit on VOC-containing solvent usage, and by ensuring that the combustion equipment is also exempt pursuant to their relevant provisions.

Sections	Changes Since 1981 SIP- Approval	Analysis
	ovens are also exempt pursuant to their relevant provisions.	
(G) Cooking kettles where the entire product in the kettle is edible and intended for human consumption. This exemption does not include deep frying equipment used in facilities other than eating establishments.	Formerly in (i)(8). Added language to clarify that deep frying equipment used in eating establishments are exempt.	No changes in requirement from SIP- approved Rule 219. Clarifies exemption to avoid conflict with exemption for equipment used at eating establishments in (d)(9)(E).
(H) Coffee roasting equipment with a maximum batch capacity of 15 kilograms or less, and the control equipment used to exclusively vent the equipment.	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
(I) Equipment used exclusively for tableting, or packaging vitamins, or coating vitamins, herbs, or dietary supplements and the control equipment used exclusively to vent such equipment, provided that the equipment uses waterborne solutions that contain 25 grams or less of VOC per liter of material, or the facility uses less than one gallon per day or 22 gallons per month of VOC containing solvents.	Exemption for this equipment in (d)(9)(I) and (J) was initially in (m)(7). Added requirement to use waterborne solutions and to meet thresholds for either the VOC content or VOC material usage.	Tightened exemption by adding the requirement to use waterborne solutions and to meet either of the VOC-related thresholds.

Sections	Changes Since 1981 SIP- Approval	Analysis
(J) Equipment used exclusively for tableting or packaging pharmaceuticals and cosmetics, or coating pharmaceutical tablets and the control equipment used exclusively to vent such equipment, provided that the equipment uses waterborne solutions with a VOC content of no more than 25 grams per liter, or the facility uses less than one gallon per day or 22 gallons per month of VOC containing solvents.	Exemption for this equipment in (d)(9)(I) and (J) was initially in (m)(7). Added requirement to use waterborne solutions and to meet thresholds for either the VOC content or VOC material usage.	Tightened exemption by adding the requirement to use waterborne solutions and to meet either of the VOC-related thresholds.
(K) Modified atmosphere food packaging equipment using mixture of gases of that contain no more than 0.4 percent carbon monoxide by volume.	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
(L) Charbroilers, barbecue grills, and other underfired grills fired on solid or gaseous fuels used in residential units, provided the equipment is only used by the owner or occupant of such dwelling for non-commercial purposes.	New	See 110(1) analysis for subdivision (d), Category C. Area-wide sources regulated under State or federal law.
(M) Equipment used to brew beer for human consumption at breweries that produce less than 1,000,000 gallons of beer per calendar year and associated cleaning equipment, provided all equipment used in the manufacturing operation is also exempt pursuant to subparagraphs (d)(2)(C), and the cleaning equipment is also exempt pursuant to paragraph (d)(15). This exemption does not apply to boilers.	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.

Sections	Changes Since 1981 SIP- Approval	Analysis
(N) Equipment used to manufacture dehydrated meat for human or pet consumption, provided:	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations
(i) The dehydrating oven is either electric or has a maximum rated heat input capacity of 2,000,000 Btu/hour or less and is fired exclusively on natural gas;		with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used
(ii) The operating temperature for the dehydrating oven is less than 190 degrees Fahrenheit; and		the amount of material used.
(iii) The non-combustion VOC and particulate matter (PM) emissions, including emissions from materials used for cleaning, are each one pound per day or less.		
(O) Food ovens with a rated maximum heat input capacity of 325,000 Btu/hour or less, that are fired exclusively on natural gas, where no baking <u>of uncooked yeast-containing products</u> occurs , and no emissions other than products of combustion occur .	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
(10) Plastics, Composite and Rubber Processing Equipment	Subdivision (j) now listed in paragraph (d)(10)	
(A) Presses or molds used for curing, post curing, or forming composite products and plastic products where no VOC or chlorinated blowing agent is present, and the control equipment is used exclusively to vent these presses or molds.	(j)(1) exempted presses used for curing rubber products and plastic products. Added requirement that no VOC or chlorinated blowing agent may be present. Included control equipment in the exemption.	Tightened exemption by adding the blowing agent limitation. Addition of control equipment to exemption does not increase emissions.

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(B) Presses or molds with a ram diameter of less than or equal to 26 inches used for curing or forming rubber products and composite rubber products, excluding those operating above 400 °F.	(j)(1) exempted presses used for curing rubber products and plastic products. Added size and operational temperature limitations to the equipment. Included control equipment in the exemption.	Tightened exemption by adding size and temperature limitations.
(C) Ovens used exclusively for the forming of plastics or composite products, where no foam forming or expanding process is involved, provided such ovens are also exempt pursuant to subparagraph $(d)(2)(C)$.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(D) Equipment used exclusively for softening or annealing plastics, provided such equipment is also exempt pursuant to subparagraphs (d)(2)(C) or (d)(2)(D). This exemption does not include equipment used for recycling of expanded polystyrene.	Formerly in (j)(2). (d)(10)(D) removes exemption for ovens used for plastics curing, and equipment used for recycling of expanded polystyrene. Also limits exemption to equipment meeting the parameters of (d)(2)(C) or (d)(2)(D).	Tightened exemption by removing: exemption for ovens used for curing of plastics which are concurrently being vacuum held to a mold, equipment handling expanded polystyrene. Exemption also tightened by limiting equipment to the parameters of (d)(2)(C) or (d)(2)(D).
(E) Extrusion equipment used exclusively for extruding rubber products or plastics where no organic plasticizer is present, or for pelletizing polystyrene foam scrap. This exemption does not apply to equipment used to extrude or to pelletize acrylics, polyvinyl chloride, polystyrene, and their copolymers.	Formerly in (j)(3). Added requirement that no organic plasticizer is present.	Tightened exemption with the added requirement.

Sections	Changes Since 1981 SIP- Approval	Analysis
(F) Injection or blow molding equipment for rubber or plastics where no blowing agent is used, or where only compressed air, water or carbon dioxide is used as a blowing agent, and control equipment used to exclusively vent such equipment.	Formerly in (j)(4). Removed exemption for equipment used for compression molding of plastics, and for equipment where only compressed air, water or CO2 is used as a blowing agent. Added exemption for equipment processing rubber.	Tightened exemption by removing application for compression molding equipment and by removing use of blowing agents that may contain air contaminants. Emissions from the added exemption for processing rubber are offset by the overall tightened exemption. See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(G) Mixers, roll mills and calendars for rubber or plastics where no material in powder form is added and no VOC containing solvents, diluents or thinners are used.	Formerly in (j)(5).	No change from SIP-approved Rule 219.
(H) Ovens used exclusively for the curing of vinyl plastisols by the closed-mold curing process, provided such ovens are also exempt pursuant to subparagraph $(d)(2)(C)$.	Formerly in $(j)(6)$. Added requirement that ovens must also be exempt pursuant to parameters of $(d)(2)(C)$.	Tightened exemption by adding requirement to meet the parameters of $(d)(2)(C)$.
(I) Equipment used exclusively for conveying and storing plastic materials, provided they are not in powder form and the control equipment used exclusively to vent the equipment.	Formerly in (j)(7), which exempted equipment used exclusively for conveying and storing plastic pellets.	Expanded exemption to equipment that conveys and stores plastic materials not in powder form, which may result in minimal emissions. See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions. Exemption also now includes associated control equipment, which does not change emissions.

Sections	Changes Since 1981 SIP- Approval	Analysis
(J) Hot wire cutting of expanded polystyrene foam and woven polyester film.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(K) Photocurable stereolithography equipment and associated post curing equipment.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(L) Laser sintering equipment used exclusively for the sintering of nylon or plastic powders and the control equipment used exclusively to vent such equipment, provided such equipment is also exempt pursuant to subparagraph (d)(2)(C).	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
 (M) Roller to roller coating systems that create 3-dimensional images provided: (i) The VOC emissions from such equipment (including cleanup) are three pounds per day or less or 66 pounds per calendar month or less; (ii) The coatings contain 25 Grams of VOC Per Liter of Material or less provided that the coating used on such equipment is 12 gallons per day or less or 264 gallons per calendar month or less; or (iii) The coatings contain 50 Grams of VOC Per Liter of Material or less, and all cleanup solvents used contain 25 grams or less of VOC per liter of material, and the total quantity of VOC emissions do not exceed one ton per calendar year. 	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
(11) Mixing, Blending and Packaging Equipment	Subdivision (k) now listed in paragraph (d)(11)	

Sections	Changes Since 1981 SIP- Approval	Analysis
(A) Batch mixers, which have a maximum capacity of 55 gallons or less (7.35 cubic feet) and the control equipment used exclusively to vent the equipment, and the associated filling equipment.	Formerly in (k)(1). Exemption expanded to include slightly larger batch mixers (from 7 cubic feet or less) and associated control equipment.	Inclusion of control equipment does not result in emission changes. Harmonizes exemption to commonly used batch mixers used for 55-gallon drums. Capacity limit is increased by a miniscule amount, 0.35 cubic feet, or 5% over the original exemption. See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
(B) Equipment used exclusively for mixing and blending materials, and the associated filling equipment, provided no VOC containing solvents are used and no materials in powder form are added.	Formerly in (k)(2). Expanded exemption by removing the requirement that the mixing and blending of materials be used in the manufacturing of adhesives and by including the associated filling equipment.	Limitations on no VOC containing solvents and no powders remain in place, which greatly reduces emissions. See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(C) Equipment used exclusively for mixing and blending materials to make water emulsions of asphalt, grease, oils, or waxes where no materials in powder or fiber form are added.	Formerly in (k)(3).	No change from SIP-approved Rule 219.
(D) Equipment used to blend, grind, mix, or thin liquids to which powders may be added, with a capacity of 950 liters (251 gallons) or less, where no supplemental heat is added and no	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the

Sections	Changes Since 1981 SIP- Approval	Analysis
ingredient charged (excluding water) exceeds 135 °F and the control equipment used exclusively to vent the equipment.		equipment, the type of material used or the amount of material used.
(E) Cosmetics filling stations where the filling equipment is hard piped to the cosmetics mixer and the holding tank feeding the filling equipment provided the mixer and holding tank are also exempt under this rule.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(F) Concrete mixers, with a rated working capacity of one cubic yard or less and the control equipment used exclusively to vent the equipment.	Formerly in (k)(7). Expanded exemption to include control equipment.	Inclusion of control equipment does not result in emission changes.
(G) Equipment used exclusively for packaging lubricants or greases.	Formerly in (m)(7).	No change from SIP-approved Rule 219.
(H) Equipment used exclusively for packaging sodium hypochlorite-based household cleaning or sodium hypochlorite- based pool products and the control equipment used exclusively to vent the equipment.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(I) Foam packaging equipment using 20 gallons per day or less or 440 gallons per calendar month or less of liquid foam material or containing 50 Grams of VOC Per Liter of Material or less.	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
(12) Coating and Adhesive Process/Equipment	New paragraph that incorporates provisions from subdivision (m) - Miscellaneous Process Equipment	

Sections	Changes Since 1981 SIP- Approval	Analysis
(A) Equipment used exclusively for coating objects with oils, melted waxes or greases which contain no VOC containing materials, including diluents or thinners.	Formerly in (m)(8).	No change from SIP-approved Rule 219.
(B) Equipment used exclusively for coating objects by dipping in waxes or natural and synthetic resins which contain no VOC containing materials including, diluents or thinners.	Formerly in (m)(9)	No change from SIP-approved Rule 219.
(C) Batch ovens with 1.5 cubic meters (53 cubic feet) or less internal volume where no melting occurs, provided such equipment is also exempt pursuant to subparagraph $(d)(2)(C)$. This exemption does not include ovens used to cure vinyl plastisols or debond brake shoes.	Formerly in $(m)(11)$. Added limit that ovens must meet the parameters of $(d)(2)(C)$.	Inclusion of control equipment does not result in emission changes.
(D) Ovens used exclusively to cure 30 pounds per day or less or 660 pounds per calendar month or less of powder coatings, provided that such equipment is also exempt pursuant to subparagraph (d)(2)(C).	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
(E) Spray coating equipment operated within control enclosures.	Formerly in (m)(14)	No change from SIP-approved Rule 219.

Sections	Changes Since 1981 SIP- Approval	Analysis
 (F) Coating or adhesive application or laminating equipment such as air, airless, air-assisted airless, high volume low pressure (HVLP), air brushes, electrostatic spray equipment, roller coaters, dip coaters, vacuum coaters, flow coaters and spray machines provided that: (i) The VOC emissions from such equipment (including clean-up) are three pounds per day or less or 66 pounds per calendar month or less; 	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
(ii) The total quantity of UV/EB/LED (non-solvent based and non-waterborne) coatings, adhesives and associated VOC containing solvents (including clean-up) used in such operations is six gallons per day or less or 132 gallons per calendar month or less;		
 (iii) The total quantity of organic solvent based coatings and adhesives and associated VOC containing solvents (including clean-up) used in such equipment is one gallon per day or less or 22 gallons per calendar month or less; (iv) The total quantity of water reducible or waterborne coatings and adhesives and associated VOC containing solvents. 		
 (including clean-up) used in such equipment is three gallons per day or less or 66 gallons per calendar month or less; (v) The total quantity of polyester resin and gel coat type materials and associated VOC containing solvents (including clean-up) used in such equipment is one gallon per day or less or 22 gallons per calendar month or less; or 		
(vi) All coatings, adhesives, polyester resin and gel coat type materials and associated VOC containing solvents (excluding		

Sections	Changes Since 1981 SIP- Approval	Analysis
cleanup solvents) contain 50 Grams of VOC Per Liter of Material or less and all cleanup solvents contain 25 Grams of VOC Per Liter of Material or less, and the total quantity of VOC emissions do not exceed one ton per calendar year. Rule 222 may be applicable.		
If combination of the coatings, adhesives and polyester resin and gel coat type materials identified in clauses $(d)(12)(F)(ii)$, $(d)(12)(F)(ii)$, $(d)(12)(F)(iv)$, and/or $(d)(12)(F)(v)$ are used in any equipment, this exemption is only applicable if the operations meet the criteria specified in clauses $(d)(12)(F)(i)$ or $(d)(12)(F)(v)$, or the total usage of coatings, adhesives, polyester resin and gel coat type materials and associated VOC containing solvents (including cleanup) meets the most stringent applicable limit in clauses $(d)(12)(F)(i)$, $(d)(12)(F)(ii)$, $(d)(12)(F)(iv)$, or $(d)(12)(F)(v)$. For exemptions based on usage, solvent-based UV and waterborne UV materials are subject to the usage limits in clauses $(d)(12)(F)(ii)$ and $(d)(12)(F)(iv)$, respectively.		
(G) Spray coating and associated drying equipment and control enclosures, used exclusively for educational purposes in educational institutions.	Formerly in (m)(17), which exempted equipment used exclusively in primary and secondary schools.	Change of provision to include equipment used for educational purposes in educational institutions removes the exemption for equipment that may be used for non-educational purposes at schools, such as for facility maintenance. See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.

Sections	Changes Since 1981 SIP- Approval	Analysis
(H) Control enclosures with an internal volume of 27 cubic feet or less, provided that aerosol cans, air brushes, or hand applications are used exclusively.	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
(I) Portable coating equipment and pavement stripers used exclusively for the application of architectural coatings, and associated internal combustion engines provided such equipment is also exempt pursuant to paragraph $(d)(1)$ or subparagraph $(d)(2)(A)$, and provided no supplemental heat is added during pavement striping operations.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(J) Hand application of resins, adhesives, dyes, and coatings using devices such as brushes, daubers, rollers, and trowels.	New	See 110(1) analysis for subdivision (d), Category C. Area-wide sources regulated under State or federal law.

Sections	Changes Since 1981 SIP- Approval	Analysis
(K) Drying equipment such as flash-off ovens, drying ovens, or	New	See 110(1) analysis for subdivision (d),
curing ovens associated with coating or adhesive application, or		Category E. Equipment or operations
laminating equipment provided the drying equipment is also		with limited emissions because of
exempt pursuant to subparagraph (d)(2)(C), and provided that:		limitations based on the size of the
(i) The total quantity of VOC emissions from all coating and/or		equipment, the type of material used or
adhesive application, and laminating equipment that the drying		the amount of material used.
equipment serves is three pounds per day or less or 66 pounds		
per calendar month or less;		
(ii) The total quantity of UV/EB/LED (non-solvent based and		
non-waterborne) coatings and adhesives, and associated VOC		
containing solvents (including clean-up) used in all coating		
and/or adhesive application, and laminating equipment that the		
drying equipment serves is six gallons per day or less or 132		
gallons per calendar month or less;		
(iii) The total quantity of solvent based coatings and adhesives		
and associated VOC containing solvents (including clean-up)		
used in all coating and/or adhesive application, and laminating		
equipment that the drying equipment serves is one gallon per day		
or less or 22 gallons per calendar month or less;		
(iv) The total quantity of water reducible or waterborne coating		
and adhesives and associated VOC containing solvents		
(including clean-up) used in all coating and/or adhesive		
application, and laminating equipment that the drying equipment		
serves is three gallons per day or less or 66 gallons per calendar		
month or less;		
(v) The total quantity of polyester resin and gel coat type		
materials and associated VOC containing solvents (including		
clean-up) used in all coating, adhesive application, and		
laminating equipment that the drying equipment serves is one		

Sections	Changes Since 1981 SIP- Approval	Analysis
gallon per day or less or 22 gallons per calendar month or less;		
or,		
(vi) All coatings, adhesives, polyester resin and gel coat type		
materials and associated VOC containing solvents (excluding		
cleanup solvents) contain 50 Grams of VOC Per Liter of		
Material or less and all cleanup solvents contain 25 Grams of		
VOC Per Liter of Material or less, and the total quantity of VOC		
emissions do not exceed one ton per calendar year. Rule 222 may		
be applicable.		
If a combination of the coatings, adhesives and polyester resin		
and gel coat type materials identified in clauses (d)(12)(K)(ii),		
(d)(12)(K)(iii), (d)(12)(K)(iv), and/or (d)(12)(K)(v) are used in		
any equipment, this exemption is only applicable if the		
operations meet the criteria specified in clauses $(d)(12)(K)(i)$ or		
(d)(12)(K)(vi), or the total usage of coatings, adhesives,		
polyester resin and gel coat type materials and associated VOC		
containing solvents (including cleanup) meets the most stringent		
applicable limit in clauses $(d)(12)(K)(11)$, $(d)(12)(K)(11)$,		
(d)(12)(K)(v), or $(d)(12)(K)(v)$. For exemptions based on		
usage, solvent-based UV and waterborne UV materials are		
subject to the usage limits in clauses $(d)(12)(K)(11)$ and $(d)(12)(K)(12)(K)(11)$		
(d)(12)(K)(1V)(C), respectively.		

Sections	Changes Since 1981 SIP- Approval	Analysis
(L) The addition of UV/EB/LED curing technology, or other curing or drying technology, to an existing permitted coating equipment or operation if:	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of
(i) The equipment remains consistent with the description in the existing Permit to Operate, excluding the addition of curing or drying equipment operated exclusively using electrical power;		limitations based on the size of the equipment, the type of material used or the amount of material used.
(ii) The equipment complies with the conditions specified in the existing Permit to Operate;		
(iii) There is no physical change to the configuration of the existing air pollution control equipment associated with the equipment or operation;		
(iv) There is no physical change to the configuration of an existing permanent total enclosure associated with the equipment or operation;		
(v) All coatings, solvents, or other materials associated with the technology do not contain any toxic air contaminants pursuant to Rule 1401, as listed on the Safety Data Sheet, except as allowed under the existing Permit to Operate; and		
(vi) All coatings, solvents, or other materials associated with the technology (excluding cleanup solvents) contain 50 Grams of VOC Per Liter of Material or less and all cleanup solvents associated with the technology contain 25 Grams of VOC Per Liter of Material or less.		
(13) Storage and Transfer Equipment	Subdivision (n) now listed in paragraph (d)(13)	

Sections	Changes Since 1981 SIP- Approval	Analysis
(A) Equipment used exclusively for the storage and transfer of fresh, commercial or purer grades of:	Formerly in (n)(1). Added exemption in clause (iii): water	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or
(i) Sulfuric acid or phosphoric acid with an acid strength of 99 percent or less, by weight;	based solutions of salts or sodium hydroxide.	processes with trivial emissions.
(ii) Nitric acid with an acid strength of 70 percent or less, by weight; or		
(iii) Water based solutions of salts or sodium hydroxide.		
(B) Equipment used exclusively for the storage and/or transfer of liquefied gases, not including:	Formerly in $(n)(2)$. Added exceptions to the exemptions in	Addition of the exceptions tightens the exemption.
 (i) LPG with a capacity of greater than 10,000 pounds; (ii) Hydrogen fluoride with a capacity of greater than 100 pounds. (iii) Anhydrous ammonia with a capacity of greater than 500 pounds. 	clauses (i) through (iii).	
(C) Equipment used exclusively for the transfer of less than 75,700 liters (20,000 gallons) per day of unheated VOC containing materials, with an initial boiling point of 150 °C (302 °F) or greater, or with an organic vapor pressure of five (5) mm Hg (0.1 psi) absolute or less at 21.1 °C (70 °F).	Formerly in (n)(3). Removed exemptions for equipment handling fuel oils. Other provisions contain exemptions for equipment handling fuel oils.	No change in remaining provisions.
(D) Equipment used exclusively for the storage and/or dispensing of unheated VOC containing materials with an initial boiling point of 150 °C (302 °F) or greater, or with an organic vapor pressure of five mm Hg (0.1 psi) absolute or less at 21.1 °C (70 °F). This exemption does not include liquid fuel storage greater than 160,400 liters (40,000 gallons).	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.

Sections	Changes Since 1981 SIP- Approval	Analysis
(E) Equipment used exclusively for transferring VOC containing liquids, materials containing VOCs, or compressed gases into containers with a capacity of less than 225 liters (60 gallons). This exemption does not include equipment used for transferring more than 4,000 liters (1,057 gallons) of materials per day with a vapor pressure greater than 25.8 mm Hg (0.5 psia) at operating conditions	Formerly in (n)(4). Maximum vapor pressure limit was reduced from 77.5 Hg.	Reducing maximum vapor pressure limit tightens the exemption.
(F) Equipment used exclusively for the storage and transfer of liquid soaps, liquid detergents, vegetable oils, fatty acids, fatty esters, fatty alcohols, waxes and wax emulsions.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(G) Equipment used exclusively for the storage and transfer of refined lubricating or hydraulic oils and the control equipment used exclusively to vent such equipment.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(H) Equipment used exclusively for the storage and transfer of crankcase drainage oil and the control equipment used exclusively to vent such equipment.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(I) Equipment used exclusively for VOC containing liquid storage or transfer to and from such storage, with a holding capacity of less than 950 liters (251 gallons); or equipment used exclusively for the storage of odorants for natural gas, propane, or oil with a holding capacity of less than 950 liters (251 gallons) and associated transfer and control equipment used exclusively for such equipment. This exemption does not include asphalt. In addition, this exemption does not apply to a group of more than one VOC-containing liquid or odorant tank where a single product is stored, where the combined storage capacity of all	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.

Sections	Changes Since 1981 SIP- Approval	Analysis
tanks exceeds 950 liters (251 gallons), and where the tanks are mounted on a shared mobile platform and stored at a facility.		
(J) A retail mobile fueler with a cumulative storage capacity less than or equal to 10 gallons of gasoline, excluding one individual portable fuel container with a capacity up to 6.6 gallons of gasoline.	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
(K) A non-retail mobile fueler with a cumulative storage capacity less than or equal to 120 gallons of gasoline, excluding one individual portable fuel container with a capacity up to 6.6 gallons of gasoline.	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
(L) Equipment used exclusively for the storage and transfer of "top white" (i.e., Fancy) or cosmetic grade tallow or edible animal fats intended for human consumption and of sufficient quality to be certifiable for United States markets.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(M) Equipment, including tar pots (or tar kettles), used exclusively for the storage, holding, melting and transfer of asphalt or coal tar pitch with a maximum holding capacity of less than 600 liters (159 gallons); or equipment, including tar pots (or tar kettles), used exclusively for the storage, holding, melting	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the

Sections	Changes Since 1981 SIP- Approval	Analysis
and transfer of asphalt or coal tar pitch with a maximum holding capacity of no more than 3,785 liters (1,000 gallons), if such equipment is equipped with burner(s) designed to fire exclusively on liquefied petroleum gases.		equipment, the type of material used or the amount of material used.
(N) Pumps used exclusively for pipeline transfer of liquids.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(O) Equipment used exclusively for the unheated underground storage of organic liquids with a vapor pressure of 77.5 mm Hg (1.5 psi) absolute or less at actual storage conditions with a capacity of 23,000 liters (6,077 gallons) or less, and equipment used exclusively for the transfer to or from such storage of organic liquids.	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
(P) Equipment used exclusively for the storage and/or transfer of an asphalt-water emulsion heated to 150 °F or less.	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
(Q) Liquid fuel storage tanks piped exclusively to emergency internal combustion engine-generators, turbines or pump drivers.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(R) Bins used for temporary storage and transport of material with a capacity of 2,080 liters (550 gallons) or less.	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the

Sections	Changes Since 1981 SIP- Approval	Analysis
		equipment, the type of material used or the amount of material used.
(S) Equipment used for material storage where no venting occurs during filling or normal use.	New	See 110(l) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(T) Equipment used exclusively for storage, blending, and/or transfer of water emulsion intermediates and products, including latex, with a VOC content of five percent by volume or less, or a VOC composite partial pressure of five mm Hg (0.1 psi) or less at 20 °C (68 °F).	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
(U) Equipment used exclusively for storage and/or transfer of sodium hypochlorite solution.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(V) Equipment used exclusively for the storage of VOC containing materials which are stored at a temperature at least $130 ^{\circ}\text{C} (234 ^{\circ}\text{F})$ below its initial boiling point, or have an organic vapor pressure of five mm Hg (0.1 psia) absolute or less at the actual storage temperature. If the stored material is heated, the owner or operator shall install and maintain a device to measure the temperature of the stored VOC containing material to qualify for this exemption. This exemption does not include liquid fuel storage greater than 160,400 liters (40,000 gallons), asphalt storage, or coal tar pitch storage.	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.

Sections	Changes Since 1981 SIP- Approval	Analysis
(W) Stationary equipment used exclusively to store and/or transfer organic compounds that do not contain VOCs.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(X) Unheated equipment including the associated control equipment used exclusively for the storage and transfer of fluorosilicic acid at a concentration of 30 percent or less by weight and a vapor pressure of 24 mm Hg or less at 77 °F (25 °C). The hydrofluoric acid concentration within the fluorosilicic acid solution shall not exceed one percent by weight.	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
 (Y) Equipment, including asphalt day tankers, used exclusively for storing, holding, melting, and transferring asphalt or coal tar pitch, that is mounted on a motor vehicle with a maximum holding capacity: (i) Less than 600 liters (159 gallons); or (ii) Less than or equal to 18,925 liters (5,000 gallons), provided the equipment in subparagraph (d)(13)(Y) is equipped with burner(s) designed to fire exclusively on liquefied petroleum gases only. 	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
(Z) Tanks for aqueous urea solutions with a capacity of 6,500 gallons or less. This exemption does not include tanks used for blending powdered urea and water.	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.

Sections	Changes Since 1981 SIP- Approval	Analysis
(AA) Replacement of a pole float used to control emissions from slotted guidepoles in floating roof storage tanks with a pole sleeve or a pole sleeve in combination with a flexible enclosure system. The exceptions provided in paragraph (e)(1) do not apply to equipment utilizing this provision for replacing equipment. In addition, this provision does not exempt such equipment from complying with any requirements or regulations listed in paragraph (e)(1), as those requirements may separately apply to the equipment.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(14) Natural Gas and Crude Oil Production Equipment	Subdivision (o) now listed in paragraph (d)(14)	
(A) Well heads and well pumps.	Formerly in (o)(1)	No change from SIP-approved Rule 219.
(B) Crude oil and natural gas pipeline transfer pumps.	Formerly in (o)(2)	No change from SIP-approved Rule 219.
(C) Gas, hydraulic, or pneumatic repressurizing equipment.	Formerly in (o)(3). Removed language stating that exemption does not apply to ICEs not exempt pursuant to this rule.	Removed ICE language, which is redundant with (d)(2)(A)(i).
 (D) Equipment used exclusively as water boilers, water or hydrocarbon heaters, and/or closed heat transfer systems excluding steam generators used for oilfield steam injection, that: (i) Have a maximum heat input rate of 2,000,000 Btu per hour or less; and 	Formerly in (0)(4). Removed exemption for steam generators used for oilfield steam injection. Reduced maximum heat input rating from 20 million Btu/hr	Tightened exemption by removing exemption for the steam generators, and by reducing the maximum heat input rating, which harmonizes with (d)(2)(C).

Sections	Changes Since 1981 SIP- Approval	Analysis
(ii) Are fired exclusively with Purchased Quality Natural Gas, liquefied petroleum gas, Produced Gas which contains less than 10 ppm hydrogen sulfide, or any combination thereof.		
(E) The following equipment used exclusively for Primary Recovery, and not associated with Community Lease Units:(i) Gas separators and boots;	New	See 110(l) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(ii) Initial receiving, gas dehydrating, storage, washing and Shipping Tanks with an individual capacity of 34,069 liters (9,000 gallons) or less;	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
(iii) Crude oil tank truck loading facilities (does not include a loading rack), and gas recovery systems exclusively serving tanks exempted under clause (d)(14)(E)(ii); or	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(iv) Produced Gas dehydrating equipment.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(F) Gravity-type oil/water separators with a total air/liquid interfacial area of less than 45 square feet, separating oil with a specific gravity of 0.8251 or higher (40.0 API or lower).	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.

Sections	Changes Since 1981 SIP- Approval	Analysis
(15) Cleaning	New paragraph	
The exemptions in paragraph (d)(15) do not include any equipment or operations regulated under Rule 1122 – Solvent Degreasers using solvents that are greater than five percent by weight, or 0.01 percent by weight for non-Rule 1122 equipment or operations, of perchloroethylene, methylene chloride, carbon tetrachloride, chloroform, 1,1,1-trichloroethane, trichloroethylene, or any combination thereof, with either a capacity of more than 7.6 liters (2 gallons) or designed as a solvent cleaning and drying machine regardless of size. In addition, the exemptions specified in this subdivision apply only if the equipment is also exempt pursuant to subparagraph (d)(2)(C) or (d)(2)(D) of this rule.	Paragraph clarifies the cleaning equipment that are exempt pursuant to this subdivision. Specifically excludes equipment using solvents that contain greater than the specified percentage of listed TACs, that either exceed the size limit or designed as a cleaning and drying machine.	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
 (A) The following solvent cleaning equipment and associated waste storage tanks, used exclusively to store the solutions drained from this equipment: (i) Unheated batch, provided: (A) The volume of the solvent reservoir is one gallon or less; or (B) The VOC emissions from the equipment are not more than three pounds per day or 66 pounds per calendar month. (ii) Devices used for cleaning of equipment used for the application of inks, adhesives, and coatings provided: (A) The volume of the device's solvent reservoir is five gallons or less; or (B) The VOC emissions from the equipment are not more than three pounds per day or 66 pounds per calendar month. (iii) Remote reservoir cleaners with a maximum sink opening area of seven square feet or less, provided the solvent from the 	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.

Sections	Changes Since 1981 SIP- Approval	Analysis
sink-like area immediately drains into an enclosed solvent container while the parts are being cleaned.		
(B) Vapor degreasers with an air/vapor interface surface area of one square foot or less, provided such degreasers have an organic solvent loss of three gallons per day or less excluding water or 66 gallons per calendar month or less excluding water.	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
(C) Cleaning equipment using materials with a VOC content of 25 Grams of VOC Per Liter of Material or less, and associated dryers exclusively serving these cleaners, provided such equipment is also exempt pursuant to subparagraphs (d)(2)(C) or (d)(2)(D). This exemption does not include equipment used for cleaning diesel particulate filters (DPFs) or associated control equipment used exclusively to vent equipment used for cleaning DPFs.	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
(D) Hand application of solvents for cleaning purposes including but not limited to the use of rags, daubers, swabs, and squeeze bottles, and the associated air pollution control equipment used to exclusively vent such operations, unless the air pollution control equipment is required for source specific rule compliance.	New	See 110(l) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(16) Miscellaneous Process Equipment	Subdivision (m) now listed in paragraph (d)(16)	

Sections	Changes Since 1981 SIP- Approval	Analysis
 (A) Equipment, including dryers used exclusively for dyeing, stripping, or bleaching of textiles and the control equipment used exclusively to vent the equipment, provided: (i) No VOC containing materials, including diluents or thinners, are used, and (ii) The equipment is also exempt pursuant to subparagraphs (d)(2)(C) or (d)(2)(D). 	Formerly in (l)(1). Added limitation that equipment is required to be exempt pursuant to the parameters of $(d)(2)(C)$ or (d)(2)(D). Added control equipment to the exemption.	Tightens exemption by limiting equipment to the parameters of $(d)(2)(C)$ or $(d)(2)(D)$. Addition of control equipment does not increase emissions.
(B) Equipment used exclusively for bonding lining to brake shoes and the control equipment used exclusively to vent such equipment, provided no VOC containing materials are used.	Formerly in (m)(1). Added requirement that no VOC containing materials are used. Added control equipment to the exemption.	Tightens exemption by not allowing VOC containing materials. Addition of control equipment does not increase emissions.
(C) Equipment used exclusively to liquefy or separate oxygen, nitrogen, or the rare gases from air, provided such equipment is also exempt pursuant to subparagraphs $(d)(2)(A)$, $(d)(2)(B)$, $(d)(2)(C)$, or $(d)(2)(D)$.	Formerly in $(m)(2)$. Added limitation that combustion equipment is required to be exempt pursuant to $(d)(2)(A)$ through (d)(2)(D).	Tightens exemption by limiting equipment to the parameters of $(d)(2)(A)$ through $(d)(2)(D)$.

Sections	Changes Since 1981 SIP-	Analysis
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(D) Equipment used exclusively for surface preparation,	New	For clauses (i), (iii), and viii), see 110(1)
including but not limited to paint stripping, pickling, desmutting,		analysis for subdivision (d), Category E.
de-scaling, passivation, and/or deoxidation, and any water and		Equipment or operations with limited
associated rinse tanks and waste storage tanks used exclusively		emissions because of limitations based
to store the solutions drained from the equipment, that		on the size of the equipment, the type of
exclusively uses any one or combination of the materials in		material used or the amount of material
clauses (d)(16)(D)(i) through (d)(16)(D)(viii). This exemption		used. For other provisions, see 110(1)
does not include any rectified, air sparged or heated tank that		analysis for subdivision (d), Category D.
contains chromium, nickel, lead or cadmium. This exemption		Equipment, operations, or processes with
also does not include chemical milling or circuit board etching		trivial emissions.
using ammonia-based etchants.		
(i) Organic materials containing 50 grams or less of VOC per		
liter of material;		
(ii) Formic acid, acetic acid, boric acid, citric acid, phosphoric		
acid, and sulfuric acids;		
(iii) Hydrochloric acid in concentrations of 12 percent by weight		
or less;		
(iv) Alkaline oxidizing agents;		
(v) Hydrogen peroxide;		
(vi) Salt solutions, except for air sparged, heated or rectified		
processes with salt solutions containing hexavalent chromium,		
chromates, dichromates, nickel, cadmium, or lead;		
(vii) Sodium hydroxide, provided the process is not sparged or		
rectified; or		
(viii) Nitric acid, hydrochloric acid, or hydrofluoric acid,		
provided that the equipment in which it is used has an open		
surface area of one (1) square foot or less, is unheated, and		
produces no visible emissions.		

Sections	Changes Since 1981 SIP- Approval	Analysis
 (E) Equipment used exclusively for the plating, stripping, or anodizing of metals as described in clauses (d)(16)(E)(i) through (d)(16)(E)(vii). This exemption does not include any rectified, air sparged or heated tank that contains chromium, nickel, lead or cadmium. (i) Electrolytic plating of exclusively brass, bronze, copper, iron, tin, zinc, and precious metals; (ii) Electroless nickel plating, provided that the process is not air sparged or heated, and no electrolytic reverse plating occurs; (iii) The electrolytic stripping of brass, bronze, copper, iron, tin, zinc, and precious metals, provided no chromic, hydrochloric, nitric or sulfuric acid is used; (iv) The non-electrolytic stripping of metals, provided the stripping solution is not sparged and does not contain nitric acid. (v) Anodizing exclusively using sulfuric acid and/or boric acid with a total bath concentration of 20 percent acids or less by weight and using 10,000 amp-hours per day or less of electricity; (vi) Anodizing using exclusively phosphoric acid with a bath concentration of 15 percent or less phosphoric acid by weight and using 20,000 amp-hours per day or less of electricity; or (vii) Water and associated rinse tanks, and waste storage tanks used exclusively to store the solutions drained from equipment used for the plating, stripping, or anodizing of metals. 	Formerly in (m)(4). Original exemption was a general exemption for electrolytic plating, electrolytic polishing or electrolytic stripping of brass, bronze, cadmium, copper, iron, lead, nickel, tin, zinc, and precious metals.	Current exemption is tightened considerably. General equipment category exemption is removed. Metal finishing of cadmium, lead, and nickel (metals that are TACs) are no longer exempt. Current exemptions are for equipment that have small amount of emissions. See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions. For clause (v), see 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
(F) Closed loop solvent recovery systems used for recovery of waste solvent generated on-site using a refrigerated or liquid-cooled condenser, or an air-cooled condenser with a solvent reservoir capacity of less than 10 gallons.	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.

Sections	Changes Since 1981 SIP- Approval	Analysis
(G) Equipment used exclusively for manufacturing soap or detergent bars, including mixing tanks, roll mills, plodders, cutters, wrappers, where no heating, drying or chemical reactions occur.	Formerly in (m)(13)	No change from SIP-approved Rule 219.
(H) Inert gas generators, provided such equipment is also exempt pursuant to subparagraphs (d)(2)(C) and (d)(2)(D).	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(I) Hammermills used exclusively to process aluminum and/or tin cans, and the control equipment used exclusively to vent such equipment.	New	See 110(l) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(J) Paper shredding, and carpet and paper shearing, fabric brushing and sueding as well as associated conveying systems, baling equipment, and the control equipment used exclusively to vent such equipment. This exemption does not include carpet and fabric recycling operations.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(K) Chemical vapor type sterilization equipment where no ethylene oxide is used, and with a chamber volume of two cubic feet or less, used by healthcare facilities and the control equipment used exclusively to vent the equipment. This exemption does not include equipment used for incineration.	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
(L) Hot melt adhesive equipment.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.

Sections	Changes Since 1981 SIP- Approval	Analysis
(M) Pyrotechnic equipment, special effects or fireworks paraphernalia equipment used for entertainment purposes, provided such equipment is also exempt pursuant to paragraph (d)(2).	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(N) Ammunition or explosive testing equipment.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(O) Fire extinguishing equipment using halons.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(P) Industrial wastewater treatment equipment which only performs pH adjustment, precipitation, gravity separation and/or filtration of the wastewater, including equipment used for reducing hexavalent chromium and/or destroying cyanide compounds. This exemption does not include treatment processes where VOCs and/or toxic materials are emitted, or where the inlet concentration of cyanide salts through the wastewater treatment process prior to pH adjustment exceeds 200 mg/liter.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(Q) Rental equipment operated by a lessee and which is not located more than 12 consecutive months at any one facility in the South Coast AQMD provided the owner of the equipment has a permit to operate issued by the South Coast AQMD and that the lessee complies with the terms and conditions of the permit to operate.	New	Addresses an administrative matter. Clarifies that lessees of permitted rental equipment are not required to obtain their own permits if the requirements in this provision are met.

Sections	Changes Since 1981 SIP- Approval	Analysis
(R) Industrial wastewater evaporators treating water generated from on-site processes only, where no VOCs and/or toxic materials are emitted, provided the equipment is also exempt pursuant to subparagraphs (d)(2)(C) and (d)(2)(D).	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(S) Foam application equipment using two-component polyurethane foam and the control equipment used exclusively to vent this equipment provided the blowing agent does not contain VOCs, chlorofluorocarbons, or methylene chloride.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(T) Toner refilling and the associated control equipment.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(U) Evaporators used at dry cleaning facilities to dispose of separator wastewater and the control equipment used exclusively to vent the equipment.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(V) Equipment used to recycle aerosol cans by puncturing the can in an enclosed system which is vented through an activated carbon filter. This exemption shall only apply to aerosol recycling systems where the aerosol can to be recycled was used as part of their operation at the facility or a facility under common ownership.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(W) Notwithstanding the exemptions in paragraph (d)(16), equipment existing as of May 5, 2017 that is subject to the aforementioned exemptions and that is an integral part of an operation requiring a written permit shall continue to be exempt, provided the equipment is identified, described in detail and submitted for inclusion into the permit equipment description with any associated application for Permit to Construct or Permit	New	This is an administrative provision that requires exempt miscellaneous process equipment that is integral to permitted equipment or processes be added to an existing permit, when the permit is required to be amended (e.g., a change in operating conditions). Intent of this

Sections	Changes Since 1981 SIP- Approval	Analysis
to Operate. Equipment described in this paragraph includes, but is not limited to rinse tanks, dye tanks and seal tanks that are part of a metal finishing operation, including but not limited to plating, anodizing and surface preparation.		provision is to clearly identify exempt equipment in permitted operations in order to avoid confusion.
(X) Negative air machines and associated HEPA filtration systems that are primarily used to remove asbestos-laden air from isolated work areas at residential or commercial abatement projects, where the air is passed to the HEPA filtration system.	New	See 110(1) analysis for subdivision (d), Category D. Equipment, operations, or processes with trivial emissions.
(17) Agricultural Sources	New subdivision	Beginning January 1, 2004, SB 700 was enacted, removing the state-wide permitting exemption for agricultural sources from state law, and authorizing the air pollution control districts to issue permits for agricultural sources and equipment as required. Subsequent amendments to Rule 219 included exemptions for specified agricultural sources and equipment that were deemed to have relatively lower emissions. Any potential additional emissions from these exemptions would be offset by the removal of the general exemption for agricultural sources and equipment.
(A) Notwithstanding the exemption under this subdivision, any internal combustion engines, or gasoline transfer and dispensing equipment purchased or modified after July 7, 2006 that are not	New	ICEs and gasoline transfer and dispensing equipment are subject to the requirements of Rule 1110.2 and Rule

Sections	Changes Since 1981 SIP- Approval	Analysis
exempt pursuant to subparagraphs (d)(2)(A), (d)(2)(H), and (d)(13)(I) of this rule shall be subject to permit requirements.		461, which establishes BARCT requirements for this equipment, and have provisions to minimize emissions from gaseous- and liquid-fueled ICEs and gasoline transfer and dispensing equipment, respectively. Additionally, previous rulemaking activities estimated that a very small number of gasoline transfer and dispensing equipment would be subject to this exemption. Any potential additional emissions from this exemption would be offset by the removal of exemptions for equipment purchased or modified after July 7, 2006.
(B) Emergency internal combustion engines at agricultural sources.	New	The operations of emergency ICEs are limited to the operations defined by Rule 1470. Agricultural emergency ICEs are also subject to the provisions Rule 1110.2. Any potential emissions from this exemption are offset by the emissions reductions from equipment that are now subject to permits.
(C) Agricultural permit units at agricultural sources not subject to Title V with actual emissions less than the amounts listed in Table 1 below or based on the amounts representing one-half of any applicable emissions threshold for a major source in the applicable planning area in South Coast AQMD, whichever is lower.	New	Exemptions for agricultural sources are not applicable to Title V facilities. Pursuant to SB 700, agricultural operations above the identified thresholds are subject to permits. Any potential emissions from this exemption

Sections	Changes Since 1981 SIP- Approval	Analysis
		are offset by the emissions reductions from facilities that are now subject to permits.
(D) Orchard wind machines powered by an internal combustion engine with a manufacturer's rating greater than 50 brake horsepower provided the engine is operated no more than 30 hours per calendar year.	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
(E) Orchard heaters approved by CARB to produce no more than one gram per minute of unconsumed solid carbonaceous material.	New	See 110(1) analysis for subdivision (d), Category E. Equipment or operations with limited emissions because of limitations based on the size of the equipment, the type of material used or the amount of material used.
(18) Registered Equipment	New paragraph	
(A) Any portable equipment, including any turbines qualified as military tactical support equipment under Health and Safety Code Section 41754 registered in accordance with the Statewide Portable Equipment Registration Program (PERP) adopted pursuant to California Health and Safety Code Sections 41750 et seq.	New	See 110(1) analysis for subdivision (d), Category C. Area-wide sources regulated under State or federal law.

Sections	Changes Since 1981 SIP- Approval	Analysis
(B) PERP registered engines used in the Outer Continental Shelf	New	See 110(1) analysis for subdivision (d),
(OCS) as defined in 40 CFR, Part 55, provided that:		Category C. Area-wide sources
(i) The owner or operator notifies the Executive Officer;		regulated under State or federal law.
(ii) The equipment shall not reside at one location for more than		
12 consecutive months; and		
(iii) Notwithstanding the exemption applicability under Health		
and Safety Code Section 2451, of the Statewide Portable		
Equipment Registration Program (PERP) for engines operating		
in the OCS, any owner or operator using this permit exemption		
shall comply with PERP and with California Air Resources		
Board -issued registration requirements.	N	
(C) PERP registered equipment operated at a RECLAIM Facility	New	See 110(1) analysis for subdivision (d),
Shall be classified as a Major Source, Large Source of Process		Category C. Area-wide sources
Monitoring Deporting and Record/scening for Oxides of Sulfur		regulated under State of Tederal Taw.
(Sox) Emissions subdivisions (c) and (d) for SOx emissions and		
Rule 2012 Requirements for Monitoring Reporting and		
Record keeping for Oxides of Nitrogen (NOx) Emissions		
subdivisions (c) (d) and (e) for NOx emissions for purposes of		
determining the applicable requirements for Monitoring		
Reporting and Record keeping (MRR) Use of RECLAIM MRR		
Protocols for Rule 219 equipment as specified in Rule 2011		
(Rule 2011 Protocol, Appendix A, Chapter 3, Subsection F) and		
Rule 2012 (Rule 2012 Protocol, Appendix A, Chapter 4,		
Subsection F) is only allowed if the registered PERP equipment		
also qualifies for an exemption from permit requirements under		
a separate provision of this rule.		
Sections	Changes Since 1981 SIP- Approval	Analysis
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(e) Exceptions	New subdivision that specifies instances where equipment that are listed in (d) are not exempt. Language from beginning of the SIP-approved version moved to this subdivision.	
Notwithstanding equipment identified in subdivision (d) of this rule, written permits are required pursuant to the provisions of paragraphs (e)(1), (e)(2), and (e)(4):	New	Clarification statement, no requirements.
 (1) Equipment, process materials or air contaminants subject to: (A) Regulation IX – Standards of Performance for New Stationary Sources (NSPS), except for internal combustion engines with a manufacturer's rating of 50 brake horsepower or less; or (B) Regulation X – National Emission Standards for Hazardous Air Pollutants (NESHAP - 40 CFR 61), except for internal combustion engines with a manufacturer's rating of 50 brake horsepower or less; or (C) Emission limitation requirements of either the state Air Toxic Control Measure (ATCM) or NESHAP - 40 CFR 63. 	(e)(1)(A) and (B) formerly stated in the beginning of the rule. Clarified that they do not apply to ICEs rated below 50 bhp, which are exempt from permitting pursuant to (d)(2)(A)(i). Added provision in (e)(1)(C).	Provision excludes equipment that are subject to NSPS, NESHAP, or an ATCM from permit exemptions.

Sections	Changes Since 1981 SIP- Approval	Analysis
 (2) When the Executive Officer has determined that the provisions in subparagraphs (e)(2)(A) through (e)(2)(C) apply and written notification has been given to the owner or operator of the equipment, the equipment shall thereafter be subject to Rules 201 and 203 for non-RECLAIM sources, Rule 2006 for RECLAIM sources, and/or Regulation XXX – Title V Permits for facilities subject to Title V permitting requirements: (A) The risk from uncontrolled emissions will be greater than identified in subparagraph (d)(1)(A), or paragraphs (d)(2) or (d)(3) in Rule 1401; 	New	Provisions exclude from permit exemptions, equipment that exceed health risks limits, are not in compliance with South Coast AQMD rules, or is not maintained or operated appropriately and causes excess emissions.
(B) The equipment may not operate in compliance with all applicable South Coast AQMD rules and regulations, including but not limited to Rule 402 – Nuisance; or		
(C) The equipment or the air pollution control system venting the equipment has been modified, operated, or maintained in a manner that:		
(i) Is inconsistent with the applicable exemption under any provisions of this rule; or		
(ii) Results in otherwise preventable excess emissions that have been detected or observed by the Executive Officer.		
(3) If the Executive Officer determines the information to evaluate health risk is inadequate, or if additional information or review is required, upon written notification from the Executive Officer, the owner or operator shall, within 60 days of the written notification, submit (a) complete permit application(s) to demonstrate the equipment operates below the risk thresholds in subparagraph (e)(2)(A).	New	Provision clarifies that South Coast AQMD may request information as needed to determine health risk.

Sections	Changes Since 1981 SIP- Approval	Analysis
(4) Equipment or control equipment subject to permitting requirements pursuant to Regulation XIV - Toxics and Other Non-criteria Pollutants.	New	Equipment subject to permitting requirements in South Coast AQMD's Regulation XIV are not exempt pursuant to Rule 219.
(f) Recordkeeping	New subdivision	
(1) Any owner or operator claiming an exemption under any provision of this rule shall maintain documentation and/or calculations sufficient to demonstrate that the stated exemption provision, parameter, requirement or limitation applies. Documentation may include, as applicable, but not be limited to:	New. SIP-approved version of Rule 219 did not list any recordkeeping requirements.	Recordkeeping requirements are inclusive of all applicable emission sources and enhances enforceability of Rule 219. This section does not include a relaxation of requirements.
(2) All documentations and/or records pursuant to paragraph (f)(1) shall be maintained onsite for three years and made available to the Executive Officer upon request.		
(g) Test Methods	New subdivision	
(1) All test methods used to verify the percentages, concentrations, vapor pressures, etc., shall be approved test methods as contained in South Coast AQMD's Test Method Manual or any methods approved by the Executive Officer, the California Air Resources Board, and the United States Environmental Protection Agency (U.S. EPA).	New	Ensures that the composition and characteristics of materials and equipment used to validate an exemption are verified using approved test methods.
 (2) In the absence of an approved method as identified in paragraph (g)(1), any owner or operator claiming an exemption using the VOC emission limits in subparagraphs (d)(8)(A), (d)(10)(M), (d)(12)(F), or (d)(12)(K) shall use VOC calculation procedures acceptable to the Executive Officer based on U.S. 	New	Provides options for other test methods when none are approved for the specified exemptions.

Sections	Changes Since 1981 SIP- Approval	Analysis
EPA guidance, including, but not limited to, calculation procedures using product formulation data.		
(h) Compliance Dates	New subdivision	Administrative requirements. Sets timetable for specified instances in paragraphs (1) and (2) to apply for a permit when exemptions are no longer applicable. Does not increase emissions.
(1) The owner or operator of equipment previously not requiring a permit pursuant to Rule 219 shall comply with Rule 203 within one year from the date Rule 219 is amended to remove the exemption unless compliance is required before this time by written notification by the Executive Officer. Effective on or after July 11, 2003 for purpose of Rule 301(e), emissions from equipment that has been removed from an exemption shall be considered "permitted" beginning January 1 or July 1, whichever is sooner, after Rule 219 is amended to remove the exemption, even if an application has not been submitted to obtain a permit.	New	Administrative requirement
(2) Notwithstanding paragraph (h)(1), effective July 5, 2017, an owner or operator submitting an application for Permit to Construct or Permit to Operate pursuant to Rules 201 or 203 shall comply with subparagraphs (d)(5)(U) and (d)(16)(W).	New	Administrative requirement

APPENDIX B – RESPONSE TO COMMENTS

PUBLIC COMMENTS AND RESPONSES WRITTEN COMMENTS

PUBLIC COMMENTS AND RESPONSES

A Public Workshop was held for PAR 219 and PAR 222 on January 4, 2023. The following section is a summary of individual verbal comments, followed by South Coast AQMD staff responses. In addition to the public workshop verbal comments, staff received written comment letters specific to PAR 219 and PAR 222 during a public comment period that closed on January 18, 2023. Copies of comment letters received, and South Coast AQMD staff responses are provided following the below responses to individual Public Workshop verbal comments.

Verbal Public Workshop and Public Consultation Meeting Comments

Comment 1: A grocery store client has submitted Rule 222 registrations for food ovens. Worstcase calculations estimate food oven VOC emissions at this grocery store chain are much lower than one pound per day. It is requested that grocery store food ovens be treated the same as food ovens in eating establishments (i.e., exempted under 219 and not subject to Rule 222 registrations).

Response: The 2013 amendments to Rule 219 included a clarification that food ovens were exempted from requirements to obtain permits provided they were rated under 2,000,000 Btu/hr, they were fired on natural gas, and VOC emissions from yeast fermentation are less than one pound per day. A 2017 amendment modified this provision to be more general to include VOC emissions from all sources, including VOC emissions from the baking process in addition to VOC emissions from yeast fermentation. The exemptions provided in Rule 219 for this equipment category is currently contingent upon meeting the filing requirements in Rule 222. PAR 219 removes the references to a Rule 219 exemption conditional upon a Rule 222 filing but PAR 222 does not change the filing requirements for food ovens that meet the thresholds identified in PAR 219 subparagraph (d)(2)(C). In response to stakeholder comments, PAR 222 subparagraph (d)(1)(G) recordkeeping provisions have been updated to indicate compliance with a daily emission limit for process VOC emissions for food ovens may be verified based on the calendar monthly emissions divided by 30.

Comment 2: It appears equipment previously not requiring a permit under Rule 219 must comply with South Coast AQMD regulations within one year from the date the equipment is subject to permits. Is submittal of a permit application sufficient to demonstrate compliance?

Response: As described in the preliminary draft staff report, submittal of a complete permit application within one year of the effective date of PAR 219 would comply with the compliance date established under paragraph (h)(1).

Comment 3: Efforts to establish additional permitting relief for facilities adding UV/EB/LED or other curing or drying technology in PAR 219 subparagraphs (d)(8)(H) and (d)(12)(L) are appreciated but the exemption requirements of clauses (d)(8)(H)(i) through (vi) and (d)(12)(L)(i) through (vi) are too restrictive. For example, changes to air flow should not be considered a permit modification.

Response: The exemption conditions included in clauses (d)(8)(H)(i) through (vi) and (d)(12)(L)(i) through (vi) are necessary to ensure that there is no increase in emissions associated with changes to equipment or processes. Adjustments to the air pollutant control equipment, including modifications to the air flow, need to be evaluated to ensure control devices continue to perform as designed when facilities have high VOC emission sources or when non-compliant coatings are used, and add-on controls are necessary. For example, any proposed changes to air flows such as those resulting to modifications to ducting systems require engineering evaluation to determine if

the control device operation will remain adequate to collect all emissions and if the existing addon controls can accommodate any changes to total air flow rate.

Comment 4: PAR 219 and 222 include revisions that remove the option for a one-time submittal of a low VOC verification form in lieu of a Rule 222 registration. Removal of this streamlined compliance option is another burden for businesses.

Response: As described in the preliminary draft staff report, this one-time submittal to replace ongoing recordkeeping was specifically identified by U.S. EPA as an area that may impact Rule 219 SIP approval. Adequate recordkeeping requirements are essential to ensure Rule 219 could be approved into the SIP. As described in the preliminary draft staff report, one facility has submitted a low-VOC verification form since the provisions were added in 2017.

Comment 5: The current PAR 219 proposal would result in a requirement for a permit for UV/EB/LED operations that are part of operations that also have solvent systems. It is an unreasonable and environmentally adverse approach to attribute the emissions of a solvent system to an UV/EB/LED process with zero or near zero emissions simply because they are in the same facility.

Response: Existing Rule 219 and PAR 219 provisions apply to equipment, processes, or operations, not to a facility. An existing permitted facility that adds a stand-alone UV/EB/LED process with zero emission potential is not subject to additional permitting requirements. Addition of a UV/EB/LED system *into* a high-VOC process that uses add-on controls to comply with South Coast AQMD regulations are exempt from permitting requirements when certain criteria are met. These criteria are listed in PAR 219 to ensure emissions do not increase and add-on controls are meeting their intended efficiencies.

WRITTEN COMMENTS

Letters Received

- 1. Mainspring Energy (12/16/2022)
- 2. T-Mobile (1/4/2023)
- 3. Albertsons Companies, Inc. (1/6/2023)
- 4. Los Angeles Department of Water & Power (1/12/2023)
- 5. Hampford Research Inc (1/13/2023)
- 6. HCS (1/13/2023)
- 7. Saint Clair Systems (1/15/2023)
- 8. Heraeus Noblelight America LLC. (1/16/2023)
- 9. Keyland Polymer (1/16/2023)
- 10. Albertsons Companies, Inc. (1/18/2023)
- 11. Radtech (1/18/2023)
- 12. UV Specialties (1/18/2023)
- 13. Albertsons (1/25/2023)
- 14. Albertsons (2/8/2023)

Comment Letter #1:

Mainspring Energy, submitted 12/16/22

December 16, 2022

Michael Krause Assistant Deputy Executive Officer South Coast Air Quality Management District 21865 Copley Dr. Diamond Bar, CA 91765

MAINSPRING ENERGY COMMENTS ON SCAQMD PROPOSED AMENDED RULE 219, EQUIPMENT NOT REQUIRING A WRITTEN PERMIT PURSUANT TO REGULATION II, AND PROPOSED AMENDED RULE 222, FILING REQUIREMENTS FOR SPECIFIC EMISSION SOURCES NOT REQUIRING A WRITTEN PERMIT PURSUANT TO REGULATION II

Dear Mr. Krause:

Mainspring Energy, Inc. (Mainspring) appreciates the opportunity to participate in the Working Group Meetings (WGMs) for South Coast Air Quality Management District (SCAQMD or District) Proposed Amended Rule 219 (PAR 219), Equipment Not Requiring a Written Permit Pursuant to Regulation II, and Proposed Amended Rule 222 (PAR 222), Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II. This rulemaking is being undertaken to amend Rules 219 and 222 to address new technologies, an improved understanding of emission sources, and add clarifications.¹

Mainspring Energy Inc. (Mainspring) was founded in 2010 by three Stanford University engineers seeking a new approach to generating clean, resilient, affordable electricity. Their research into high-efficiency methods of converting fuel into electricity led to the founding of the company and the development and productization of the World's first linear generator product. Mainspring's linear generator technology and products are designed and able to provide local power that is both efficient and low emitting, but also dispatchable to firm renewables and fuel flexible to transition to zero-carbon fuels such as hydrogen.

The California Air Resources Board (CARB) Distributed Generation (DG) Certification Regulation requires manufacturers of electrical generation technologies that are exempt from air district permit requirements to certify their technologies to specific criteria pollutant emission standards prior to selling the product.² Rule 219 (Equipment Not Requiring a Written Permit Pursuant to Regulation II) currently exempts microturbines and fuel cells from the requirement to have a SCAQMD permit to operate provided the product is subject to an Executive Order under the CARB DG Certification Regulation and a

² CARB Distributed Generation Certification Regulation. Available at:

¹ SCAQMD PAR 219 and PAR 222 WGM #1. Available at: <u>http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/219-222/par219-working-group-meeting-1-032522.pdf?sfvrsn=8.</u>

https://govt.westlaw.com/calregs/Browse/Home/California/California/CaliforniaCodeofRegulations?guid=IFBEA1C805A2011EC8 227000D3A7C4BC3&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default).

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filing (i.e., registration) has been submitted to SCAQMD under Rule 222 (Filing Requirements For Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II).

Mainspring's linear generators are similar to fuel cells and microturbines in that they are all distributed generation technologies that have comparably low emissions. Linear generator technology is not currently referenced under R219 or R222. However, it is anticipated that certain linear generator models will soon be certified under the CARB Distributed Generation Certification Program. Mainspring believes that the appropriate R219 and R222 policy outcome for such linear generator products (subject to an Executive Order under the CARB DG Certification Regulation) is to be covered in the same manner as other DG technologies covered by a CARB DG certification.

For this reason, Mainspring respectfully requests that the SCAQMD consider the following rule language for addition under PAR 219 and PAR 222:

PAR 219:

(d) Equipment, Processes, or Operations Not Requiring a Written Permit

[NEW SECTION]

(*d*)(2)(*K*): Linear generators provided that the equipment are certified with the state of California, and provided a filing pursuant to Rule 222 is submitted to the Executive Officer.

PAR 222:

(b) Applicability

[NEW ADDITION TO EXISTING TABLE I]

Table I	
Source/Equipment	Effective Date
Linear Generators, provided that the equipment is certified with the state of California.	DATE OF RULE ADOPTION

(c) Definitions

(#) LINEAR GENERATOR means any power generation technology using a thermochemical reaction to create linear motion that is directly converted into electricity.

If you have questions regarding these comments, please contact me at (424) 241-8959 or <u>corrie.zupo@mainspring.com</u> or our consultant, Scott Weaver of Ramboll US Consulting at (213) 943-6360 or <u>msweaver@ramboll.com</u>.

Regards,

Corrie Bupo

Corrie Zupo

Environmental Manager, Permitting and Compliance

Cc: Adam Simpson, Mainspring Energy (Menlo Park, CA) Scott Weaver, Ramboll US Consulting (Los Angeles, CA)

Responses to Mainspring Energy Email Correspondence, submitted 12/16/22

Response 1-1: The South Coast AQMD appreciates the efforts of Mainspring Energy to develop low emission power generation technologies. Linear generators are currently subject to the permitting process that establishes operating conditions to limit emissions. To date, no linear generators have obtained the CARB Distributed Generation certification. There is limited emissions data available to support the requested exemption to written permits.

Comment Letter #2:

T-Mobile, submitted 1/4/23

From: Michael Blackwell <michael.blackwell@tmuspartners.com>

Sent on: Wednesday, January 4, 2023 5:34:38 PM

To: Michael Laybourn MLaybourn@aqmd.gov>; Yunnie Osias aqmd.gov>

CC: Kalam Cheung <kcheung@aqmd.gov>

Subject: RE: Proposed Amendment to Rule 219

Urgent: High

Hello Michael and Yunnie,

Thanks for a great presentation today. As per my voice message (to Michael), I am interested in pursuing further discussion on potential exemption for our deisel generators that have been certified by the EPA but exceed the 50 bhp horsepower threshold. As you are aware, T-Mobile provides service throughout the United States including California.

Today's discussion raises a question regarding the applicability of permit requirement for EPA certified generators that are used only during times of emergency. Currently AQMD standards require a permit for generators greater than 50 bhp. Generators less than 50 bhp are exempt from permitting. So we are really talking about the differential of 14.3 bhp that triggers the permit requirement.

As an FCC licensee, a wireless service provider must have means to continue operations during times of emergency/power outages when our E911 protocols are necessary. As such these stand-by generators are necessary to ensure that our communications systems will remain operable. In most cases we operate/test periodically. As such, the duration and frequency of use is rare. In fact testing duration and frequency can be scheduled according to what AQMD determines to be safe e.g., once every quarter for 15-30 minutes. In other words, outside of emergency situations, the stand-by generators would only run 1-2 hours per year.

I would like to discuss the potential of creating exemption language that could address operational exemptions for the stand-by engines that we use. As mentioned perhaps conditional exemptions would apply. As presented by Yunnie today, paragraph (e)(3) discusses a requirement to submit documentation to determine health risk. If found to be exempt based on the infrequency of use, the engine could be deemed exempt form permitting. Of course, if the Executive Officer determines that there is or maybe be a violation of the conditional exemption, a complete permit application would be required within a specified time frame e.g., 60 days.

Please let me know when you can be available for a brief phone call or Zoom meeting to discuss a work forward plans that allows us to meet the January 18th deadline.

Thank you,

Michael Blackwell Direct (714) 396-8227 | <u>michael.blackwell@tmuspartners.com</u>

Responses to T-Mobile Email Correspondence, submitted 1/4/23

Response 2-1: Rule 219 currently includes an exemption from permits for internal combustion engines (ICE) that are 50 brake horsepower or less. Permits for engines greater than 50 brake horsepower is a long-standing requirement that applies to all sources including essential services (police, fire, etc.) and to health care facilities. To streamline the permitting process, the South Coast AQMD has developed a list of ICEs that have previously been analyzed and have been certified as meeting the applicable emissions thresholds. Facilities submitting permit applications for ICEs already on the South Coast AQMD certified equipment list are processed expeditiously.

Comment Letter #3:

Albertsons Companies, Inc, submitted 1/6/23



January 6, 2023

Mike Krause Assistant Deputy Executive Officer, Planning, Rule Development and Implementation South Coast Air Quality Management District Phone: (909) 396-2706 E-mail: MKrause@aqmd.gov

Subject: Comments on PAR 219 & 222 for Albertsons Companies, Inc.

Dear Mr. Krause:

Albertsons Companies, Inc. (Albertsons) is working with Yorke Engineering (Yorke) to provide these comments to the South Coast Air Quality Management District (SCAQMD) on SCAQMD's Proposed Amended Rule (PAR) 219 and 222. Albertsons and Yorke attended SCACQMD's Public Workshop on January 4, 2023 and provided verbal comments. We are submitting these written comments to supplement our verbal comments. Once you have reviewed this letter, we request a meeting with your staff to discuss it in more detail. We appreciate Yunnie Osias for already reaching out to us to schedule a meeting.

Albertsons operates approximately 256 bakery ovens at 198 grocery stores under SCAQMD jurisdiction. The ovens are used to bake products that are manufactured and frozen at another facility. Albertsons evaluated their products and equipment to estimate the process volatile organic compound (VOC) emissions from each oven, and even the most conservative assumptions found that daily VOC emissions were a fraction of a pound per day. Thus, the ovens qualify for exemption from permitting under Rule 219(b)(2) [PAR 219(d)(2)(C)(iii)]. Albertsons submitted Rule 222 registrations for their bakery ovens after they became aware of the requirement. The SCAQMD issued Rule 222 filings in May 2022 which impose "operating parameters" that require daily records for each oven to show that the equipment emits less than one pound per day of process VOC emissions. This is overly burdensome and provides no benefit to air quality.

Eating establishments are exempt from these rules under PAR 219(d)(9) and PAR 222(b)(1). Albertsons proposes that grocery stores – which also prepare food for human consumption – should be considered eating establishments and exempt from the requirement to obtain a stationary source permit and exempt from the requirement to be registered, in light of the fact that daily emissions from these ovens do not even come close to the permitting threshold. Excluding grocery stores like other eating establishments makes sense considering the type of operations at these facilities.

If SCAQMD does not include grocery stores in the definition of eating establishments, Albertsons would propose the rule language be revised to provide for more reasonable requirements for recordkeeping, such as calculating average daily emissions based on annual production. Rule 1153 provides an example. Rule 1153 is not applicable to the ovens operated at Albertson stores since they are rated <2 MMBtu/hour.

Working together to be the favorite local supermarket"

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3-1

(cont.)



However, the rule includes VOC emission calculation methodology based on yeast percentage and fermentation time. Average daily emissions are calculated from the total calendar year emissions (tons/year) divided by the number of days the oven was employed for production during that year. This approach would be less burdensome.

PROPOSED RULE LANGUAGE

Albertsons proposes the following rule language amendments so that grocery stores are treated the same as eating establishments. Additions are indicated in **bold underline**.

PAR 219

We propose amending Rule 219 to include grocery stores with eating establishments in the permit exemption:

(d)(9) Pharmaceuticals, Cosmetics, and Food Processing and Preparation Equipment

(E) Equipment used in eating establishments <u>and grocery stores</u> for the purpose of preparing food for human consumption.

PAR 222

Rule 222 should be amended for consistency with Rule 219. One option is to amend the applicability section:

(b) Applicability

(1) Food Ovens, excluding equipment used in eating establishments <u>and grocery stores</u> for the purpose of preparing food for human consumption, with a rated maximum heat input capacity of 2,000,000 Btu per hour or less, are fired exclusively on natural gas, and where the process VOC emissions are less than one pound per day, exempt from a written permit pursuant to Rule 219 (d)(2)(C)(b)(2).

Another option is to amend the definition of Food Ovens:

(c) Definitions

(12) FOOD OVEN is any equipment used exclusively for food preparation, <u>excluding equipment</u> used in eating establishments and grocery stores for the purpose of preparing food for human <u>consumption</u>, with a rated maximum heat input capacity of 2,000,000 Btu per hour or less, and is fired exclusively on natural gas, and where the process VOC emissions are less than one pound per day.

VOC Recordkeeping Requirement

If the SCAQMD does not include grocery stores with eating establishments to exempt them from permitting and from any VOC recordkeeping, Albertsons requests simplification of the recordkeeping requirement.

3-3

3-2

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One option is to amend PAR 219(f) – Recordkeeping

- (1) Any owner claiming an exemption under any provision of this rule shall maintain documentation and/or calculations sufficient to demonstrate that the stated exemption provision, parameter, requirement, or limitation applies. Documentation may include, but not be limited to:
 - a. <u>For food ovens exempt under 219(d)(2)(C), annual throughput quantities to calculate the</u> <u>average daily VOC emissions based on annual production</u>.

The recordkeeping requirements listed as operating parameters on the Rule 222 filings/registrations can be revised:

5. This equipment shall emit less than one pound <u>per day of process volatile organic</u> compounds (VOC) emissions calculated annually as the average daily emissions using annual production quantities.

6. The operator shall maintain records in a format approved by the Executive Office to verify compliance with operating parameter #5. The records shall be retained on premises for at least <u>three</u> years and shall be made available to any South Coast AQMD representative upon request.

CONCLUSION

Albertsons appreciates your consideration of these comments and requests that the SCAQMD consider the burden on grocery stores, which provide essential products for the community. We look forward to our meeting with SCAQMD staff for a more detailed discussion.

Sincerely,

Sankillbar

Sarah Kelsay Project Manager; Environmental, Risk and Compliance Albertsons Companies, Inc (551) 265-0998 Sarah.kelsay@albertsons.com

cc: Yunnie Osias, SCAQMD Mike Laybourn, SCAQMD Kalam Cheung, SCAQMD Jane Anderson, Albertsons Judy Yorke, Yorke Engineering Peter Moore, Yorke Engineering Joseph Steirer, Yorke Engineering Jameson Edwards, Yorke Engineering

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3-3 (cont.)

Responses to Albertsons Companies, Inc, Email Correspondence, submitted 1/6/23

- Response 3-1: A clarification has been added to the staff report that eating establishments do not include facilities where food is prepared and packaged for subsequent sale, such as retail stores. In response to stakeholder recordkeeping comments, staff has updated the provisions in PAR 222 with additional recordkeeping options for food ovens and for equipment with a low potential to emit. See the response to comment 3-3 for the detailed proposal.
- The 2013 amendments to Rule 219 included a clarification that food ovens Response 3-2: were exempt from requirements to obtain permits provided they were rated under 2,000,000 Btu/hr, were fired on natural gas, and where VOC emissions from yeast fermentation are less than one pound per day. A 2017 amendment modified this provision to be more general to include VOC emissions from all sources, including VOC emissions from the baking process in addition to VOC emissions from yeast fermentation. The exemptions provided in Rule 219 for this equipment category is contingent upon meeting the registration requirements in Rule 222. As previously mentioned, PAR 219 removes filing of a Rule 222 registration as a prerequisite for a Rule 219 exemption from permits but under existing Rule 222 and PAR 222, food ovens that meet the thresholds identified in PAR 219 clause (d)(2)(C)(iii) remain subject to a Rule 222 filing. A new exemption was added in subparagraph (d)(9)(O) of PAR 219 for small food ovens, fueled exclusively on natural gas, provided the ovens are not used to bake uncooked yeast-containing products. Equipment exempted under subparagraph (d)(9)(O) would not be subject to a Rule 222 filing. A clarification has been added to the staff report that eating establishments do not include facilities where food is prepared and packaged for subsequent sale, such as retail stores.
- Response 3-3: Existing recordkeeping provisions in Rule 222 subparagraph (d)(1)(G) require facilities to maintain records sufficient to verify the description of the emission sources or equipment, data necessary to estimate output of emissions sources, and records used to demonstrate compliance with operating conditions. In the case for food ovens, records are required to verify that the process VOC emissions are below one pound per day. In response to stakeholder comments, PAR 222 subparagraph (d)(1)(G) recordkeeping provisions have been updated to indicate compliance with a daily emission limit for process VOC emissions for food ovens may be verified based on the calendar monthly emissions divided by 30. Additionally, the staff report clarifies that equipment with low process VOC emissions may choose to demonstrate compliance with the daily limit by calculating the maximum potential to emit assuming full operations, including 24 hours of operating hours and maximum loading/throughput. If the equipment's maximum potential to emit is below the daily limit, a daily

operation log is not required but an annual record such as production and purchase record is needed to verify these parameters, and thus compliance. See Requirements [subdivision (d)] on page 3-4 of the staff report for a more detailed discussion. Rule 222 also does not apply to food ovens that are exempted from permit requirements pursuant to the new exemption in PAR 219, subparagraph (d)(9)(O).

Comment Letter #4:

Los Angeles Department of Water & Power, submitted 1/12/23

LA Los Angeles Department of Water & Power

BUILDING A STRONGER L.A.

Karen Bass, Mayor

Board of Commissioners Cynthia McClain-Hill, President Cynthia M. Ruiz, Vice President Mia Lehrer Nicole Neeman Brady Nurit Katz Chante L. Mitchell, Secretary

Martin L. Adams, General Manager and Chief Engineer

January 12, 2023

Mr. Michael Krause South Coast Air Quality Management District 21865 Copley Drive Diamond Bar, CA 91765

Dear Mr. Krause:

Subject:

ct: Support for new Gas-insulated Equipment provision in Proposed Amended Rule 219

The Los Angeles Department of Water and Power (LADWP) supports the new exemption for Gas-Insulated Equipment in Proposed Amended Rule 219.

For decades, electrical circuit breakers and switches insulated with Sulfur-Hexafluoride (SF6) gas have been used in the electricity generation, transmission and distribution system. SF6 gas is an insulating medium contained within the interrupter compartment of the circuit breaker for the purpose of quenching electrical arcs. In 2020/2021, the California Air Resources Board adopted a regulation that gradually phases out the use of SF6 in electricity transmission and distribution equipment starting in 2025 because SF6 is a greenhouse gas with a high global warming potential. In response, electrical equipment manufacturers are developing and testing equipment utilizing alternative gas mixtures that have dielectric properties similar to SF6 but with a lower global warming potential. The new exemption in Rule 219 (d)(4)(M) will facilitate the installation of alternative gas-insulated equipment within the electricity generation, transmission and distribution system as a substitute for SF6 by ensuring these alternative gas-insulated circuit breakers and switches will not require a permit-to-operate.

LADWP appreciates South Coast Air Quality Management District's consideration and inclusion of exemption (d)(4)(M) for Gas-Insulated Equipment in Proposed Amended Rule 219. If you have any questions, please contact Ms. Cindy Parsons of my staff at (213) 367-0636.

Sincerely,

Katherine Rubin

Digitally signed by Katherine Rubin Date: 2023.01.17 17:39:54 -08'00'

Katherine Rubin Director of Environmental Affairs CP:cb c: Ms. Kalam Cheung Ms. Yunnie Osias Mr. Mike Laybourn

> 111 N. Hope Street, Los Angeles, California 90012-2607 Mailing Address: PO Box 51111, Los Angeles, CA 90051-5700 Telephone (213) 367-4211 ladwp.com

Responses to Los Angeles Department of Water & Power Email Correspondence, submitted 1/12/23

Response 4-1: Thank you for the participation in the public process and the support for PAR 219.

Comment Letter #5: Hampford Research Inc, submitted 1/13/23



January 13, 2023

Mr. Wayne Nastri

Executive Officer

South Coast Air Quality Management District Wnastri@aqmd.gov

Re: Proposed Amended Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II

Dear Mr. Nastri:

Hampford Research Inc is a global supplier of specialty chemicals serving the UV/EB industry for over 35 years. We welcome the opportunity to comment on the proposed amendments to Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II. We very much appreciate the direction your board has given to staff to amend the rule in order to accommodate some of the latest innovations in our industry. While we appreciate staff's efforts, the current proposal does not take into consideration issues facing the businesses we represent. The current rule treats all coating processes alike regardless of their environmental benefit. UV/EB/LED processes are not formulated with Volatile Organic Compounds (VOCs) or toxics air contaminants. Conversion away from solvent processes benefits the District and your Board has provided incentives in the form of regulatory flexibility through permit exemptions in Rule 219.

According to staff, the current rule language requires a permit for UV/EB/LED operations that are part of operations that also have solvent systems. It is unfair to attribute the emissions of a solvent system to a UV/EB/LED process with zero or near zero emissions simply because they are located in the same facility. This approach discourages facilities who are exploring conversion to UV/EB/LED but are unable to convert the entire facility. Businesses who are willing to invest in clean technologies should be encouraged to do so and saddling with added permit costs will be counterproductive to the District's mission.

The staff proposal to require permits whenever facilities change ducting in order to change air flow, is especially troublesome. We hope we can continue to work with staff to add language that would remedy the harm being done to businesses in the South Coast who are looking to partially convert to UV/EB/LED processes.

Sincerely,

Kate Donahue, President/CEO

5-1

Responses to Hampford Research Inc Email Correspondence, submitted 1/13/23

- Response 5-1: Existing Rule 219 and PAR 219 provisions apply to equipment, processes, or operations, not to a facility. An existing permitted facility that adds a stand-alone UV/EB/LED process with zero emission potential is not subject to permitting requirements for that process. An existing permitted facility could separately install a traditional lower-emitting UV coating operation that may be below PAR 219 usage thresholds (e.g., clause (d)(8)(A)(iii)) without triggering permit requirements. Addition of a UV/EB/LED system *into* a high-VOC process that uses add-on controls to comply with South Coast AQMD regulations are exempt from permitting requirements when certain criteria are met. These criteria are listed in PAR 219 to ensure emissions do not increase and the add-on controls continue to perform at its intended efficiencies.
- Response 5-2: The exemption conditions included in clauses (d)(8)(H)(i) through (vi) and (d)(12)(L)(i) through (vi) are necessary to ensure that there is not an increase in emissions associated with changes to equipment or processes. Evaluation of any modifications to the air flow is necessary to ensure continued control device performance when equipment or processes have high VOC emission sources or when non-compliant coatings are used, and add-on controls are necessary. For example, engineering evaluations are necessary to determine if either existing exhaust fan(s) are appropriately sized to provide adequate air flows throughout the modified ducting system or increased air flows exceed the capacity of the control device to which they are vented. This can be illustrated by the familiar case of a vacuum cleaner with a wand attachment. The vacuum's motor and fan are sized to provide an appropriate amount of suction when the vacuum is used as intended. Anyone who has put their hand over the end of the wand attachment knows that it provides powerful suction so it can perform its job. But if the user decides to modify the manufacturer's design such that the hose branches to accommodate a second wand, the amount of suction at each wand will be half of that available at the single wand in the unmodified design. The same thing happens if additional pickup points are added to an existing air pollution control system's ducting-the amount of suction available at each point is reduced and may not be adequate to capture the VOC emissions. If the facility compensates by installing a more powerful blower to increase the suction at each pickup point, the facility runs the risk of supplying the air pollution control device to which it vents with a greater flow rate than it can handle. Either scenario would result in the unintended consequence of reduced performance of the air pollution control system overall and increased emissions. In summary, applications and engineering

evaluations are necessary to ensure that ducting changes do not result in emissions increases.

Comment Letter #6:

HCS, LLC, submitted 1/13/23

January 14th. 2023

Mr. Wayne Nastri Executive Officer South Coast Air Quality Management District <u>Wnastri@aqmd.gov</u>

Re: Proposed Amended Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II

Dear Mr. Nastri:

HCS.LLC. is involved in the supply of environmentally proactive manufacturing processes such as UV curing/photopolymerization. We welcome the opportunity to comment on the proposed amendments to Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II. We very much appreciate the direction your board has given to staff to amend the rule in order to accommodate some of the latest innovations in our industry. While we appreciate staff's efforts, the current proposal does not take into consideration issues facing the businesses we serve. The current rule treats all coating processes alike regardless of their environmental benefit. UV/EB/LED processes are not formulated with Volatile Organic Compounds (VOCs) or toxics air contaminants. Conversion away from solvent processes benefits the District and your Board has provided incentives in the form of regulatory flexibility through permit exemptions in Rule 219.

According to staff, the current rule language requires a permit for UV/EB/LED operations that are part of operations that also have solvent systems. It is an unreasonable and environmentally adverse approach to attribute the emissions of a solvent system to a UV/EB/LED process with zero or near zero emissions simply because they are located in the same facility. This approach discourages facilities who are exploring conversion to UV/EB/LED, based on their desire to be more environmentally proactive, but are unable to convert the entire facility. Businesses who are willing to invest in clean technologies, that reduce carbon-based footprints, should be encouraged, not actively discouraged, to do so. Burdening them with added permit costs will be counterproductive to the District's mission and to all those entities that concerned about global warming and the environmental welfare of our planet.

The staff proposal to require permits whenever facilities change ducting, in order to change air flow, is especially troublesome. We hope we can continue to work with staff to add language that would remedy the harm being done to businesses, and the environment in the South Coast who are looking to partially convert to UV/EB/LED processes.

Sincerely,

Andrew D Harbourne, CEO.

HCS.LLC

Responses to HCS Email Correspondence, submitted 1/13/23

- Response 6-1: Please refer to response to comment 5-1.
- Response 6-2: Please refer to response to comment 5-2.

Comment Letter #7: Saint Clair Systems, submitted 1/15/23



January 15, 2023

Mr. Wayne Nastri Executive Officer South Coast Air Quality Management District <u>Wnastri@aqmd.gov</u>

Re: Proposed Amended Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II

Dear Mr. Nastri:

Saint Clair Systems is the leader in temperature and viscosity control for fluid dispensing systems. This includes the application of paints and coatings, sealers and adhesives, pottings and encapsulants, and printing inks just to name a few. Many of our customers have locations in California that have installed our systems both to improve their quality and to reduce their use of VOCs in their processes.

Because one of our primary business objectives is to reduce our customer's environmental impact, we welcome the opportunity to comment on the proposed amendments to Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II. We very much appreciate the direction your board has given to staff to amend the rule to accommodate some of the latest innovations in our industry. While we appreciate the staff's efforts, the current proposal does not take into consideration issues facing the businesses we represent. The current rule treats all coating processes alike regardless of their environmental benefit. UV/EB/LED processes are not formulated with Volatile Organic Compounds (VOCs) or toxics air contaminants. As a result, UV/EB/LED processes simply do not generate VOCs so there is no need to collect and remediate them. This is a proactive approach to pollution control.

The mandate of the SCAQMD is to reduce the release of hazardous pollutants into the air. Therefore, conversion away from processes that utilize solvents benefits the District and your Board has provided incentives in the form of regulatory flexibility through permit exemptions in Rule 219.

According to staff, the current rule language requires a permit for UV/EB/LED operations that are part of operations that also have solvent systems. It is unfair to attribute the emissions of a solvent system to a UV/EB/LED process with zero or near zero emissions simply because they are located in the same facility. This approach discourages facilities who are exploring conversion to UV/EB/LED but are unable to convert the entire facility. Businesses who are willing to invest in clean technologies should be encouraged to do so and saddling them with added permit costs will be counterproductive to the District's mission.

12427 31 Mile Road • Washington Township, Michigan • 48095 586.336.0700 • <u>www.saintelairsystems.com</u> The staff proposal to require permits whenever facilities change ducting in order to change air flow, is especially troublesome. We hope we can continue to work with staff to add language that would remedy the harm being done to businesses in the South Coast who are looking to convert to UV/EB/LED processes to reduce their environmental impact.

Sincerely,

Saint Clair Systems, Inc.

Michael R. Bo

Michael R. Bonner Vice President – Engineering & Technology

Responses to Saint Clair Systems Email Correspondence, submitted 1/15/23

Response 7-1:	Please refer to response to comment 5-1.
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Response 7-2: Please refer to response to comment 5-2.

Proposed Amended Rules 219 & 222 B

Comment Letter #8:

Heraeus Noblelight America LLC., submitted 1/16/23

January 16, 2023

Mr. Wayne Nastri Executive Officer South Coast Air Quality Management District <u>Wnastri@aqmd.gov</u>

Re: Proposed Amended Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II

Dear Mr. Nastri:

Heraeus Noblelight America LLC. is involved in supplying efficient and environmentally responsible energy-curing solutions in Southern California. We welcome the opportunity to comment on the proposed amendments to Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II. We appreciate the direction your board has given staff to amend the rule to accommodate some of the latest innovations in our industry. While we acknowledge your efforts, the current proposal does not consider issues facing the businesses we represent.

The current rule treats all coating processes alike, regardless of their environmental impact. Unlike traditional solvent-based technologies, UV/EB/LED chemistries are not formulated with Volatile Organic Compounds (VOCs) or toxic air contaminants. Adoption of this technology and moving away from solvent processes benefits the District, and in the past your Board has provided incentives in the form of regulatory flexibility through permit exemptions in Rule 219.

According to staff, the current rule language requires a permit for UV/EB/LED operations that are part of operations which also have solvent systems. We believe that it is unfair to associate the emissions of a solvent-based system with a UV/EB/LED process which has zero or near zero emissions simply because they are in the same facility. This approach discourages facilities that are exploring conversion to UV/EB/LED but are unable to convert their entire facility. Businesses that are willing to invest in clean technologies should be encouraged to do so and saddling these businesses with added permit costs will be counterproductive to the District's mission.

The staff proposal to require permits whenever facilities change ducting to alter airflow is especially troublesome. We hope to continue working with staff to add language that would remedy the harm done to businesses on the South Coast that are looking to partially convert to environmentally responsible UV/EB/LED processes.

Sincerely,

James Bradley McMahon,

Site Manager – Heraeus Noblelight America LLC.

8-1

Responses to Heraeus Noblelight America LLC. Email Correspondence, submitted 1/16/23

Response 8-1:	Please refer to response to comment 5-1
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Response 8-2: Please refer to response to comment 5-2

Comment Letter #9:

Keyland Polymer, submitted 1/16/23



Keyland-Polymer-Material-Sciences,-LLC¶ 4641-Hinckley-Industrial-Parkway¶ Cleveland,-OH-44109¶ 216-216-741-7191-www.keylandpolymer.com¶

January∙16,∙2023¶

∥ South Coast Air Quality Management District¶ ¶

Re: ••Public ·Comments ·-- ·Proposed ·Amended Rule ·219 -- ·Equipment ·Not Requiring a ·Written Permit · Pursuant to ·Regulation ·II¶

Dear SCAQMD Board Members:

Keyland Polymer Material Sciences, LLC is involved in the development, manufacturing, and application of UV/EB/LED cured solid materials, resins, and powder coatings. We don't currently have customers in California, but have several active projects, developing UV/EB/UVLED cured products and system applications for customers located in California. We welcome the opportunity to comment on the proposed amendment to Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II. Unfortunately, our company cannot support the current proposal as it does not take into consideration issues facing the businesses we represent. The current rule treats all coating processes alike regardless of their environmental benefit. UV/EB/UVLED processes are not formulated with Volatile Organic Compounds (VOCs) or toxic air contaminants. Keyland's products are 100% solid materials and do not contain solvents or water. Conversion away from solvent processes benefits the District and your Board has provided incentives in the form of regulatory flexibility through permit exemptions in Rule 219. If the solution is a solvent processes are present as the current and your Board has provided incentives in the form of regulatory flexibility through permit exemptions in Rule 219. If the solution is a solvent processes are present and point and provided incentives in the form of regulatory flexibility through permit exemptions in Rule 219. If the solution is a solvent processe is a solvent processe is a solvent processe in the contain solvent processes are provided incentives in the form of regulatory flexibility through permit exemptions in Rule 219. If the solution is a solvent processe is a solvent processe is a solvent processe in the solvent processes are provided incentives in the form of regulatory flexibility through permit exemptions in Rule 219. If the solvent processes is a solvent processe is a solvent processe in the provided incentives in the form of regulatory flexibility through permit exemptions in Rule 219. If t

According to staff, the current rule language requires a permit for UV/EB/LED operations that are part of operations that also have solvent systems. It is unfair to attribute the emissions of a solvent system to a UV/EB/LED process with zero or near zero emissions simply because they are in the same facility. This approach discourages businesses who are exploring conversion to UV/EB/LED but are unable to convert the entire facility. Businesses who are willing to invest in clean technologies should be encouraged to do so and saddling them with added permit costs will be counterproductive to the District's mission.

We cannot support the proposed rule amendment, as it does not acknowledge the environmental and airquality benefits of our industry. We ask the Board request that staff add language that would remedy the harm this change will cause businesses in the South Coast who are looking to partially convert to UV/EB/LED processes...¶

Sincerely,¶

Michael F. Knoblauch

Mahal F. Brolle

President



Responses to Keyland Polymer Email Correspondence, submitted 1/16/23

Response 9-1: Please refer to response to comment 5-1.

Comment Letter #10:

Albertsons Companies Inc, submitted 1/18/23



January 18, 2023

South Coast Air Quality Management District Stationary Source Committee

Cities of Riverside County Representative Ben J. Benoit, Chair Senator (Ret.) Vanessa Delgado Supervisor Holly J. Mitchell Board Member Veronica Padilla-Campos Mayor Rex Richardson Supervisor Janice Rutherford

Subject: Treat Grocery Stores as Eating Establishments for Bakery Oven Rule 219 and 222 Permit Exemption

Honorable Members of the Stationary Source Committee:

Albertsons Companies, Inc. operates 198 grocery stores under the jurisdiction of SCAQMD providing essential products to the community. Each store operates one or two bakery ovens like those used in restaurants. The ovens range in size from 90,000 – 350,000 BTU per hour. The ovens are exempt from permitting under SCAQMD Rule 219, but under the current rules, subject to the requirement to keep daily production records for each oven. This daily recordkeeping requirement is overly burdensome and provides no benefit to air quality in light of the de minimis emissions from these ovens. The SCAQMD can easily provide relief by amending Rules 219 and 222 to treat grocery stores as "eating establishments," which are already excluded from the registration and recordkeeping requirement. Grocery store ovens are similar in size to those used in restaurants, and many stores have dining areas where customers consume fresh products.

Pursuant to the current rules, Albertsons filed Rule 222 registrations for 256 bakery ovens at their grocery stores under SCAQMD jurisdiction. The ovens provide fresh-baked products for their store shelves and onsite deli. Most baked products are produced and frozen at another large production facility and shipped to the stores where they are heated in an oven. The SCAQMD issued Rule 222 registrations for the ovens, which impose "operating parameters" that require daily records of the VOC emissions from each oven to show that they continue to qualify for the permit exemption of less than one pound per day.

Albertsons evaluated their daily store bakery production levels during a busy week and calculated that daily process volatile organic compound (VOC) emissions were a fraction of a pound per day, demonstrating that the ovens clearly qualify for exemption from permitting under Rule 219.¹ Due to the de minimis emissions from these ovens, even accounting for conservative estimates during a busy week, daily recordkeeping as required by Rule 222 is unnecessary. Grocery store ovens are typically operated

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Amigos US United Constants Albertsons SAFEWAY () Example PAULIONS shows

¹ Rule 219(b)(2) [PAR 219(d)(2)(C)(iii)].



by staff for a few hours a day to stock the shelves with fresh baked goods (for immediate consumption). The amount of product baked in each oven is not recorded by the operator and would take time away from their normal job duties without any attendant air quality benefit. Each store bakes a wide variety of items to stock what is needed for the day. Albertsons tracks product shipment and sales at the store level; not per oven.

Albertsons provided verbal comments at the Public Workshop for Proposed Amended Rules 219 and 222 on January 4, 2023 and submitted a letter to SCAQMD staff outlining our concerns and requesting changes to these rules to address the concerns above. Albertsons met with SCAQMD staff on January 10 to discuss the proposed rule amendments and seek relief from daily recordkeeping requirements for each bakery oven. The staff responded on January 13 and offered to amend the rules to allow monthly recordkeeping instead of daily. We appreciate the positive response from the staff. However, we are appealing to the Stationary Source Committee to consider excluding grocery store ovens from Rule 222, due to their similarity to eating establishments, which are already excluded.

Eating establishments are exempt from these rules under PAR 219(d)(9) and PAR 222(b)(1). Albertsons proposes that grocery stores – which also prepare food for human consumption – be considered eating establishments and exempt from the requirement to be registered. Daily emissions from grocery store ovens are a fraction of the permitting threshold. Classifying grocery stores as eating establishments is consistent with the exclusion for eating establishments due to the similarity of operations at these facilities. Ongoing recordkeeping is an unnecessary burden and provides no benefit to air quality.

PROPOSED RULE LANGUAGE

Albertsons proposes the following rule language amendments so that grocery stores are treated the same as eating establishments. Additions are indicated in **<u>bold underline</u>**.

PAR 219

Amend Rule 219 to include grocery stores with eating establishments in the permit exemption:

(d)(9) Pharmaceuticals, Cosmetics, and Food Processing and Preparation Equipment

(E) Equipment used in eating establishments <u>and grocery stores</u> for the purpose of preparing food for human consumption.

PAR 222

Amend Rule 222 for consistency with Rule 219. Amend the applicability section:

(b) Applicability

(1) Food Ovens, excluding equipment used in eating establishments <u>and grocery stores</u> for the purpose of preparing food for human consumption, with a rated maximum heat input capacity of 2,000,000 Btu per hour or less, are fired exclusively on natural gas, and where the process VOC emissions are less than one pound per day, exempt from a written permit pursuant to Rule 219 (d)(2)(C)(b)(2).

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Amigos UE Voited Connector Albertsons SAFEWAY () Tourised PWILLONS shows ACME story Courses () William VONS () United Lucky Albertsons & Super Source 10-1 (cont.)



And amend the definition of Food Ovens:

(c) Definitions (12) FOOD OVEN is any equipment used exclusively for food preparation, <u>excluding equipment</u> <u>used in eating establishments and grocery stores for the purpose of preparing food for human</u> <u>consumption</u>, with a rated maximum heat input capacity of 2,000,000 Btu per hour or less, and is fired exclusively on natural gas, and where the process VOC emissions are less than one pound per day.

CONCLUSION

Albertsons appreciates your consideration of these comments and requests that the SCAQMD consider the burden on grocery stores, which provide essential products for the community. The ovens are exempt from permitting under SCAQMD Rule 219, but the requirement to keep production records for each oven, as required by the Rule 222 registrations, is overly burdensome and provides no benefit to air quality. We request amending Rules 219 and 222 to classify grocery stores as "eating establishments," which are exempt from permitting and do not require recordkeeping.

Sincerely,

Sarah Kelsaý Project Manager; Environmental, Risk and Compliance Albertsons Companies, Inc (551) 265-0998 Sarah.Kelsay@albertsons.com

cc: Yunnie Osias, SCAQMD Mike Laybourn, SCAQMD Kalam Cheung, SCAQMD Jane Anderson, Albertsons Peter Moore, Yorke Engineering Judy Yorke, Yorke Engineering Joseph Steirer, Yorke Engineering Jameson Edwards, Yorke Engineering

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10-2 (cont.)

Responses to Albertsons Companies Inc, Email Correspondence, submitted 1/18/23

Response 10-1: As described in the comment letter, existing Rule 219 exempts permitting requirements for food ovens less than 2,000,000 Btu/hr that are fired on natural gas, and where VOC emissions are less than one pound per day. The exemption provided in Rule 219 for this equipment category is contingent upon meeting the registration requirements in Rule 222. In response to a U.S. EPA comment, PAR 219 removes instances where the exemption from permits is contingent on a Rule 222 filing. This revision is an administrative revision that relieves South Coast AQMD from submitting Rule 222 for SIP approval but does not change any existing requirements or procedures. Facilities subject to Rule 222 filing requirements remain subject to filing requirements under PAR 222.

Under South Coast AQMD permitting procedures, a person shall not operate or use any equipment that emits or controls air contaminants without receiving a permit to operate, unless the equipment or activity is exempt under Rule 219. As described in the staff report, Rule 219 includes provisions that require facilities to demonstrate eligibility for a Rule 219 exemption from being required to obtain permits. Similarly, facilities that submit a Rule 222 filing as an alternative to permits must demonstrate compliance with operating parameters included in the Rule 222 filing. These provisions are necessary to ensure that only eligible equipment or operations (i.e., those with low emissions) are exempted from obtaining a permit. Existing recordkeeping provisions in Rule 222 subparagraph (d)(1)(G) require facilities to maintain records sufficient to verify the description of the emission sources or equipment, data necessary to estimate output of emissions sources, and records used to demonstrate compliance with operating conditions. In the case for food ovens, records are required to verify that the process VOC emissions are below one pound per day. A food oven that has exceeded the one pound per day VOC emission limit is not eligible for the Rule 219 exemption or the Rule 222 filing program, and instead requires a permit to operate.

<u>A new exemption was added in subparagraph (d)(9)(O) of PAR 219 for</u> small food ovens, fueled exclusively on natural gas, provided the ovens are not used to bake uncooked yeast-containing products. Equipment exempted under subparagraph (d)(9)(O) would not be subject to a Rule 222 filing.</u>

As mentioned in the comment letter, PAR 222 includes an update to streamline the recordkeeping requirements by allowing compliance with a daily emission limit for process VOC emissions for food ovens to be verified based on the calendar monthly emissions divided by 30.

Additionally, the staff report clarifies that equipment with low process VOC emissions may choose to demonstrate compliance with the daily limit by calculating the maximum potential to emit assuming full operations, including 24 hours of operating hours and maximum loading/throughput. If the equipment's maximum potential to emit is below the daily limit, a daily operation log is not required, but an annual record such as production and purchase record is needed to verify these parameters, and thus compliance. See Requirements [subdivision(d)] on page 3-4 of the staff report for a more detailed discussion.

Response 10-2: In addition to the responses discussed above, the 2022 AQMP calls for over 60% reduction in NOx emissions from stationary sources including food ovens. Both NOx and VOCs are the products of combustion from natural gas-fired food ovens, and food ovens that process foods containing yeast or other VOC-containing ingredients also emit VOC emissions from the baking or cooking process. Recordkeeping is required to demonstrate that the process VOC emissions are below the one pound per day threshold in Rule 219 and Rule 222, and thus exempt from permitting. Additionally, registering these food ovens would provide more accurate inventory and facilitate the rule development process. The existing provisions for eating establishments should not be extended to food ovens in grocery stores. <u>A new provision in subparagraph (d)(9)(O) in PAR 219 exempts small natural gas food ovens that do not bake uncooked yeast-containing products.</u> Please also refer to response to comments 3-2 and 3-3.
Comment Letter #11

Radtech, submitted 1/18/23



January 18th, 2023

Mr. Wayne Nastri Executive Officer South Coast Air Quality Management District 21865 Copley Drive Diamond Bar, CA 91765

Re: Rule 219 -- Equipment Not Requiring a Written Permit Pursuant to Regulation II

Dear Mr. Nastri:

RadTech is a non-profit trade organization representing over 800 members in North America who are involved in the Ultraviolet/Electron Beam and Light Emitting Diode (UV/EB/LED) industry. We also have chapters in Europe and Asia. UV/EB/LED has been recognized by the District as an environmentally friendly technology because our materials are not formulated with Volatile Organic Compounds (VOCs) or toxic air contaminants. The district board has committed to policies that provide incentives for businesses who choose these processes. One such incentive is the removal of regulatory barriers to implementation by not requiring permits. Rule 219 is the rule that lays out the permit exemptions.

RadTech seeks amendments to Rule 219 because portions of the current rule treat all coating processes alike regardless of their environmental benefit. Companies are being required to pay \$7,000 in permit fees where all emissions were found to be ZERO by the District's own Engineering Division. The only reason these companies are being required a permit is because they added a UV material to their existing solvent borne coating. The district's current rule language tethers the zero emission process to the solvent process and considers the pollution prevention process a modification of a solvent system, thereby disregarding the environmental benefits of UV/EB/LED and imposing unnecessary financial burdens on businesses.

We have participated in various working group meetings and individual meeting with staff. We cannot support the rule in its current version because it does not remedy the concerns of our industry. Specifically, the following proposed language in Subparagraphs (d)(8)(H) and (d)(12)(L) is problematic:

11-2

"There is no physical change to the configuration of the existing air pollution control equipment associated with the equipment or operation"

The current proposal makes it so that any physical change constitutes a modification and therefore necessitates a permit with accompanying application fees. Engineering staff is of the opinion that adding metal ducts and changing air flow is a physical change. Air is sometimes introduced in order to cool UV lamps in order to prevent overheating and to ensure the substrate is not damaged. This does not cause any emissions increase and should not require a permit. We ask that the language be modified as follows:	11-2 (cont.)
"There is no physical change to the configuration of the existing air pollution control equipment associated with the equipment or operation, that would result in a net emissions increase"	
Additionally, we do not support the creation of additional recordkeeping under the current proposal. The current rule allows facilities to submit a verification form to report their emissions and no additional forms are needed so long as there are no changes. We urge the district to retain this provision rather than burden facilities with repeatedly reporting the same information. This exercise generates red tape but does nothing to reduce emissions.	11-3
We hope that the district recognizes that facilities that convert to UV/EB/LED are providing added emission reductions that are not called for in the district rules and they are preventing pollution of combustion contaminants as there is no need for add-on controls. These actions are consistent with the district's clean air goals and should be encouraged. Putting regulatory burdens in the way of companies who invest in clean technologies such as UV/EB/LED undermines clean air goals.	
We look forward to a productive rulemaking for both the district and our industry.	

Sincerely,

Rita Loof

Director, Environmental Affairs

Responses to Radtech, Email Correspondence, submitted 1/18/23

- Response 11-1: Existing Rule 219 contains provisions to clarify when an exemption from a South Coast AQMD permit is appropriate; some based on product material, and some based on product usage. The information provided in the comment letter about permit fees is misleading as the referenced fees were specific to a high use, solvent-based operation that was adding a photoinitiator to a coating that would not comply with Rule 1136 - Wood Products Coatings. It is not appropriate to analyze the photoinitiator aspect of the coating operation as if it were separate from the solvent-based aspect. Additionally, in the specific example cited in the comment letter, the facility would not meet the existing Rule 219 low product usage provisions (i.e., one gallon per day or less or 22 gallons per calendar month or less). Finally, the claim that "The only reason these companies are being required a permit is because they added a UV material to their existing solvent borne coating" is inaccurate. Aside from the fact that there is only one identified example, the claim neglects the fact that the project also included the addition of a UV curing tunnel to the permanent total enclosure (PTE) that houses the coating lines. As such the equipment description on the existing permit no longer reflected the equipment at the facility. Significantly, the proposed amendments would exempt the additions of both the photoinitiator and the UV curing tunnel from the need for a permit application provided low-VOC coatings were used and the UV lamps were cooled with air drawn from within the Permanent Total Enclosure (PTE) rather than introducing air from outside the PTE for this purpose. Coating facilities utilizing PTEs as a control strategy are typically large sources of VOC emissions. Air flow and air velocities are the primary design criteria for PTEs to ensure that insufficient or excessive air flow does not result in fugitive VOC emissions from a permitted process contrary to South Coast AQMD rule requirements and permit conditions. This air flow is analyzed in an engineering evaluation by South Coast AQMD to follow EPA Method 204. Pursuant to EPA Method 204, "If the criteria are met and if all the exhaust gases from the enclosure are ducted to a control device, then the volatile organic compounds (VOC) capture efficiency (CE) is assumed to be 100 percent, and CE need not be measured. However, if part of the exhaust gas stream is not ducted to a control device, CE must be determined." These steps must be included in an engineering evaluation if additional air is introduced into a PTE for cooling purposes of a UV/EB system within a PTE.
- Response 11-2: The exemption condition referenced in the comment letter [included in clauses (d)(8)(H)(iii) and (d)(12)(L)(iii)] are necessary to ensure that there is not an increase in emissions associated with changes to equipment or processes. Evaluation of any modifications to the air flow is necessary to

ensure continued control device performance when equipment or processes have high VOC emission sources or when non-compliant coatings are used, and add-on controls are necessary. Furthermore, this comment specifically uses the example of introducing additional air "in order to cool UV lamps in order to prevent overheating and to ensure the substrate is not damaged." While it is true that this introduction of cooling air does not increase the amount of uncontrolled emissions generated by the coating or printing process, it does pose the very real possibility of adversely affecting the performance of the air pollution control system because (1) it may not be able to accommodate the additional air flow and (2) the resulting decrease in the exhaust stream's VOC concentration may impact the efficiency of the control device and/or require the use of additional supplemental fuel.

Response 11-3: As described in the preliminary draft staff report, the one-time submittal option described in the comment to replace ongoing recordkeeping was specifically identified by U.S. EPA as an area of deficiency that may impact Rule 219 SIP approval. Adequate recordkeeping requirements are essential to ensure Rule 219 could be approved into the SIP. As described in the preliminary draft staff report, only one facility has submitted a low-VOC verification form since the provisions were added in 2017.

Comment Letter #12 UV Specialties, LLC, submitted 1/18/23



January 18, 2023

Mr. Wayne Nastri Executive Officer South Coast Air Quality Management District <u>Wnastri@aqmd.gov</u>

Re: Proposed Amended Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II

Dear Mr. Nastri:

UV Specialties, LLC is involved in the manufacture and sale of UV curable coatings, with several clients in Southern California. We welcome the opportunity to comment on the proposed amendments to Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II. We very much appreciate the direction your board has given to staff to amend the rule in order to accommodate some of the latest innovations in our industry. While we appreciate staff's efforts, the current proposal does not take into consideration issues encountered by companies like our clients. The current rule treats all coating processes alike regardless of their environmental benefit. UV/EB/LED processes are not formulated with Volatile Organic Compounds (VOCs) or toxics air contaminants. Conversion away from solvent processes benefits the District and your Board has provided incentives in the form of regulatory flexibility through permit exemptions in Rule 219.

According to staff, the current rule language requires a permit for UV/EB/LED operations that are part of operations that also have solvent systems. It is unfair to attribute the emissions of a solvent system to a UV/EB/LED process with zero or near zero emissions simply because they are located in the same facility. This approach discourages facilities who are exploring conversion to UV/EB/LED but are unable to convert the entire facility. Businesses who are willing to invest in clean technologies should be encouraged to do so and saddling them with added permit costs is counterproductive to the District's mission.

The staff proposal to require permits whenever facilities change ducting in order to change air flow, is especially troublesome. We hope we can continue to work with staff to add language that would remedy the harm being done to businesses in the South Coast who are looking to partially convert to UV/EB/LED processes.

Sincerely,

Ann

Howard Ragin Partner, UV Specialties, LLC

Mailing Address: PO Box 435 Itasca, IL 60143 www. UVSpecialties. com Tel: (630) 587-0610 Fax: (630) 587-0609

Headquarters 3705 Stern Avenue St. Charles, IL 60174 12-1

12-2

Responses to UV Specialties, LLC, Email Correspondence, submitted 1/18/23

- Response 12-1: Please refer to response to comment 5-1.
- Response 12-2: Please refer to response to comment 5-2.

Comment Letter #13

Albertsons email, submitted 1/26/23

Subject: Additional questions in regards to PAR 219 and-PAR 222 - Albertson's Companies

Good Afternoon SCAQMD Staff,

After this most recent meeting with the Stationary Source Committee Board, we have some additional questions.

SCAQMD Rule 219 provides a permit exemption for small food ovens such as those in grocery stores. Although exempt from permitting, Rule 222 requires that small food ovens be registered with SCAQMD by filing a form and paying a fee. The registrations also require that grocery stores keep records of the food heated in each oven to demonstrate that volatile organic compound (VOC) emissions are less than one pound per day. We contacted SCAQMD staff to request rule revisions to ease the burden on grocery stores.

Rule 219 provides a blanket permit exemption for eating establishments. Since grocery stores prepare food for human consumption the SCAQMD could consider them eating establishments. We submitted a letter to District staff to request that they exempt grocery store food ovens the same as for eating establishments. As of today, we have not received a written response from SCAQMD.

During the SCAQMD Stationary Source Committee meeting on January 20 Michael Krause stated that the staff is proposing rule revisions that may allow monthly recordkeeping. However, it is not clear what the recordkeeping requirements will look like. Mr. Krause resisted the proposal to treat grocery stores like eating establishments, but stated that some grocery stores may be classified as "eating establishments."

1)	Where is the definition of "eating establishment" as referenced in Rules 219 and 222?	13-2
2)	Would records be required for all take-out or food delivery establishments with ovens?	13-3
3)	Conversely, would grocery stores with eating areas then be "eating establishments"?	13-4
4)	Would records be required for all grocery stores, even small mom & pop stores, panaderias, etc.?	13-5
5)	What is the District proposing for recordkeeping for food ovens in grocery stores?	13-6
6)	What about stores with more than one oven? Would records be required for each oven?	13-7
7)	What is the air quality benefit of keeping records from food ovens with calculated VOC emissions below 1 lb./day?	13-8
8)	What will the District do with these records?	13-9
9)	What would an inspector do if they found a store does not these records? Would they issue a notice of violation and fines at \$10,000/day?	13-10
And fi the rec emissi	nally, what about the idea of keeping the requirement to register food ovens, but eliminate cordkeeping burden? An inspector can always request information and determine VOC ons on their own.	13-11

13-1

Thank you, Sarah Kelsay Environmental Project Manager 551-265-0998 Cell Sarah.Kelsay@albertsons.com



A Think Green - please do not print this email unless necessary

Responses to Albertsons Email Correspondence, submitted 1/25/23

- Response 13-1: South Coast AQMD appreciates the involvement of Albertsons and their consultants in the PAR 219/222 development process and is grateful for information provided in the comment letters and on conference calls with South Coast AQMD staff. As mentioned, the existing Rule 219 food oven exemption provisions are for equipment with a rated maximum heat input capacity of 2,000,000 Btu/hour or less, fired exclusively on natural gas and the process VOC emissions are less than one pound per day. The one pound per day threshold is consistent with South Coast AQMD permitting procedures approved by U.S. EPA. For comments regarding recordkeeping provisions, please refer to response to comments 3-3 and 10-1.
- Response 13-2: Eating establishments are not defined in South Coast AQMD regulations but a statement has been added to the Draft Staff Report to clarify that for the purposes of Rule 219, eating establishments do not include facilities where food is prepared and packaged for subsequent sale, such as retail stores.
- Response 13-3: Food ovens used in eating establishments for the purpose of preparing food for human consumption is currently exempted from permits under existing Rule 219 [currently included in subparagraph (d)(9)(E) in PAR 219]. Under current Rule 219 practices, all sources must demonstrate an ability to qualify for a listed exemption from permits. Records to demonstrate that food ovens at a takeout and delivery establishment <u>is are</u> used for the purpose of preparing food for human consumption would be required.
- Response 13-4: As described in the Stationary Source Committee meeting, equipment that only serves the eating area in a grocery store could be exempt under the provisions for eating establishments (PAR 219 (d)(9)(E)). Equipment that serves the retail part of the grocery store does not qualify for such exemption but may still be exempt from permitting under PAR 219 (d)(2)(C). Please also refer to response to comment 13-3.
- Response 13-5: All facilities, including small business, that are seeking to be exempt from permits under Rule 219 are required to demonstrate that the equipment or process meets the applicable thresholds. Facilities that own or operate emission sources or equipment subject to Rule 222 filing requirements are required to maintain records sufficient to verify the description of the emission sources or equipment and that they are in compliance with operating conditions. As described in the staff report, this may involve documentation that the worst case or highest emission potential for any equipment, processes, or operations is below the stated exemption

provision, parameter, requirement, or limitation. Please also refer to response to comment 10-1.

- Response 13-6: Please refer to response to comment 3-3 for a discussion on the PAR 222 provisions to address grocery store stakeholder comments on recordkeeping.
- Response 13-7: Rule 222 filings are by emission source or equipment (not by facility). As such, the daily limit of 1 lb. per day for food ovens is applicable for each piece of equipment. Verifications/records that are based on emissions from all food ovens at a facility are considered acceptable as long as the facility-wide emissions from this source category is below the daily limit for each piece of equipment.
- Response 13-8: Under South Coast AQMD permitting procedures, a person shall not operate or use any equipment that emits or controls air contaminant without receiving a permit to operate, unless the equipment or activity is exempt under Rule 219. As described in the staff report, Rule 219 includes provisions that require facilities to demonstrate eligibility for a Rule 219 exemption from being required to obtain permits. Similarly, facilities that submit a Rule 222 filing as an alternative to permits must demonstrate compliance with operating parameters included in the Rule 222 filing. These provisions are necessary to ensure that only eligible equipment or operations (i.e., those with low emissions) are exempted from obtaining a permit. Please also refer to response to comment 10-2.
- Response 13-9: Rule 219 and Rule 222 do not require the submittal of a demonstration that equipment is exempted from permits under 219 or that equipment is meeting operating conditions listed in a Rule 222 filing. Instead, this information must be made available to South Coast AQMD compliance staff as part of compliance inspections. These provisions apply to all applicable sources.
- Response 13-10: During a compliance inspection, an inspector may take various enforcement actions, including issuing a Notice to Comply or a Notice of Violation, if a facility is found to be in violation of any South Coast AQMD rules or regulations. If a Notice of Violation is issued, civil penalties are assessed on a case-by-case basis in accordance with Health and Safety Code Section 42402, *et seq*.
- Response 13-11: PAR 222 does not change filing requirements for facilities operating food ovens but an exemption provision [subparagraph (d)(9)(O)] has been added to PAR 219 to clarify that <u>small</u> food ovens that do not <u>bake uncooked</u> <u>yeast-containing products</u>emit process VOC emissions are exempt from the

requirement to obtain a permit. Food ovens exempt from permitting under PAR 219 (d)(9)(O) would not be required to submit registration under PAR 222. Please refer to response to comments 3-3, 10-1 and 13-6 for a description of clarifications to recordkeeping provisions for operators of food ovens.

Comment Letter #14

Albertsons Companies, submitted 2/7/23



February 7, 2023

Mike Krause Assistant Deputy Executive Officer, Planning, Rule Development and Implementation South Coast Air Quality Management District Phone: (909) 396-2706 E-mail: MKrause@aqmd.gov

Subject: Additional Comments on PAR 219 & 222 for Albertsons Companies, Inc.

Dear Mr. Krause:

Thank you for meeting with us on February 2, 2023, to discuss the comments Albertsons submitted to the SCAQMD for PAR 219 & 222, and the subsequent response. We recognize that the District has proposed constructive changes to Rule 219 and 222 that address some of our concerns.

Kalam Cheung emailed us on 2/2/23 with additional changes to the rules:

Based on the conversation, we are proposing to add the following sentence (highlighted in yellow) to the staff report under the Rule 222 Subdivision (d) recordkeeping discussion (page 3-4) to clarify an alternative methodology to demonstrate VOC emissions are below the daily limit.

"Food ovens with low process VOC emissions may also demonstrate compliance with the daily limit by calculating the maximum potential to emit assuming full operations including 24 hours of operating hours and maximum loading/throughput. Alternatively, a survey of emissions from food ovens based on representative worst-case operating parameters (e.g., oven size, operating hours) may be used to demonstrate that maximum potential VOC emissions are below the daily limit."

Additionally, as discussed in the meeting, food ovens that meet the following PAR 219 provisions would not be subject to Rule 222 registration requirements.

PAR 219, subparagraph (d)(9)(O): Food ovens with a rated maximum heat input capacity of 325,000 Btu/hour or less, that are fired exclusively on natural gas, where no <u>baking</u> occurs, <u>and no emissions other than products of combustion</u> occur.

DISCUSSION AND PROPOSED RULE LANGUAGE

The phrase "no emissions other than products of combustion" is problematic. It suggests that an operator has knowledge of the air emissions from heating food with no supporting data or guidance. For example, if there are odors from baking chocolate chip cookies, there are some air emissions; but the nature of those emissions is undefined. Whenever food is heated in an oven there is the possibility of emissions other than

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Amigos UP Willow Research Albertsons SAFEWAY () Frances pwillows shares

14-1

Albertsons

products of combustion. Has the District provided any guidance on what foods, when heated, emit air contaminants, or which do not? When would this exemption be used?

The term "baking" is not defined. We understand that the intent is to exclude bakery ovens processing yeast-containing-products where VOC emissions result from proofing and baking these products. Many of the products processed in the grocery store ovens are previously mixed, proofed and frozen at another facility where the VOC emissions are accounted for at the point of manufacture. No significant VOC emissions are expected from heating frozen products in the store ovens. Since this exemption is clearly for food ovens, we suggest the following alternative for PAR 219(d)(9)(O):

Food ovens with a rated maximum heat input capacity of 325,000 Btu/hour or less, that are fired exclusively on natural gas, except for ovens used for proofing and baking products where yeast is added to the product shortly before baking.

CONCLUSION

Albertsons appreciates your consideration of these comments and requests that the SCAQMD consider the burden on grocery stores, which provide essential products for the community. We look forward to your response after reviewing this letter. We are available for a meeting with SCAQMD staff if it will be helpful.

Sincerely,

Saklehr

Sarah Kelsay Project Manager; Environmental, Risk and Compliance Albertsons Companies, Inc (551) 265-0998 Sarah.Kelsay@albertsons.com

cc: Yunnie Osias, SCAQMD Mike Laybourn, SCAQMD Kalam Cheung, SCAQMD Jane Anderson, Albertsons Peter Moore, Yorke Engineering Judy Yorke, Yorke Engineering Joseph Steirer, Yorke Engineering Jameson Edwards, Yorke Engineering

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 14-1 (cont.)

Responses to Albertsons Companies, Email Correspondence, submitted 2/7/23

Response 14-1:A new exemption was added in subparagraph (d)(9)(O) of Draft PAR 219for small food ovens with no process VOC emissions. Equipment exempted
under subparagraph (d)(9)(O) would not be subject to a Rule 222 filing.
Concerns about implementation of such provisions based on the different
types of food preparation operations at grocery stores and operator
knowledge of emission sources are acknowledged. PAR 219 subparagraph
(d)(9)(O) has then been further revised to clarify the provision is for small
food ovens, fueled exclusively on natural gas, provided the ovens are not
used to bake uncooked yeast-containing products.



SUBJECT: NOTICE OF EXEMPTION FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT

PROJECT TITLE: PROPOSED AMENDED RULE 219 – EQUIPMENT NOT REQUIRING A WRITTEN PERMIT PURSUANT TO REGULATION II, AND PROPOSED AMENDED RULE 222 – FILING REQUIREMENTS FOR SPECIFIC EMISSION SOURCES NOT REQUIRING A WRITTEN PERMIT PURSUANT TO REGULATION II

Pursuant to the California Environmental Quality Act (CEQA) Guidelines, the South Coast Air Quality Management District (South Coast AQMD), as Lead Agency, has prepared a Notice of Exemption pursuant to CEQA Guidelines Section 15062 – Notice of Exemption for the project identified above.

If the proposed project is approved, the Notice of Exemption will be filed for posting with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino Counties. The Notice of Exemption will also be electronically filed with the State Clearinghouse of the Governor's Office of Planning and Research for posting on their CEQAnet Web Portal which may be accessed via the following weblink: <u>https://ceqanet.opr.ca.gov/search/recent</u>. In addition, the Notice of Exemption will be electronically posted on the South Coast AQMD's webpage which can be accessed via the following weblink: <u>http://www.aqmd.gov/nav/about/public-notices/ceqanotices/notices-of-exemption/noe---year-2023</u>.

NOTICE OF EXEMPTION FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

To:	County Clerks for the Counties of Los	From:	South Coast Air Quality Management
	Angeles, Orange, Riverside and San		District
	Bernardino; and Governor's Office of		21865 Copley Drive
	Planning and Research – State Clearinghouse		Diamond Bar, CA 91765

Project Title: Proposed Amended Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II, and Proposed Amended Rule 222 – Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II

Project Location: The proposed project is located within the South Coast Air Quality Management District's (South Coast AQMD) jurisdiction, which includes the four-county South Coast Air 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.

Description of Nature, Purpose, and Beneficiaries of Project: Proposed Amended Rule 219 (PAR 219) contains changes to: 1) address comments raised by United States Environmental Protection Agency (U.S. EPA); 2) address South Coast AQMD Governing Board's direction to encourage the use of low-emission technologies; 3) remove rule ambiguities and improve clarity; and 4) address stakeholder requests. The key changes include: 1) adding new equipment categories that are exempt from permitting requirements including ultraviolet (UV)/electron beam (EB)/ UV light emitting diodes (LED) technology and other low-emission curing technologies, and gas insulating equipment that has a low potential to emit volatile organic compounds (VOCs); 2) adding a separate exemption for small food ovens with no process VOC emissions that are not subject to registration requirements in Rule 222; 3) updating emissions thresholds for non-Title V agricultural sources; 4) clarifying that recordkeeping requirements apply to all emission sources and removing two compliance options which do not require continuous recordkeeping requirements for Printing and Reproduction Equipment and Coating and Adhesive Process/Equipment; 5) removing Rule 222 requirements from Rule 219 since registration is not the basis for determining if specific equipment should be exempted from permit requirements; 6) clarifying that the exemption from permitting for identical replacement in whole or in part of any equipment at federal major sources that has been issued a permit must be based on U.S. EPA guidance in determining what qualifies as "routine maintenance, repair, and replacement" (RMRR); and 7) amending the exemption provisions specific to remote reservoir cleaners and manually operated abrasive blasting cabinets. PAR 219 further includes other edits throughout the rule to improve clarity, consistency, enforceability and to remove ambiguity, including restructuring the format to align with other South Coast AQMD rules without changing rule requirements. Implementation of PAR 219 will improve enforceability, clarify recordkeeping, and may encourage the usage of low-emission technologies. Proposed Amended Rule 222 (PAR 222) includes: 1) updates to align with the changes proposed in PAR 219; 2) minor rule language revisions; 3) an additional recordkeeping option for food ovens; and 4) a new subdivision for exemptions to improve rule clarity. Implementing PAR 219 and PAR 222 will benefit stakeholders by improving clarity and overall understanding of requirements by removing ambiguities and providing additional options for selecting low-emission technologies.

Public Agency Approving Project:	Agency Carrying Out Project:
South Coast Air Quality Management District	South Coast Air Quality Management District

Exempt Status:

CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption

NOTICE OF EXEMPTION FROM CEQA (concluded)

Reasons why project is exempt: South Coast AQMD, as Lead Agency, has reviewed the proposed project (PAR 219 and PAR 222) pursuant to: 1) CEQA Guidelines Section 15002(k) – General Concepts, the three-step process for deciding which document to prepare for a project subject to CEQA; and 2) CEQA Guidelines Section 15061 – Review for Exemption, procedures for determining if a project is exempt from CEQA. The proposed project contains revisions to improve clarity and enforceability of both rules without requiring physical modifications. Further, PAR 219 adds new equipment categories that are eligible to be exempted from permitting requirements because they have low potential to emit. Both PAR 219 and PAR 222 will continue to encourage the use of equipment with fewer emissions relative to other equipment that would require an air permit, resulting in a potential but unquantifiable benefit to air quality such that it can be seen with certainty that implementing PAR 219 and PAR 222 would not cause a significant adverse effect on the environment. Therefore, the proposed project is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption.

Date When Project Will Be Considered for Approval (subject to change):

South Coast AQMD Governing Board Public Hearing: March 3, 2023

CEQA Contact Person:	Phone Number: (909) 396-3022	Email:	Fax:
Farzaneh Khalaj, Ph.D.		<u>fkhalaj@aqmd.gov</u>	(909) 396-3982
PARs 219 & 222 Contact Person:	Phone Number: (909) 396-3219	Email:	Fax:
Yunnie Osias		yosias@aqmd.gov	(909) 396-3982

 Date Received for Filing:
 Signature:
 (Signed and Dated Upon Board Approval)

 Barbara Radlein
 Program Supervisor, CEQA

 Planning, Rule Development, and Implementation

Board Meeting



Proposed Amended Rule 219 - Equipment Not Requiring a Written Permit Pursuant to Regulation II

Proposed Amended Rule 222 - Filing Requirements for Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II

March 3, 2023

Background – Rule 219 and Rule 222

 Administrative rules that are applied during South AQMD permitting process

Rule 219 identifies equipment, processes, or operations that are exempt from permitting requirements due to low or no emissions

Rule 222 establishes a filing (or registration) program, as an alternative for permits, for low emission sources

Proposed Amended Rule 219 (PAR 219)

Address U.S. EPA comments

- Clarified recordkeeping provisions
- Resolved potential SIP deficiencies

Encourage lowemission technologies

 Provided additional permitting relief when adding lowemitting curing technology under specified criteria

Improve rule clarity

- Reformatted rule
 structure
- Used consistent terminology

Additional Exemptions

- Added exemptions from permits for
 - Gas-insulating
 equipment
 - Small food ovens

Proposed Amended Rule 222 (PAR 222)

Align with PAR 219 revisions

• Updated Rule references

Minor Rule clarifications

Added Exemptions subdivision

Recordkeeping

 Added alternative options for food ovens

Public Process

- Worked closely with stakeholders to resolve issues
- Site visits and individual meetings held to discuss proposals
- One remaining issue



UV/EB/LED – Low-Emission Curing Technologies

- Stakeholder Comments
- Adding UV/EB/LED technologies, and associated cooling air, to an existing permitted process does not increase emissions and should not require permits

Staff Responses

- Existing Rule 219 includes provisions that relieve UV/EB/LED technologies from permits (low emission/low use conditions)
- PAR 219 includes additional permitting *relief* with criteria to ensure:
 - Facilities remain in compliance with existing permits
 - Emissions do not increase
 - Existing air pollution capture/control devices continue to perform at their permitted efficiencies



Impact Assessment and CEQA

- Rule 219 and Rule 222 are administrative rules that apply to equipment with low or no emissions
 - Proposed amendments not expected to reduce emissions
- Minimal additional costs anticipated clarifications under PAR 219 and PAR 222 reflect current business practices
- It can be seen with certainty that PAR 219 and PAR 222 would not cause a significant adverse effect on the environment

Staff Recommendation

Adopt Resolution

- Determining that Proposed Amended Rule 219 and Proposed Amended Rule 222 are exempt from the requirements of CEQA; and
- Amending Rules 219 and 222



BOARD MEETING DATE: March 3, 2023

PROPOSAL: Determine That Proposed Amended Rule 1401.1 – Requirements for New and Relocated Facilities Near Schools, Is Exempt from CEQA; and Amend Rule 1401.1

- SYNOPSIS: The school definition in recently adopted or amended air toxics rules includes early learning and development programs, such as pre-kindergarten centers, to expand the protection to younger children. Amendments are proposed to harmonize the definition of school in Rule 1401.1 with other air toxic rules.
- COMMITTEE: Stationary Source, January 20, 2023, Reviewed

RECOMMENDED ACTIONS:

Adopt the attached Resolution:

- Determining that Proposed Amended Rule 1401.1 Requirements for New and Relocated Facilities Near Schools, is exempt from the requirements of the California Environmental Quality Act; and
- 2. Amending Rule 1401.1.

Wayne Nastri Executive Officer

SR:MK:KC:ML:DC

Background

South Coast AQMD has a robust regulatory program to address toxic air contaminants (TACs), including South Coast AQMD Rule 1401 – New Source Review of Toxic Air Contaminants; Rule 1401.1 – Requirements for New and Relocated Facilities Near Schools for permitting actions; and Rule 1402 – Control of Toxic Air Contaminants from Existing Sources, which implements the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588). Rule 1401.1 is designed to be more health-protective for school children by establishing more stringent risk requirements related to facility-wide cancer risk, non-cancer acute hazard index, and chronic hazard index for

new and relocated facilities emitting TACs near schools. In the last few years, the definition of "school" included in several South Coast AQMD air toxics rules has been updated to include early learning and development programs that include centers serving pre-kindergarten children.

Proposal

Proposed Amended Rule 1401.1 (PAR 1401.1) would incorporate the expanded definition of "school" used in other recently amended and adopted air toxics rules to include early learning and development programs. PAR 1401.1 also establishes consistency with other South Coast AQMD air toxics rules by extending protections to unimproved school property where children may gather or where future development may occur. Rule 1401.1 had previously excluded unimproved school property in the definition for school. PAR 1401.1 also includes minor administrative amendments to improve the clarity of provisions in the rule.

PAR 1401.1 would extend the existing Rule 1401.1 provisions afforded to children in kindergarten through grade 12 to younger children at early learning and development centers. As a result of PAR 1401.1, any new or relocated facility sited near an early learning and development center that submits permit applications for new or modified equipment would need to demonstrate that the applicable risk requirements are met as required in Rule 1401.1. Facilities that cannot meet the Rule 1401.1 risk requirements would have the option to limit their throughput, capacity, or hours of operation by accepting permit conditions; install additional controls; establish minimum distances from a school, or locate or relocate elsewhere within the same general area, rather than near a school, to ensure that Rule 1401.1 risk requirements are met.

Public Process

PAR 1401.1 was developed through a public process. A Public Workshop was held remotely on December 13, 2022, to solicit rule input and build and maintain community relations.

Key Issues

No key issues were identified during the PAR 1401.1 rule development process.

California Environmental Quality Act (CEQA)

Pursuant to the CEQA Guidelines Sections 15002(k) and 15061, the proposed project (PAR 1401.1) is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3). A Notice of Exemption has been prepared pursuant to CEQA Guidelines Section 15062 and is included as Attachment H to this Board letter. If the proposed project is approved, the Notice of Exemption will be filed for posting with the State Clearinghouse of the Governor's Office of Planning and Research, and with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino Counties.

Socioeconomic Analysis

The requirements of PAR 1401.1 potentially affect facilities submitting permit applications for equipment with the potential to emit toxic air contaminants, which include, but are not limited to, manufacturing (NAICS 31-33), technical services (NAICS 54), and other services (NAICS 81). Potential PAR 1401.1 socioeconomic impacts were evaluated by comparing the locations of new and relocated facilities submitting permit applications over the last five years to early learning and development center locations. Based on this assessment, out of approximately 6,000 applicable facilities that submitted permit applications within the last five years, an average of 91 facilities would have been subject to additional review on an annual basis under the provisions of PAR 1401.1. Of the facilities that would have been potentially affected, 98 percent may be classified as small businesses. Facilities subject to a Rule 1401.1 evaluation most often accept permit conditions if necessary to comply with health risk thresholds. Still, for the purposes of this socioeconomic assessment, it has been conservatively estimated that ten percent of facilities (nine) may potentially prepare a detailed Health Risk Assessment (HRA) and incur costs for dispersion modeling of toxic air contaminant emissions in a given year. Based on the historical permitting data in the South Coast AQMD, the total annual compliance cost for PAR 1401.1 is estimated at \$158,000 per year from approximately nine facilities that would prepare a Tier 3 or 4 HRA demonstration during the permitting process. The regional macroeconomic job impacts of PAR 1401.1 are expected to be minimal.

AQMP and Legal Mandates

Rule 1401.1 is, in part, mandated by state requirements. The proposed amendments are for consistency with the South Coast AQMD air toxics rules and do not implement an AQMP control measure.

Implementation and Resource Impact

Existing South Coast AQMD resources are adequate to implement PAR 1401.1.

Attachments

- A. Summary of Proposal
- B. Key Issues and Responses
- C. Rule Development Process
- D. Key Contacts List
- E. Resolution
- F. Proposed Amended Rule 1401.1
- G. Final Staff Report with Socioeconomic Impact Assessment
- H. Notice of Exemption from CEQA
- I. Board Meeting Presentation

ATTACHMENT A SUMMARY OF PROPOSAL

Proposed Amended Rule 1401.1 – Requirements for New and Relocated Facilities Near Schools

Applicability

• Includes language to clarify that permit applications will be evaluated based on the Rule 1401.1 provisions in effect at the time the application is deemed complete.

Definitions

- Expands definition of school to include early learning and development centers, including those that serve pre-kindergarten children to increase protections and to ensure consistency with other South Coast AQMD air toxics rules.
- Incorporates unimproved school property into the school definition to expand protections to areas that may be used by children or be developed in the future.

Minor Administrative Amendments

• Corrects two rule references in Tables 1 and 2 of existing Rule 1401.1.

ATTACHMENT B KEY ISSUES AND RESPONSES

Proposed Amended Rule 1401.1 – Requirements for New and Relocated Facilities Near Schools

No key issues were identified during the PAR 1401.1 development process.

RULE DEVELOPMENT PROCESS

Proposed Amended Rule 1401.1 – Requirements for New and Relocated Facilities Near Schools



Six (6) months spent in rule development One (1) Public Workshop One (1) Stationary Source Committee Meeting

ATTACHMENT D KEY CONTACTS LIST

Proposed Amended Rule 1401.1 – Requirements for New and Relocated Facilities Near Schools (*listed alphabetically*)

- California Department of Social Services
- California Department of Transportation
- Long Beach Unified School District
- Los Angeles Unified School District
- Moses Huerta
- Office of Environmental Health Hazard Assessment

RESOLUTION NO. 23-____

A Resolution of the Governing Board of the South Coast Air Quality Management District (South Coast AQMD) determining that Proposed Amended Rule 1401.1 – Requirements for New and Relocated Facilities Near Schools (Proposed Amended Rule 1401.1), is exempt from the requirements of the California Environmental Quality Act (CEQA).

A Resolution of the South Coast AQMD Governing Board amending Rule 1401.1 – Requirements for New and Relocated Facilities Near Schools.

WHEREAS, the South Coast AQMD Governing Board finds and determines that Proposed Amended Rule 1401.1 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 after conducting a review of the proposed project in accordance with CEQA Guidelines Section 15002(k) – General Concepts, the three-step process for deciding which document to prepare for a project subject to CEQA, and CEQA Guidelines Section 15061 – Review for Exemption, procedures for determining if a project is exempt from CEQA, that Proposed Amended Rule 1401.1 is exempt from CEQA; and

WHEREAS, the South Coast AQMD Governing Board finds and determines that because the proposed project expands the definition of a school and makes other administrative changes but does not contain any new provisions that would require physical modifications to new or relocated facilities subject to the rule, it can be seen with certainty that implementing the proposed project would not cause any significant adverse effects on the environment, and is therefore, exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption; and

WHEREAS, the South Coast AQMD staff has prepared a Notice of Exemption for the proposed project that is completed in compliance with CEQA Guidelines Section 15062 – Notice of Exemption; and

WHEREAS, Proposed Amended Rule 1401.1 and supporting documentation, including but not limited to, the Notice of Exemption, the Socioeconomic Impact Assessment that is contained in the Final Staff Report, and the Final Staff Report 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 any modifications to Proposed Amended Rule 1401.1 since the Notice of Public Hearing was published, are not so substantial as to significantly affect the meaning of Proposed Amended Rule 1401.1 within the meaning 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 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 Proposed Amended Rule 1401.1 is exempt from CEQA; 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 1401.1 to extend the health protection features of existing Rule 1401.1 to include early learning and development programs, including those centers that serve pre-kindergarten children, consistent with the findings on early-life exposure from the Office of Environmental Health Hazard Assessment. PAR 1401.1 will also improve clarity and consistency with other South Coast AQMD air toxic rules; and will include unimproved school property in the definition of a school; 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, 40702, 41508, and 41700; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Amended Rule 1401.1 is written and 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 1401.1 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 1401.1 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, South Coast AQMD; and

WHEREAS, the South Coast AQMD Governing Board, in amending Rule 1401.1, references the following statutes which the South Coast AQMD hereby implements, interprets, or makes specific: Health and Safety Code Sections 39666 (new source review rules for toxics) and 41700 (nuisance) 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 1401.1 is included in the Final Staff Report; and

WHEREAS, the South Coast AQMD Governing Board has determined that the Socioeconomic Impact Assessment, contained in the Final Staff Report for Proposed Amended Rule 1401.1, 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 Socioeconomic Impact Assessment, contained in the Final Staff Report, 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 Amended Rule 1401.1 does not include new Best Available Retrofit Control Technology (BARCT) requirements nor a feasible measure pursuant to Health and Safety Code Section 40914, therefore analyses for cost-effectiveness and incremental costeffectiveness consistent with the Health and Safety Code Section 40920.6 are not applicable; and

WHEREAS, the South Coast AQMD Governing Board has determined Proposed Amended Rule 1401.1 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 Staff Report; and

WHEREAS, the South Coast AQMD Governing Board has actively considered the Socioeconomic Impact Assessment, contained in the Final Staff Report, and has made a good faith effort to minimize such impacts; and

WHEREAS, the South Coast AQMD staff conducted a public workshop meeting on December 13, 2022 regarding Proposed Amended Rule 1401.1; 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 applicable provisions of law; and

WHEREAS, the South Coast AQMD specifies the Planning, Rule Development and Implementation Manager overseeing the rule development of Proposed Amended Rule 1401.1 as the custodian of the documents or other materials which constitute the record of proceedings upon which the adoption of the proposed amended rule is based, which are located at the South Coast Air Quality Management District, 21865 Copley Drive, Diamond Bar, California; and

WHEREAS, Proposed Amended Rule 1401.1 will not be submitted for inclusion into the State Implementation Plan; 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 proposed project is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption. This information was 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 the proposed project; 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 1401.1 as set forth in the attached, and incorporated herein by reference.

DATE: _____

CLERK OF THE BOARDS
ATTACHMENT F

(Adopted November 4, 2005)(Amended June 5, 2015)(Amended March 3, 2023)

PROPOSED AMENDED RULE 1401.1 REQUIREMENTS FOR NEW AND RELOCATED FACILITIES NEAR SCHOOLS

(a) Purpose

The purpose of this rule is to provide additional health protection to children at <u>sS</u>chools or <u>sS</u>chools <u>uUnder eC</u>onstruction from <u>nNew Facilities</u> or <u>rR</u>elocated <u>fFacilities</u> emitting toxic air contaminants.

(b) Applicability

This rule applies to $\underline{nNew Facilities}$ and $\underline{FRelocated Facilities}$, but not to $\underline{eExisting}$ $\underline{FFacilities}$. Applications for Permit to Construct/Operate from such \underline{nNew} <u>Facilities</u> or $\underline{FRelocated fFacilities}$ shall be evaluated under this rule's provisions, <u>using</u> the list of toxic air contaminants in the version of Rule 1401, and the risk assessment procedures that are in effect at the time the application is deemed complete.

- (c) Definitions
 - (1) CANCER RISK means, for the purpose of this rule, the estimated probability of an exposed individual contracting cancer as a result of exposure to toxic air contaminants at a <u>sS</u>chool or a <u>sS</u>chool <u>uU</u>nder <u>eC</u>onstruction calculated pursuant to Rule 1401-(d).
 - (2) CALIFORNIA ENVIRONMENTAL QUALITY ACT NOTICE (CEQA NOTICE) means, for the purpose of this rule, a Notice of Preparation of project level Environmental Impact Report was sent to the appropriate agencies pursuant to Section 15082 of the CEQA Guidelines or a Notice of Intent to Adopt a Negative Declaration or Mitigated Negative Declaration was provided to the parties pursuant to Section 15072 pursuant to the CEQA Guidelines.
 - (3) EXISTING FACILTY means any fE acility that:
 - (A) demonstrates to the satisfaction of the Executive Officer that it had equipment requiring a Permit to Construct/Operate that was in operation prior to November 4, 2005 or
 - (B) has an application for Permit to Construct/Operate that is deemed

complete prior to February 2, 2006.

- (4) FACILITY means any pPermit uUnit or grouping of pPermit uUnits or other air contaminant-emitting activities which are located on one or more contiguous properties within the District, 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 groupings, if noncontiguous, but connected only by land carrying a pipeline, shall not be considered one facility. Notwithstanding the above, sources or installations involved in crude oil and gas production in Southern California Coastal or OCS Waters and transport of such crude oil and gas in Southern California Coastal or OCS Waters shall be included in the same facility which is under the same ownership or use entitlement as the crude oil and gas production facility on-shore.
- (5) FACILITY-WIDE ACUTE HAZARD INDEX (HI) means the sum of the calculated iIndividual sSubstance aAcute hHazard iIndices for the target organ due to all toxic air contaminants emitted from all equipment requiring a written permit to operate at the fEacility.
- (6) FACILITY-WIDE CANCER RISK means the sum of the calculated $e\underline{C}$ ancer \underline{FR} is k values for all toxic air contaminants emitted from all equipment requiring a written permit to operate at the \underline{F} acility.
- (7) FACILITY-WIDE CHRONIC HAZARD INDEX (HI) means the sum of the calculated iIndividual sSubstance eChronic hHazard iIndices for the target organ due to all toxic air contaminants emitted from all equipment requiring a written permit to operate at the fEacility.
- (8) INDIVIDUAL SUBSTANCE ACUTE HAZARD INDEX (HI) means the ratio of the estimated maximum one-hour concentration of a toxic air contaminant for a potential maximally exposed individual at the <u>sS</u>chool to its acute reference exposure level.
- (9) INDIVIDUAL SUBSTANCE CHRONIC HAZARD INDEX (HI) means the ratio of the estimated long-term level of exposure to a toxic air contaminant for a potential maximally exposed individual at the <u>sS</u>chool to its chronic reference exposure level. The chronic hazard index calculations shall include multipathway consideration, if applicable.
- (10) MODIFICATION means any physical change in, change in method of

operation, or addition to an existing <u>pP</u>ermit <u>uU</u>nit that requires an application for a Permit to Construct/Operate. Routine maintenance and/or repair shall not be considered a physical change. A change in the method of operation of equipment, unless previously limited by an enforceable permit condition, shall not include:

- (A) an increase in the production rate, unless such increase will cause the maximum design capacity of the equipment to be exceeded; or
- (B) an increase in the hours of operation; or
- (C) a change in ownership of a source; or
- (D) a change in formulation of the materials processed which will not result in a net increase of the MICR, cancer burden, or chronic or acute HI from the associated permit unit.

For <u>fFacilities</u> that have been issued a <u>fFacility</u> permit pursuant to Regulation XX or a Title V permit pursuant to Regulation XXX, modification means any physical change in, change in method of operation of, or addition to an existing individual article, machine, equipment or other contrivance which would have required an application for a permit to construct and/or operate, were the unit not covered under a <u>fFacility</u> permit or Title V permit.</u></u>

- (11) NEW FACILITY means a <u>F</u>acility or an operation that is not an <u>eExisting Facility</u> or <u>FR</u>elocated <u>FFacility</u>.
- (12) PERMIT UNIT means any article, machine, equipment, or other contrivance, or combination thereof, which may cause or control the issuance of air contaminants, and which requires a written permit pursuant to Rules 201 and/or 203. For facilities that have been issued a <u>#Facility permit or Title V permit, a permit unit for the purpose of this rule means any individual article, machine, equipment or other contrivance which may cause or control the issuance of air contaminants and which would require a written permit pursuant to Rules 201 and/or 203 if it were not covered under a <u>#Facility permit or Title V permit.</u> For publicly-owned sewage treatment operations, each process within multiprocess permit units at the <u>#Facility shall be considered a separate permit unit for purposes of this rule.</u></u>
- (13) RELOCATED FACILITY means the removal of all existing permitted equipment, remaining under the same ownership, from one parcel of land and installation of the same equipment or functionally identical

replacement of the equipment at another parcel of land where the two parcels are not in actual physical contact and are not separated solely by a public roadway or other public right-of-way.

- (14) SCHOOL means any public or private school, including juvenile detention facilities with classrooms, used for purposes of the education of more than 12 children at the school_, including_in kindergarten through and grades 1 to_12, inclusive, but does not include any private school in which education is primarily conducted in private homes. School also means an Early Learning and Developmental Program by the U.S. Department of Education or any state or local early learning and development programs such as pre-schools, Early Head Start, Head Start, First Five, and Child Developmental Centers. A sSchool does not include any private school in which education is primarily conducted in private homes. The term includes any building or structure, playground, athletic field, or other area of school property, but does not include unimproved school property.
- (15) SCHOOL UNDER CONSTRUCTION means any property that meets any of the following conditions and the Executive Officer has been notified:
 - (A) construction of a sS chool has commenced; or
 - (B) of a CEQA Notice for the construction of a \underline{sS} chool; or
 - (C) a <u>sS</u>chool has been identified in an approved local government specific plan.

A <u>sS</u>chool <u>uUnder eC</u>onstruction is effective upon the date in which any one of the activities specified in either subparagraph (c)(15)(A), (c)(15)(B), or (c)(15)(C) occurs or the date the Executive Officer has received notification of the activities, whichever is later.

(d) Risk Requirements for New Facilities

The Executive Officer shall deny a Permit to Construct/Operate at a $\underline{nN}ew$ $\underline{fF}acility$ for any $\underline{pP}ermit \underline{uU}nit$ that emits any toxic air contaminant listed in Table I of Rule 1401 unless the applicant has substantiated to the satisfaction of the Executive Officer that all of the following requirements, as applicable, have been achieved. For the purpose of this rule, the $\underline{eC}ancer \underline{rR}isk$ and hazard indices shall be calculated pursuant to Rule 1401 and the applicable risk assessment procedures. Requirements for new facilities are summarized in Table 1 –

Summary of Requirements for New Facilities.

- (1) A <u>nNew fFacility</u> with a toxic-emitting source that is within 500 feet from the outer boundary of a <u>sS</u>chool or <u>sS</u>chool <u>uUnder eC</u>onstruction shall comply with all of the following requirements.
 - (A) Cancer Risk

The <u>fF</u>acility-<u>wW</u>ide <u>eC</u>ancer <u>rR</u>isk shall not exceed one in one million

(1 x 10⁻⁶) at any <u>sS</u>chool or <u>sS</u>chool <u>uU</u>nder <u>eC</u>onstruction within 500 feet of the toxic-emitting <u>pP</u>ermit <u>uU</u>nit(s) at the <u>fF</u>acility; and

(B) Chronic Hazard Index

The <u>fFacility-wWide eChronic HI</u> for any target organ system shall not exceed 1.0 at any <u>sSchool</u> or <u>sSchool</u> <u>uUnder</u> <u>eConstruction within 500 feet of the toxic-emitting <u>pPermit uUnit</u> (s) at the <u>fFacility</u>; and</u>

(C) Acute Hazard Index

The <u>fFacility-wWide aAcute HI</u> for any target organ system shall not exceed 1.0 at any <u>sSchool</u> or <u>sSchool</u> <u>uU</u>nder <u>eC</u>onstruction within 500 feet of the toxic-emitting <u>pPermit</u> <u>uU</u>nit(s) at the <u>fFacility</u>.

- (2) For a <u>nNew fFacility</u> where the closest outer boundary of a <u>sS</u>chool or <u>sS</u>chool <u>uUnder eC</u>onstruction is between 500 to 1,000 feet from the toxic-emitting <u>pP</u>ermit <u>uUnit(s)</u> and there is no residential or sensitive receptor within 150 feet of the proposed toxic-emitting <u>pP</u>ermit <u>uUnit(s)</u>, the <u>fFacility</u> shall not exceed the risk levels specified in subparagraphs (d)(1)(A), (d)(1)(B), and (d)(1)(C) at any <u>sS</u>chool or <u>sS</u>chool <u>uUnder</u> <u>eC</u>onstruction within 1,000 feet of the toxic-emitting <u>pP</u>ermit <u>uUnit(s)</u> at the <u>fFacility</u>.
- (e) Risk Requirements for Relocated Facilities

The Executive Officer shall deny a Permit to Construct/Operate at a $\pm \underline{R}$ elocated $\pm \underline{F}$ acility for any \underline{P} Permit $\pm \underline{U}$ nit that emits any toxic air contaminant listed in Table I of Rule 1401 unless the applicant has substantiated to the satisfaction of the Executive Officer that all of the following requirements, as applicable, have been achieved. For the purpose of this rule, the eCancer $\pm \underline{R}$ isk and hazard indices shall be calculated pursuant to Rule 1401 and the applicable risk assessment procedures. Requirements for $\pm \underline{R}$ elocated $\pm \underline{F}$ acilities are summarized in Table 2 –

Summary of Requirements for Relocated Facilities. For each <u>sS</u>chool or <u>sS</u>chool <u>uUnder eC</u>onstruction whose outer boundary is within 500 feet of the toxicemitting <u>pP</u>ermit <u>uUnit</u> (s) at a <u>rR</u>elocated <u>fFacility</u>, the <u>rR</u>elocated <u>fFacility</u> shall demonstrate that either:

- (1) The fEacility-wWide eCancer fRisk and hazard indices at each sSchoolor sSchool wUnder eConstruction do not exceed the risk values at thesame sSchool or sSchool wUnder eConstruction when the Effacility was atits previous location; or
- (2) The <u>fFacility-wWide eCancer <u>FRisk</u> at the <u>sSchool or <u>sSchool uU</u>nder <u>eConstruction</u> does not exceed 1 in one million and the <u>fFacility-wWide</u> <u>eChronic and <u>aAcute <u>hH</u>azard indices for any target organ system do not exceed 1.0.</u></u></u></u>
- (f) Risk Calculations for New and Relocated Facilities
 - (1) The owner or operator of a \underline{nNew} <u>fF</u>acility complying with the requirements specified under paragraphs (d)(1) or (d)(2), or the owner or operator of a <u>fR</u>elocated <u>fF</u>acility complying with the requirements specified under paragraphs (e)(1) or (e)(2), shall calculate the risk for any <u>sS</u>chool or <u>sS</u>chool <u>uUnder eC</u>onstruction at the time of a CEQA Notice for the <u>nNew</u> or <u>fR</u>elocated <u>fF</u>acility or, if there is no CEQA Notice for the <u>nNew</u> or <u>fR</u>elocated <u>fF</u>acility, at the time the first permit application is deemed complete.
 - (2) If the owner or operator of a $\underline{nN}ew$ or $\underline{rR}elocated \underline{rF}acility$ subject to (f)(1) does not commence construction within three years of the CEQA Notice for the $\underline{nN}ew$ or $\underline{rR}elocated \underline{rF}acility$, the owner or operator shall calculate the risk for any $\underline{sS}chool$ or $\underline{sS}chool \underline{uU}$ nder \underline{eC} onstruction at the time the application for Permit to Construct/Operate is deemed complete, unless the owner or operator has submitted written verification to the Executive Officer that the CEQA Notice is still applicable for the $\underline{nN}ew$ or $\underline{rR}elocated \underline{rF}acility$.
- Requirements for New or Relocated Facilities for Additional Information in Rule 212 Notices

When public notice is required by subparagraph (c)(1) of Rule 212, any \underline{nNew} or $\underline{rRelocated \ \underline{F}acility}$ with toxic-emitting $\underline{pPermit \ \underline{uU}nit(s)}$ within 1,000 feet of the outer boundary of a sSchool that has a $\underline{F}acility - \underline{wWide \ eC}ancer \ \underline{rRisk}$ exceeding

one in one million at any such <u>S</u>school shall include in the notice the <u>fF</u>acility-<u>wWide eC</u>ancer <u>FR</u>isk at that <u>sS</u>chool in addition to the information required pursuant to Rule 212 – Standards for Approving Permits and Issuing Public Notice.

(h) Requirements for New or Relocated Facilities for New Equipment, Modification, Alteration, and Change of Condition

For any subsequent application for new equipment or $\underline{m}\underline{M}$ odification, alteration, and change of conditions of a permit to operate, regardless of whether it remains under the same ownership, any $\underline{n}\underline{N}ew$ or $\underline{r}\underline{R}e$ located $\underline{f}\underline{F}acility$ subject to Rule 1401.1 shall:

- (1) meet the requirements of subdivisions (d), (e), (f), and (g), as applicable; and
- (2) be required to calculate cancer and non-cancer risk or add risk values for Rule 212 notices for any <u>sS</u>chool specified in subdivisions (d), (e), (f), and (g), whichever is applicable.
- (i) Exemptions
 - (1) The following equipment is exempt from inclusion in the \underline{fF} acilitywWide \underline{eC} ancer \underline{FR} isk, \underline{fF} acility-wWide \underline{aA} cute \underline{hH} azard \underline{iIndex} , and \underline{fF} acility-wWide \underline{eC} hronic \underline{hH} azard \underline{iIndex} for this rule.
 - (A) Emergency internal combustion engines that are exempted from modeling and offset requirements under Rule 1304.
 - (B) Engines subject to Rule 1470 Requirements for Stationary Diesel-Fueled Internal Combustion Engines and Other Compression Ignition Engines.
 - (C) Equipment permitted solely for in-situ remediation of contaminated soil and/or groundwater.
 - (D) Equipment permitted for use at various locations throughout the District and that does not remain at one site for more than 12 consecutive months.
 - (E) Experimental research operations permitted under Rule 441 Research Operations operating for one year or less.
 - (F) Equipment located at new or relocated facilities that are exempted from a written permit under Rule 219.

PAR 1401.1-7

(2) If the Executive Officer has been notified and can confirm that a <u>sS</u>chool will not be constructed at a specific location, that property is no longer considered a <u>sS</u>chool <u>uUnder eC</u>onstruction pursuant to paragraph (c)(15).

Table 1 – Summary of Requirements for New Facilities

Distance from New Facility to Nearest School or	Other Residential or Sensitive	*Risk Demonstration at School at < 500 ft	*Risk Demonstration at School at 500 – 1,000 ft	Rule 212 Additional Information	Meet Requirements for Future Applications
School Under Construction	< 150 ft	Paragraph (d)(1)	Paragraph (d)(2)	Subdivision (f <u>g</u>)	Subdivision (g <u>h</u>)
< 500 feet	N/A	Yes	N/A	N/A	Yes
500 – 1,000 ft	Yes	N/A	N/A	Yes	Yes
500 – 1,000 ft	No	N/A	Yes	N/A	Yes

*Risk Demonstration at <u>sS</u>chool or <u>sS</u>chool <u>uUnder eC</u>onstruction for New Facility: ≤ 1 in one million eCancer <u>FR</u>isk and hazard indices ≤ 1.0

Table 2 – Summary of Requirements for Relocated Facilities

Distance from Relocated Facility to Nearest School	*Risk Demonstration at School at < 500 ft	Rule 212 Additional Information	Meet Requirements for Future Applications	
or School Under Construction	Subdivision (e)	Subdivision (f <u>g</u>)	Subdivision (<u>g h</u>)	
< 500 feet	Yes	Yes	Yes	
500 – 1,000 ft	N/A	Yes	Yes	

*Risk Demonstration at <u>sS</u>chool or <u>sS</u>chool <u>uUnder eC</u>onstruction for Relocated Facility: ≤ 1 in one million <u>eC</u>ancer <u>rR</u>isk and hazard indices ≤ 1.0 or no increase in <u>eC</u>ancer <u>rR</u>isk or hazard indices

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Staff Report Proposed Amended Rule 1401.1 – Requirements for New and Relocated Facilities Near Schools

March 2023

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:	Danielle Collado – Assistant Air Quality Specialist
CONTRIBUTORS:	Jack Cheng – Senior Enforcement Manager Luke Lau – Air Quality Engineer II JiaYuan Li – Systems and Programming Supervisor Xiang Li, Ph.D. – Air Quality Specialist David Lui – Supervising Air Quality Engineer David Ono – Senior Air Quality Engineer Manager Barbara Radlein – Program Supervisor Sina Taghvaee, Ph.D. – Air Quality Specialist Brian Vlasich – Air Quality Specialist Janice West – Senior Air Quality Engineer Jillian Wong, Ph.D. – Assistant Deputy Executive Officer
REVIEWED BY:	Michael Laybourn – Program Supervisor Daphne Hsu – Principal Deputy District Counsel Ryan Mansell – Senior Deputy District Counsel

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT GOVERNING BOARD

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EXECUTIVE OFFICER: WAYNE NASTRI

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EXECUTIVE SUMMARY

Rule 1401.1 – Requirements for New and Relocated Facilities Near Schools, was adopted in 2005 and applies to new or relocated facilities emitting toxic air contaminants. Rule 1401.1 is designed to be more health-protective for school children by establishing more stringent risk requirements for new and relocated facilities emitting toxic air contaminants near schools, thereby reducing the exposure of toxic emissions on school children. In recent years, research indicates that early-life exposure to air toxics contributes to an increased lifetime risk of developing cancer, or other adverse health effects, compared to exposure in adulthood. This research prompted the Office of Environmental Health Hazard Assessment (OEHHA) to update the risk assessment methodology to include agesensitivity factors for young children. Based on this OEHHA update, the definition of "school" included used in several South Coast AOMD air toxics rules has been updated to include early learning and development programs serving pre-kindergarten children. Proposed Amended Rule 1401.1 (PAR 1401.1) would incorporate the same expanded definition of "school" to include early learning and development programs. PAR 1401.1 also establishes consistency with other South Coast AQMD air toxics rules by removing the exclusion of unimproved school property. This will ensure that any toxic-emitting facility near a center with young children will meet stricter air toxic risk requirements. To estimate the impacts of PAR 1401.1, a screening assessment was conducted based on the proximity between new and relocated facilities permitted within the last five years and early learning and development centers to identify permitting actions that potentially would have been subject to additional review under PAR 1401.1. Based on this assessment, out of approximately 6,000 applicable facilities that submitted permit applications within the last five years, an average of 91 facilities per year would have been subject to additional review under the provisions of PAR 1401.1. These facilities must demonstrate that the applicable risk requirements are met as required in Rule 1401.1. The total annual compliance cost is estimated to be \$158,000.

CHAPTER 1: BACKGROUND

INTRODUCTION HEALTH RISK AND CANCER POTENCY IN EARLY LIFE NEED FOR PROPOSED AMENDMENTS PUBLIC PROCESS AND OUTREACH

INTRODUCTION

The South Coast Air Quality Management District (South Coast AQMD) has a robust and comprehensive regulatory program to address toxic air contaminants. South Coast AQMD Rules 1401 – New Source Review of Toxic Air Contaminants, 1401.1 – Requirements for New and Relocated Facilities Near Schools, and 1402 – Control of Toxic Air Contaminants from Existing Sources, are referred to as the "umbrella" rules that specify requirements for all sources. Rules 1401 and 1401.1 apply to permitting activities, and Rule 1402 implements requirements for existing sources. Rule 1401 applies to new and modified permitted sources. Rule 1401.1 establishes additional requirements for permitted sources near schools. Rules 1401 and 1401.1 are designed to protect the public from the health risks posed by toxic air contaminants (TACs) emitted by stationary sources. The following paragraphs summarize Rule 1401 and 1401.1 provisions.

Rule 1401 – New Source Review of Toxic Air Contaminants

Rule 1401 is a permit unit-based rule that applies to any increase in toxic emissions from new, relocated, or modified equipment. Under Rule 1401, new and modified permitted sources cannot exceed a Maximum Individual Cancer Risk (MICR) of one in one million if the source is not equipped with Best Available Control Technology for toxics (T-BACT). If T-BACT is installed, the MICR cannot exceed ten in one million. The MICR is the estimated probability of a potential maximally exposed individual contracting cancer as a result of exposure to toxic air contaminants. Rule 1401 also has requirements for cancer burden, which represents the estimated increase in the occurrence of cancer cases in a given population due to exposure to TACs, as well as non-cancer chronic and acute hazard index thresholds. Rule 1401 has been amended several times to add or modify new compounds or risk values to the list of TACs as they are identified and as risk values are finalized or amended by the state.

Rule 1401.1 – Requirements for New and Relocated Facilities Near Schools

Rule 1401.1 was adopted in 2005 and last amended in 2015. Rule 1401.1 is designed to be more health protective for school children by establishing more stringent risk requirements related to facility-wide cancer risk and non-cancer acute hazard index (HI) and chronic HI for new and relocated facilities emitting TACs near schools. For new facilities, the rule requires the facility-wide cancer risk to be less than one in one million at any school or school under construction within 500 feet of the facility. For the purposes of PAR 1401.1, a new facility is defined as any facility that was permitted after November 4, 2005, or with applications deemed complete after February 2, 2006. If there are no schools within 500 feet, the same risk levels must be met at any school or school under construction within 500 to 1,000 feet unless there is a residential or sensitive receptor within 150 feet of the facility. If there is a residential or sensitive receptor within 150 feet of the emissions source (permit unit), due to the application of Rule 1401 risk requirements, the risk to the school that is located at least another 350 feet away can reasonably be expected to have decreased below one in one million cancer risk. Accordingly, if the nearest school is between 500 to 1,000 feet and there is a residential or sensitive receptor within 150 feet, Rule 1401.1 does not require that risk at the school be demonstrated. For relocated facilities, existing Rule 1401.1 requires that a relocating facility must demonstrate, for each school or school under

construction within 500 feet of the facility, that either: 1) the risk at the school from the facility in its new location is no greater than the risk at that same school when the facility was at its previous location; or 2) the facility-wide cancer risk at the school does not exceed one in one million. Unlike other South Coast AQMD risk-based rules, the required risk thresholds of Rule 1401.1 do not change based on whether the source is equipped with T-BACT.

HEALTH RISK AND CANCER POTENCY IN EARLY LIFE

OEHHA is a state agency under the California Environmental Protection Agency that establishes risk exposure information (i.e., risk values) for TACs. A health risk assessment estimates the increased probability that an individual would contract cancer or experience other adverse health effects because of exposure to listed TACs. OEHHA's Risk Assessment Guidelines are incorporated in the South Coast AQMD's Risk Assessment Procedures, which are required to implement Rules 1401 and 1401.1.

In 2003, OEHHA developed and approved the Health Risk Assessment Guidance document. Since 2003, OEHHA and the U.S. Environmental Protection Agency (U.S. EPA) have conducted additional research to address growing concerns regarding children's exposure to environmental chemicals, including the possibility that young children may be more susceptible than adults to injury caused by those chemicals. The findings from this research indicate that the risks of cancer from exposures to carcinogens from conception through puberty can differ from exposures in adulthood.¹ In March 2015, OEHHA revised its Risk Assessment Guidelines ("2015 OEHHA Guidelines") to ensure infants and children are explicitly addressed in assessing risk. The 2015 OEHHA Guidelines incorporate age sensitivity factors and other changes which have increased estimated cancer risk for residential and sensitive receptors. Based on the change in methodology, the estimated cancer risk has increased by approximately three times, and more than three times in some cases, depending on whether the toxic air contaminant has multiple pathways of exposure in addition.²

NEED FOR PROPOSED AMENDMENTS

Based on the 2015 OEHHA Guidelines regarding childhood sensitivity, the scope of provisions related to schools have been updated in many South Coast AQMD air toxic rules to incorporate early learning and development programs. Table 1-1 includes a list of these recently adopted and amended rules where the definition of school was expanded to account for the increased impacts from exposure to TACs during the early childhood years.

¹ OEHHA, Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures, May 2009, obtained on November 1, 2022, from https://oehha.ca.gov/media/downloads/crnr/tsdcancerpotency.pdf

² OEHHA, Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessment, February 2015, obtained on November 1, 2022, from <u>https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf</u>

Table 1-1 Recently Adopted and Amended Air Toxics Rules Where Definition of School Accounted for Concerns of Early Childhood Exposure

Rule	Title
1407.1	Control of Toxic Air Contaminant Emissions from Chromium Alloy Melting Operations
1426	Emissions from Metal Finishing Operations
1466	Control of Particulate Emissions from Soils with Toxic Air Contaminants
1469	Hexavalent Chromium Emissions Chromium Electroplating and Chromic Acid Anodizing Operations
1480	Ambient Monitoring and Sampling of Metal Toxic Air Contaminants, 1426 – Emissions from Metal Finishing Operations

For reference, the school definition included in the rules listed in Table 1-1 is as follows:

SCHOOL means any public or private school, including juvenile detention facilities with classrooms, used for the education of more than 12 children at the school in kindergarten through grade 12. School also means an Early Learning and Developmental Program by the U.S. Department of Education or any state or local early learning and development programs such as preschools, Early Head Start, Head Start, First Five, and Child Development Centers. A school does not include any private school in which education is primarily conducted in private homes. The term includes any building or structure, playground, athletic field, or other area of school property.

The definition of school in Rule 1401.1 is inconsistent with recently adopted or amended South Coast AQMD air toxics rules. Rule 1401.1 currently defines a school as a public or private facility used for educating 12 or more children in kindergarten and grades 1 to 12; however, it does not include centers serving pre-kindergarten children. To ensure consistency with recently adopted or amended South Coast AQMD air toxics rules and address the risk of early life exposure, PAR 1401.1 will update the definition of school to include early learning and development programs serving pre-kindergarten children and other child care centers. PAR 1401.1 also establishes consistency with other South Coast AQMD air toxics rules by removing the exclusion of unimproved school property in the PAR 1401.1 rule language. This will provide a greater assurance that any toxic-emitting facility located near a center with younger children will meet potentially more stringent toxic risk requirements. PAR 1401.1 is also consistent with most current scientific information and the 2015 OEHHA Guidelines regarding the importance of reducing early life exposures to air toxics in younger children.

PUBLIC PROCESS AND OUTREACH

The development of PAR 1401.1 is being conducted through a public process. South Coast AQMD staff has distributed about 22,000 Public Workshop notices to engage stakeholders (including all permit holders) regarding PAR 1401.1. A Public Workshop was held on December 13, 2022, via Zoom to present preliminary draft rule language for PAR 1401.1

and receive public comments. The South Coast AQMD Stationary Source Committee received a PAR 1401.1 briefing at a public meeting on January 20, 2023.

CHAPTER 2: PROPOSED AMENDED RULE 1401.1

INTRODUCTION PROPOSED AMENDMENTS TO RULE 1401.1

INTRODUCTION

In 2015, OEHHA updated the risk assessment methodology based on research indicating early-life exposures to air toxics contribute to an increased lifetime risk of developing cancer, or other adverse health effects, compared to exposures that occur in adulthood. The 2015 OEHHA Guidelines incorporate this revised methodology and include age and sensitivity factors for young children. The 2015 OEHHA Guidelines and findings are reflected in South Coast AQMD's Risk Assessment Procedures.³ Most air toxics rules in the South Coast AQMD air toxics regulatory program currently reflect these OEHHA findings and have expanded the scope of provisions related to schools to include younger children by including early learning and development programs in the definition of school.

PROPOSED AMENDMENTS TO RULE 1401.1

Rule 1401.1 specifies the requirements for facility-wide cancer risk and non-cancer acute hazard index, and chronic hazard index for new and relocated facilities emitting TACs near schools.

Rule 1401.1 paragraph (c)(13) currently defines a school as:

SCHOOL means any public or private school, including juvenile detention facilities with classrooms, used for purposes of the education of more than 12 children at the school, including in kindergarten and grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in private homes. The term includes any building or structure, playground, athletic field, or other area of school property, but does not include unimproved school property.

PAR 1401.1 amends the definition of a school to expand the scope to include prekindergarten children. It allows the school definition to be consistent with other air toxics rules by adding the following rule language:

A school also includes an Early Learning and Developmental Program by the U.S. Department of Education or any state or local early learning and development programs such as pre-schools, Early Head Start, Head Start, First Five, and Child Development Centers.

Existing Rule 1401.1 excludes unimproved school property. Unimproved property is any property on which there are no buildings or play areas and where it can reasonably be expected that no children will be present.⁴ Most recently amended South Coast AQMD air toxic rule provisions related to schools have included unimproved school property because children may still be present in some unimproved areas. Additionally, those currently unimproved areas could be developed or improved in the future; removing this language

³ South Coast AQMD, Risk Assessment Procedures for Rules 1401, 1401.1, and 212 Version 8.1, September 2017, obtained on November 22, 2022, from <u>http://www.aqmd.gov/docs/default-source/permitting/rule-1401-risk-assessment/riskassessproc-v8-1.pdf</u>

⁴ South Coast AQMD, Governing Board meeting, October 2005, Agenda Item #26. Proposed Rule 1401.1 -Requirements for New and Relocated Facilities Near Schools, obtained on November 22, 2022, from <u>http://www.aqmd.gov/nav/about/governing-board/agendas-minutes</u>

would ensure the protection of children. For consistency with other South Coast AQMD air toxics rules and the protection of children, PAR 1401.1 removes the unimproved property language.

With the above-described revisions, the definition of school in PAR 1401.1 paragraph (c)(17) would be identical to other recently amended or adopted South Coast AQMD air toxics rules. It would consist of the following revised text with revisions from the existing rule language denoted in underline and strike-out:

SCHOOL means any public or private school, including juvenile detention facilities with classrooms, used for purposes of the education of more than 12 children at the school, including in kindergarten <u>through and grades 1 to</u> grade 12., inclusive, but does not include any private school in which education is primarily conducted in private homes. School also means an Early Learning and Developmental Program by the U.S. Department of Education or any state or local early learning and development programs such as pre-schools, Early Head Start, Head Start, First Five, and Child Development Centers. A School does not include any private school in which education is primarily conducted in private homes. The term includes any building or structure, playground, athletic field, or other area of school property, but does not include unimproved school property.

Rule 1401.1 provisions also apply to a school under construction. Existing Rule 1401.1, paragraph (c)(15) defines a "School under Construction" as:

any property that meets any of the following conditions and the Executive Officer has been notified: (A) construction of a school has commenced; or (B) of a CEQA Notice for the construction of a school; or (C) a school has been identified in an approved local government specific plan.

Rule 1401.1 provisions will continue to apply to a school under construction, and under PAR 1401.1, these provisions will apply to early learning and development programs.

Other Administrative Amendments

Applicability – Subdivision (b)

The Rule 1401.1 applicability subdivision currently states that permit applications will be evaluated based on the Rule 1401 list of toxic air contaminants and risk assessment procedures in effect at the time the application is deemed complete. PAR 1401.1 includes an update to subdivision (b) to clarify that permit applications will also be evaluated based on the Rule 1401.1 *provisions* in effect at the time the application is deemed complete.

Rule 1401.1 – Tables 1 and 2

Existing Rule 1401.1 includes a summary of requirements for new and relocated facilities in Table 1 and Table 2, respectively. Two of the references in each of these tables are incorrect. PAR 1401.1 corrects these references, as shown in the following tables.

Distance from New Facility to Nearest School or	Other Residential or Sensitive	*Risk Demonstration at School at < 500 ft	*Risk Demonstration at School at 500 – 1,000 ft	Rule 212 Additional Information	Meet Requirements for Future Applications
School Under Construction	School Under Construction Keceptor at < 150 ft	Paragraph (d)(1)	Paragraph (d)(2)	Subdivision (f-g)	Subdivision (<u>g h</u>)
< 500 feet	N/A	Yes	N/A	N/A	Yes
500 – 1,000 ft	Yes	N/A	N/A	Yes	Yes
500 – 1,000 ft	No	N/A	Yes	N/A	Yes

Table 2-1 Summary	of Requirement	s for New Facilities	(Table 1 of Existin	g Rule 1401.1)
			(I dolo I of Linbun	S 10010 1 10111)

*Risk Demonstration at school or school under construction for New Facility: ≤ 1 in one million cancer risk and hazard indices ≤ 1.0

Table 2-2 Summary of Requirements for Relocated Facilities (Table 2 of Existing Rule 1401.1)

Distance from Relocated Facility to Nearest School	*Risk Demonstration at School at < 500 ft	Rule 212 Additional Information	Meet Requirements for Future Applications	
or School Under Construction	Subdivision (e)	Subdivision (<u>f-g</u>)	Subdivision (<u>g h</u>)	
< 500 feet	Yes	Yes	Yes	
500 – 1,000 ft	N/A	Yes	Yes	

* Risk Demonstration at school or school under construction for Relocated Facility:

 \leq 1 in one million cancer risk and hazard indices \leq 1.0

or no increase in cancer risk or hazard indices

CHAPTER 3: IMPACT ASSESSMENT

ADDITION OF EARLY LEARNING AND DEVELOPMENT CENTERS IMPACT ASSESSMENT CALIFORNIA ENVIRONMENTAL QUALITY ACT SOCIOECONOMIC IMPACT ASSESSMENT INCREMENTAL COST-EFFECTIVENESS DRAFT FINDINGS UNDER HEALTH AND SAFETY CODE SECTION 40727

COMPARATIVE ANALYSIS

ADDITION OF EARLY LEARNING AND DEVELOPMENT CENTERS

PAR 1401.1 would expand the scope of schools to be considered when evaluating permit applications for new and relocated facilities by extending risk requirements to include centers that serve pre-kindergarten children. The California Department of Social Services (CDSS) issues licenses to child care centers in California. To identify early learning and development centers under PAR 1401.1, the CDSS child care center database⁵ is used as it encompasses pre-kindergarten facilities, including child care centers, day care centers, and infant care centers.

Table 3-1 provides an inventory of early learning and development centers within the jurisdictional boundaries of the South Coast AQMD. As shown in the Table, the CDSS database categorizes child care facilities by center type (child care/day care center and infant care center). It should be noted the CDSS also issues licenses to child care centers operating out of private homes, but these are not subject to existing Rule 1401.1 requirements or PAR 1401.1 provisions and were not included in Table 3-1.

Child Care Center Type	Age of Children	Definition (22 CCR § 101152 Definitions)	Number of Centers
Child Care Center or Child Day Care Center	2 to 5	"Child Care Center" or "Day Care Center" (or "center") means any child care facility of any capacity, other than a family child care home as defined in Section 102352f.(1), in which less than 24-hour per day nonmedical care and supervision are provided to children in a group setting. The term "Child Care Center" supersedes the term "Day Care Center" as used in previous regulations.	3,132
Infant Care Center	0 to 2	"Infant Care Center" means any child care center or part of a child care center of any capacity where less than 24- hour per day nonmedical care and supervision are provided to infants in a group setting.	371

Table 3-1 Licensed Child Care Centers in South Coast AQMD

The CDSS-licensed child care centers presented in Table 3-1 illustrate the impact of the expanded scope of the definition of school under PAR 1401.1. These child care centers primarily serve children from infant to age five; therefore, by extending the scope of the definition of school to include these centers, pre-kindergarten children are provided the same protection from air toxics emitted from new and relocated facilities as school-aged children. The age ranges for each child care center type were determined through a combination of definitions contained in the California Code of Regulations and an exchange of emails with an associate governmental program analyst at the CDSS. The data

⁵ California Department of Social Services, Child Care Centers, November 2022, obtained on November 22, 2022, from <u>https://www.ccld.dss.ca.gov/carefacilitysearch/DownloadData</u>

presented in Table 3-1 has been processed to remove centers already considered schools under the current 1401.1 school definition. For example, centers on the CDSS database that included the term "elementary school," "middle school," or "high school" in their name were removed as these centers would currently be subject to the Rule 1401.1 provisions. Additionally, some centers included infant and child care services at the same address, so the duplicate addresses were removed in these instances. Overall, the list of facilities reveals approximately 3,500 centers that can potentially be considered as additional schools when implementing PAR 1401.1.

As previously mentioned, the updated Schools definition under PAR 1401.1 is presently included in other South Coast AQMD toxics rules. The South Coast AQMD anticipates that for PAR 1401.1, it would follow the same procedures for identifying schools as what is currently done for other South Coast AQMD toxics rules, such as Rule 1469. These procedures include a web-based mapping search for terms such as "pre-schools," "elementary schools," "middle schools," and "high schools," as well as a search of the Head Start program website⁶ to identify Early Head Start, Head Start, First Five, and Child Development Centers.

IMPACT ASSESSMENT

Localized Toxic Impacts

In general, the Rule 1401.1 facility-wide risk requirements are more stringent than the current equipment-based requirements in Rule 1401 for new or relocated facilities that elect to site near schools. Therefore, the extended coverage of PAR 1401.1 is expected to result in lower toxic risk levels for children where toxic emitting facilities are close to an early learning and development center than would be allowed under current rules. The South Coast AQMD's Risk Assessment Procedures provide four levels of screening risks: Tiers 1, 2, 3, and 4. The tiers are progressively more complex, require increasingly more site-specific details, and provide more refined risk estimates. Under PAR 1401.1 provisions, affected facilities near an early learning and developmental center may need to conduct more detailed risk assessments, including dispersion modeling (Tier 3 or Tier 4). Facilities that cannot meet the risk requirements of PAR 1401.1 would have the option to limit their throughput, capacity, or hours of operation; install additional controls; establish minimum distances from a school; or locate or relocate elsewhere within the same general area, rather than near a school, to ensure that PAR 1401.1 requirements are met.

Permitting Impacts

The amendments in PAR 1401.1 will be effective upon rule adoption. As mentioned in Chapter 2, PAR 1401.1 includes text to clarify that permit applications will be evaluated based on the Rule 1401.1 provisions in effect at the time the application is deemed complete. Historical permitting data were analyzed to estimate the PAR 1401.1 impacts. This "look back" approach was also used during the development of Rule 1401.1 in 2005. The goal of this exercise is to identify permitting actions that would have been subject to additional review under PAR 1401.1. To accomplish this task, permitting data for the past

⁶ <u>https://eclkc.ohs.acf.hhs.gov</u>

five years were studied to identify facilities located near the CDSS-identified child care centers, which would have been subject to PAR 1401.1. Rule 1401.1 provisions do not apply to existing facilities, which is defined in Rule 1401.1 paragraph (c)(3) as any facility that had equipment requiring a Permit to Construct/Operate before November 2005 or those where an application for a Permit to Construct/Operate is deemed complete before February 2, 2006. Therefore, the evaluation of recently submitted permits for PAR 1401.1 applicability was limited to "new" facilities that were in existence after November 2005. Relocated facilities are included in the evaluation because relocated facilities are considered "new" facilities when removed existing permitted equipment is installed at another facility without a change of ownership. Based on the South Coast AQMD's permitting database, over the last five years, permits were issued to approximately 6,000 facilities that are considered new or relocated facilities under Rule 1401.1 provisions.

The locations of these "new" facilities were compared to child care center and school locations based on data provided by CDSS and the California Department of Education (CDE). To accomplish this spatial analysis assessment, a 150-feet zone radius was added to the identified child care center locations to represent the child care center property boundary. An additional 1,000-feet buffer zone radius was added around the child care center "properties" to illustrate the applicability of PAR 1401.1 provisions. The assessment then identified the facilities that are located within the buffer zone of the child care centers. To exclude facilities that are located near the existing definition of school (i.e., high school, elementary schools, etc.), the identified facilities were then compared to school locations based on data provided by the CDE. The schools considered for the spatial analysis are defined as schools under the current definition of "School" in existing Rule 1401.1. Identified facilities within 1,150 feet of a school as defined in existing Rule 1401.1 were then excluded from further consideration as these facilities are already potentially subject to Rule 1401.1. Based on this assessment, it is conservatively estimated that out of approximately 6,000 "new" facilities that submitted permit applications within the last five years, an average of 91 facilities per year would have been subject to additional review under the provisions of PAR 1401.1. The number of applicable facilities located within the 1,150-feet buffer zone is considered a conservative estimate as some applicable facilities included permits issued for equipment that might not have emitted air toxic emissions.

Unimproved School Property

Under the provisions of PAR 1401.1, protections to pre-kindergarten and school aged children are extended to unimproved school property. This proposed revision is consistent with other recently adopted and amended South Coast AQMD air toxics rules. In consultation with Los Angeles Unified School District (LAUSD), the largest school district in South Coast AQMD's jurisdiction, and Long Beach Unified School District (LBUSD), there are very few instances of unimproved school property located adjacent to schools. These school districts also noted several examples of school properties that were a former school or were administrative properties that include now vacant buildings. School properties with vacant buildings will not be impacted under PAR 1401.1 provisions because the properties do not meet the definition of a school; vacant buildings are not used for purposes of the education of more than 12 children.

Extending protections to vacant land adjacent to a school that may be used by children or that may be utilized for school purposes in the future is consistent with the intent of South Coast AQMD air toxics rules and is not expected to impact surrounding facilities seeking permits based on school district consultations that indicate there are relatively few occurrences of vacant school property adjacent to schools.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Pursuant to the California Environmental Quality Act (CEQA) Guidelines Sections 15002(k) and 15061, the proposed project (PAR 1401.1) is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3). A Notice of Exemption has been prepared pursuant to CEQA Guidelines Section 15062, and if the proposed project is approved, the Notice of Exemption will be filed for posting with the State Clearinghouse of the Governor's Office of Planning and Research, and with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino Counties.

SOCIOECONOMIC IMPACT ASSESSMENT

Health and Safety Code Sections 40440.8 and 40728.5 require a socioeconomic impact assessment for proposed and amended rules resulting in significant impacts to air quality or emission limitations. This assessment shall include affected industries and range of probable costs, effectiveness of control alternatives and emission reduction potential, and make a good faith effort to minimize adverse socioeconomic impacts by analyzing the following elements:

- (1) The type of industries or business, including small business, affected by the rule or regulation.
- (2) The impact of the rule or regulation on employment and the economy of the region affected by the adoption of the rule or regulation.
- (3) The range of probable costs, including costs to industry or business, including small business, of the rule or regulation.
- (4) The availability and cost-effectiveness of alternatives to the rule or regulation being proposed or amended.
- (5) The emission reduction potential of the rule or regulation.
- (6) The necessity of adopting, amending, or repealing the rule or regulation to attain state and federal ambient air standards.

Cost-effectiveness analysis for best available retrofit control technology pursuant to Health and Safety Code Section 40920.6 does not apply to PAR 1401.1; moreover, cost effectiveness in terms of dollars per ton is not meaningful for air toxic regulations since many other factors besides the amount of pollution affect the health risk such as the potency of an air toxic and the location of receptors.

PAR 1401.1 – Requirements for New and Relocated Facilities Near Schools establishes more stringent risk requirements for new and relocated facilities emitting toxic air contaminants near schools – with a broader definition of "schools" that include early learning and development programs, as well as the inclusion of unimproved school property in the consideration for proximity to a potentially TAC emitting facility. The expanded definition of schools is expected to result in more potentially affected facilities subject to the health risk assessment requirement of Rule 1401.1. The proposed amendment

does not impose any new emissions limitations. Since the requirement applies to new and relocated facilities, the number of potentially affected facilities cannot be predicted, but staff is estimating future impacts relative to historic permit actions and currently identified schools meeting the PAR 1401.1 school definition. The result of additional health risk assessments (HRA) is assumed to quantify risks for more sensitive receptors potentially impacted by TAC emissions.

Affected Facilities and Industries

In order to quantify potentially affected facilities subject to the proposed expanded definition of schools including unimproved portions of school property, staff conducted a screening of the permit actions in the last 5 years, dating back to 2017. Based on this screening, approximately 6,000 applicable facilities with permit actions were geographically screened for proximity to known school, early learning, and development centers. The requirements of PAR 1401.1 potentially affect permitted facilities with the potential to emit toxic air contaminants, which include but are not limited to manufacturing (NAICS 31-33), technical services (NAICS 54), and other services (NAICS 81). Of the potentially affected facilities identified in the screening, more than 98 percent of the facilities with available data meet the SBA definition of a small business.⁷ The retrospective screening is not expected to predict the industries potentially affected in future permit actions; as such, it is difficult to reliably predict industry-specific impacts from PAR 1401.1. Per subdivision (e) of Rule 1401.1, risk demonstration (pursuant to paragraphs (e)(1) and (e)(2)) is required when a facility submitting a permit application is has an outer boundary within 500 feet of a school. Under the expanded definition in PAR 1401.1, staff finds that an estimated 91 additional facilities per year would be affected by the risk demonstration requirement but may not need to submit health risk assessments (HRAs), based on permit evaluations and a modeling assessment conducted by staff.

Compliance Costs

For health risk assessments 1 through 4, only Tier 3 and Tier 4 HRA investigations were associated with costs to facilities due to the use of more complex dispersion modeling. Health risk assessment costs used in the 2017 amendments to Rule 1401 – New Source Review of Toxic Air Contaminants, were estimated at \$15,000 for Tier 4 investigations and have been used in this assessment to represent worse case costs to facilities.⁸ Adjusted to 2021 dollars, the HRA costs are \$17,587 per assessment.⁹ Consultation with permitting staff found that Tier 3 and Tier 4 HRAs related to the current Rule 1401.1 requirements are rare. Based on previous Rule 1401.1 efforts, gas station applications were the most likely permitting actions that involved preparation of a Tier 4 HRAs occurred for 1401.1. As a result of Rule 1401.1, Staff assumes that the 10%, or nine facilities encompasses conservatively the number of Tier 3 and Tier 4 HRAs likely to occur in a given year. Assuming nine affected facilities per year requiring Tier 3 or 4 HRAs to demonstrate risk

⁷ Small Business Association (SBA) defines a small business for most industries as having fewer than 500 employees www.sba.gov.

 $^{^{8}}$ HRA components are explained in more detail earlier in Chapter 3 in the Impact Assessment section. Lower tier HRAs (1&2) have less complexity and do not require dispersion modeling – the main source of potential costs in the HRA estimate is for Tier 3 and Tier 4.

⁹ Marshall & Swift Comparative Cost Indexes, January 2022.

thresholds pursuant to subdivision (e), the total annual compliance cost for PAR 1401.1 is estimated at about \$158,000 per year. Though it cannot be ascertained the exact number of new and relocated facilities submitting permit actions to South Coast AQMD, this estimate is based on the average for the last five years that would subject to the risk demonstration requirement and the expanded definition of school in PAR 1401.1.

Regional Macroeconomic Impacts

The total annual compliance cost is estimated to be \$158,000 for PAR 1401.1. It has been a standard practice for South Coast AQMD's socioeconomic impact assessments that, when the annual compliance cost is less than or close to one million current U.S. dollars annually, the Regional Economic Models Inc. (REMI)'s Policy Insight Plus Model is not used to simulate jobs and macroeconomic impacts, as is the case here. This is because the resultant impacts would be too small relative to the baseline regional economy to reliably determine any impacts from the modeling analysis.

INCREMENTAL COST-EFFECTIVENESS

Health and Safety Code Section 40920.6 requires an incremental cost-effectiveness analysis when there is more than one control option that would achieve the emission reduction objective of the proposed amendments relative to ozone, carbon monoxide (CO), sulfur oxide (SOx), nitrogen oxide (NOx), and their precursors. Since PAR 1401.1 applies to toxic air contaminants, the incremental cost-effectiveness analysis requirement does not apply.

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

A need exists to adopt PAR 1401.1 to minimize the exposure of pre-kindergarten children to toxic air contaminants and to help meet the South Coast AQMD Governing Board's goals and objectives regarding cumulative impacts from toxic air contaminants.

Authority

The South Coast AQMD Governing Board has the authority to adopt PAR 1401.1 pursuant to the Health and Safety Code Sections 39002, 39650 et. seq., 40000, 40001, 40440, 40441,40506, 40702, 40725 through 40728, 41508, 41700, 42300, and 44391.

Clarity

PAR 1401.1 is written or displayed so that its meaning can be easily understood by the persons directly affected by it.

Consistency

PAR 1401.1 is in harmony with and not in conflict with, or contradictory to, existing statutes, court decisions, or state and federal regulations.

Non-Duplication

PAR 1401.1 will not impose the same requirements as any existing state or federal regulations. The rule is necessary and proper to execute the powers and duties granted to and imposed upon the South Coast AQMD.

Reference

By adopting PAR 1401.1, the South Coast AQMD Governing Board will be implementing, interpreting, or making specific the provisions of the Health and Safety Code Sections 39666 (new source review rules for toxics) and 41700 (nuisance).

COMPARATIVE ANALYSIS

Health and Safety Code Section 40727.2 requires a comparative analysis of the proposed rule requirements with any Federal or South Coast AQMD rules and regulations applicable to the same equipment or source category. There are no comparable federal rules or regulations regarding toxic air contaminants at new or relocated facilities near existing schools. In addition, Health and Safety Code Section 42301.6 and South Coast AQMD Rule 212 – Standards for Approving Permits and Issuing Public Notice require public notice for facilities locating near schools under certain circumstances. South Coast AQMD Rule 1402 establishes risk levels for existing facilities but does not apply to new sources. South Coast AQMD Rule 1401 applies to new sources, at an equipment level. It allows up to one in one million cancer risk for each new equipment at a facility and up to ten in one million if the equipment has T-BACT. Unlike PAR 1401.1, Rule 1401 has no facility-wide requirements and has no special provisions for facilities locating near schools. Therefore, there are no existing rules or regulations that specifically set facility-wide toxics emissions limits for new or relocated facilities near schools.

APPENDIX A – RESPONSE TO COMMENTS

PUBLIC COMMENTS AND RESPONSES

A Public Workshop was held for PAR 1401.1 on December 13, 2022. The following section is a summary of individual verbal comments, followed by South Coast AQMD staff responses.

Verbal Comments from Public Workshop

Comment 1: If an existing business or refinery located near sensitive receptors repurposes their equipment to be used for a different operation, will the facility trigger a PAR 1401.1 evaluation?

Response: No, Rule 1401.1 is an existing regulation that applies to an application for a permit to construct/operate or any permit unit that emits a Rule 1401 toxic air contaminant at a new or relocated facility near a school. PAR 1401.1 extends those protections to children at an early learning and development center. Subdivision (h) of existing Rule 1401.1 specifies that for any subsequent application at any new or relocated facility for new equipment or modification, alteration, and change of conditions of a permit to operate, regardless of whether it remains under the same ownership, would remain subject to Rule 1401.1 facility-wide cancer risk thresholds. Equipment at an existing facility being modified would be subject to a Rule 1401 evaluation, rather than a PAR 1401.1 evaluation. For the purposes of PAR 1401.1, an existing facility is defined as any facility that demonstrates that it had equipment requiring a Permit to Construct/Operate that was in operation prior to November 4, 2005 or has an application for Permit to Construct/Operate that is deemed complete prior to February 2, 2006.

Comment 2: If a facility relocated equipment within its own property, would this action be subject to PAR 1401.1?

Response: No, PAR 1401.1 applies to an application for a permit to construct/operate submitted by new and relocated facilities. If the described action is subject to the South Coast AQMD permitting process and the facility falls under the definition of new or relocated facilities, then Rule 1401.1 and the updated school definition under PAR 1401.1 could apply. For reference, a relocated facility is defined in Rule 1401.1 as the removal of all existing permitted equipment, remaining under the same ownership, from one parcel of land and installation of the same equipment or functionally identical replacement of the equipment at another parcel of land where the two parcels are not in actual physical contact and are not separated solely by a public roadway or other public right-of-way.

Comment 3: If a facility is located near an early learning or development center, would permits be subject to reevaluation under PAR 1401.1?

Response: No, Rule 1401.1 provisions are applicable to an application for a permit to construct/operate. There are no requirements for facilities that do not submit an application for a permit to construct/operate.

Written Comments

In addition to the public workshop verbal comments, staff received written comment letters specific to PAR 1401.1 during a comment period that closed on January 3, 2023. Copies of comment letters received and South Coast AQMD staff responses are provided in the following section.

Letters Received

- 1. California Department of Transportation (CALTRANS) (12/15/22)
- 2. Long Beach Unified School District (1/4/2023)

Comment Letter #1:

California Department of Transportation, submitted 12/15/22

From:	Laurino, Daisy Loida S@DOT <daisy.laurino@dot.ca.gov></daisy.laurino@dot.ca.gov>
Sent:	Thursday, December 15, 2022 2:41 PM
То:	Danielle Collado
Cc:	Krewson, Kevin@DOT; Ng, Shaun S@DOT
Subject:	Request information on the Proposed Rule 1401.1

Hi Danielle,

We were not able to attend the workshop and requesting if you can answer some of our questions.

The proposed rule amended the definition of schools and subdivision (i)(1)(B) exempts engines subject to Rule 1470 whose applicability is for stationary CI engine with a rated brake horsepower greater than 50.

- 1. Does this mean that diesel generators 50 bhp or less are subject to the Rule 1401.1? 1-1
- 2. For example if a diesel generator that is rated at 50 bhp used to provide back-up power to an equipment will be located less than 500 ft from a school will need to meet the requirements in Table 1?
- 3. Or are generators greater than 50 bhp also are subject to this rule? 1-3

Requesting your help.

Thanks

Daisy Laurino, PE Senior Transportation Engineer Air Quality and Noise Office of Hazardous Waste, Air, Noise and Paleontology (HWANP) Division of Environmental Analysis Department of Transportation – District 43 Cell (916) 956-3589

Responses to Comment Letter #1

Response 1-1: Rule 1401.1 is an existing rule that applies to an application for a permit to construct/operate any permit unit that emits a Rule 1401 toxic air contaminant at a new or relocated facility near a school. Internal combustion engines with a manufacturer's rating of 50 brake horsepower or less are exempt from permits per South Coast AQMD Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II. Therefore, diesel generators 50 bhp or less are exempt from permits and are not subject to Rule 1401.1 or PAR 1401.1 provisions.

Response 1-2: See response to comment 1-1.

Response 1-3: Generators greater than 50 bhp are subject to South Coast AQMD permits and potentially could be subject to review under existing Rule 1401.1 and PAR 1401.1 provisions. It should be noted that subdivision (i) of existing Rule 1401.1 excludes emissions from emergency internal combustion engines that are exempted from modeling and offset requirements under Rule 1304 – Exemptions, and from engines subject to Rule 1470 – Requirements for Stationary Diesel-Fueled Internal Combustion Engines and Other Compression Ignition Engines from inclusion in the facility-wide cancer risk, facility-wide acute hazard index, and facility-wide chronic hazard index of Rule 1401.1.

Comment Letter #2:

Long Beach Unified School District – Facilities Development and Planning, submitted 1/4/2023



Business Services Department Facilities Development & Planning 2425 Webster Avenue Long Beach, CA 90810 Phone: (562) 997-7550 Fax: (562) 595-8644

January 3, 2023

VIA EMAIL

Danielle Collado, Assistant Air Quality Specialist South Coast Air Quality Management District 21865 Copley Drive Diamond Bar, CA 91765 DCollado@aqmd.gov

RE: Proposed Amendment to Rule 1401.1

Dear Ms. Collado:

The facilities staff at Long Beach Unified School District ("District") attended the workshop held on December 13, 2022 regarding the Proposed Amendment to Rule 1401.01. The District submits this letter to notify the South Coast Air Quality Management District ("SCAQMD") of its support to the proposed amendment.

As presented in the workshop, the proposed amendment includes a clarification that permit applications will be evaluated based on the Rule 1401.1 provisions (stricter than just 1401) in effect at the time the application is deemed complete. It also amends existing rule 1401.1's definition of School to expand the scope to:

- Include early learning and development programs (e.g., pre-kindergarten center)
- Remove the exclusion of unimproved school property
- Established consistency between Rule 1401.1 and most other air toxic rules
- Corrects references to rule provisions in tables

The District supports the Proposed Amended Rule 1401.1 extending the definition of school to include children in early learning and development programs as well as the stricter requirements, of permit application evaluation of new or relocated Facilities near schools, based on the more health protective Rule 1401.1.

The District appreciates the opportunity to comment on the proposed amendment.

Please feel free to contact me at 562-997-7550 or DMiranda1@lbschools.net

Sincerely,

David Miranda Executive Director

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Response to Comment Letter #2

Response 2-1: Thank you for the participation in the public process and the support for PAR 1401.1.
ATTACHMENT H



SUBJECT: NOTICE OF EXEMPTION FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT

PROJECT TITLE: PROPOSED AMENDED RULE 1401.1 – REQUIREMENTS FOR NEW AND RELOCATED FACILITIES NEAR SCHOOLS

Pursuant to the California Environmental Quality Act (CEQA) Guidelines, the South Coast Air Quality Management District (South Coast AQMD), as Lead Agency, has prepared a Notice of Exemption pursuant to CEQA Guidelines Section 15062 – Notice of Exemption for the project identified above.

If the proposed project is approved, the Notice of Exemption will be filed for posting with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino Counties. The Notice of Exemption will also be electronically filed with the State Clearinghouse of the Governor's Office of Planning and Research for posting on their CEQAnet Web Portal which may be accessed via the following weblink: <u>https://ceqanet.opr.ca.gov/search/recent</u>. In addition, the Notice of Exemption will be electronically posted on the South Coast AQMD's webpage which can be accessed via the following weblink: <u>http://www.aqmd.gov/nav/about/public-notices/ceqanotices/notices-of-exemption/noe---year-2023</u>.

NOTICE OF EXEMPTION FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

То:	County Clerks for the Counties of Los Angeles, Orange, Riverside and San Bernardino; and Governor's Office of Planning and Research – State Clearinghouse	From:	South Coast Air Quality Management District 21865 Copley Drive Diamond Bar, CA 91765
	State Clearinghouse		

Project Title: Proposed Amended Rule 1401.1 - Requirements for New and Relocated Facilities Near Schools

Project Location: The proposed project is located within the South Coast Air Quality Management District's (South Coast AQMD) jurisdiction, which includes the four-county South Coast Air 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.

Description of Nature, Purpose, and Beneficiaries of Project: Rule 1401.1 contains a facility-wide Maximum Individual Cancer Risk (MICR) of one in one million, plus non-cancer acute hazard index (HI) and chronic HI requirements for new and relocated facilities emitting toxic air contaminants (TACs) near schools. Rule 1401.1 currently defines a school as a public or private center used for educating 12 or more children in kindergarten and grades 1 to 12, inclusive. Proposed Amended Rule 1401.1 (PAR 1401.1) will extend the health protection features of existing Rule 1401.1 to include early learning and development programs, including those centers that serve prekindergarten children, consistent with the findings on early-life exposure from the Office of Environmental Health Hazard Assessment. PAR 1401.1 will also improve clarity and consistency with other South Coast AQMD air toxic rules by: 1) removing the unimproved school property language in the current version of Rule 1401.1 because children may still be present in some unimproved areas and those currently unimproved areas could be developed or improved in the future; 2) clarifying that an evaluation of a permit application will be based on the version of Rule 1401.1 in effect at the time a permit application is deemed complete; and 3) making corrections to some table references. For any new or relocated facility sited near an early learning and/or developmental center that submits permit applications for new or modified equipment, implementation of PAR 1401.1 could benefit those who work at and attend early learning and development centers and other nearby receptors by ensuring that the risk of exposure to TACs is minimized through enforceable permit conditions.

Public Agency Approving Project:	Agency Carrying Out Project:
South Coast Air Quality Management District	South Coast Air Quality Management District

Exempt Status: CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption

Reasons why project is exempt: South Coast AQMD, as Lead Agency, has reviewed the proposed project pursuant to: 1) CEQA Guidelines Section 15002(k) – General Concepts, the three-step process for deciding which document to prepare for a project subject to CEQA; and 2) CEQA Guidelines Section 15061 – Review for Exemption, procedures for determining if a project is exempt from CEQA. PAR 1401.1 expands the definition of a school and makes other administrative changes but does not contain any new provisions that would require physical modifications to new or relocated facilities subject to the rule. Thus, it can be seen with certainty that implementing the proposed project would not cause a significant adverse effect on the environment, and is therefore, exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption.

Date When Project Will Be Considered for Approval (subject to change): South Coast AQMD Governing Board Public Hearing: March 3, 2023

CEQA Contact Person: Sina Taghvaee, Ph.D.	Phone Number: (909) 396-2192	Email: staghvaee@aqmd.gov	Fax: (909) 396-3982
PAR 1401.1 Contact Person: Danielle Collado	Phone Number: (909) 396-2766	Email: <u>dcollado@aqmd.gov</u>	Fax: (909) 396-3982

Date Received for Filing:

Signature:

(Signed and Dated Upon Board Approval)

Barbara Radlein Program Supervisor, CEQA Planning, Rule Development, and Implementation



Board Meeting



Proposed Amended Rule 1401.1 – Requirements for New and Relocated Facilities Near Schools

March 3, 2023

Background

- Research indicates exposure to air toxics during childhood contributes to an increased lifetime risk of adverse health effects, compared to adulthood exposure
- In response to stakeholders' comments, recent South Coast AQMD air toxics rules expanded the definition of school through their public processes
 - Include early learning and development programs to extend protection to pre-kindergarten children
 - Include unimproved school property





Rule 1401.1 Overview

- Rule 1401.1 Requirements for New* and Relocated Facilities Near Schools is part of a comprehensive regulatory program to address air toxics
 - Rule 1401 New Source Review of Toxic Air Contaminants requirements are based on a permit application for an individual piece of equipment
 - Rule 1401.1 establishes more stringent requirements for new and relocated facilities that are near a school by accounting for facility-wide health risks
- Current Rule 1401.1 school definition does not include early learning and development programs and unimproved school property

*Facilities permitted after November 4, 2005 or with applications deemed complete after February 2, 2006

Proposal

- Proposed Amended Rule 1401.1 (PAR 1401.1) would update the definition of School to include:
 - Early learning and development programs
 - Unimproved school property
- Extends protections to pre-kindergarten children and ensures consistency with other South Coast AQMD air toxics rules
- PAR 1401.1 also includes minor administrative updates to improve rule clarity



Impact Assessment and CEQA

- PAR 1401.1 may impact new or relocated facilities that submit permit applications and are located within 500 feet, and in some cases 1,000 feet of the updated definition of School
- Facilities triggering Rule 1401.1 may:
 - Accept permit conditions to limit emissions and/or establish minimum distances from a school
 - Conduct additional risk assessment by screening or sitespecific modeling
- Total annual cost is estimated to be approximately \$158,000 to conduct detailed modeling assessment
- Implementing the proposed project would not cause a significant adverse effect on the environment, and is therefore, exempt from CEQA





Staff Recommendation

Adopt Resolution

 Determining that Proposed Amended Rule 1401.1 is exempt from the requirements of CEQA; and

• Amending Rule 1401.1



1 Back to Agen	da
AGENDA NO.	26

BOARD MEETING DATE: March 3, 2023

PROPOSAL: Approve Annual RECLAIM Audit Report for 2021 Compliance Year

SYNOPSIS: The Annual RECLAIM Audit Report for 2021 Compliance Year for the NOx and SOx RECLAIM program is prepared in accordance with Rule 2015 - Backstop Provisions. This report assesses emission reductions, availability and average annual prices of RECLAIM Trading Credits (RTCs), job impacts, compliance issues, and other measures of performance for the twenty-eighth year of this program. Recent trends in trading future year RTCs are analyzed and presented in this report. A list of facilities that did not reconcile their emissions for the 2021 Compliance Year is also included in the report.

COMMITTEE: Stationary Source, February 17, 2023, Reviewed

RECOMMENDED ACTIONS:

Adopt the attached Resolution to:

- 1. Approve the Annual RECLAIM Audit Report for the 2021 Compliance Year;
- 2. Approve staff's recommendation to determine that paragraphs (d)(1) through (d)(4) of Rule 2004 continue without change, as reported in the August 2022 evaluation and review of the compliance and enforcement aspects of the RECLAIM program; and
- 3. Direct the Executive Officer to submit to CARB and U.S. EPA Annual RECLAIM Audit Report and the August 2022 evaluation and review of the compliance and enforcement aspects of the RECLAIM program, including the determination that paragraphs (d)(1) through (d)(4) of Rule 2004 continue without change.

Wayne Nastri Executive Officer

JA:JW:DO:GI:BS:CH

Background

The Board adopted the RECLAIM program on October 15, 1993 to provide a more flexible compliance program than command-and-control for specific facilities which represent South Coast AQMD's largest emitters of NOx and SOx. RECLAIM was developed as an alternative to command-and-control and was designed to meet the state and federal Clean Air Act and other air quality regulations and program requirements, as well as a variety of performance criteria in order to ensure public health protection, air quality improvement, effective enforcement, and the same or lower implementation costs and job impacts. RECLAIM is what is commonly referred to as a "cap and trade" program. Facilities subject to the program were initially allocated declining annual balances of RECLAIM Trading Credits (RTCs, denominated in pounds of emissions in a specified year) based upon their historical production levels and upon emission factors established in the RECLAIM regulation. RECLAIM facilities are required to reconcile their emissions with their RTC holdings on a quarterly and annual basis (*i.e.*, hold RTCs equal to or greater than their emissions). These facilities have the flexibility to manage how they meet their emission goals by installing emission controls, making process changes or trading RTCs amongst themselves. RECLAIM achieves its overall emission reduction goals provided aggregate RECLAIM emissions are no more than aggregate allocations.

Although the NOx RECLAIM program is transitioning to a command-and-control regulatory structure, RECLAIM Rule 2015 - Backstop Provisions, requires that staff conduct annual program audits to assess various aspects of the program and to verify that program objectives are met. Staff has completed audits of facility records and completed the annual audit of the RECLAIM program for the 2021 Compliance Year (which encompasses the time period for Cycle 1 from January 1, 2021, to December 31, 2021, and for Cycle 2 from July 1, 2021, to June 30, 2022). Based on audited emissions in this report and previous annual reports, staff has determined that RECLAIM met its emissions goals for Compliance Year 2021, as well as for all previous compliance years with the only exception of NOx emissions in Compliance Year 2000. For that year, NOx emissions exceeded programmatic allocations (by 11 percent) primarily due to emissions from electric generating facilities during the California energy crisis. For Compliance Year 2021, audited NOx emissions were 22 percent less than programmatic NOx allocations and audited SOx emissions were 17 percent less than programmatic SOx allocations.

Audit Findings

The audit of the RECLAIM program's Compliance Year 2021 and trades of RTCs that occurred during calendar year 2022 show:

• **Overall Compliance** – Audited NOx and SOx emissions from RECLAIM facilities were below programmatic allocations. However, the increase in SOx emissions in Compliance Year 2021, in comparison to Compliance Year 2020, can be partially attributed to an extended CEMS failure for one facility, in addition to increased

industrial activity and a recovering economy following a rollback of COVID-19 related restrictions.

• Universe – The RECLAIM universe consisted of 240 facilities as of June 30, 2021. No new facilities were included, no facilities were excluded, and three facilities in the RECLAIM universe shut down during Compliance Year 2021. Thus, 237 active facilities were in the RECLAIM universe on June 30, 2022, the end of Compliance Year 2021.

Of the three facilities that shutdown, one facility demolished their building and consolidated operations with other facilities in their network. The remaining two facilities cited financial reasons for shutdown: one facility declared bankruptcy; and the other stated that manufacturing, production, or raw material costs were too high. All three facilities permanently ceasing operations were in NOx RECLAIM.

- Facility Compliance 95 percent of NOx facilities and 97 percent of SOx facilities in RECLAIM complied with their allocations during the 2021 Compliance Year. Fourteen facilities (six percent of total facilities) exceeded their allocations; 13 facilities exceeded their NOx allocations, and one facility exceeded its SOx allocations during Compliance Year 2021. The 13 facilities that exceeded their NOx allocations had total NOx emissions of 59.6 tons and did not have adequate allocations to offset 27.7 of those tons. The NOx exceedances represent 0.41 percent of total RECLAIM NOx universe allocations and 46.5 percent of total NOx emissions from the 13 facilities. The one facility that exceeded its SOx allocations had total SOx emissions of 566.5 tons and did not have adequate allocations to offset 89.8 tons of those emissions. The SOx exceedance represents 4.1 percent of total RECLAIM SOx universe allocations and 15.9 percent of total SOx emissions from the facility. Pursuant to Rule 2010(b)(1)(A), all affected facilities had their respective exceedances deducted from their annual allocations for the compliance year subsequent to South Coast AQMD staff determination that the facilities exceeded their Compliance Year 2021 allocations.
- Job Impacts Based on a survey of RECLAIM facilities, the RECLAIM program had minimal impact on employment during the 2021 Compliance Year, which is consistent with previous years. RECLAIM facilities reported an overall net loss of 1,381 jobs, representing about 1.70 percent of their total employment. No facility cited RECLAIM as a factor contributing to the addition of any jobs during Compliance Year 2021. No RECLAIM facility reported job losses due to RECLAIM during Compliance Year 2021. The job loss and job gain data are compiled strictly from reports submitted by RECLAIM facilities and staff is not able to verify the accuracy of the reported job impacts data.
- *Trading Activity* The RTC trading market activity during calendar year 2022 was lower in terms of number of overall trades (9.9 percent), lower in overall value (0.9

percent) and lower in volume for discrete-year RTCs excluding swaps (35.8 percent), when compared to calendar year 2021. However, market activity in calendar year 2022 was higher with respect to the volume of infinite-year block (IYB) RTCs excluding swaps (2.3 percent) compared to calendar year 2021. A total of \$1.58 billion in RTCs has been traded since the adoption of RECLAIM, of which \$21.8 million occurred in calendar year 2022 (compared to \$22.0 million in calendar year 2021), excluding swaps.

The annual average prices of traded discrete-year SOx RTCs for Compliance Years 2021 through 2022, and IYB SOx RTCs for Compliance Year 2022 were below the applicable review thresholds for average RTC prices.

The annual average prices of discrete-year NOx RTCs for Compliance Years 2021, 2022 and 2023 exceeded the Rule 2015 backstop threshold of \$15,000 per ton. However, the annual average price of traded IYB NOx RTCs for Compliance Year 2022 was below the applicable average NOx RTC price review threshold.

The annual average prices of RTCs traded during calendar years 2021 and 2022 are summarized and compared to the applicable thresholds in Tables 1 and 2.

	Average Price (\$/ton)				Review Thresholds (\$/ton)		
Year Traded	2020 NOx RTC	2021 NOx RTC	2022 NOx RTC	2023 NOx RTC	Rule 2015 (b)(6)	Health and Safety Code §39616(f)	
2021	\$5,603	\$18,846 ¹	\$33,085 ¹	\$37,808 ¹	\$15,000	¢52 ((0	
2022		\$17,074 ¹	\$36,871 ¹	\$47,864 ¹	\$13,000	\$33,009	
Year Traded	2020 SOx RTC	2021 SOx RTC	2022 SOx RTC	2023 SOx RTC	Rule 2015 (b)(6)	Health and Safety Code §39616(f)	
2021 2022	None traded	\$3,000 \$5,900	None traded \$2,000	None traded None traded	\$15,000	\$38,641	

Table 1 – Average Prices for Discrete-Year RTCs TradedDuring Calendar Years 2021 and 2022

¹ Rule 2015(b)(6) specifies that, if the annual average price of discrete-year NOx or SOx RTCs exceeds \$15,000 per ton, within six months of the determination thereof the Executive Officer shall, in addition to the annual report, submit to CARB and U.S. EPA results of an evaluation and review of the compliance and enforcement aspects of the RECLAIM program, to include at a minimum the following assessments: the deterrent effect of Rule 2004(d)(1) through (d)(4), Prohibition of Emissions in Excess of Annual Allocation, the rates of compliance with applicable emission caps, the rate of compliance with monitoring, recordkeeping, and reporting requirements, South Coast AQMD's ability to obtain appropriate penalties in cases of noncompliance, and whether the program provides appropriate incentives to comply.

	Average Price (\$/ton)		Review Threshold (\$/ton)	
RTCs Traded in 2021 Traded in 2022		[Health and Safety Code §39616(f)]		
NOx	\$94,576	\$150,250	\$805,031	
SOx	None traded	\$6,000	\$579,622	

Table 2 – Average Prices for IYB RTCs TradedDuring Calendar Years 2021 and 2022

- *Role of Investors* Investors remained active in the RTC market, and their involvement in calendar year 2022 was greater compared to prior years. Investors were involved in 96 of the 156 discrete NOx trades with price, and all 7 of the discrete SOx trades with price. With respect to IYB trades, investors' participation was notable, and were involved in 5 of the 7 IYB NOx trades with price and the sole IYB SOx RTCs traded with price. Compared to calendar year 2021, investor holdings of total IYB NOx RTCs decreased from 2.0 percent to 1.8 percent and remained the same at 4.2 percent for IYB SOx RTCs at the end of calendar year 2022. Investors purchase RTCs, and they are not RECLAIM facilities or brokers (Brokers typically do not purchase RTCs but facilitate trades).
- Other Findings RECLAIM also met other applicable requirements including meeting the applicable federal offset ratio under New Source Review and having no significant seasonal fluctuation in emissions. Additionally, there is no evidence that RECLAIM resulted in any increase in health impacts due to emissions of air toxics. RECLAIM facilities and non-RECLAIM facilities are subject to the same requirements for controlling air toxic emissions.

NOx RTC Price Assessment

• *Rule 2002* – requires that if the NOx RTC price exceeds \$22,500 per ton based on the 12-month rolling average, \$35,000 per ton based on the 3-month rolling average calculated, the Executive Officer will report the determination to the Board and include a commitment and schedule to conduct a more rigorous control technology implementation, emission reduction, cost-effectiveness, market analysis, and socioeconomic impact assessment of the RECLAIM program.

At the January 21, 2022, Stationary Source Committee meeting, staff reported that NOx RTC prices exceeded the Rule 2002 thresholds. Staff completed the required analysis in June 2022.² Staff determined that the Rule 2002 socioeconomic assessment indicated that the impacts of increased NOx RTC prices are relatively minimal. Further, although converting the available Non-tradable/Non-usable NOx RTCs to Tradable/Usable would reduce compliance cost by 17 percent (\$2.6 million), it would also lessen the incentives to implement emission control projects.

² http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2022/2022-June3-028.pdf

Staff reviewed the Rule 2002 analysis and the underlying parameters used and has determined that the socioeconomic circumstances associated with implementation of the RECLAIM program have not changed. Further, the remedy offered by Rule 2002 to convert Non-tradable/Non-usable NOx RTCs is no longer available because credits for that category of RTCs do not exist beyond calendar year 2022. As such, nothing is gained with repeated reassessment of RECLAIM and staff recommends no further action for the continued Rule 2002 price exceedances.

• *Rule 2015* – requires that if the average RTC price exceeds \$15,000 per ton, within six months of determination, the Executive Officer shall submit to CARB and U.S. EPA the results of an evaluation and review of the compliance and enforcements aspects of the RECLAIM program, including the deterrent effect of Rule 2004 (d)(1) through (d)(4). The purpose of the requirement was to evaluate the RECLAIM program and make potential modifications to improve compliance.

Staff completed this Rule 2015 evaluation and review in August 2022, following completion of the Compliance Year 2020 RECLAIM Audit Report, and determined that the average discrete RTC price for NOx exceeded \$15,000 per ton.³ Staff found that compliance with RECLAIM's emissions (allocations) and monitoring, recordkeeping, and reporting (MRR) requirements continued to be high despite the increased pricing of RTCs. Additionally, the maximum statutorily available penalties did not limit the civil penalty assessments sought and obtained by South Coast AQMD, thus providing room for increased penalties even as the cost of RTCs increase, which serves to ensure that noncompliance does not become a financially attractive option for RECLAIM facilities. In addition to the high rate of collecting penalties for noncompliance cases without having to resort to resolution through the court system, this indicated that RECLAIM continues to provide adequate and appropriate incentives for facilities to conform to their compliance obligations.

Staff reviewed the August 2022 evaluation and the underlying parameters used and has determined that the compliance and enforcement aspects and the circumstances associated with implementation of the RECLAIM program have not changed. Since the Board has determined that the transition of the RECLAIM program to a command-and-control regulatory structure is the appropriate course of action, staff recommends that additional analysis is not required. Staff will submit the Annual RECLAIM Audit Report for 2021 Compliance Year to CARB and U.S. EPA and recommends that no further action beyond RECLAIM program transition is warranted.

• *Health and Safety Code Section 39616(f)* states that the Board shall reassess a market-based incentive program if the market price of emission trading units exceeds a predetermined level set by the Board and that the Board may take action

³ http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2022/2022-aug5-024.pdf

to revise the program.

This predetermined level was originally set by the Board at the beginning of the RECLAIM program at \$25,000 per ton for discrete-year NOx RTCs and \$18,000 per ton for discrete SOx RTCs, adjusted annually for CPI. With the advent of reporting Infinite Year Block (IYB) RTCs, the same CPI adjustment was made for IYB RTCs. The overall program review thresholds in 2022 dollars for RTC trades that occurred in calendar year 2022 are \$53,669 per ton of discrete-year NOx RTCs, \$38,641 per ton of discrete-year SOx RTCs, \$805,031 per ton of IYB NOx RTCs, and \$579,622 per ton of IYB SOx RTCs. As discussed in the Annual RECLAIM Audit Report for 2021 Compliance Year, annual average prices for Compliance Year 2024 and 2025 discrete-year NOx RTCs were \$59,191 and \$60,000 per ton, respectively, which exceeds the \$53,669 per ton program review threshold. As noted previously, since the Board has determined that the transition of the RECLAIM program to a command-and-control regulatory structure is the appropriate course of action, staff recommends that additional assessment is not required, and no further action beyond RECLAIM program transition is warranted.

Attachments

- A. Annual RECLAIM Audit Report for 2021 Compliance Year
- B. Resolution
- C. Presentation

ATTACHMENT A

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Annual RECLAIM Audit Report for 2021 Compliance Year

March 3, 2023

Executive Officer Wayne Nastri

Deputy Executive Officer Engineering & Permitting Jason Aspell

Assistant Deputy Executive Officer Engineering & Permitting Jillian Wong, Ph.D.

Senior Air Quality Engineering Manager RECLAIM Administration and Automation David Ono

Authors:	George Illes, Supervising Air Quality Engineer
	Ryan Maxwell, Senior Air Quality Engineer
	Bettina Burleigh Sanchez, Senior Air Quality Engineer
	Bob Sanford, Senior Air Quality Engineer
	Chris Hynes, Air Quality Specialist
	Benny Char, Air Quality Engineer II
	Yasaman Azar Houshang, Air Quality Engineer I
	Timothy Ebiner, Assistant Air Quality Engineer
	· · · ·

Contributors: Scott Epstein, Program Supervisor Louis Fan, Senior Air Quality Engineer Mark Bassett, Air Quality Specialist Ranil Dhammapala, Senior Meteorologist George Haddad, Systems Analyst

Reviewed by: Jason Aspell, Deputy Executive Officer Jillian Wong, Ph.D., Assistant Deputy Executive Officer David Ono, Senior Air Quality Engineering Manager Barbara Baird, Chief Deputy Counsel Karin Manwaring, Senior Deputy District Counsel

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

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Nithya Raman Council Member, Fourth District City of Los Angeles Representative

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VACANT Cities of Los Angeles County/Western Region

VACANT Cities of Riverside County Representative

EXECUTIVE OFFICER Wayne Nastri

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LIST OF ABBREVIATIONS

AAQS	Ambient Air Quality Standards
ACEMS	Alternative Continuous Emissions Monitoring System(s)
AER	Annual Emission Report
APEP	Annual Permit Emissions Program
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
BACT	Best Available Control Technology
BARCT	Best Available Retrofit Control Technology
CAA	Clean Air Act
CARB	California Air Resources Board
CCAA	California Clean Air Act
CEMS	Continuous Emissions Monitoring System(s)
CEQA	California Environmental Quality Act
CGA	Cylinder Gas Audit
COVID-19	Coronavirus Disease 2019
CPMS	Continuous Process Monitoring System(s)
EDR	Electronic Data Reporting
ERC	Emission Reduction Credit
GHG	Greenhouse Gas
IYB RTC	Infinite-Year Block RECLAIM Trading Credit
LAER	Lowest Achievable Emission Rate
LAP	Laboratory Approval Program
MDP	Missing Data Procedures
MRR	Monitoring, Reporting and Recordkeeping
MSERC	Mobile Source Emission Reduction Credit
NAAQS	National Ambient Air Quality Standards
NNI	No Net Increase
NOx	Oxides of Nitrogen
NSR	New Source Review
ODC	Ozone Depleting Compound
OEHHA	Office of Environmental Health Hazard Assessment
QCER	Quarterly Certification of Emissions Report
RACT	Reasonably Available Control Technology
RATA	Relative Accuracy Test Audit
RECLAIM	REgional CLean Air Incentives Market
RTC	RECLAIM Trading Credit
RTU	Remote Terminal Unit
SCEMS	Semi-Continuous Emission Monitoring System
SIP	State Implementation Plan
SOx	Oxides of Sulfur
TAC	Toxic Air Contaminant
U.S. EPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound
WATERS	Web Access To Electronic Reporting System

EXECUTIVE SUMMARY

Introduction

The South Coast Air Quality Management District (South Coast AQMD) Board adopted the REgional CLean Air Incentives Market (RECLAIM) program on October 15, 1993. The RECLAIM program represented a significant departure from traditional command-and-control regulations. RECLAIM's objective is to provide facilities with added flexibility in meeting emissions reduction requirements while lowering the cost of compliance. This is accomplished by establishing facility-specific emissions reduction targets without being prescriptive regarding the method of attaining compliance with the targets. Each facility may determine for itself the most cost-effective approach to reducing emissions, including reducing emissions at their facility, and/or purchasing RECLAIM Trading Credits (RTCs) from other RECLAIM facilities, or from other RTC holders.

Rule 2015 - Backstop Provisions includes provisions for annual program audits focusing on specific topics, as well as a one-time comprehensive audit of the program's first three years, to ensure that RECLAIM is meeting all state and federal requirements and other performance criteria. Rule 2015 also provides backstop measures if the specific criteria are not met. This report constitutes the Rule 2015 annual program audit report for Compliance Year 2021 (January 1 through December 31, 2021, for Cycle 1 and July 1, 2021, through June 30, 2022, for Cycle 2 facilities). This annual audit report covers activities for the twenty-eighth year of the program.

Chapter 1: RECLAIM Universe

When RECLAIM was adopted in October 1993, a total of 394 facilities were identified as the initial "universe" of sources subject to the requirements of RECLAIM. From program adoption through June 30, 2021, the overall changes in RECLAIM participants were 134 facilities included into the program, 73 facilities excluded from the program, and 215 facilities that ceased operation. Thus, the RECLAIM universe consisted of 240 active facilities at the end of Compliance Year (December 31, 2020, for Cycle 1 facilities and June 30, 2021, for Cycle 2 facilities). During Compliance Year 2021, (January 1, 2021, through December 31, 2021, for Cycle 1 facilities and July 1, 2021, through June 30, 2022, for Cycle 2 facilities), no facilities were included into the RECLAIM universe, no facilities were excluded, and three facilities (three facilities in the NOx universe only and no facilities in both the NOx and SOx universes) shut down and are no longer in the active RECLAIM universe. These changes resulted in a net decrease of three facilities in the universe, bringing the total number of active RECLAIM facilities to 237 as of the end of Compliance Year 2021.

Chapter 2: RTC Allocations and Trading

On November 5, 2010, the Board adopted amendments to SOx RECLAIM to phase in SOx reductions beginning in Compliance Year 2013 and full implementation in Compliance Year 2019 and beyond. The amendments resulted

in an overall reduction of 48.4 percent (or 5.7 tons per day) in SOx allocations. On December 4, 2015, the Board adopted amendments to NOx RECLAIM to phase in additional NOx reductions which began in Compliance Year 2016 and continue through Compliance Year 2022. The amendments will result in an overall NOx reduction of 45.2 percent (or 12 tons per day) when fully implemented for Compliance Year 2022 and beyond. For Compliance Year 2021, the sixth year of implementation, the NOx allocation supply was reduced by 30.1 percent (or 8.0 tons per day). The only remaining changes in RTC supply during Compliance Year 2021 were due to allocation adjustments for clean fuel production pursuant to Rule 2002(c)(12) which increased NOx RTC supply by 0.2 tons and decreased SOx RTC supply by 5.9 tons.

Since the inception of the RECLAIM program in 1994, a total value of \$1.58 billion dollars has been traded in the RTC trading market, excluding swap trades (trades exchanging different types of RTCs, that may be of equal value or different values). During calendar year 2022, there were 264 RTC trade registrations, including swap trades. There were 235 RTC trade registrations with a total value of \$21.8 million traded, excluding swap trades. RTC trades are reported to South Coast AQMD as either discrete-year RTC trades or infinite-year block (IYB) trades (trades that involve blocks of RTCs with a specified start year and continuing into perpetuity).

Excluding swap trades, in calendar year 2022 a total of 1,047 tons of discrete-year NOx RTCs, 360 tons of discrete-year SOx RTCs, 73 tons of IYB NOx RTCs and 16 tons of IYB SOx RTCs were traded. The RTC trading market activity decreased during calendar year 2022 compared to calendar year 2021, in number of trades (by 9.9%), in total value (by 0.9%), and in volume for discrete-year RTCs (by 35.8%). However, from calendar year 2021 to 2022 the RTC trading market increased in trading volume of IYB RTCs (by 2.3%).

Discrete-year RTC trades with price (i.e., price >\$0.00) registered during calendar year 2022 include trades for Compliance Years 2021, 2022, 2023, 2024, and 2025 NOx RTCs, and Compliance Year 2021 and 2022 SOx RTCs, excluding swap trades. The annual average prices of discrete-year NOx RTCs traded during calendar year 2022 were \$17,074; \$36,871; \$47,864; \$59,191; and \$60,000 per ton for Compliance Years 2021, 2022, 2023, 2024, and 2025 RTCs, respectively. The annual average price for discrete-year SOx RTCs traded during the same period for Compliance Years 2021 and 2022 was \$5,900 and \$2,000 per ton respectively for Compliance Years 2021 RTCs.

The annual average price of all Compliance Year NOx RTCs exceeded the Rule 2015 backstop threshold of \$15,000 per ton while SOx RTC prices remained below the threshold. Prices for Compliance Year 2024 and 2025 discrete-year NOx RTCs exceeded the \$53,669 per ton of NOx but none of the SOx RTC vintages traded exceeded the \$38,641 per ton of SOx discrete-year RTCs predetermined overall program review thresholds established by the Board pursuant to Health and Safety Code Section 39616(f).¹

During calendar year 2022 the annual average price for IYB NOx RTCs was \$150,250 per ton and for SOx RTCs was \$6,000 per ton. Therefore, annual average IYB RTC prices did not exceed the \$805,031 per ton of IYB NOx RTCs

¹ September 7, 2007, Board Agenda item No. 43 regarding Health and Safety Code §39616(f) can be found at: <u>http://www3.aqmd.gov/hb/2007/September/070943a.html</u>

or the \$579,622 per ton of IYB SOx RTCs pre-determined overall program review thresholds established by the Board pursuant to Health and Safety Code Section 39616(f).

Investors were active in the RTC market during calendar year 2022. They were involved in 96 of the 156 discrete-year NOx trade registrations and were involved in all seven discrete-year SOx trade registrations with price. Investors were also involved in five of the seven IYB NOx trades. For IYB SOx trades with price, there was only one such trade and both parties were investors. Investors were involved in 68 percent and 59 percent of total value and total volume, respectively, of discrete-year NOx trades, and 63% and 62% of total value and total volume, respectively, of IYB NOx trades. Investors were involved in every discrete-year and IYB SOx trade with respect to total value and volume for this calendar year. At the end of calendar year 2022, investors' holdings of IYB NOx RTCs decreased slightly to 1.8 percent of total NOx RECLAIM RTCs from 2.0 percent in 2021. Investors' holdings of IYB SOx RTCs stayed consistent at 4.2 percent of the total SOx RECLAIM RTCs when compared to investor's holdings in calendar year 2021.

Chapter 3: Emission Reductions Achieved

For Compliance Year 2021, aggregate NOx emissions were below total allocations by 22 percent and aggregate SOx emissions were below total allocations by 17 percent. No emissions associated with breakdowns were excluded from reconciliation with facility allocations in Compliance Year 2021. Accordingly, no mitigation is necessary to offset excluded emissions due to approved Breakdown Emission Reports. Therefore, based on audited emissions, RECLAIM achieved its targeted emission reductions for Compliance Year 2021. With respect to the Rule 2015 backstop provisions, Compliance Year 2021 aggregate NOx and SOx emissions were both below aggregate allocations and, as such, did not trigger the requirement to review the RECLAIM program.

Chapter 4: New Source Review Activity

The annual program audit assesses NSR activity from RECLAIM facilities to ensure that RECLAIM is complying with federal NSR requirements and state no net increase (NNI) in emissions requirements while providing flexibility to facilities in managing their operations and allowing new sources into the program. In Compliance Year 2021, a total of one NOx RECLAIM facility had NSR NOx emission increases, and no SOx RECLAIM facilities had an NSR SOx emission increase due to expansion or modification. Consistent with all prior compliance years, there were sufficient NOx and SOx RTCs available to allow for expansion, modification, and modernization by RECLAIM facilities.

RECLAIM is required to comply with federal NSR emissions offset requirements at a 1.2-to-1 offset ratio programmatically for NOx emission increases and a 1-to-1 offset ratio for SOx emission increases on a programmatic basis. In Compliance Year 2021, RECLAIM demonstrated federal equivalency with a programmatic NOx offset ratio of 169-to-1 based on the compliance year's total unused allocations and total NSR emission increases for NOx. There were no SOx NSR emission increases that resulted from starting operations of new or modified permitted sources during the compliance year. RECLAIM inherently complies with the federally-required 1-to-1 SOx offset ratio for any compliance year, provided aggregate SOx emissions under RECLAIM are lower than or equal to aggregate SOx allocations for that compliance year. As shown in Chapter 3 (Table 3-2 and Figure 3-2), there was a surplus of SOx RTCs during Compliance Year 2021. Therefore, RECLAIM more than complied with the federally-required SOx offset ratio and further quantification of the SOx offset ratio is unnecessary. Also, the NNI requirement is satisfied by the program's 1-to-1 offset ratio. In addition, RECLAIM requires application of, at a minimum, California Best Available Control Technology (BACT), which is at least as stringent as federal Lowest Achievable Emission Rate (LAER) for major sources. The same BACT guidelines are used to determine BACT applicable to RECLAIM and non-RECLAIM facilities.

Chapter 5: Compliance

Based on South Coast AQMD Compliance Year 2021 audit results, 240 of the 253 NOx RECLAIM facilities (95%) complied with their NOx allocations, and 28 of the 29 SOx facilities (97%) complied with their SOx allocations based on South Coast AQMD audit results. Therefore, 14 facilities exceeded their allocations (13 facilities exceeded their NOx allocations, and one facility exceeded its SOx allocation). The 13 facilities that exceeded their NOx allocations had aggregate NOx emissions of 59.6 tons and did not have adequate allocations to offset 27.7 tons (or 46.5%) of their combined emissions. The facility that exceeded its SOx allocation had SOx emissions of 566.5 tons and did not have adequate allocations to offset 89.8 tons (or 15.9%) of its emissions. The NOx and SOx exceedance amounts are relatively small compared to the overall allocations for Compliance Year 2021 (0.41% of total NOx allocations and 4.1% of total SOx allocations). The exceedances from these facilities did not impact the overall RECLAIM emission reduction goals. The overall RECLAIM NOx and SOx emission reduction targets and goals were met for Compliance Year 2021 (i.e., aggregate emissions for all RECLAIM facilities were below aggregate allocations). Pursuant to Rule 2010(b)(1)(A), all affected facilities had their respective exceedances deducted from their annual allocations for the compliance year subsequent to the date of South Coast AQMD determination that the facilities exceeded their Compliance Year 2021 allocations.

Chapter 6: Reported Job Impacts

This chapter compiles data as reported by RECLAIM facilities in their APEP reports. The analysis focuses exclusively on job impacts at RECLAIM facilities and determining if those job impacts were directly attributable to RECLAIM as reported by those facilities. Additional benefits to the local economy (e.g., generating jobs for consulting firms, source testing firms and CEMS vendors) attributable to the RECLAIM program, as well as factors outside of RECLAIM (e.g., the prevailing economic climate), impact the job market. However, these factors are not evaluated in this report. Also, job losses and job gains are strictly based on RECLAIM facilities' reported information. South Coast AQMD staff is not able to independently verify the accuracy of the facility reported job impact information.

According to the Compliance Year 2021 employment survey data gathered from APEP reports, RECLAIM facilities reported a net loss of 1,381 jobs, representing 1.70 percent of their total employment. No RECLAIM facility cited RECLAIM as a

factor contributing to the addition of any jobs during Compliance Year 2021. No facility reported job losses due to RECLAIM, during Compliance Year 2021.

Chapter 7: Air Quality and Public Health Impacts

Audited RECLAIM emissions have been in an overall downward trend since the program's inception. Compliance Year 2021 NOx and SOx emissions decreased four percent and increased 29 percent, respectively, relative to Compliance Year 2020. Quarterly calendar year 2021 NOx emissions fluctuated within three percent of the mean NOx emissions for the year. Quarterly calendar year 2021 SOx emissions fluctuated within 24 percent of the year's mean SOx emissions. There was no significant shift in seasonal emissions from the winter season to the summer season for either pollutant; however, SOx emission trends differed slightly in comparison to previous calendar years with fourth quarter emissions continuing an upward trend, unlike previous calendar years.

The California Clean Air Act (CCAA) required a 50 percent reduction in population exposure to ozone, relative to a baseline averaged over three years (1986 through 1988), by December 31, 2000. The South Coast Air Basin achieved the December 2000 target for ozone well before the deadline. In calendar year 2022, the per capita exposure to ozone (the average length of time each person is exposed) continued to be well below the target set for December 2000.

Air toxic health risk is primarily caused by emissions of certain volatile organic compounds (VOCs) and fine particulates, such as metals. RECLAIM facilities are subject to the same air toxic, VOC, and particulate matter regulations as other sources in the Basin. All sources are subject, where applicable, to the NSR rule for toxics (Rule 1401 – New Source Review of Toxic Air Contaminants). In addition, new or modified sources with NOx or SOx emission increases are required to be equipped with BACT, which minimizes to the extent feasible the increase of NOx and SOx emissions. RECLAIM and non-RECLAIM facilities that emit air toxics are required to report those emissions to South Coast AQMD. Those emissions reports are used to identify candidates for the Air Toxics Hot Spots program (AB2588). This program requires emission inventories and, depending on the type and amount of emissions, facilities may be required to do public notice and/or prepare and implement a plan to reduce emissions. There is no evidence that RECLAIM has caused or allowed higher health risks from air toxics in areas adjacent to RECLAIM facilities, than would occur under command-and-control, because RECLAIM facilities must comply with the same air toxics rules as non-RECLAIM facilities.

INTRODUCTION

The South Coast Air Quality Management District (South Coast AQMD) REgional CLean Air Incentives Market (RECLAIM) program was adopted in October 1993 and replaced certain command-and-control rules regarding oxides of nitrogen (NOx) and oxides of sulfur (SOx) with a new market incentives program for facilities that meet the inclusion criteria. The goals of RECLAIM are to provide facilities with added flexibility in meeting emissions reduction requirements while lowering the cost of compliance. The RECLAIM program was designed to meet all state and federal Clean Air Act (CAA) and other air quality regulations and program requirements, as well as various other performance criteria, such as equivalent or better air quality improvement, enforcement, implementation costs, job impacts, and no adverse public health impacts.

Since RECLAIM represents a significant change from traditional command-andcontrol regulations, RECLAIM rules include provisions for program audits in order to verify that the RECLAIM objectives are being met. The rules provide for a comprehensive audit of the first three years of program implementation and for annual program audits. The audit results are used to help determine whether any program modifications are appropriate. South Coast AQMD staff has completed the initial tri-annual program audit and each individual annual program audit report through the 2021 Compliance Year Audit.

This report presents the annual program audit and progress report of RECLAIM's twenty-seventh compliance year (January 1 through December 31, 2021, for Cycle 1 and July 1, 2021, through June 30, 2022, for Cycle 2 RECLAIM facilities), also known as Compliance Year 2021. As required by Rule 2015(b)(1) – Annual Audits, this audit assesses:

- Emission reductions;
- Per capita exposure to air pollution;
- Facilities permanently ceasing operation of all sources;
- Job impacts;
- Annual average price of each type of RECLAIM Trading Credit (RTC);
- Availability of RTCs;
- Toxic risk reductions;
- New Source Review permitting activity;
- Compliance issues, including a list of facilities that were unable to reconcile emissions for that compliance year;
- Emission trends/seasonal fluctuations;
- Emission control requirement impacts on stationary sources in the program compared to other stationary sources identified in the Air Quality Management Plan (AQMP); and
- Emissions associated with equipment breakdowns.

The annual program audit report is organized into the following chapters:

1. RECLAIM Universe

This chapter summarizes changes to the universe of RECLAIM sources that occurred up until July 1, 2021, (covered under the Annual RECLAIM Audit Report for 2020 Compliance Year), then discusses changes to the RECLAIM universe of sources in detail through the end of Compliance Year 2021.

2. RTC Allocations and Trading

This chapter summarizes changes in emissions allocations in the RECLAIM universe, RTC supply and RTC trading activity, annual average prices, availability of RTCs, and market participants.

3. Emission Reductions Achieved

This chapter assesses emissions trends and progress towards emission reduction goals for RECLAIM sources, emissions associated with equipment breakdowns, and emissions control requirement impacts on RECLAIM sources compared to other stationary sources. It also discusses the latest amendments to the RECLAIM program.

4. New Source Review Activity

This chapter summarizes New Source Review (NSR) activities at RECLAIM facilities.

5. Compliance

This chapter discusses compliance activities and the compliance status of RECLAIM facilities. It also evaluates the effectiveness of South Coast AQMD's compliance program, as well as the monitoring, reporting, and recordkeeping (MRR) protocols for NOx and SOx.

6. Reported Job Impacts

This chapter addresses job impacts and facilities permanently ceasing operation of all emission sources.

7. Air Quality and Public Health Impacts

This chapter discusses air quality trends in the South Coast Air Basin¹, seasonal emission trends for RECLAIM sources, per capita exposure to air pollution, and the toxic impacts of RECLAIM sources.

¹ The South Coast Air Basin, also referred to as the Basin in this report, includes two additional RECLAIM facilities located in the Riverside County portion of the Salton Sea Air Basin, or Non-Palo Verde, Riverside County portion of the Mojave Desert Air Basin.

CHAPTER 1 RECLAIM UNIVERSE

Summary

When RECLAIM was adopted in October 1993, a total of 394 facilities were identified as the initial "universe" of sources subject to the requirements of RECLAIM. From program adoption through June 30, 2021, the overall changes in RECLAIM participants were 134 facilities included into the program, 73 facilities excluded from the program, and 215 facilities that ceased operation. Thus, the RECLAIM universe consisted of 240 active facilities at the end of Compliance Year 2020 (December 31, 2020, for Cycle 1 facilities and June 30, 2021, for Cycle 2 facilities). During Compliance Year 2021, (January 1, 2021, through December 31, 2021, for Cycle 1 facilities and July 1, 2021, through June 30, 2022, for Cycle 2 facilities), no facilities were included into the RECLAIM universe, no facilities were excluded, and three facilities (three facilities in the NOx universe only and no facilities in both the NOx and SOx universes) shut down and are no longer in the active RECLAIM universe. These changes resulted in a net decrease of three facilities in the universe, bringing the total number of active RECLAIM facilities to 237 as of the end of Compliance Year 2021.

Background

The RECLAIM program replaced the traditional "command-and-control" rules for a defined list of facilities participating in the program (the RECLAIM "universe"). The criteria for inclusion in the RECLAIM program are specified in Rule 2001 – Applicability. Facilities were generally subject to RECLAIM if they have NOx or SOx reported emissions greater than or equal to four tons per year in 1990 or any subsequent year. However, certain facilities are categorically excluded from RECLAIM. The categorically excluded facilities include dry cleaners; restaurants; police and fire fighting facilities; construction and operation of landfill gas control, landfill gas processing or landfill gas energy facilities; public transit facilities, potable water delivery operations; facilities that converted all sources to operate on electric power prior to October 1993; and facilities, other than electric generating facilities established on or after January 1, 2001, located in the Riverside County portion of the Salton Sea Air Basin or Non-Palo Verde, Riverside County portion of the Mojave Desert Air Basin.

Other categories of facilities were not automatically included but did have the option to enter the program. These categories include electric utilities (exemption only for the SOx program); equipment rental facilities; facilities possessing solely "various locations" permits; schools or universities; portions of facilities conducting research operations; ski resorts; prisons; hospitals; publicly-owned municipal waste-to-energy facilities; publicly-owned sewage treatment facilities operating consistent with an approved regional growth plan; electrical power generating systems owned and operated by the Cities of Burbank, Glendale, or Pasadena or their successors; facilities that are new on or after January 1, 2001, and located in the Riverside County portion of the Salton Sea Air Basin or

Non-Palo Verde, Riverside County portion of the Mojave Desert Air Basin. An initial universe of 394 RECLAIM facilities was developed using the inclusion criteria initially adopted in the RECLAIM program based on 1990, 1991, and 1992 facility reported emissions data.

A facility that was not in a category specifically excluded from the program could voluntarily join RECLAIM regardless of its emission level. Additionally, a facility could be required to enter the RECLAIM universe if:

- It increased its NOx and/or SOx emissions from permitted sources above the four ton per year threshold; or
- It ceased to be categorically excluded and its reported NOx and/or SOx emissions were greater than or equal to four tons per year; or
- It was determined by staff to meet the applicability requirements of RECLAIM but was initially misclassified as not subject to RECLAIM.

At the time of joining RECLAIM, each RECLAIM facility was issued an annually declining allocation of emission credits ("RECLAIM Trading Credits" or "RTCs") based on its historic production level (if the facility existed prior to January 1, 1993), external offsets it previously provided, and any Emission Reduction Credits (ERCs) generated at and held by the facility. Each RECLAIM facility's RTC holdings constitute an annual emissions budget. RTCs may be bought or sold as the facility deems appropriate (see Chapter 2 – RTC Allocations and Trading).

2016 AQMP Control Measure CMB-05

Up until March 2017, staff conducted a process of identifying facilities to be included in RECLAIM pursuant to Rule 2001(b) – Criteria for Inclusion in RECLAIM. As part of the adoption Resolution of the Final 2016 AQMP in March 2017, staff was directed by the Board to modify Control Measure CMB-05 – Further NOx Reductions from RECLAIM Assessment to achieve an additional five tons per day NOx emission reductions as soon as feasible but no later than 2025, and to transition the RECLAIM program to a command-and-control regulatory structure requiring Best Available Retrofit Control Technology (BARCT) level controls as soon as practicable. Additionally, California State Assembly Bill (AB) 617, approved in July 2017, required an expedited schedule for implementing BARCT at cap-and-trade facilities, under which many RECLAIM facilities are also subject, and required that the implementation of BARCT be no later than December 31, 2023.

2018 Rule Amendments

On January 5, 2018, the Board amended two rules, Rule 2001 – Applicability, and Rule 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx), to initiate the transition of the NOx and SOx RECLAIM program to a command-and-control regulatory structure as soon as practicable. The amendments also precluded new or existing facilities from entering the NOx and SOx RECLAIM programs. On October 5, 2018, the Board further amended Rule 2001, opening a pathway for a facility to opt out of the RECLAIM program should their equipment qualify. Shortly thereafter, the United States Environmental Protection Agency (U.S. EPA) recommended that facilities be kept in RECLAIM

until all the rules associated with the transition to a command-and-control regulatory structure are adopted, so that the full transitioning of the RECLAIM Program can be evaluated for incorporation into the State Implementation Plan (SIP) as a package with all the accompanying rules in place. In order to address U.S. EPA's concerns, the Board amended Rule 2001 on July 12, 2019, to remove the opt-out provision so that facilities cannot exit RECLAIM (see further discussion in Chapter 3).

Following approval of these Rule 2001 amendments, the only allowable changes to the RECLAIM Universe result from facilities that cease operations, as indicated by removing all equipment requiring a South Coast AQMD permit to operate or by rendering such equipment permanently inoperable (*i.e.,* from facility shutdowns).

Universe Changes

In the early years of the RECLAIM program, some facilities initially identified for inclusion were excluded upon determination that they did not meet the criteria for inclusion (*e.g.*, some facilities that had reported emissions from permitted sources above four tons in a year were determined to have over-reported their emissions and subsequently submitted corrected emissions reports reflecting emissions from permitted sources below four tons per year). Additionally, some facilities that were not part of the original universe were subsequently added to the program based on the original inclusion criteria mentioned above. On the other hand, RECLAIM facilities that permanently go out of business are removed from the active emitting RECLAIM universe.

The overall changes to the RECLAIM universe from the date of adoption (October 15, 1993) through June 30, 2021, (the last day of Compliance Year 2020 for Cycle 2 facilities) were: the inclusion of 134 facilities (including 34 facilities created by partial change of operator of existing RECLAIM facilities), the exclusion of 73 facilities, and the shutdown of 215 facilities. Thus, the net change in the RECLAIM universe from October 15, 1993, through June 30, 2021, was a decrease of 154 facilities from 394 to 240 facilities. In Compliance Year 2021 (January 1, 2021, through December 31, 2021, for Cycle 1 facilities and July 1, 2021, through June 30, 2022, for Cycle 2 facilities), no facilities were included, no facilities were excluded, and three facilities shut down. These changes brought the total number of facilities in the RECLAIM universe includes 209 NOx only, no SOx-only, and 28 both NOx and SOx RECLAIM facilities. The list of active facilities in the RECLAIM universe as of the end of Compliance Year 2021 is provided in Appendix A.

Facility Inclusions and Exclusions

No RECLAIM facilities were included in or excluded from the RECLAIM universe during Compliance Year 2021 (Appendix B).

Facilities Permanently Ceasing Operations

Three NOx RECLAIM facilities permanently ceased operations in Compliance Year 2021. The first facility shut down, demolished their building and consolidated operations with other facilities in their network. The final two facilities cited financial reasons for shutdown. Appendix C lists these facilities and provides brief descriptions of the reported reasons for their closures.

The above-mentioned changes to the RECLAIM universe resulted in a net decrease of three facilities in the RECLAIM universe during Compliance Year 2021. Table 1-1 summarizes overall changes in the RECLAIM universe between the start of the program and end of Compliance Year 2021 (December 31, 2021, for Cycle 1 facilities and June 30, 2022, for Cycle 2 facilities). Changes to the RECLAIM universe that occurred in Compliance Year 2021 are illustrated in Figure 1-1.

Table 1-1 RECLAIM Universe Changes

	NOx Facilities	SOx Facilities	Total* Facilities
Universe – October 15, 1993 (Start of Program)	392	41	394
Inclusions – October 15, 1993, through Compliance Year 2020	134	13	134
Exclusions – October 15, 1993, through Compliance Year 2020	-72	-4	-73
Shutdowns – October 15, 1993, through Compliance Year 2020	-214	-22	-215
Universe – June 30, 2021	240	28	240
Inclusions – Compliance Year 2021	0	0	0
Exclusions – Compliance Year 2021	0	0	0
Shutdowns – Compliance Year 2021	-3	0	-3
Universe – End of Compliance Year 2021	237	28	237

"Total Facilities" is <u>not</u> the sum of NOx and SOx facilities due to the overlap of some facilities being in both the NOx and SOx universes.

Figure 1-1 Universe Changes in Compliance Year 2021



CHAPTER 2 RTC ALLOCATIONS AND TRADING

Summary

On November 5, 2010, the Board adopted amendments to SOx RECLAIM to phase in SOx reductions beginning in Compliance Year 2013 and full implementation in Compliance Year 2019 and beyond. The amendments resulted in an overall reduction of 48.4 percent (or 5.7 tons per day) in SOx allocations. On December 4, 2015, the Board adopted amendments to NOx RECLAIM to phase in additional NOx reductions which began in Compliance Year 2016 and continue through Compliance Year 2022. The amendments will result in an overall NOx reduction of 45.2 percent (or 12 tons per day) when fully implemented for Compliance Year 2022 and beyond. For Compliance Year 2021, the sixth year of implementation, the NOx allocation supply was reduced by 30.1 percent (or 8.0 tons per day). The only remaining changes in RTC supply during Compliance Year 2021 were due to allocation adjustments for clean fuel production pursuant to Rule 2002(c)(12) which increased NOx RTC supply by 0.2 tons and decreased SOx RTC supply by 5.9 tons.

Since the inception of the RECLAIM program in 1994, a total value of \$1.58 billion dollars has been traded in the RTC trading market, excluding swap trades (trades exchanging different types of RTCs, that may be of equal value or different values). During calendar year 2022, there were 264 RTC trade registrations, including swap trades. There were 235 RTC trade registrations with a total value of \$21.8 million traded, excluding swap trades. RTC trades are reported to South Coast AQMD as either discrete-year RTC trades or infinite-year block (IYB) trades (trades that involve blocks of RTCs with a specified start year and continuing into perpetuity).

Excluding swap trades, in calendar year 2022 a total of 1,047 tons of discrete-year NOx RTCs, 360 tons of discrete-year SOx RTCs, 73 tons of IYB NOx RTCs and 16 tons of IYB SOx RTCs were traded. The RTC trading market activity decreased during calendar year 2022 compared to calendar year 2021, in number of trades (by 9.9%), in total value (by 0.9%), and in volume for discrete-year RTCs (by 35.8%). However, from calendar year 2021 to 2022 the RTC trading market increased in trading volume of IYB RTCs (by 2.3%).

Discrete-year RTC trades with price (i.e., price >\$0.00) registered during calendar year 2022 include trades for Compliance Years 2021, 2022, 2023, 2024, and 2025 NOx RTCs, and Compliance Year 2021 and 2022 SOx RTCs, excluding swap trades. The annual average prices of discrete-year NOx RTCs traded during calendar year 2022 were \$17,074; \$36,871; \$47,864; \$59,191; and \$60,000 per ton for Compliance Years 2021, 2022, 2023, 2024, and 2025 RTCs, respectively. The annual average price for discrete-year SOx RTCs traded during the same period for Compliance Years 2021 and 2022 was \$5,900 and \$2,000 per ton respectively for Compliance Years 2021 RTCs.

The annual average price of all Compliance Year NOx RTCs exceeded the Rule 2015 backstop threshold of \$15,000 per ton while SOx RTC prices remained below the threshold. Prices for Compliance Year 2024 and 2025 discrete-year

NOx RTCs exceeded the \$53,669 per ton of NOx but none of the SOx RTC vintages traded exceeded the \$38,641 per ton of SOx discrete-year RTCs predetermined overall program review thresholds established by the Board pursuant to Health and Safety Code Section 39616(f).¹

During calendar year 2022 the annual average price for IYB NOx RTCs was \$150,250 per ton and for SOx RTCs was \$6,000 per ton. Therefore, annual average IYB RTC prices did not exceed the \$805,031 per ton of IYB NOx RTCs or the \$579,622 per ton of IYB SOx RTCs pre-determined overall program review thresholds established by the Board pursuant to Health and Safety Code Section 39616(f).

Investors were active in the RTC market during calendar year 2022. They were involved in 96 of the 156 discrete-year NOx trade registrations and were involved in all seven discrete-year SOx trade registrations with price. Investors were also involved in five of the seven IYB NOx trades. For IYB SOx trades with price, there was only one such trade and both parties were investors. Investors were involved in 68 percent and 59 percent of total value and total volume, respectively, of discrete-year NOx trades, and 63% and 62% of total value and total volume, respectively, of IYB NOx trades. Investors were involved in every discrete-year and IYB SOx trade with respect to total value and volume for this calendar year. At the end of calendar year 2022, investors' holdings of IYB NOx RTCs decreased slightly to 1.8 percent of total NOx RECLAIM RTCs from 2.0 percent in 2021. Investors' holdings of IYB SOx RTCs stayed consistent at 4.2 percent of the total SOx RECLAIM RTCs when compared to investor's holdings in calendar year 2021.

Background

On January 5, 2018, the South Coast AQMD Board amended Rule 2001 -Applicability to discontinue facility inclusions into RECLAIM. The Executive Officer could only include a facility into RECLAIM up until January 5, 2018, and no facility can elect to enter RECLAIM after January 5, 2018. Prior to this amendment, South Coast AQMD issued each RECLAIM facility at the time of inclusion into RECLAIM emissions allocations for each compliance year, according to the methodology specified in Rule 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx). For facilities that existed prior to January 1, 1993, the allocation was calculated based on each facility's historical production levels as reported to South Coast AQMD in its annual emission reports (AERs), NOx emission factors listed in Tables 1, 3, and 6 of Rule 2002, or SOx emission factors in Tables 2 and 4 of Rule 2002 for the appropriate equipment category, any qualified² external offsets previously provided by the facility, and any unused ERCs generated at and held by the facility. Facilities entering RECLAIM after 1994 were issued allocations, if eligible, for the compliance year of entry and all years after, and Compliance Year 1994 allocations (also known as the facility's "Starting Allocation") for the sole purpose of establishing the New Source Review (NSR) trigger level.

¹ September 7, 2007, Board Agenda item No. 43 regarding Health and Safety Code §39616(f) can be found at: <u>http://www3.aqmd.gov/hb/2007/September/070943a.html</u>

² Only external offsets provided at a one-to-one offset ratio after the base year were used as the basis for allocation quantification purposes.

These allocations are issued as RTCs, denominated in pounds of NOx or SOx with a specified 12-month term. Each RTC may only be used for emissions occurring within the term of that RTC. The RECLAIM program has two staggered compliance cycles—Cycle 1 with a compliance period of January 1 through December 31 of each year, and Cycle 2 with a compliance period of July 1 of each year through June 30 of the following year. Each RECLAIM facility is assigned to either Cycle 1 or Cycle 2 and the RTCs it is issued (if any) have corresponding periods of validity.

The issuance of allocations for future years provides RECLAIM facilities guidance regarding their future emission reduction requirements. Facilities can plan their compliance strategies by reducing actual emissions or securing needed RTCs through trade registrations (or a combination of the two), based on their operational needs.

RECLAIM facilities may acquire RTCs issued for either cycle through trading and apply them to emissions, provided that the RTCs are used for emissions occurring within the RTCs' period of validity and the trades are made during the appropriate time period. RECLAIM facilities have until 30 days after the end of each of the first three quarters of each compliance year to reconcile their quarterly and year-to-date emissions, and until 60 days after the end of each compliance year to reconcile their last quarter and total annual emissions by securing adequate RTCs. Please note that, although other chapters in this report present and discuss Compliance Year 2021 data, new RTC trade data discussed in this chapter is for RTC trades that occurred during calendar year 2022.

RTC Allocations and Supply

The methodology for determining RTC allocations is established by Rule 2002. According to this rule, allocations may change when the universe of RECLAIM facilities changes, emissions associated with the production of re-formulated gasoline increase or decrease, reported historical activity levels are updated, or emission factors used to determine allocations are changed. In addition to these RTCs allocated by South Coast AQMD, RTCs may have been generated by conversion of emissions reduction credits from mobile and area sources pursuant to approved protocols. The total RTC supply in RECLAIM is made up of all RECLAIM facilities' allocations, conversions of ERCs owned by RECLAIM and non-RECLAIM facilities,³ emissions associated with the production of reformulated gasoline, and conversion of emission reduction credits from mobile sources and area sources pursuant to approved protocols. The South Coast AQMD Board may adopt additional rules that affect RTC supply. Changes in the RTC supply during Compliance Year 2021 are discussed below.

Allocations Adjustments Due to Inclusion and Exclusion of Facilities

As noted above, the South Coast AQMD Board discontinued facility inclusions into RECLAIM. Previous to this amendment, facilities existing prior to October 1993 and entering RECLAIM after 1994 may have received allocations just like facilities that were included at the beginning of the program. However, allocations issued for these facilities were only applicable for the compliance year of entry

³ Per Rule 2002(c)(4), the window of opportunity for non-RECLAIM facilities to convert ERCs to RTCs, other than during the process of a non-RECLAIM facility entering the program, closed June 30, 1994.
and forward. In addition, these facilities were issued allocations and Nontradable/Non-usable Credits for Compliance Year 1994 for the sole purpose of establishing their starting allocation to ensure compliance with offset requirements under Rule 2005 – New Source Review for RECLAIM and the trading zone restriction to ensure net ambient air quality improvement within the sensitive zone established by Health and Safety Code Section 40410.5. These Compliance Year 1994 credits are not allowed to be used to offset current emissions because they have expired. Similarly, if an existing facility that was previously included in RECLAIM is subsequently excluded because it is determined to be categorically excluded or exempt pursuant to Rule 2001(i) or to not have emitted four tons or more of NOx or SOx in a year, any RTCs it was issued upon entering RECLAIM are removed from the market upon its exclusion.

As discussed in Chapter 1, the South Coast AQMD Board amended Rule 2001 on October 5, 2018, to allow qualifying facilities to opt-out of the RECLAIM program. Based on continuing conversations with U.S. EPA, the Board subsequently amended Rule 2001 on July 12, 2019, to remove the opt-out provision so that facilities can no longer exit RECLAIM. Facilities that were excluded by means of this opt-out provision, as opposed to the normal exclusion criteria described in the preceding paragraph, retained their initially-allocated RTCs.⁴ No facilities were excluded during Compliance Year 2021. Therefore, there were no changes to the NOx or SOx supplies in Compliance Year 2021 due to facility exclusions from RECLAIM.

On January 5, 2018, the South Coast AQMD Board amended Rule 2001 to discontinue facility inclusions into RECLAIM. The Executive Officer could only include a facility into RECLAIM up until January 5, 2018, and no facility can elect to enter RECLAIM after January 5, 2018. No facilities were included in the RECLAIM program in Compliance Year 2021. Therefore, there are no changes to the NOx or SOx RTC supplies in Compliance Year 2021 due to facility inclusions into RECLAIM.

Allocations Adjustments Due to Facility Shutdowns

Prior to the October 7, 2016, amendment of Rule 2002, shutdown facilities were allowed to retain all of their RTC holdings and participate in the trading market. For NOx RECLAIM facilities listed in Tables 7 and 8 of Rule 2002 that shut down on or after October 7, 2016, the Rule 2002 amendment established a BARCT-based RTC discounting methodology that is more closely aligned to the ERC discounting methodology under command-and-control rules. A shutdown facility may trade future year RTCs that remain after the RTC adjustment is completed, if any. If the calculated reduction amount exceeds a facility's holdings for any future compliance year, the facility must purchase and surrender sufficient RTCs to fulfill the entire reduction requirement. This situation may result if the facility previously sold its future year allocations.

Three RECLAIM facilities shut down during Compliance Year 2021. None were listed in Table 8 of Rule 2002. Therefore, there were no changes to the NOx RTC supplies in Compliance Year 2021 due to facility shutdowns. The shutdown facilities sold all of their NOx RTC allocations.

⁴ Except for shutdown facilities that are subject to Rule 2002(i); see discussion in the next section.

Allocations Adjustments Due to Clean Fuel Production

Rule 2002(c)(12) – Clean Fuel Adjustment to Starting Allocation, provides refineries with RTCs to compensate for their actual emissions increases caused by the production of California Air Resources Board (CARB) Phase II reformulated gasoline. The amount of these RTCs is based on actual emissions for the subject compliance year and historical production data. The quantities of such clean fuels RTCs needed were projected based on the historical production data submitted, and qualifying refineries were issued in 2000 an aggregate baseline of 86.5 tons of NOx and 42.3 tons of SOx for Compliance Year 1999, 101.8 tons of NOx and 41.4 tons of SOx for Compliance Year 2000, and 98.4 tons of NOx and 40.2 tons of SOx for each subsequent Compliance Year on the basis of those projections. These refineries are required to submit, at the end of each compliance year in their Annual Permit Emissions Program (APEP) report, records to substantiate actual emission increases due solely to the production of reformulated gasoline. If actual emission increases for a subject year are different than the projected amount, the RTCs issued are adjusted accordingly (*i.e.*, excess RTCs issued are deducted if emissions were less than projected; conversely, additional RTCs are issued if emissions were higher than projected).

As a result of the amendment to Rule 2002 in January 2005 to further reduce RECLAIM NOx allocations, the NOx historical baseline Clean Fuel Adjustments for Compliance Year 2007 and subsequent years held by the facility were also reduced by the appropriate factors as stated in Rule 2002(f)(1)(A). On the other hand, Rule 2002(c)(12) provides refineries a Clean Fuels adjustment based on actual emissions. Therefore, each refinery is subject to an adjustment at the end of each compliance year equal to the difference between the amount of actual emission increases due solely to production of reformulated gasoline at each refinery and the amount of credits it was issued in 2000 after discounting by the factors for the corresponding compliance year. For Compliance Year 2021, 0.2 tons of NOx RTCs (0.003% of total NOx allocation for Compliance Year 2021) were credited and 5.9 tons of SOx RTCs (0.27% of total SOx allocation for Compliance Year 2021) were deducted from refineries' Compliance Year 2021 RTC holdings at the end of the compliance year.

Changes in RTC Allocations Due to Activity Corrections

RECLAIM facilities' allocations are determined by their reported historical activity levels (*e.g.*, fuel usage, material usage, or production) in their AERs. In the case where a facility's AER reported activity levels are updated within five years of the AER due date, its allocation is adjusted accordingly.⁵ There were no changes in RTC allocations due to activity corrections in Compliance Year 2021.

Conversions of Other Types of Emission Reduction Credits

Conversions of Mobile Source Emission Reduction Credits (MSERCs) and other types of emission reduction credits, other than regular stationary source ERCs issued under Regulation XIII – New Source Review, to RTCs are allowed under Rule 2008 – Mobile Source Credits, and several programs under Regulation XVI

⁵ Pursuant to Rule 2002(b)(5) as amended on December 4, 2015, any AERs (including corrections) submitted more than five years after the original due date are not considered in the RTC quantification process.

– Mobile Source Offset Programs and Regulation XXV – Intercredit Trading. Conversion of these credits to RTCs is allowed based on the respective approved protocol specified in each rule. Currently, Rules 1610 – Old-Vehicle Scrapping and 1612 – Credits for Clean On-Road Vehicles allow the creation of MSERCs. However, there are no State Implementation Plan (SIP) approved protocols for conversion of MSERCs to RTCs. No new RTCs were issued by conversion of other types of emission reduction credits in Compliance Year 2021.

Net Changes in RTC Supplies

The changes to RTC supplies described in the above sections resulted in a net increase of 0.2 tons of NOx RTCs (0.003% of the total) and a decrease of 5.9 tons of SOx RTCs (0.27% of the total) for Compliance Year 2021. Table 2-1 summarizes the changes in NOx and SOx RTC supplies that occurred in Compliance Year 2021 pursuant to Rule 2002.

Table 2-1

Changes in NOx and SOx RTC Supplies during Compliance Year 2021 (tons per year)

Source	NOx	SOx
Universe changes	0	0
Clean Fuel/Reformulated Gasoline	0.2	-5.9
Activity corrections	0	0
MSERCs	0	0
Net change	0.2	-5.9

Note: The data in this table represents the changes that occurred over the course of Compliance Year 2021 to the Compliance Year 2021 aggregate NOx and SOx RTC supplies originally issued pursuant to Rule 2002, not the difference between 2021 aggregate RTC supply and that for any other compliance year.

Allocation Reduction Resulting from BARCT Review

Pursuant to California Health and Safety Code Section 40440, South Coast AQMD is required to monitor the advancement in BARCT and periodically reassess the RECLAIM program to ensure that RECLAIM achieves equivalent emission reductions to the command-and-control BARCT rules it subsumes. This assessment is done periodically as part of AQMP development. This process resulted in 2003 AQMP Control Measure CMB-10 – Additional NOx Reductions for RECLAIM (NOx) calling for additional NOx reductions from RECLAIM sources. South Coast AQMD staff started the rule amendment process in 2003, including a detailed analysis of control technologies that qualified as BARCT for NOx, and held lengthy discussions with stakeholders, including regulated industry, environmental groups, CARB, and U.S. EPA. On January 7, 2005, the Board implemented CMB-10 by adopting changes to the RECLAIM program that resulted in a 22.5 percent reduction of NOx allocations from all RECLAIM facilities. The reductions were phased in commencing in Compliance Year 2007 and have been fully implemented since Compliance Year 2011.

On November 5, 2010, the Board adopted changes to the RECLAIM program implementing the 2007 AQMP Control Measure CMB-02 – Further SOx Reductions for RECLAIM (SOx). These amendments resulted in a BARCT-based

overall reduction of 5.7 tons SOx per day when fully implemented in Compliance Year 2019 (the reductions were phased in from Compliance Year 2013 through Compliance Year 2019: 3.0 tons per day in 2013; 4.0 tons per day in years 2014, 2015, and 2016; 5.0 tons per day in 2017 and 2018; and 5.7 tons per day starting in 2019 and continuing thereafter). This reduction in SOx is an essential part of the South Coast Air Basin's effort in attaining the federal 24-hour average PM2.5 standard by the year 2020.

Similarly, the 2012 AQMP adopted by the Board in 2012, included Control Measure CMB-01 - Further NOx Reductions for RECLAIM that identified a new group of RECLAIM NOx emitting equipment that should be reviewed for new BARCT. The rulemaking process for the amendment to the NOx RECLAIM program implementing CMB-01 started in 2012. On December 4, 2015, the Board adopted amendments to the RECLAIM rules that resulted in an additional reduction of 12 tons of NOx per day (45.2% reduction) when fully implemented in Compliance Year 2022. The reductions are being phased-in with 2 tons per day in Compliance Year 2016 and 2017, 3 tons per day in Compliance Year 2020, 8 tons per day in Compliance Year 2021 and 12 tons per day in Compliance Year 2020, 8 tons per day in Compliance Year 2021 and 12 tons per day in Compliance Year 2020, 2022 and thereafter.

Figures 2-1 and 2-2 illustrate the total NOx and SOx RTC supplies, respectively, through the end of Compliance Year 2024, incorporating all the changes discussed above.



Figure 2-1 NOx RTC Supply





RTC Trades

RTC Price Reporting Methodology

RTC trades are reported to South Coast AQMD as one of two types: discrete-year RTC transactions or IYB transactions (trades that involve blocks of discrete-year RTCs with a specified start year and continuing into perpetuity). Prices for discrete-year trades are reported in terms of dollars per pound and prices for IYB trades are reported as total dollar value for total amount of IYB RTCs traded. In addition, the trading partners are required to identify any swap trades. Swap trades occur when trading partners exchange different types of RTCs. These trades may be of equal value or different values, in which case some amount of money or credits are also included in swap trades (additional details on swap trades are discussed later in this chapter). Prices reported for swap trades are based on the agreed upon value of the trade by the participants, and do not involve exchange of funds for the total value agreed upon. As such, the reported prices for swap trades can be somewhat arbitrary and are therefore excluded from the calculation of annual average prices. Annual average prices for discrete-year RTCs are determined by averaging prices of RTCs for each compliance year, while the annual average prices for IYB RTCs are determined based on the amount of IYB RTCs (i.e., the amount of RTCs in the infinite stream) regardless of the start year.

RTC Price Thresholds for Program Review

Rule 2015(b)(6) specifies that, if the annual average price of discrete-year NOx or SOx RTCs exceeds \$15,000 per ton, within six months of the determination thereof the Executive Officer shall, in addition to the annual report, submit to

CARB and U.S. EPA results of an evaluation and review of the compliance and enforcement aspects of the RECLAIM program, to include at a minimum the following assessments:

- the deterrent effect of paragraphs (d)(1) through (d)(4) of Rule 2004 Requirements, Prohibition of Emissions in Excess of Annual Allocation,
- the rates of compliance with applicable emission caps,
- the rate of compliance with monitoring, recordkeeping, and reporting requirements,
- South Coast AQMD's ability to obtain appropriate penalties in cases of noncompliance, and
- whether the program provides appropriate incentives to comply.

As reported in the Annual RECLAIM Audit Report for 2020 Compliance Year, NOx RTC prices exceeded \$15,000 per ton for Compliance Years 2021, 2022, and 2023. At the August 5, 2002, Board Meeting⁶ the Board approved the Executive Officer's recommendation to determine that paragraphs (d)(1) through (d)(4) of Rule 2004 continue without change and directed the Executive Officer to submit to CARB and U.S. EPA the evaluation and review of the compliance and enforcement aspects of the RECLAIM program, including the determination that paragraphs (d)(1) through (d)(4) of Rule 2004 continue without change.⁷ The Board found that compliance with RECLAIM's emissions (allocations) and monitoring, recordkeeping, and reporting requirements continue to be high despite the increased pricing of RTCs; maximum statutorily available penalties have not limited the civil penalty assessments sought and obtained by South Coast AQMD: and high rate of collecting penalties for noncompliance cases without having to resort to resolution through the court system indicates that RECLAIM continues to provide adequate and appropriate incentives for facilities to conform to their compliance obligations.

For this Annual RECLAIM Audit Report, as noted in the Summary above and Table 2-14, the annual average price of Compliance Year 2022, 2023, 2024, and 2025 NOx RTCs at \$36,871; \$47,864; \$59,191; and \$60,000 per ton, respectively, all exceed the Rule 2015 backstop threshold of \$15,000 per ton, while SOx RTC prices remained below the threshold. As with the prior reporting year price exceedances described above, Rule 2015(b)(6) requires that, within six months of this determination, the Executive Officer to submit to CARB and U.S. EPA results of an evaluation and review of the compliance and enforcement aspects of the RECLAIM program including at a minimum the above-described assessments.

Rule 2002(f)(1)(H) also specifies that in the event NOx RTC prices exceed \$22,500 per ton (current compliance year credits) based on the 12-month rolling average, or exceed \$35,000 per ton (current compliance year credits) based on the 3-month rolling average calculated pursuant to Rule 2002(f)(1)(E), the

⁶ Agenda No. 24 (<u>http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2022/2022-aug5-024.pdf</u>)

⁷ The Executive Officer notified CARB and U.S. EPA August 17, 2022, within six months of the Board's determination at the March 4, 2022, hearing of the Annual RECLAIM Audit Report for 2020 Compliance Year.

Executive Officer will report the determination to the Board and include a commitment and schedule to conduct a more rigorous control technology implementation, emission reduction, cost-effectiveness, market analysis, and socioeconomic impact assessment of the RECLAIM program.

Additionally, pursuant to Rule 2002, if the Board finds that the 12-month rolling average RTC price exceeds \$22,500 per ton or the 3-month rolling average RTC price exceeds \$35,000 per ton, then the Non-tradable/Non-usable NOx RTCs, as specified in subparagraphs (f)(1)(B) and (f)(1)(C) valid for the period in which the RTC price is found to have exceeded the applicable threshold, shall be converted to Tradable/Usable NOx RTCs upon Board concurrence.

As reported at the January 21, 2022, meeting of the Stationary Source Committee, the rolling average prices of Compliance Year 2022 NOx RTCs for the reporting month of January 2022 of \$33,085 per ton and \$38,803 per ton exceeded the \$22,500 per ton 12-month and \$35,000 per ton 3-month rolling average thresholds, respectively, specified by Rule 2002(f)(1)(H).⁸

Pursuant to Rule 2002(f)(1)(H), at the May 20, 2022, meeting of the Stationary Source Committee,⁹ the Executive Officer reported that staff had conducted an assessment of the RECLAIM program including control technology implementation and socioeconomic impacts and at the June 3, 2022, Board Meeting reported that RECLAIM is working as intended; facilities are implementing landing rules and installing pollution controls; socioeconomic assessment indicates impacts of increased NOx RTC prices are relatively minimal; NOx RTC prices are below the 2016 AQMP cost-effectiveness threshold of \$50,000 per ton of NOx reduced; and Compliance Year 2022 has the greatest NOx RTC reductions (4 tons per day). The Board determined that NOx RTC prices exceeded the Rule 2002 thresholds described above and that Non-tradable/Non-usable RTCs would not be converted to usable/tradable RTCs for RECLAIM Compliance Year 2022.¹⁰

As reported at the January 20, 2023, meeting of the Stationary Source Committee, current compliance year (*i.e.*, 2023) NOx RTC prices exceeded the Rule 2002(f)(1)(H) thresholds of \$22,500 per ton based on the 12-month rolling average and \$35,000 per ton based on the 3-month rolling average. Rule 2002(f)(1)(H) requires the Executive Officer to report the determination to the Board and include a commitment and schedule to conduct a more rigorous control technology implementation, emission reduction, cost-effectiveness, market analysis, and socioeconomic impact assessment of the RECLAIM program.

The Board has also established average RTC price overall program review thresholds pursuant to Health and Safety Code Section 39616(f). Unlike the \$15,000 per ton threshold for review of the compliance and enforcement aspects

⁸ Informational Item #4 – "Twelve-month and Three-month Rolling Average Price of Compliance Years 2021 and 2022 NOx and SOx RTCs (October – December 2021)" (<u>http://www.aqmd.gov/docs/default-source/Agendas/ssc/ssc-agenda-1-21-2022.pdf</u>)

⁹ Informational Item #3 – "NOx RECLAIM Quarterly Update" (<u>http://www.aqmd.gov/docs/default-source/Agendas/ssc/ssc-agenda-5-20-2022.pdf</u>)

¹⁰ Agenda No. 28 (<u>http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2022/2022-June3-028.pdf</u>)

of RECLAIM, these overall program review thresholds are adjusted by the consumer price index (CPI) each year.

For RTC trades occurring in calendar year 2022, the overall program review thresholds¹¹ in 2022 dollars, pursuant to Health and Safety Code Section 39616(f), are \$53,669 per ton of discrete-year NOx RTCs, \$38,641 per ton of discrete-year SOx RTCs, \$805,031 per ton of IYB NOx RTCs, and \$579,622 per ton of IYB SOx RTCs.

RTC Trading Activity Excluding Swaps

Overall Trading Activity

RTC trades include discrete-year and IYB RTCs traded with prices, discrete-year and IYB RTC trades with zero price, and discrete-year and IYB RTC swap trades. The RTC market activity in calendar year 2022 was lower than the market activity in calendar year 2021 in terms of the number of trades. Table 2-2 compares NOx and SOx trade registrations for calendar years 2022 and 2021.

Table 2-2

Trade Registrations in Calendar Years 2022 and 2021, Including Swaps

RTC	2022	2021
NOx	248	280
SOx	16	13
Total	264	293

The total value of RTCs traded in calendar year 2022 was slightly lower than in calendar year 2021, excluding swap trades. Table 2-3 compares the value of NOx and SOx RTCs traded in calendar years 2022 and 2021. Figure 2-3 illustrates the annual value of RTCs traded in RECLAIM since the inception of the program.

Table 2-3

Value Traded in Calendar Years 2022 and 2021, Excluding Swaps (millions of dollars)

RTC	2022	2021
NOx	\$21.33	\$21.87
SOx	\$0.46	\$0.11
Total	\$21.79	\$21.98

¹¹ These program review thresholds were adjusted using the September 2022 CPI, due to the unavailability of the December 2022 CPI by the end of January 2023 when this report was compiled.



Figure 2-3 Annual Trading Values for NOx and SOx (Excluding Swaps)

With respect to total volume traded (excluding swap trades), trades of discrete-year RTCs were significantly lower for NOx and SOx in calendar year 2022 than in calendar year 2021. Trades of IYB RTCs of NOx in calendar year 2022 were significantly lower than the trading volume in 2021, while IYB RTCs of SOx in calendar year 2022 were significantly higher than the trading volume in 2021. Tables 2-4 and 2-5 compare 2022 and 2021 for NOx and SOx trade volume for discrete-year and IYB trades, respectively. Figure 2-4 summarizes overall trading activity (excluding swaps) in calendar year 2022 by pollutant. Additional information on the discrete-year and IYB trading activities, value, and volume are discussed later in this chapter.

Table 2-4

Volume of Discrete-Year RTCs Traded in Calendar Years 2022 and 2021, Excluding Swaps (tons)

RTC	2022	2021
NOx	1,047	1,716
SOx	360	475
Total	1,407	2,191

Table 2-5

Volume of IYB RTCs Traded in Calendar Years 2022 and 2021, Excluding Swaps (tons)

RTC	2022	2021
NOx	73	81
SOx	16	6
Total	89	87

Figure 2-4 Calendar Year 2022 Overall Trading Activity (Excluding Swaps)



There were 64 trades with zero price in calendar year 2022. RTC transfers with zero price generally occur when a seller transfers or escrows RTCs to a broker pending transfer to the purchaser with price, when there is a transfer between facilities under common operator, when a facility is retiring RTCs for a settlement agreement or pursuant to variance conditions, or when there is a transfer between facilities that have gone through a change of operator. Trades with zero price also occur when the trading parties have mutual agreements where one party provides a specific service (*e.g.*, providing steam or other process components) for the second party. In return, the second party will transfer the RTCs necessary to offset emissions generated from the service. In calendar year 2022, the majority of trades with zero price were transfers between facilities under common ownership and facilities that underwent a change of operator.

Discrete-Year RTC Trading Activity

In calendar year 2022, there were a total of 203 discrete-year NOx RTC trades and 13 discrete-year SOx RTC trades, excluding swap trades. The trading of discrete-year NOx RTCs included RTCs for Compliance Years 2021 through 2025 (see Table 2-14). The trading of discrete-year SOx RTCs included RTCs for Compliance Years 2021 through 2022 (see Table 2-15). Table 2-6 compares the number of trade registrations in 2022 and 2021, both with price and with zero price.

Table 2-6

Discrete-Year Trade Registrations in Calendar Years 2022 and 2021 by Price, Excluding Swaps

Year	RTC	With Price	With \$0 Price	Total
	NOx	156	47	203
2022	SOx	7	6	13
	Total	163	53	216
	NOx	184	45	229
2021	SOx	1	10	11
	Total	185	55	240

Total discrete-year RTC trading values slightly increased for NOx and significantly increased for SOx on a relative basis in calendar year 2022 when compared to calendar year 2021. Table 2-7 compares the total value of the discrete-year RTC trades in 2022 and 2021.

Table 2-7

Discrete-Year RTC Value Traded in 2022 and 2021, Excluding Swaps (millions of dollars)

RTC	2022	2021
NOx	\$16.87	\$16.64
SOx	\$0.36	\$0.11
Total	\$17.23	\$16.75

In calendar year 2022, the overall quantities of discrete-year NOx and SOx RTCs traded significantly decreased compared to calendar year 2021. Table 2-8 compares the volume of NOx and SOx RTCs traded in calendar years 2022 and 2021, excluding swap trades. Figure 2-5 illustrates the trading activity of discrete-year RTCs (excluding swaps) for calendar year 2022.

Table 2-8Discrete-Year RTC Volume Traded in Calendar Years 2022 and 2021 by Price,Excluding Swaps (tons)

Year	RTC	With Price	With \$0 Price	Total
	NOx	721	326	1,047
2022	SOx	148	212	360
	Total	869	538	1,407
	NOx	1,156	560	1,716
2021	SOx	38	438	475*
	Total	1,194	997*	2,191

* Due to rounding, some totals may not correspond with the sum of the separate figures.

Figure 2-5 Calendar Year 2022 Trading Activity for Discrete-Year RTCs (Excluding Swaps)



IYB RTC Trading Activity

In calendar year 2022, there were 18 IYB NOx trades and one IYB SOx trade, excluding swaps. The IYB NOx trades included RTCs with Compliance Years 2021 through 2023 as start years, while the IYB SOx trade was for RTCs with a Compliance Year 2023 start year. Table 2-9 compares the number of IYB RTC trade registrations from 2022 and 2021.

Year	RTC	With Price	With \$0 Price	Total
	NOx	7	11	18
2022	SOx	1	0	1
	Total	8	11	19
	NOx	14	5	19
2021	SOx	0	1	1
	Total	14	6	20

Table 2-9
YB Trade Registrations in Calendar Years 2022 and 2021 by Price

Total IYB RTC trade values significantly decreased in calendar year 2022 compared to calendar year 2021. Table 2-10 compares the NOx and SOx IYB RTC trade values in calendar years 2022 and 2021.

Table 2-10 IYB RTC Value Traded in 2022 and 2021, Excluding Swaps (millions of dollars)

RTC	2022	2021
NOx	\$4.46	\$5.23
SOx	\$0.10	\$0
Total	\$4.56	\$5.23

In calendar year 2022, the total volume of IYB RTCs traded (excluding swap trades) was slightly higher compared to calendar year 2021. Table 2-11 compares the NOx and SOx IYB RTCs trade volumes in calendar years 2022 and 2021. As described earlier, the majority of trades with zero price were between facilities under common ownership and facilities that had a change of operator. Figure 2-6 illustrates the calendar year 2022 IYB RTC trading activity excluding swap trades.

Table 2-11

IYB RTC Volume Traded in Calendar Years 2022 and 2021 by Price, Excluding Swaps (tons)

Year	RTC	With Price	With \$0 Price	Total
	NOx	30	43	73
2022	SOx	16	0	16
	Total	46	43	89
	NOx	55	26	81
2021	SOx	0	6	6
	Total	55	32	87



Figure 2-6 Calendar Year 2022 Trading Activity for IYB RTCs (Excluding Swaps)

Prior to the amendment of Rule 2007 – Trading Requirements in May 2001, swap information and details of discrete-year and IYB trades were not required to be provided by trade participants. In compiling data for calendar years 1994 through part of 2001, any trade registration involving IYB RTCs was considered as a single IYB trade and swap trades were assumed to be nonexistent. Trading activity since inception of the RECLAIM program is illustrated in Figures 2-7 through 2-10 (discrete-year NOx trades, discrete-year SOx trades, IYB NOx trades, and IYB SOx trades, respectively) based on the trade reporting methodology described earlier in this chapter.







Figure 2-8 Discrete-Year SOx RTC Trades (Excluding Swaps)

Figure 2-9 IYB NOx RTC Trades (Excluding Swaps)



Figure 2-10 IYB SOx RTC Trades (Excluding Swaps)



Swap Trades

In addition to traditional trades of RTCs for a price, RTC swaps also occur between trading partners. Most swap trades are exchanges of RTCs with different zones, cycles, expiration years, and/or pollutants. Some swaps involve a combination of RTCs and cash payment as a premium. There are also swaps of RTCs for ERCs. Trading parties swapping RTCs are required to report the agreed upon price of RTCs for each trade even though, with the exception of the above-described premiums, no money was actually exchanged.

During calendar year 2021, 29 trade registrations included RTC swaps with a total value of about \$3.8 million. Seventeen swap trades involved swapping a larger quantity of discrete-year RTCs for a smaller quantity of discrete-year RTCs with a later expiration date. These trades were collectively valued at \$3.0 million. Four trades involved swapping inland credits for coastal credits. The total value of these trades was \$0.8 million. The eight remaining trades were between facilities or RTC holders under common ownership or intimate business affiliation. The total value of the remaining eight trades is \$4,240. Upon further investigation, staff concluded that these eight transactions were not at arm's-length, and that the prices reported for the transfer of RTCs for these eight trades should not be regarded as market prices but "swap trades." The swap values are based on the prices reported on the RTC trade registrations.

Since RTC swap trades occur when two trading partners exchange RTCs, values reported on these trades involved in the exchange are included in the calculation of the total value reported. However, in cases where commodities other than RTCs are involved in the swap, these commodity values are not included in the above reported total value (*e.g.*, in the case of a swap of NOx RTCs valued at \$10,000 for another set of RTCs valued at \$8,000 together with a premium of \$2,000, the value of such a swap would have been reported at \$18,000 in Table 2-2).

For calendar years that have swap trades with large values (*e.g.*, 2009), the inclusion of swap trades in the average trade price calculations would have resulted in calculated annual average prices dominated by swap trades, and therefore, potentially not representative of market prices actually paid for RTCs. Prices of swap trades are excluded from analysis of average trade prices because the values of the swap trades are solely based upon prices agreed upon between trading partners and do not reflect actual funds transferred or a true market-based price. Tables 2-12 and 2-13 present the calendar years' 2001 through 2022 RTC swaps for NOx and SOx, respectively.

Table 2-12 NOx Registrations Involving Swaps*

Year	Total Value (\$ millions)	IYB RTC Swapped with Price (tons)	Discrete-Year RTC Swapped with Price (tons)	Number of Swap Registrations with Price	Total Number of Swap Registrations
2001	\$24.29	6.0	612.2	71	78
2002	\$14.31	64.3	1,701.7	94	94
2003	\$7.70	69.9	1,198.1	64	64
2004	\$3.74	0	1,730.5	90	90
2005	\$3.89	18.7	885.3	53	53
2006	\$7.29	14.8	1,105.9	49	49
2007	\$4.14	0	820.0	43	49
2008	\$8.41	4.5	1,945.8	48	50
2009	\$55.76	394.2	1,188.4	37	42
2010	\$3.73	18.2	928.5	25	31
2011	\$2.00	0	775.5	25	32
2012	\$1.29	0	928.1	36	36
2013	\$2.41	11.6	1,273.5	44	44
2014	\$3.24	28.5	489.6	25	25
2015	\$6.77	31.0	317.0	15	15
2016	\$2.18	1.8	622.8	22	22
2017	\$0.87	3.6	31.0	9	9
2018	\$0.51	0	178.5	4	4
2019	\$0.37	0	128.8	7	7
2020	\$1.79	0	324.6	18	18
2021	\$3.40	35.4	200.0	31	32
2022	\$3.76	0	134.4	27	27

* Swaps without price are strictly transfers of RTCs between trading partners and their respective brokers. Information regarding swap trades was not required prior to May 9, 2001.

Table 2-13 SOx Registrations Involving Swaps*

Year	Total Value (\$ millions)	IYB RTC Swapped with Price (tons)	Discrete-Year RTC Swapped with Price (tons)	Number of Swap Registrations with Price	Total Number of Swap Registrations
2001	\$1.53	18.0	240.0	3	4
2002	\$6.11	26.6	408.4	30	30
2003	\$5.88	20.9	656.0	32	32
2004	\$0.39	0	161.8	13	13
2005	\$2.16	43.5	227.8	13	14
2006	\$0.02	0	24.4	2	2
2007	\$0.00	0	0	0	0
2008	\$0.40	0	197.0	5	8
2009	\$3.63	55.3	401.3	9	10
2010	\$6.89	79.4	417.0	16	18
2011	\$0.25	0	228.5	3	4
2012	\$27.01	100.0	7.5	4	4
2013	\$0.33	3.1	5.5	2	2
2014	\$0.01	0.0	14.8	1	1
2015	\$0	0.0	0	0	0
2016	\$3.68	39.6	44.2	3	3
2017	\$0.73	5.0	5.9	4	4
2018	\$0	0	0	0	0
2019	\$0.02	0	1.4	1	1
2020	\$0.51	0	80.2	5	5
2021	\$0.04	0	40.0	1	1
2022	\$0	16.4	0	2	2

* Swaps without price are strictly transfers of RTCs between trading partners and their respective brokers. Information regarding swap trades was not required prior to May 9, 2001.

RTC Trade Prices (Excluding Swaps)

Discrete-Year RTC Prices

Tables 2-14 and 2-15 list the annual average prices for discrete-year NOx and SOx RTCs traded from calendar years 2017 through 2022. The table shows that the annual average price of all discrete NOx RTCs traded in calendar Year 2022 exceeded the Rule 2015 backstop threshold of \$15,000 per ton while SOx RTC prices remained below the threshold. Annual average prices for Compliance Year 2024 and 2025 discrete-year NOx RTC vintages exceeded the \$53,669 per ton of NOx but all SOx RTC vintages traded remain below the \$38,641 per ton of SOx discrete-year RTCs pre-determined overall program review thresholds established by the Board pursuant to Health and Safety Code Section 39616(f). Rule 2015(b)(6) requires that, within six months of this determination, the Executive Officer to submit to CARB and U.S. EPA results of an evaluation and

review of the compliance and enforcement aspects of the RECLAIM program as described in the "RTC Price Thresholds for Program Review" section above.

Table 2-14

Annual Average Prices for Discrete-Year NOx RTCs during Calendar Years 2017 through 2022 (price per ton)

RTC	Calendar Year during which RTCs Traded						
Compliance Year	2017	2018	2019	2020	2021	2022	
2015							
2016	2,202.90						
2017	4,181.75	1,871.76					
2018	10,639.19	3,788.31	2,261.39				
2019		5,645.67	5,409.79	4,286.74			
2020		5,673.91	12,189.81	8,322.89	5,603.36		
2021			8,677.54	9,417.56	18,846.39	17,074.44	
2022					33,085.16	36,870.53	
2023					37,808.27	47,864.07	
2024						59,190.61	
2025						60,000.00	
2026							

Table 2-15

Annual Average Prices for Discrete-Year SOx RTCs during Calendar Years 2017 through 2022 (price per ton)

RTC	Calendar Year during which RTCs Traded					
Compliance Year	2017	2018	2019	2020	2021	2022
2015						
2016	635.83					
2017	1,385.71	785.56				
2018		954.61	1,764.20			
2019	4,800.00		7,984.79	4,386.87		
2020	4,800.00			2,300.00		
2021					3,000.00	5,900.00
2022						2,000.00
2023						
2024						
2025						
2026						

Rolling Average NOx and SOx RTCs Price Report

On December 4, 2015, the Board amended Rule 2002 to change the 12-month rolling average price of NOx RTCs for all trades for the current compliance year, excluding RTC trades reported at no price and swap transactions, to a \$22,500 per ton threshold. It also established a new \$35,000 per ton threshold for the three-month rolling average price of current compliance year NOx RTCs and a \$200,000 per ton "price-floor" threshold for the twelve-month rolling average price of IYB NOx RTCs that would have become effective in 2019. The price floor in Rule 2002(f)(1)(I) was subsequently removed by the Board on October 5, 2018.

The reporting of the three-month rolling average prices for current compliance year's NOx RTCs and the twelve-month rolling average prices of IYB NOx RTCs started on May 1, 2016. The October 5, 2018, amendment to Rule 2002 eliminated the requirement to calculate IYB NOx RTC prices. The October 2018 report to the South Coast AQMD Stationary Source Committee was the last time the twelve-month rolling average prices of IYB NOx RTCs report was generated.

The December 2015 amendments directed the Executive Officer to report to the Board if (a) the cost of current compliance year NOx RTCs exceeds \$22,500 per ton based on the twelve-month rolling average price, or (b) \$35,000 per ton based on the three-month rolling average price. If either (a) or (b) above occurs, the Board may convert the Non-tradable/Non-usable NOx RTCs valid for the period in which the RTC price(s) exceeded an applicable threshold to Tradable/Usable NOx RTCs pursuant to Rule 2002(f)(1)(H). Additionally, the Executive Officer's report to the Board will include a "commitment and schedule to conduct a more rigorous control technology implementation, emission reduction, cost-effectiveness, market analysis, and socioeconomic impact assessment of the RECLAIM program." See discussion under "RTC Price Thresholds for Program Review" section above.

A November 5, 2010, amendment to Rule 2002 established a \$50,000 per ton of SOx RTC threshold based on the twelve-month rolling average prices for current compliance year SOx RTCs calculated and reported by the Executive Officer during the period of January 1, 2017, through February 1, 2020. Although no longer required, the Executive Officer continues to calculate and report twelve-month average SOx RTC prices for informational purposes. Tables 2-16 through 2-18 list the various rolling average prices described above. The average SOx discrete-year RTC prices have all remained below the applicable reporting thresholds.

Table 2-16 Twelve-Month Rolling Average Prices of Compliance Year 2022 Discrete-Year NOx RTCs

Reporting Month	12-Month Period	Average Price (\$/ton)
January 2022	January 2021 through December 2021	\$33,085
February 2022	February 2021 through January 2022	\$33,085
March 2022	March 2021 through February 2022	\$33,085
April 2022	April 2021 through March 2022	\$34,146
May 2022	May 2021 through April 2022	\$34,198
June 2022	June 2021 through May 2022	\$35,311
July 2022	July 2021 through June 2022	\$36,457
August 2022	August 2021 through July 2022	\$36,489
September 2022	September 2021 through August 2022	\$36,894
October 2022	October 2021 through September 2022	\$39,280
November 2022	November 2021 through October 2022	\$38,611
December 2022	December 2021 through November 2022	\$37,953
January 2023	January 2022 through December 2022	\$36,871

Table 2-17

Three-Month Rolling Average Prices of Compliance Year 2022 Discrete-Year NOx RTCs

Reporting Month	3-Month Period	Average Price (\$/ton)
January 2022	October 2021 through December 2021	\$38,803
February 2022	November 2021 through January 2022	\$39,114
March 2022	December 2021 through February 2022	\$37,614
April 2022	January 2022 through March 2022	\$40,372
May 2022	February 2022 through April 2022	\$40,506
June 2022	March 2022 through May 2022	\$40,506
July 2022	April 2022 through June 2022	\$40,000
August 2022	May 2022 through July 2022	\$39,531
September 2022	June 2022 through August 2022	\$39,706
October 2022	July 2022 through September 2022	\$39,359
November 2022	August 2022 through October 2022	\$33,377
December 2022	September 2022 through November 2022	\$32,946
January 2023	October 2022 through December 2022	\$31,577

Table 2-18Twelve-Month Rolling Average Prices of Compliance Year 2022 Discrete-Year SOxRTCs

Reporting Month	12-Month Period	Average Price (\$/ton)
January 2022	January 2021 through December 2021	-
February 2022	February 2021 through January 2022	-
March 2022	March 2021 through February 2022	-
April 2022	April 2021 through March 2022	-
May 2022	May 2021 through April 2022	-
June 2022	June 2021 through May 2022	-
July 2022	July 2021 through June 2022	-
August 2022	August 2021 through July 2022	-
September 2022	September 2021 through August 2022	-
October 2022	October 2021 through September 2022	-
November 2022	November 2021 through October 2022	-
December 2022	December 2021 through November 2022	-
January 2023	January 2022 through December 2022	\$2,000

Average Price for NOx RTCs Nearing Expiration

Generally, RTC prices decrease as their expiration dates approach and are usually lowest during the 60 day-period following their expiration date during which facilities are allowed to trade and obtain RTCs to cover their emissions. This general trend has been repeated every year since 1994 except for Compliance Years 2000 and 2001 (during the California energy crisis), when NOx RTC prices increased as the expiration dates approached because the power plants' NOx emissions increased significantly, causing a shortage of NOx RTCs.

The bi-monthly average prices for these near-expiration NOx RTCs are shown in Figure 2-11 to illustrate the general price trend for these RTCs. The general declining trend of RTC prices nearing and just past expiration indicates that there was an adequate supply to meet RTC demand during the final reconciliation period following the end of each compliance year. Prices for discrete Compliance Year 2021 RTCs expiring in December 2021 and June 2022 and followed the historic declining price trend. However, the price of Compliance Year 2021 RTCs expiring December 2022 are still expected to fall during the reconciliation period for Cycle 1 facilities ending March 1, 2023, current indications are that the price of Compliance Year 2022 RTCs will remain well above the price of RTCs for previous compliance years shown on this chart.

A similar analysis is not performed for the price of SOx RTCs nearing expiration because there are not enough SOx trades over the course of the year to yield meaningful data.



Figure 2-11 Bi-Monthly Average Prices for NOx RTCs near Expiration

Note: Data is presented for a limited number of RTC expiration dates for graphical clarity.

IYB RTC Prices

The annual average price for IYB NOx RTCs traded in calendar year 2022 was \$150,250 per ton, which is significantly higher than the annual average price of \$94,576 per ton traded in calendar year 2021. The annual average price for IYB SOx RTCs traded in calendar year 2022 was \$6,000 per ton. There were no IYB SOx RTCs traded in calendar year 2021 to compare against, but this is close to an historical low. Data regarding IYB RTCs traded with price (excluding swap trades) for NOx and SOx RTCs and their annual average prices since 1994 are summarized in Tables 2-19 and 2-20, respectively. In calendar year 2022, the annual average IYB RTC prices did not exceed the \$805,031 per ton of NOx RTCs or the \$579,622 per ton of SOx RTCs program review thresholds established by the Board for IYB RTCs pursuant to California Health and Safety Code Section 39616(f).

Table 2-19 IYB NOx Pricing (Excluding Swaps)

Calendar Year	Total Reported Value (\$ millions)	IYB RTC Traded with Price (tons)	Number of IYB Registrations with Price	Average Price (\$/ton)
1994*	\$1.3	85.7	1	\$15,623
1995*	\$0.0	0	0	N/A
1996*	\$0.0	0	0	N/A
1997*	\$7.9	404.6	9	\$19,602
1998*	\$34.1	1,447.6	23	\$23,534
1999*	\$18.6	438.3	19	\$42,437
2000*	\$9.1	184.2	15	\$49,340
2001*	\$34.2	416.9	25	\$82,013
2002	\$5.5	109.5	31	\$50,686
2003	\$14.3	388.3	28	\$36,797
2004	\$12.5	557.0	52	\$22,481
2005	\$43.1	565.3	71	\$76,197
2006	\$65.2	432.9	50	\$150,665
2007	\$45.4	233.5	25	\$194,369
2008	\$49.7	245.6	27	\$202,402
2009	\$16.7	134.2	14	\$124,576
2010	\$14.3	149.0	13	\$95,761
2011	\$9.1	160.7	29	\$56,708
2012	\$2.2	46.6	13	\$48,146
2013	\$12.0	260.9	17	\$45,914
2014	\$99.7	902.2	49	\$110,509
2015	\$187.4	938.5	47	\$199,685
2016	\$114.7	301.9	20	\$380,057
2017	\$1.26	31.8	6	\$39,673
2018	\$0.52	39.6	5	\$13,223
2019	\$28.1	298.4	33	\$94,183
2020	\$10.1	86.4	18	\$116,405
2021	\$5.23	55.3	14	\$94,576
2022	\$4.46	29.7	7	\$150,250

* No information regarding swap trades was reported until May 9, 2001.

Table 2-20IYB SOx Pricing (Excluding Swaps)

Calendar Year	Total Reported Value (\$ millions)	IYB RTC Traded with Price (tons)	Number of IYB Registrations with Price	Average Price (\$/ton)
1994*	\$0.0	0	0	N/A
1995*	\$0.0	0	0	N/A
1996*	\$0.0	0	0	N/A
1997*	\$11.9	429.2	7	\$27,738
1998*	\$1.0	50.0	1	\$19,360
1999*	\$0.8	55.0	3	\$14,946
2000*	\$1.4	50.6	5	\$27,028
2001*	\$10.2	306.8	8	\$33,288
2002	\$6.7	147.5	5	\$45,343
2003	\$0.6	110.9	1	\$5,680
2004	\$0.0	0.0	0	N/A
2005	\$1.0	141.5	3	\$7,409
2006	\$3.5	241.7	12	\$14,585
2007	\$3.7	155.2	5	\$23,848
2008	\$3.3	146.8	5	\$22,479
2009	\$3.7	100.0	4	\$36,550
2010	\$30.2	277.0	10	\$109,219
2011	\$1.03	10.0	2	\$102,366
2012	\$14.6	116.2	4	\$125,860
2013	\$14.4	79.2	4	\$181,653
2014	\$1.8	22.5	4	\$80,444
2015	\$4.0	74.8	4	\$53,665
2016	\$0.13	2.5	1	\$50,000
2017	\$0.77	33.92	4	\$22,820
2018	\$0.09	3.16	2	\$30,000
2019	\$0.73	54.9	6	\$13,213
2020	\$0.45	13.89	2	\$32,251
2021	\$0.0	0.0	0	N/A
2022	\$0.10	16.39	1	\$6,000

* No information regarding swap trades was reported until May 9, 2001.

Recent Program Amendments' Effect on IYB NOx RTC Trading Trend

With the planned transition to a command-and-control regulatory structure, the longevity and utility of IYB NOx RTCs would be expected to diminish. Therefore, it is reasonable for the values of volume traded and of IYB NOx RTCs to decrease as they did in calendar years 2017 and 2018. However, in subsequent working group meetings and discussion with U.S. EPA, several issues were identified in transitioning the NSR component of the program. These recent developments (see discussion on Program Amendments in Chapter 3) on RECLAIM transition have led to postponing the final transition of facilities out of RECLAIM until all necessary rules have been adopted and approved into the SIP. This delay preceded a significant increase in the price for IYB NOx RTCs

from calendar Year 2021 to 2022. However, the total value and volumes of traded IYB NOx RTCs has fallen from calendar Year 2021 to 2022.

Other Types of RTC Transactions and Uses

Another type of RTC trade, besides traditional trading and swapping activities, is a trade involving the contingent right (option) to purchase RTCs. In those trades, one party pays a premium for the contingent right (option) to purchase RTCs owned by the other party at a pre-determined price within a certain time period. Until RTCs are transferred from seller to buyer, prices for options are not reported, because the seller has not paid for the actual RTCs, but only for the right to purchase the RTCs at a future date. These rights may or may not actually be exercised. RTC traders are obligated to report options to South Coast AQMD within five business days of reaching an agreement. These reports are posted on South Coast AQMD's website. No such report was submitted in calendar year 2022. However, there was one received last year where its rights were exercised in calendar year 2022 through three separate trades during calendar year 2022.

In addition to reconciling emissions at RECLAIM facilities, RTCs are also used by RTC holders to satisfy variance conditions and offset emissions for other projects. One RTC trade of this type occurred during calendar year 2022. In this case, a RECLAIM facility retired 0.06 tons of NOx RTCs to satisfy a variance condition.

Market Participants

RECLAIM market participants have traditionally included RECLAIM facilities, brokers, commodity traders, and private investors. Starting in calendar year 2004, mutual funds joined the traditional participants in RTC trades. Market participation expanded further in 2006, when foreign investors started participating in RTC trades. However, foreign investors have not participated in any RTC trades since calendar year 2008 and foreign investors do not hold any current or future RTCs at this time.

RECLAIM facilities are the primary users of RTCs and they hold the majority of RTCs as allocations. They usually sell their surplus RTCs by the end of the compliance year or when they have a long-term decrease in emissions. Brokers match buyers and sellers, and usually do not purchase or own RTCs. Commodity traders and private investors actually invest in and own RTCs in order to seek profits by trading them. They do not need RTCs to offset or reconcile any emissions. For purposes of discussion in this report, "investors" include all parties who hold RTCs other than RECLAIM facility permit holders and brokers. Brokers typically do not actually purchase RTCs, but only facilitate trades.

Investor Participation

In 2022, investors were actively involved in 96 of the 156 discrete-year NOx RTC trades with price and all seven of the discrete-year SOx RTC trades with price. Investors were involved in five of the seven IYB NOx trades with price. For the only IYB SOx trade with price, both involved parties were investors.

Investors' involvement in discrete-year NOx and SOx trades registered with price in calendar year 2022 is illustrated in Figures 2-12 and 2-13. Figure 2-12 is based on total value of discrete-year NOx and SOx RTCs traded and shows that investors were involved in 68 percent and 100 percent, respectively, of the discrete-year NOx and SOx trades reported by value. Figure 2-13 is based on volume of discrete-year RTCs traded with price and shows that investors were involved in 59 percent and 100 percent of the discrete-year NOx and SOx trades by volume, respectively. Figures 2-14 and 2-15 provide similar data for IYB NOx and SOx trades. Investors were involved in 63 percent and 100 percent of IYB NOx and SOx trades by value, and in 62 percent and 100 percent of IYB NOx and SOx trades by volume, respectively.

Figure 2-12 Calendar Year 2022 Investor-Involved Discrete-Year NOx and SOx Trades Based on Value Traded



Figure 2-13





Figure 2-14 Calendar Year 2022 Investor-Involved IYB NOx and SOx Trades Based on Value Traded



Figure 2-15

Calendar Year 2022 Investor-Involved IYB NOx and SOx Trades Based on Volume Traded with Price



As of the end of calendar year 2022, investors' holding of IYB NOx RTCs went down to 1.8 percent when compared to the end of calendar year 2021 at 2.0 percent. Mutual fund investors are no longer holders of IYB NOx RTCs. Investors' holding of IYB SOx RTCs stayed consistent at 4.2 percent when compared to the end of calendar year 2021. No IYB SOx RTCs are currently held by mutual fund investors.

The available supply of IYB RTCs is generally from facilities that have permanently reduced emissions through the installation of control equipment, the modification or replacement of old equipment, or equipment and/or facility shutdowns. Three NOx only RECLAIM facilities shut down during Compliance Year 2021. None of these shutdown facilities held onto their NOX RTC allocation. One sold its 1.2 ton allocation of NOx IYB RTCs just after shutting down. One sold its 4.1 ton allocation of NOx IYB RTCs prior to shutting down. The operator of the third facility didn't acquire the previous operator's NOx allocation, and thus did not have any NOx IYB RTCs to sell.

Theoretically, the role of investors in this market is to provide capital for installing air pollution control equipment that costs less than the market value of credits. In addition, investors can also improve price competitiveness. This market theory may not fully apply to RECLAIM due to the uniqueness of the program, because RECLAIM facility operators have no substitute for RTCs, and short of curtailing operations, pollution controls cannot be implemented within a short time period. That is, they do not have the option to switch to another source of credits when RTCs become expensive because there is no alternative source of credits

available to RECLAIM facilities. Therefore, RECLAIM facility operators may be at the mercy of owners of surplus or investor-owned RTCs in the short term, particularly during times of rapid price increases, as evidenced in 2000 and 2001 during the California energy crisis.

Generally, RECLAIM facilities hold back additional RTCs for each year as a compliance margin to ensure they do not inadvertently exceed their allocations (failing to reconcile by securing sufficient RTCs to cover their emissions) if their reported emissions increase as the result of any problems or errors discovered by South Coast AQMD staff during annual facility audits. Facilities have historically indicated to staff that this compliance margin is approximately 10 percent of emissions.

For Compliance Year 2021, the total RECLAIM NOx emissions were 5,299 tons, while the total NOx RTC allocation was 6,773 tons. This NOx RTC surplus of 1,474 tons (28% of allocation and 22% of emissions) is well above the 10 percent compliance margin reportedly held by RECLAIM facilities. As seen in Figure 2-1, the total RECLAIM NOx allocation for Compliance Year 2022 is 5,286 tons. To maintain a 10% NOx RTC allocation surplus, facilities must reduce Compliance Year 2022 NOx emissions by about 10%.

Despite the small percentage of NOx RTCs held by investors (1.8% at the end of calendar year 2022), their impact on RTC availability and prices can be significant because of their participation in a majority of the trades, which may allow them to be in a strong position to influence prices. Investor's percentage share remains unmoved even as the general price of RTCs begins to climb past the \$15,000 per ton threshold.

CHAPTER 3 EMISSION REDUCTIONS ACHIEVED

Summary

For Compliance Year 2021, aggregate NOx emissions were below total allocations by 22 percent and aggregate SOx emissions were below total allocations by 17 percent. No emissions associated with breakdowns were excluded from reconciliation with facility allocations in Compliance Year 2021. Accordingly, no mitigation is necessary to offset excluded emissions due to approved Breakdown Emission Reports. Therefore, based on audited emissions, RECLAIM achieved its targeted emission reductions for Compliance Year 2021. With respect to the Rule 2015 backstop provisions, Compliance Year 2021 aggregate NOx and SOx emissions were both below aggregate allocations and, as such, did not trigger the requirement to review the RECLAIM program.

Background

One of the primary objectives of the annual RECLAIM program audits is to assess whether RECLAIM is achieving its targeted emission reductions. Those targeted emission reductions are embodied in the annual allocations issued to RECLAIM facilities. In particular, the annual allocations reflect required emission reductions initially from the subsumed command-and-control rules and control measures, as well as from subsequent reductions in allocations as a result of BARCT implementation.

In January 2005 and December 2015, the Board adopted amendments to Rule 2002 to further reduce aggregate RECLAIM NOx allocations through implementation of the latest BARCT. The 2005 amendments resulted in cumulative NOx allocation reductions of 22.5 percent (2,811 tons per year, or 7.7 tons per day) from all RECLAIM facilities by Compliance Year 2011, with the biggest single-year reduction of 11.7 percent in Compliance Year 2007. The 2015 amendments will reduce NOx allocations by 45.2 percent (4,380 tons per year, or 12.0 tons per day) by Compliance Year 2022. The reductions are phased-in from Compliance Year 2016 through Compliance Year 2022 with 8 tons per day of the NOx Allocation reduction occurring through Compliance Year 2021.

The Board also amended Rule 2002 in November 2010 to implement BARCT for SOx. Specifically, the November 2010 amendments called for certain facilities' RECLAIM SOx allocations to be adjusted to achieve a 48.4 percent (2,081 tons per year or 5.7 tons per day) overall reduction, with the reductions phased-in from Compliance Year 2013 through Compliance Year 2019.

Emissions Audit Process

Since the inception of the RECLAIM program, South Coast AQMD staff has conducted annual program audits of the emissions data submitted by RECLAIM facilities to ensure the integrity and reliability of RECLAIM emission data. The process includes reviews of APEP reports submitted by RECLAIM facilities and audits of field records and emission calculations. The audit process is described in further detail in Chapter 5 – Compliance.

South Coast AQMD staff adjusts the APEP-reported emissions based on audit results, as necessary. Whenever South Coast AQMD staff finds discrepancies, they discuss the findings with the facility operators and provide the operators an opportunity to review changes resulting from facility audits and to present additional data or information in support of the data stated in their APEP reports.

This rigorous audit process, although resource intensive, reinforces RECLAIM's emissions monitoring and reporting requirements and enhances the validity and reliability of the final emissions data. The audited emissions are used to determine if a facility complied with its allocations. The most recent five compliance years' audited NOx emissions for each facility are posted on South Coast AQMD's web page after the audits are completed. All emissions data presented in this annual RECLAIM audit report are compiled from audited facility emissions.

Emission Trends and Analysis

RECLAIM achieves its emission reduction goals on an aggregate basis by ensuring that annual emissions are below total RTCs. It is important to understand that the RECLAIM program is successful at achieving these emission reduction goals even when some individual RECLAIM facilities exceed their RTC account balances, provided aggregate RECLAIM emissions do not exceed aggregate RTCs issued. Therefore, aggregate audited NOx or SOx emissions from all RECLAIM sources are the basis for determining whether the programmatic emission reduction goals for that pollutant are met each year.

Table 3-1 and Figure 3-1 show aggregate audited NOx emissions and the aggregate annual NOx RTC supply for Compliance Years 1994 through 2021. No facility audits for Compliance Years 1994 through 2020 were reopened during the past year, so the aggregate audited NOx and SOx emissions for these years are unchanged from the previous annual report. Programmatically, there were excess NOx RTCs remaining after accounting for audited NOx emissions for every compliance year since 1994, except for Compliance Year 2000 when NOx emissions exceeded the total allocations due to the California energy crisis. Aggregate NOx allocations for Compliance Year 2021 were reduced by 2,927 tons from Compliance Year 2015 levels due to the 2015 BARCT-related amendment of Rule 2002.

Annual NOx emissions remained within a narrow range (7,246 tons to 7,691 tons annually) between Compliance Years 2011 and 2017. A trend of reduced NOx emissions is seen for the past four compliance years. Compliance Year 2021 NOx emissions were more than 1900 tons below this range at 5,299 tons. Compliance Year 2021 NOx emissions were below total allocations by 22 percent.

Table 3-1			
Annual NOx Emissions for Com	pliance Years	1994 throug	h 2021

Compliance Year	Audited Annual NOx Emissions ¹ (tons)	Audited Annual NOx Emissions Change from 1994 (%)	Total NOx RTCs ² (tons)	Unused NOx RTCs (tons)	Unused NOx RTCs (%)
1994	25,420	0%	40,187	14,767	37%
1995	26,632	4.8%	36,484	9,852	27%
1996	24,414	-4.0%	32,742	8,328	25%
1997	21,258	-16%	28,657	7,399	26%
1998	21,158	-17%	24,651	3,493	14%
1999	20,889	-18%	20,968	79	0.38%
2000	19,148	-25%	17,208	-1,940	-11%
2001	14,779	-42%	15,617	838	5.4%
2002	11,201	-56%	14,111	2,910	21%
2003	10,342	-59%	12,485	2,143	17%
2004	10,134	-60%	12,477	2,343	19%
2005	9,642	-62%	12,484	2,842	23%
2006	9,152	-64%	12,486	3,334	27%
2007	8,796	-65%	11,046	2,250	20%
2008	8,349	-67%	10,705	2,356	22%
2009	7,306	-71%	10,377	3,071	30%
2010	7,121	-72%	10,053	2,932	29%
2011	7,302	-71%	9,690	2,388	25%
2012	7,691	-70%	9,689	1,998	21%
2013	7,326	-71%	9,699	2,373	24%
2014	7,447	-71%	9,699	2,252	23%
2015	7,246	-71%	9,700	2,454	25%
2016	7,328	-71%	8,992	1,664	19%
2017	7,246	-71%	8,978	1,732	19%
2018	6,740	-73%	8,612	1,872	22%
2019	6,458	-75%	8,243	1,785	22%
2020	5,506	-78%	7,499	1,993	27%
2021	5,299	-79%	6.773	1.474	22%

¹ The RECLAIM universe is divided into two cycles with compliance schedules staggered by six months. Compliance years for Cycle 1 facilities run from January 1 through December 31 and Cycle 2 compliance years are from July 1 through June 30.

² Total RTCs = Allocated RTCs + RTCs from ERC conversion.
Figure 3-1 NOx Emissions and Available RTCs



Similar to Table 3-1 and Figure 3-1 for NOx, Table 3-2 presents aggregate annual SOx emissions data for each compliance year based on audited emissions, and Figure 3-2 compares these audited aggregate annual SOx emissions with the aggregate annual SOx RTC supply. As shown in Table 3-2 and Figure 3-2, RECLAIM facilities have not exceeded their SOx allocations on an aggregate basis in any compliance year since program inception. Aggregate SOx allocations from Compliance Year 2003 through Compliance Year 2012. prior to the 2010 BARCT-related amendment to Rule 2002, were relatively constant. At that time, the amount of unused RTCs peaked at 40 percent. Since then, SOx allocations were reduced by about 2,081 tons. On the other hand, annual SOx emissions steadily declined between Compliance Years 2007 and 2013, and remained within a narrow range between Compliance Year 2013 and 2018 (between 2,024 tons and 2,176 tons). With the large reduction in SOx allocations between Compliance Years 2013 and 2018, and the relatively flat SOx emissions during the same period, the amount of unused SOx RTCs was reduced to 14 percent for Compliance Year 2018. SOx emissions decreased significantly during Compliance Years 2019 and 2020, with Compliance year 2020 SOx emissions almost 600 tons less than the lowest annual emissions between Compliance Years 2013 through 2018. With this decrease in SOx emissions, the amount of unused RTCs increased to 35 percent. In Compliance Year 2021, SOx emissions have risen to 1,846 tons (see Chapter 7), but are still well below Compliance Year 2013 to 2018 levels. The amount of unused RTCs decreased in Compliance Year 2021 to 17%. The data indicates that RECLAIM met its programmatic SOx emission reduction goals and demonstrated equivalency in SOx emission reductions compared to the subsumed commandand-control rules and control measures.

Table 3-2		
Annual SOx Emissions for Co	ompliance Years	1994 through 2021

Compliance Year	Audited Annual SOx Emissions ¹ (tons)	Audited Annual SOx Emissions Change from 1994 (%)	Total SOx RTCs ² (tons)	Unused SOx RTCs (tons)	Unused SOx RTCs (%)
1994	7,230	0%	10,559	3,329	32%
1995	8,508	18%	9,685	1,177	12%
1996	6,731	-6.9%	8,976	2,245	25%
1997	7,048	-2.5%	8,317	1,269	15%
1998	6,829	-5.5%	7,592	763	10%
1999	6,420	-11%	6,911	491	7.1%
2000	5,966	-17%	6,194	228	3.7%
2001	5,056	-30%	5,567	511	9.2%
2002	4,223	-42%	4,932	709	14%
2003	3,968	-45%	4,299	331	7.7%
2004	3,597	-50%	4,299	702	16%
2005	3,663	-49%	4,300	637	15%
2006	3,610	-50%	4,282	672	16%
2007	3,759	-48%	4,286	527	12%
2008	3,319	-54%	4,280	961	22%
2009	2,946	-59%	4,280	1,334	31%
2010	2,775	-62%	4,282	1,507	35%
2011	2,727	-62%	4,283	1,556	36%
2012	2,552	-65%	4,283	1,731	40%
2013	2,066	-71%	3,198	1,132	35%
2014	2,176	-70%	2,839	663	23%
2015	2,096	-71%	2,836	740	26%
2016	2,024	-72%	2,836	812	29%
2017	2,043	-72%	2,474	431	17%
2018	2,134	-70%	2,474	340	14%
2019	1,701	-76%	2,221	520	23%
2020	1,436	-80%	2,214	778	35%
2021	1,846	-75%	2,213	367	17%

¹ The RECLAIM universe is divided into two cycles with compliance schedules staggered by six months. Compliance years for Cycle 1 facilities run from January 1 through December 31 and Cycle 2 compliance years are from July 1 through June 30.

² Total RTCs = Allocated RTCs + RTCs from ERC conversion.

Figure 3-2 SOx Emissions and Available RTCs



Comparison to Command-and-Control Rules

RECLAIM subsumed a number of command-and-control rules¹ and sought to achieve reductions equivalent to these subsumed rules that continue to apply to non-RECLAIM facilities. RECLAIM facilities were exempt from the subsumed rules' requirements that apply to SOx or NOx emissions once the facilities comply with the applicable monitoring requirements of Rules 2011 -Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Sulfur (SOx) Emissions or 2012 – Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NOx) Emissions, respectively. However, as part of the effort to transition² the RECLAIM program from a market incentivebased program to a command-and-control regulatory structure reguiring BARCT level controls as soon as practicable, the Board, on October 5, 2018, amended Rule 2001 specifying that RECLAIM facilities are required to comply with the rules contained in Table 1 of Rule 2001 that are adopted or amended on or after October 5, 2018. As subsumed NOx rules in Table 1 of Rule 2001 are amended after this date the requirements of these, and prospective amended or adopted rules, apply equally to both RECLAIM and non-RECLAIM facilities (see "Landing Rules" paragraph under "Program Amendments").

On November 5, 2021, the Board amended, adopted, or rescinded a suite of four companion rules in support of the implementation of a fifth rule, adopted Rule

¹ See Tables 1 and 2 of Rule 2001.

² Pursuant to both the March 3, 2017, Board adopted resolution during the adoption of the 2016 AQMP, and California State Assembly Bill (AB) 617 approved in July 2017.

1109.1 – Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Operations. Two of these rules were subsumed by RECLAIM: rescinded Rule 1109 – Emissions of Oxides of Nitrogen from Boilers and Process Heaters in Petroleum Refineries, and amended Regulation XIII, Rule 1304 – Exemptions. The three remaining rules not subsumed by RECLAIM were adopted Rule 429.1 – Startup and Shutdown Provisions at Petroleum Refineries and Related Operations, amended Rule 2005, and adopted Rule 1109.1.

With the adoption of Rule 1109.1, which established NOx and CO emission limits for combustion equipment at petroleum refineries and facilities with operations related to petroleum refineries, Rule 1109, which regulated large refinery boilers and process heaters prior to the RECLAIM program, was no longer necessary and was rescinded. Adopted Rule 429.1 provided an exemption from the NOx and CO concentration limits in Rule 1109.1 during startup, shutdown, commissioning, and certain maintenance events, whereas amended Rule 1304 and Rule 2005 provided a narrow BACT exemption for installation of add-on air pollution control equipment needed to meet the NOx concentration limits in adopted Rule 1109.1.

Specifically, subsumed Rule 1304 added a BACT exemption for PM10 and SOx emission increases associated with Selective Catalytic Reduction (SCR) installations³ or modifications to achieve the proposed NOx concentration limits in Rule 1109.1. Additionally, SCR installations or modifications combined with basic equipment replacements would result in an emission increase for SOx. Since an increase in emissions of PM and/or SOx would trigger BACT requirements, staff worked with CARB and U.S. EPA on a resolution to attain the substantial NOx reductions from implementing the required control strategies to comply with the NOx BARCT requirements in Rule 1109.1. Consequently, staff incorporated a BACT exemption⁴ in Rule 1304 that allowed the installation or modification of an emission control technology, such as SCR, to comply with a NOx BARCT rule without requiring BACT.

Amended Rule 2005, a rule not subsumed by RECLAIM, allowed a RECLAIM facility, replacing existing basic equipment that is combined with the installation or modification of air pollution control equipment to comply with a command-and-control NOx emission limit for a Regulation XI rule, to apply the BACT requirement for a SOx emission increase under Rule 1303 – Requirements, instead of BACT under Rule 2005 and use the limited BACT exemption in Rule 1304 subdivision (f).

Since the provisions of adopted Rule 429.1, rescinded Rule 1109, amended Rule 1304, and amended Rule 2005, were created to comply with the NOx BARCT concentration limits of adopted Rule 1109.1, the requirements of these rules were applied equally to both RECLAIM sources and non-RECLAIM sources, and did not result in any disproportionate impacts.

³ SCR installations to control NOx emissions from a refinery boiler or heater subject to the BARCT limits in Rule 1109.1 can result in emissions of PM, due to the ammonium sulfate formed from the unreacted ammonia in the SCR catalyst and the sulfur in the refinery fuel gas.

⁴ The BACT exemption in Rule 1304 is limited to RECLAIM or former RECLAIM facilities complying with a NOx BARCT emission limit that is part of the transition from NOx RECLAIM to a command-and-control regulatory structure. Operators that elect to use this exemption must meet a series of conditions, which include provisions that any increase in PM and SOx emissions cannot exceed federal NSR thresholds.

Additionally, one other rule not subsumed under RECLAIM Rule 2001, Rule 1111 – Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces was amended on October 1, 2021. The amendments to Rule 1111 extended the mitigation fee alternative compliance option end date from September 30, 2021, to September 30, 2023, for mobile home furnaces. They also provided an exemption for downflow furnaces and furnaces at or above 100,000 btu/hr that are installed in high altitude areas. Finally, amended Rule 1111 allowed furnaces certified at 40 ng/J to be installed in high altitude areas for a limited time period, if less than four manufacturers have compliant furnaces commercially available on October 1, 2021, for high altitude areas.

Since Rule 1111 was not subsumed under RECLAIM and contained no exemptions from its applicability to RECLAIM NOx or SOx sources, the requirements of this amended rule applies equally to both RECLAIM and non-RECLAIM facilities. As such, there are no differential impacts in emissions when comparing the applicability of amended rule requirements to NOx and SOx sources under RECLAIM with NOx and SOx sources of non-RECLAIM facilities.

Consequently, during Compliance Year 2021, both rules subsumed by RECLAIM and rules not subsumed by RECLAIM, did not result in any disparate impacts between NOx and SOx sources at RECLAIM and NOx and SOx sources at non-RECLAIM facilities.

Program Amendments

On March 3, 2017, the Board adopted a resolution during the adoption of the 2016 AQMP that directed staff to modify Control Measure CMB-05 – Further NOx Reductions from RECLAIM Assessment to achieve an additional five tons per day NOx emission reductions as soon as feasible but no later than 2025, and to transition the RECLAIM program to a command-and-control regulatory structure requiring BARCT level controls as soon as practicable. Additionally, California State Assembly Bill (AB) 617 was approved in July 2017, requiring an expedited schedule for implementing BARCT at RECLAIM facilities that are covered by the Greenhouse Gas (GHG) cap-and-trade program no later than December 31, 2023.

Transition Process

To further this effort, staff organized and held monthly working group meetings (with the first meeting held on June 8, 2017) to discuss the transition of facilities in the RECLAIM program to a command-and-control regulatory structure and to discuss key policy issues. The objective is to provide an open forum for all stake holders to discuss and guide the transition process. The goal is to develop "Landing Rules" establishing the BARCT emission levels for equipment transitioning out of the NOx RECLAIM program. Rule 2001 specifically exempts RECLAIM facilities from a number of existing command-and-control NOx rules (see Table 1 of Rule 2001). As part of the transition process, these command-and-control rules have to be adopted (collectively referred to as "Landing Rules") to ensure that when a facility transitions out of RECLAIM, its NOx equipment has explicit BARCT emission limits and an appropriate time frame to achieve compliance.

To initiate the transition of NOx sources out of RECLAIM, Rule 2001, and Rule 2002, were amended by the Board on January 5, 2018. Amended Rule 2001 precluded new or existing facilities from entering the NOx and SOx RECLAIM programs as of January 5, 2018. Amended Rule 2002 contained notification procedures for facilities that will be transitioned out of RECLAIM, and addressed the RTC holdings for facilities that will be transitioned out or that elect to exit RECLAIM. Under amended Rule 2002, the Executive Officer will provide an initial determination notification to a RECLAIM facility for potential exit to a commandand-control regulatory structure with requirements for the facility to identify all NOx-emitting equipment. This initial determination notification serves as a preliminary notice to a facility for which all NOx sources are covered by Landing Rules and will be issued when South Coast AQMD staff determines every permitted NOx source is covered by Landing Rules. When an initial determination notification is issued to a facility, the RECLAIM facility then has 45 days from the date of the notification to identify all NOx-emitting equipment. Failure to provide this information to South Coast AQMD will result in a freeze on RTC uses, trades, or transfers until the requested information is submitted. If the RECLAIM facility is deemed ready for transition after Executive Officer review, it will receive a final determination notification that will require its exit from RECLAIM and will become subject to command-and-control regulations. If the RECLAIM facility is deemed as not ready for the transition, it will be notified that it will remain in NOx RECLAIM until a later time. Upon exiting RECLAIM, the facility's future compliance year RTCs cannot be sold or transferred, and only RTCs valid for the then current compliance year can be used or sold.

Staff originally identified an initial group of 38 facilities that could potentially exit the NOx RECLAIM program because they had no facility NOx emissions, or had NOx emissions solely from the combination of equipment under Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II (unless the equipment would be subject to a command-and-control rule that it could not reasonably comply with), various locations permits, or unpermitted equipment and/or RECLAIM equipment that met current command-and-control BARCT rules. However, these facilities have not been issued final determinations to exit RECLAIM pending final resolution with U.S. EPA of NSR provisions for facilities that are expected to be transitioned out of RECLAIM.

Rules 2001 and 2002 were again amended by the Board on October 5, 2018. Amended Rule 2001 added a provision to allow facilities to opt out of RECLAIM if certain criteria were met. Additionally, Tables 1 and 2 had previously contained only rules that were not applicable to RECLAIM facilities pertaining to NOx or SOx emissions, respectively. However, in order to facilitate the transition process, the amendments to Rule 2001 specify that RECLAIM facilities are required to comply with the rules contained in Table 1 that are adopted or amended on or after October 5, 2018. Amended Rule 2002 provided an option for facilities that received an initial determination notification to stay in RECLAIM for a limited time, while complying with applicable command-and-control requirements. Additionally, amended Rule 2002 established a requirement that facilities which are issued a final determination to be transitioned out of the NOx RECLAIM program to provide emission reduction credits to offset any NOx emissions increases, calculated pursuant to Rule 1306 - Emission Calculations, notwithstanding the exemptions contained in Rule 1304 – Exemptions and the requirements contained in Rule 1309.1 – Priority Reserve, until NSR provisions

governing NOx emission calculations and offsets are amended to address former RECLAIM sources. Finally, Rule 2002 removed the requirement to report IYB NOx RTC prices to the Board when the price falls below the minimum threshold.

Rule 2001 was again amended by the Board on July 12, 2019, to remove the opt-out provision provided for in the October 5, 2018 amendments to the rule. This amendment was in response to U.S. EPA's recommendation that facilities remain in RECLAIM until all rules associated with the transition to a command-and-control regulatory structure have been adopted and approved into the SIP.

Another programmatic rule, Rule 2000 – General, was amended on December 4, 2020, for the transition in order to ensure consistency with the Clean Air Act and Regulation XIII's Rule 1302 – Definitions. Revisions to Rule 2000 were incorporated to reduce federal Major Modification thresholds for VOC and NOx emissions in the Coachella Valley from 25 tons per year to one pound per day as required by the federal Clean Air Act.

Finally, as mentioned earlier in the "Comparison to Command-and-Control Rules" section of this chapter, Rule 2005 was amended on November 5, 2021, with four other companion rules to support the adoption of Rule 1109.1. The amendments to Rule 2005 allowed a RECLAIM facility, replacing existing basic equipment that is combined with the installation or modification of air pollution control equipment to comply with a command-and-control NOx emission limit for a Regulation XI rule, to apply the BACT requirement for a SOx emission increase under Rule 1303 – Requirements, instead of BACT under Rule 2005 and use the limited BACT exemption in Rule 1304 subdivision (f).

Landing Rules

As explained earlier, Landing Rules are needed to establish BARCT emission limits, the timing for the implementation of BARCT, and monitoring, reporting, and recordkeeping (MRR) requirements. These Landing Rules also serve to facilitate the transition process for RECLAIM facilities from the requirements of RECLAIM to a command-and-control regulatory structure. Determination of BARCT limits is made through an analytical process that is comprised of assessing South Coast AQMD and other agency regulatory requirements and emission limits, researching control options and effectiveness of the controls, and analyzing the cost-effectiveness of the control options. Emission levels are established based on their achievability, source test results, and vendor guarantees.

Throughout the BARCT determination process, rule-specific working group meetings are held to present staff's findings regarding the feasibility and costeffectiveness of implementing BARCT. Working group meetings are open to the public and provide an opportunity for stakeholders to participate in the rule development process. During the public process, cost assumptions are discussed through the working group to solicit comments. Cost-effectiveness and incremental cost-effectiveness, if applicable, are discussed and presented during the rule working group meetings, presented at the Public Workshop, included in the Draft Staff Report, and included in the Board Letter for the adoption hearing. The socioeconomic analysis uses the cost data to estimate regional and industryspecific socioeconomic impacts from the proposed rule and its proposed controls, while the California Environmental Quality Act (CEQA) analysis provides the environmental impacts that result from implementing a rule.

Staff have identified a number of rules that need amendments and new rules that need to be adopted to support the transitioning of NOx sources out of RECLAIM. The following 24 Landing Rules were amended or adopted by the Board to facilitate the transition:

- Rule 218 Continuous Emission Monitoring,
- Rule 218.2 Continuous Emission Monitoring System: General Provisions,
- Rule 218.3 Continuous Emission Monitoring System: Performance Specifications,
- Rule 429 Start-Up and Shutdown Exemption Provisions for Oxides of Nitrogen,
- Rule 429.1 Start-Up and Shutdown Provisions at Petroleum Refineries and Related Operations,
- Rule 429.2 Startup and Shutdown Exemption Provisions for Oxides of Nitrogen from Electricity Generating Facilities,
- Rule 1100 Implementation Schedule for NOx Facilities,
- Rule 1109 Emissions of Oxides of Nitrogen from Boilers and Process Heaters in Petroleum Refineries (rescinded),
- Rule 1109.1 Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Operations,
- Rule 1110.2 Emissions from Gaseous and Liquid-Fueled Engines,
- Rule 1117 Emissions from Container Glass Melting and Sodium Silicate Furnaces,
- Rule 1118.1 Control of Emissions from Non-Refinery Flares,
- Rule 1134 Emissions of Oxides of Nitrogen from Stationary Gas Turbines,
- Rule 1135 Emissions of Oxides of Nitrogen from Electricity Generating Facilities,
- 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 and Process Heaters,
- Rule 1147 NOx Reductions from Miscellaneous Sources,
- Rule 1147.1 NOx Reductions from Aggregate Dryers,
- Rule 1147.2 NOx Reductions from Metal Melting and Heating Furnaces,
- Rule 2000 General,
- Rule 2001 Applicability,
- Rule 2002 Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx), and
- Rule 2005 New Source Review for RECLAIM.

A summary of each Landing Rule is provided in Table 3-3. The status of the remaining Landing Rules to be amended or adopted are listed in Table 3-3 as either "In Progress" or "To Be Determined". Further information regarding the

specifics of each rule can be found at <u>http://www.aqmd.gov/home/rules-</u> <u>compliance/rules/scaqmd-rule-book/proposed-rules</u>. Details on past amended or adopted rules can be found by entering the amendment or adoption date of a given rule at <u>http://www.aqmd.gov/ home/news-events/meeting-agendas-minutes</u> and down-loading the relevant rule board agenda item.

Table 3-3Summary of Landing Rules

Rule(s)	Focus Area	Description
218, 218.2 and 218.3	Continuous Emission Monitoring	Revises provisions for continuous emission monitoring systems for non-RECLAIM facilities and facilities exiting RECLAIM.
	Rule 218 – CEM	1. For Rule 218 facilities:
	Applicability: Equipment that require CEMS at non- RECLAIM facilities	 Provides a phase-out provision to transition facilities subject to Rules 218, 218.1, and 2012 into the revised provisions for CEMS which are specified in Rules 218.2 and 218.3. (Amended March 5, 2021)
	Rule 218.2 – CEMS: General Provisions	 2. For Rule 218.2 facilities: Provides implementation schedule for
	Applicability: Administrative requirements for CEMS, ACEMS, and SCEMS for owners or operators of a CEMS, ACEMS, or SCEMS at former RECLAIM and non- RECLAIM facilities	 transition. Provides CEMS administrative requirements and revises the provisions retained from Rule 218 with key modifications on the certification process for CEMS modification and the requirements for reporting. Incorporates a new provision that would require CEMS to be in continuous operation, except during the defined CEMS maintenance and repair period, and allow CEMS to be shut down when the unit (emission source) goes offline for at least one week.
	Rule 218.3 – CEMS: Performance Specifications	(Adopted March 5, 2021) 3. For Rule 218.3 facilities: • Provides implementation schedule for
	Applicability: Performance specifications on certification and quality assurance and quality control programs for owners or operators of a CEMS, ACEMS, or SCEMS at RECLAIM and non-RECLAIM facilities	 Provides implementation schedule for transition. Provides CEMS performance specifications and revises the provisions retained from Rule 218.1 with key modifications on: span range, data acquisition and handling system, relative accuracy test audit, and calibration gas requirements. Incorporates a new provision to provide specifications on the data handling method for data measured below 10 percent or above 95 percent of the upper span value,

Rule(s)	Focus Area	Description
		 emission data averaging method, CEMS data availability requirements, and, CEMS out-of-control period and alternative data acquisition.
		(Adopted March 5, 2021) [Estimated emission reductions: 0 tons of NOx per day.]
		1. For Rule 218.2 facilities:
		 Clarifies that the Executive Officer discretion on recertification requirement will only apply if modification would not impact data accuracy.
		 Extends recordkeeping from a minimum period of two years to three years. Clarifies exemption that the Executive
		Officer discretion does not apply if the rule or permit specified CEMS requirements are
		2. For Rule 218.3 facilities:
		Provides detailed instruction on the test
		sequence and the number of data points required when conducting the linearity error check procedure.
		 Extends a low-level data validation option from being applicable to lowest vendor
		guaranteed span range to any span range.
		 Includes: mass emission calculation methodology, data substitution procedure when a facility is complying with a mass emission limitation,
		 method to calculate mass emissions for a startup or shutdown period, and data substitution procedures for startup
		a facility is complying with a mass emission limitation for startup or shutdown.
		 Allows the owner or operator to report valid zero emissions data while the unit is not
		 operating, and no emissions are generated. Clarifies exemption that the Executive
		Officer discretion does not apply if the rule or permit specified CEMS requirements are
		less stringent.
		(Amended September 2, 2022)
		[Estimated emission reductions: 0 tons of NOx per day.]

Rule(s)	Focus Area	Description
429, 429.1	Start-up and Shutdown	Revises NOx emission provisions for start-up and
and 429.2	Nitrogen from:	shutdown events.
	Rule 429 - Start-Up and Shutdown Exemption	 For applicable Rule 429 equipment: Establishes exemption from Rules 1134.
	Provisions for Oxides of	1146, 1147, 1147.1, and 1147.2 NOx and CO
	Nitrogen	concentration limits during startup and
	Applicability: Equipment	 Provides limits for:
	using CEMS, ACEMS, or	duration of time that an operator is
	SCEMS that are subject to Rule 1134 Rule 1146 Rule	exempt from NOx and CO concentration
	1147, Rule 1147.1, and Rule	 frequency of scheduled startups.
	1147.2	Requires NOx post-combustion control
		equipment to:
		reaches the minimum operating
		temperature of the NOx post-
		combustion control equipment, and temperature is stable, and
		 install and maintain an annually
		calibrated temperature measuring
		aevice. Requires notification for scheduled startups.
		Requires recordkeeping of:
		operating log,
		 Ist of scheduled startups, and the minimum operating temperature of
		NOx post-combustion control
		equipment.
		 Provides exemptions for: refractory dryout, and
		when fuel is only used for the pilot light.
		(Amended September 2, 2022)
		day.]
	Rule 429.1 - Petroleum	1. For Rule 429.1 facilities:
	Operations	 Establishes exemption from Rule 1109.1 NOx and CO concentration limits during startun
		shutdown, commissioning, and certain
	Applicability: Owner or	maintenance events.
	petroleum refineries and	 Provides limits for: duration of time that an operator is
	facilities with related	exempt from NOx and CO concentration
	operations to petroleum refineries	limits for startup and shutdowns, and
		 Trequency of scheduled startups. Establishes requirements for:
		 units with NOx post-combustion control
		equipment,
		 catalyst maintenance,

Rule(s)	Focus Area	Description
	Rule 429.2 – Electricity Generating Facilities <i>Applicability:</i> Owner or operator of electrical generating units at electricity generating facilities subject to Rule 1135	 Establishes exemptions for: refractory dryout, catalyst regeneration activities, commissioning, water freeing, when fuel is only used for the pilot light, and units with existing permit conditions that allow the use of a bypass to conduct maintenance. (Adopted November 5, 2021) [Estimated emission reductions: 0 tons of NOx per day.] For Rule 429.2 units for startup and shutdown events: Establishes exemption for electric generating units from Rule 1135 NOx concentration limits for specific time durations. Establishes two sets of startup and shutdown time duration limits for each equipment type based on the date of equipment installation. Requires startup period to end when: the electric generating unit reaches stable conditions, the NOx post-combustion control equipment reaches minimum operating temperature, and all NOx post-combustion controls are fully deployed. Limits number of scheduled events to 12 per year for electric generating units not permitted to perform distillate fuel oil readiness testing, and 64 per year for electric generating units not permitted to perform distillate fuel oil readiness testing. Includes best management practices to minimize emissions during events. Establishes reporting and recordkeeping procedures. Establishes exemptions for electric generating units subject to the State Water Resources Control Board's Once-Through- Cooling Policy (OTC Policy) from: startup and shutdown duration limits, limits to number of scheduled startups, and

Rule(s)	Focus Area	Description
		installation of a temperature measuring device until December 21, 2020
		(Adopted January 7, 2022)
		[Estimated emission reductions: 0 tons of NOx per
		day.]
1100	Implementation Schedule for NOx Facilities <i>Applicability</i> : Equipment specified in Rules 1146, 1146.1, and 1110.2	 Establishes implementation schedule for RECLAIM and prior RECLAIM sources to meet applicable provisions of Landing Rules. Implementation schedule for equipment meeting applicability under Rules 1146 and 1146.1. (Adopted December 7, 2018) Implementation schedule for equipment meeting applicability under Rules 1110.2.
		related industries under Proposed Rule 1109.1.
		(Amended January 10, 2020) This rule will be amended as necessary as a companion rule to a Landing Rule, as the Landing Rule is amended or adopted.
1109 (rescinded)	Emissions of Oxides of Nitrogen from:	Establishes NOx emission limits to reflect BARCT for equipment located at a refinery.
and 1109.1	Rule 1109 - Boilers and Process Heaters	 For Rule 1109 facilities: Rule 1109 rescinded upon adoption of Rule 1109.1.
	<i>Applicability:</i> Boilers and process heaters emitting NOx at refineries.	(Rule rescinded November 5, 2021)
	Rule 1109.1 - Petroleum Refineries and Related Operations <i>Applicability:</i> Equipment emitting NOx at refineries and related operations (<i>i.e.</i> , asphalt plants, biofuel plants, hydrogen production plants, facilities that operate petroleum coke calciners, sulfur recovery	 For Rule 1109.1 facilities: Includes two alternative compliance plans to achieve the BARCT NOx concentration limits in Table 1 and Table 2 (B-Plan and B-Cap) of Rule 1109.1, and an alternative implementation schedule plan (I-Plan). The B-Plan, B-Cap, and I-Plan provide compliance flexibility while achieving the same NOx reductions that would occur if an operator were to directly meet the NOx limits in Table 1 and Table 2 of Rule 1109.1.

Rule(s)	Focus Area	Description
	plants at petroleum refineries)	 Includes provisions for using alternative compliance plans, the approval process, and when an approved plan must be modified. Includes interim NOx limits for units that would apply after the facility transitions out of RECLAIM and until the unit is in full compliance with Rule 1109.1 to ensure no backsliding of emissions per the federal Clean Air Act Section 110(I). includes monitoring, reporting, and recordkeeping requirements, and exemptions for low-use units and other units that are exempt from the rule. (Adopted November 5, 2021) [Estimated emission reductions: 7.7 to 7.9 tons of NOx per day.]
1110.2	Emissions from Gaseous - and Liquid-Fueled Engines <i>Applicability:</i> All stationary and portable engines over 50 rated brake horsepower	 Maintains existing BARCT levels for NOx, VOC, and CO emission limits, and allows: interim alternate emission limits for compressor gas lean-burn engines, concentration based limits for linear generator technology, and interim VOC based emission limits for certain electricity generating engines. Specifies emission averaging time. Includes additional monitoring requirements for engines at former RECLAIM facilities. Revises exemptions for diesel engines operated at remote radio transmission sites, tuning of an engine and/or associated emission control equipment, replacement of catalytic equipment as a major repair, and diesel engines powering cranes located on offshore platforms, provided specific criteria are met. (Amended November 1, 2019)
1117	Emissions from Container Glass Melting and Sodium Silicate Furnaces Applicability: Container glass melting and sodium silicate furnaces	 Updates NOx and SOx emission limits to reflect current BARCT for container glass melting and sodium silicate furnaces: 0.75 lb. of NOx per ton of glass pulled on a rolling 30-day average for container glass melting furnaces, 0.50 lb. of NOx per ton of product pulled on a rolling 30-day average for sodium silicate furnaces, as well as

Rule(s)	Focus Area	Description
		 1.1 lbs. of SOx per ton of material pulled on a rolling 30-day average for both container glass melting and sodium silicate furnaces. Revises monitoring, reporting, and recordkeeping requirements. Includes provisions to reduce emissions for idling, startup, and shutdown of furnaces. Includes NOx emission limits for auxiliary combustion equipment associated with container glass melting operations: 30 ppmvd NOx at 3% O2 or 0.036 lb. per MMBTU of heat input. <i>(Amended June 5, 2020)</i>
		day, and 0 tons of SOx per day (since the rule does not impose a more stringent SOx limit than is already
1118.1	Control of Emissions from	 required to be achieved).] 1. Establishes NOx, VOC, and CO emission limits to reflect current BABCT for new replaced or
	Non-Refinery Flares Applicability: Flares located at landfills, wastewater treatment plants, oil and gas production facilities, organic liquid loading stations, tank farms, and other locations that are not a refinery	 reflect current BARCT for new, replaced, or relocated flares. 2. Establishes industry-specific capacity thresholds for existing flares. Flares that exceed the applicable capacity threshold in two consecutive calendar years shall either be: modified to comply with the established limit, or implement plan to reduce the amount of gas flaring. 3. Establishes monitoring, reporting, recordkeeping and source testing requirements, 4. Provides exemptions for low-use and low- emitting flares. (Adopted January 4, 2019) [Estimated emission reductions: 0.18 tons of NOx per day, and 0.014 tons of VOC per day.]
1134	Emissions of Oxides of Nitrogen from Stationary Gas Turbines <i>Applicability:</i> Stationary gas turbines, 0.3 MW and larger, except turbines located at electricity generating facilities, refineries or public owned treatment works, or fueled by landfill gas	 Updates NOx and ammonia emission limits to reflect current BARCT, effective beginning January 1, 2024. Provides implementation timeframes to facilitate transition. Alternative compliance date for compressor gas turbines, provided the facility demonstrates 25% or more NOx emission reductions beginning December 31, 2023. Extension of up to 36 months to comply with ammonia emission limits, provided an ammonia continuous emissions monitoring system is installed, and the turbine operates less than one thousand hours per year.

Rule(s)	Focus Area	Description
		 recordkeeping requirements. Provides exemptions for units that are shown to be not cost effective for retrofit or replacement such as: low-use turbines, and turbines achieving emissions close to the established limit. (Amended April 5, 2019) [Estimated emission reductions: 2.8 tons of NOx per day.] Removes ammonia emission limits (addressed during permitting): Removes startup and shutdown provisions and clarifies startup and shutdown periods are pursuant to Rule 429. Establishes an interim NOx concentration limit of 68 ppmv at 15 % oxygen on a dry basis for compressor gas turbines that will apply to former RECLAIM facilities until the unit meets the final NOx limit under Rule 1134. Clarifies that recuperative gas turbines are under "Other" turbines category. Removes references to Rule 2012 for former RECLAIM facilities. Includes Rules 218.2 and 218.3 requirements for former RECLAIM and non-RECLAIM facilities. Incorporates a narrow liquid fuel usage exemption for turbines located at health facilities during emergencies. (Amended February 4, 2022)
1135	Emissions of Oxides of Nitrogen from Electricity Generating Facilities <i>Applicability:</i> Electric generating units at electricity generating facilities	 Updates emission limits to reflect current BARCT: NOx and ammonia emission limits for boilers and gas turbines, and NOx, ammonia, carbon monoxide, volatile organic compounds, and particulate matter for internal combustion engines. Revises monitoring, reporting, and recordkeeping requirements. Provides exemptions for units that are shown to be not cost effective for retrofit: low-use units, units achieving emissions close to the established limits, and units required to be shut down in the near term.

Rule(s)	Focus Area	Description
		 Removes ammonia emission limits, Removes startup and shutdown provisions addressed in Rule 429.2. For engines at Santa Catalina Island: Removes option allowing replacement of existing diesel engines on Santa Catalina Island with new diesel engines and establishes a two-step process to reduce NOx emissions from all electric generating units on the island by meeting an initial NOx emission cap of 50 tons per year in 2024, then lower the cap to 45 tons per year in 2025 (Represents replacing two or three diesel engines with Tier 4 Final engines); and a final NOx emission cap of 13 tons per year beginning in 2026. Requires new diesel engines to meet the BARCT emissions limits in Table 2. Revises the NOx concentration averaging period for new diesel engines from one hour to three hours. Prohibits installation of any new diesel engines on Santa Catalina Island on and after January 1, 2024. Includes Rule 218.2 monitoring, recordkeeping and reporting provisions. Allows backup units until July 1, 2026, to source test in lieu of complying with Rules 218.2 and 218.3. Allows a sunset date of December 31, 2029, for electric generating units subject to the State Water Resources Control Board's Once-Through- Cooling Policy to be exempt from Rule 1135 emission limits. (Amended January 7, 2022) [Estimated emission reductions: 0 tons of NOx per dav.]
1146, 1146.1, and 1146.2	Emissions of Oxides of Nitrogen from:	Updates NOx emission limits to reflect BARCT for Boilers, steam generators, and process heaters.
	Rule 1146 - Industrial, Institutional and Commercial Boilers, Steam Generators, and Process Heaters <i>Applicability:</i> Boilers, steam generators, and process heaters that are	 For Rule 1146 and 1146.1 facilities: Establishes NOx and ammonia emission limits for boilers, steam generators, and heaters. Specifies compliance schedule in Rule 1100. For Rule 1146.2 units: Comply with the 30 ppm limit by December 31, 2023, if a technology assessment (to be completed by January 1, 2022) determines

Rule(s)	Focus Area	Description
	greater than or equal to 5 MMBtu/hr Rule 1146.1 - Small Industrial, Institutional, and Commercial Boilers, Steam	that the NOx emission limits specified in Rule 1146.2 still represent BARCT. (Amended December 7, 2018) [Estimated emission reductions: 0.31 tons of NOx per day.] 1. For Rule 1146 facilities: • Removes ammonia slip limit which is currently addressed under Bogulation XIII
	Heaters Applicability: Boilers, process heaters, and steam generators that are greater than 2 MMBtu/hr or and less than 5 MMBtu/hr	(Amended December 4, 2020) [Estimated emission reductions: 0 tons of NOx per day.]
	Rule 1146.2 - Large Water Heaters and Small Boilers and Process Heaters	
	Boilers, process heaters, and steam generators that are greater than 400,000 Btu/hr and less than or equal to 2 MMBtu/hr	
1147, 1147.1, and 1147.2	NOx reductions from:	Moves NOx emissions associated with aggregate dryers to Rule 1147.1, and NOx emissions associated with metal melting and heating furnaces to Rule 1147.2. Updates and establishes NOx and CO emission limits to reflect current BARCT.
	Rule 1147 - Miscellaneous Sources Applicability: Manufacturers, distributors, retailers, installers, owners, and operators of gaseous and/or liquid fuel fired combustion equipment ≥ 325,000 Btu/hr with NOx emissions that require a South Coast AQMD permit and when other South Coast AQMD Regulation XI rules are not applicable to the unit.	 Establishes NOx emission limits of 9 ppmv for micro-turbines, and between 20 to 60 ppmv for all remaining equipment categories. Establishes interim NOx emission limits of existing Rule 1147 limits for non-RECLAIM facilities, or 102 ppmv or existing NOx permit limit, whichever is lower, for former RECLAIM facilities. Establishes a CO concentration limit of 1,000 ppmv for all applicable equipment categories. Establishes monitoring, reporting, recordkeeping and source testing requirements. Includes two implementation schedules:

Rule(s)	Focus Area	Description
	Rule 1147.1 - Aggregate Dryers Applicability: Owners or operators of gaseous fuel- fired aggregate dryers with NOx emissions > 1 lb. per day with rated heat input greater than 2MMBtu/hr at non-RECLAIM, RECLAIM, and former RECLAIM facilities Rule 1147.2 - Metal Melting and Heating Furnaces	 one for units that do not have a permit limit at the current Rule 1147 limits (primarily RECLAIM facilities); and one for units meeting the current Rule 1147 limits (primarily non-RECLAIM facilities). Provides exemptions for solid fuel-fired combustion equipment, heating equipment associated with fuel cells, unit(s) with burner(s) permitted to be fired by a gaseous fuel other than natural gas and/or liquid fuel during normal operations, and unit(s) used in equipment that endothermically decompose solid waste in an environment with little to no oxygen. (Amended May 6, 2022) [Estimated emission reductions: 0.54 tons of NOx per day by January 1, 2026, and 1.59 tons of NOx per day by January 1, 2059.] Establishes NOx emission limit of 30 ppm and CO emission limit of 1,000 ppm for gaseous fuel fired aggregate dryers and specifies implementation timeframes. Establishes interim NOx emission limits of 40 ppm for non-RECLAIM facilities, and 102 ppm for former RECLAIM facilities. Provides periodic source testing based on equipment size: Allows for aggregate dryers rated ≥ 40 MMBtu/hr – every 5 calendar years, Allows for aggregate dryers at a non-RECLAIM or former RECLAIM or former RECLAIM or former RECLAIM facilities with an existing CEMS or equivalent to retain the system and comply with the requirements of Rules 218.2 and 218.3. Provides exemption for tunnel dryers subject to Rule 1147. (Adopted August 6, 2021)

Rule(s)	Focus Area	Description
	Applicability: Owners or operators of metal melting, metal heat treating, metal heating, or metal forging furnaces that require a South Coast AQMD permit at non-RECLAIM, RECLAIM, and former RECLAIM facilities	 Establishes NOx and CO emission limits to reflect current BARCT for metal melting, metal heat treating, and metal heating and forging furnaces. Establishes transitional NOx concentration limits for units at non-RECLAIM and former RECLAIM facilities. Provides implementation schedules based on units' burner age, rated heat input capacity, and current NOx concentration limits Provides an alternative staggered implementation schedule for facilities operating multiple impacted units subject to the rule. Requires periodic source testing for all units not equipped with a Continuous Emissions Monitoring System (CEMS). Requires CEMS for units with a rated heat input capacity greater than or equal to 40 MMBtu/hr. Requires maintaining records of compliance demonstrations, burner age, and furnace alterations. Provides exemptions from the concentration limits and source testing for units that demonstrate NOx emissions of less than one pound per day, averaged over a calendar month, and equipped with a CEMS during periods of refractory dry-out, startup, and shutdown. (Adopted April 1, 2022) [Estimated emission reductions: 0.495 tons of NOx per day.]
1153.1	Emissions of Oxides of Nitrogen from Commercial Food Ovens Applicability: Commercial	Updates NOx emission limits to reflect current BARCT. (In Progress – 2 nd Qtr. 2023)
	food ovens	
1159.1	Control of NOx Emissions from Nitric Acid Processing Tanks <i>Applicability:</i> Nitric acid processing tanks	Updates NOx emission limits to reflect current BARCT. <i>(In Progress – 3rd Qtr. 2023)</i>
2000	Definitions governing the RECLAIM program Applicability: Definition of terms found in Regulation XX - RECLAIM	 For all RECLAIM sources: Reclassifies the definition of a Major Modification for VOC or NOx emissions in the Coachella Valley by changing the threshold for NOx or VOC emissions from 25 tons per year to one pound per day to

Rule(s)	Focus Area	Description		
		ensure consistency with Reg. XIII's Rule 1302 and the requirements of the Clean Air Act. (Amended December 4, 2020)		
2001	Applicability of RECLAIM criteria to new and existing facilities <i>Applicability:</i> Establishes criteria for inclusion into RECLAIM and identifies provisions in current rules that do not apply to facilities operating under the RECLAIM program	 Prevents new NOx RECLAIM facility inclusions as of January 5, 2018. (Amended January 5, 2018) Allows facilities to opt-out of RECLAIM, if certain conditions are met. (Amended October 5, 2018) Removes the opt-out provision for RECLAIM facilities until all rules associated with the transition to a command-and-control regulatory structure have been adopted and approved into the SIP. (Amended July 12, 2019) 		
2002	Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx) <i>Applicability:</i> Facilities operating under the RECLAIM program	 Establishes NOx RECLAIM facility exit notification requirements. Requires exited facilities to provide emission reduction credits to offset any NOx emissions increases, until NSR provisions governing NOx emission calculations and offsets are amended. Prohibits exited facilities from selling or transferring future compliance year RECLAIM Trading Credits. (Amended January 5, 2018) Provides option for facilities that received an initial determination notification to stay in RECLAIM for a limited time. Establishes requirement for facilities issued a final determination to be transitioned out of the NOx RECLAIM program to provide emission reduction credits to offset any NOx emissions increases, calculated pursuant to Rule 1306, notwithstanding the exemptions contained in Rule 1304 and requirements in Rule 1309.1 until NSR provisions governing NOx emission calculations and offsets are amended to address former RECLAIM sources.		
2005	New Source Review for RECLAIM <i>Applicability:</i> Facilities operating under the RECLAIM program	 Allows for NSR provisions to address facilities that are transitioning from RECLAIM to command-and-control. Amendments to Regulation XIII may be needed to address NSR provisions for facilities that transition out of RECLAIM. 1. Allows a RECLAIM facility replacing existing basic equipment that is combined with the installation or modification of air pollution control equipment to: 		

Rule(s)	Focus Area	Description	
		 Comply with a command-and-control NOx emission limit for a Regulation XI rule (Rule 1109.1), Apply the BACT requirement for a SOx emission increase under Rule 1303 – Requirements, instead of BACT under Rule 2005, and Use the limited BACT exemption in Rule 1304 subdivision (f). (Amended November 5, 2021) 	

Monthly working group meetings continue to be held, as necessary, to further discuss steps for transitioning the remaining RECLAIM facilities to a commandand-control structure, and to develop necessary rule amendments to implement BARCT for the exiting RECLAIM facilities. Since the RECLAIM universe includes many different industries, separate working groups have been formed to address and develop these different BARCT Landing Rules. Completion of the development efforts for the remaining Landing Rules is now targeted for the third quarter in 2023. The current plan is to implement NOx RECLAIM transition after the NSR provisions are addressed by a rule amendment and all NOx Landing Rules have been adopted and approved by EPA into the SIP.

Breakdowns

Pursuant to Rule 2004(i) – Breakdown Provisions, a facility may request that emission increases due to a breakdown not be counted towards the facility's allocations. In order to qualify for such exclusion, the facility must demonstrate that the excess emissions were the result of a fire, or a mechanical or electrical failure caused by circumstances beyond the facility's reasonable control. The facility must also take steps to minimize emissions resulting from the breakdown, and mitigate the excess emissions to the maximum extent feasible. Applications for exclusion of unmitigated breakdown emissions from a facility's total reported annual RECLAIM emissions must be approved or denied in writing by South Coast AQMD. In addition, facilities are required to quantify unmitigated breakdown emissions for which an exclusion request has been approved in their APEP report.

As part of the annual program audit report, Rule 2015(d)(3) requires South Coast AQMD to determine whether excess emissions approved to be excluded from RTC reconciliation have been programmatically offset by unused RTCs within the RECLAIM program. If the breakdown emissions exceed the total unused RTCs within the program, any excess breakdown emissions must be offset by either: (1) deducting the amount of emissions not programmatically offset from the RTC holdings for the subsequent compliance year from facilities that had unmitigated breakdown emissions; and/or (2) RTCs obtained by the Executive Officer for the compliance year following the completion of the annual program audit report in an amount sufficient to offset the unmitigated breakdown emissions.

As shown in Table 3-4, a review of APEP reports for Compliance Year 2021 found that no facilities requested to exclude breakdown emissions from being counted against their allocations. Thus, for Compliance Year 2021, no additional RTCs are required to offset breakdown emissions pursuant to Rule 2015(d)(3).

Pollutant	Compliance Year 2021 Unused RTCs (tons)	Unmitigated Breakdown Emissions ¹ (tons)	Remaining Compliance Year 2021 RTCs (tons)
NOx	1,474	0	1,474
SOx	367	0	367

Table 3-4 Breakdown Emission Comparison for Compliance Year 2021

¹ Data for unmitigated breakdown emissions (not counted against Allocation) as reported under APEP reports.

Impact of Changing Universe

In general, changes to the universe of RECLAIM facilities have the potential to impact emissions and the supply and demand of RTCs, and, therefore, may impact RECLAIM emission reduction goals. Facilities exiting the RECLAIM program result in their emissions not being accounted and therefore diminish the demand of RTCs while the facility operator may retain their RTCs.⁵ On the other hand, facilities entering the program add to the accounting of emissions and increase the demand of RTCs while they may or may not be issued Allocations to account for their historical activities.⁶ However, the Board amended Rule 2001 on January 5, 2018, to preclude any facility from entering the RECLAIM program and amended Rule 2001 on July 12, 2019 to remove the opt-out provision so that facilities cannot exit RECLAIM.

As discussed in Chapter 1, during Compliance Year 2021, no facilities were included or excluded from the NOx or SOx universes, and three facilities (allNOx only facilities) shut down. Compliance Year 2021 NOx and SOx audited emissions and initial Compliance Year 2021 allocations for facilities that were shut down during Compliance Year 2021 are summarized in Tables 3-5 and 3-6.

⁵ Rule 2002(i) as amended in October 2016, requires the reduction of the RTC holdings of a shutdown facility that is listed in Tables 7 or 8 of Rule 2002 by an amount equivalent to the emissions above the most stringent BARCT level (see discussion in Chapter 2).

⁶ When an existing facility enters the program, it is issued RTC allocations based on its operational history pursuant to the methodology prescribed in Rule 2002.

Table 3-5	
NOx Emissions Impact from the Changes in Universe (Tor	ns)

Category	Compliance Year 2021 NOx Emissions (tons)	Initial Compliance Year 2021 NOx Allocations (tons)
Shutdown Facilities	0.1	1.2
Excluded Facilities	Not applicable	Not applicable
RECLAIM Universe	5,299	6,773

Table 3-6SOx Emissions Impact from the Changes in Universe (Tons)

Category	Compliance Year 2021 SOx Emissions (tons)	Initial Compliance Year 2021 SOx Allocations (tons)
Shutdown Facilities	Not applicable	Not applicable
Excluded Facilities	Not applicable	Not applicable
RECLAIM Universe	1,846	2,213

Backstop Provisions

Rule 2015 requires that South Coast AQMD review the RECLAIM program and implement necessary measures to amend it whenever aggregate emissions exceed the aggregate allocations by five percent or more. Compliance Year 2021 aggregate NOx and SOx emissions were both below aggregate allocations as shown in Figures 3-1 and 3-2. Therefore, there is no need to initiate a program review due to emissions exceeding aggregate allocation in Compliance Year 2021.

CHAPTER 4 NEW SOURCE REVIEW ACTIVITY

Summary

The annual program audit assesses NSR activity from RECLAIM facilities to ensure that RECLAIM is complying with federal NSR requirements and state no net increase (NNI) in emissions requirements while providing flexibility to facilities in managing their operations and allowing new sources into the program. In Compliance Year 2021, a total of one NOx RECLAIM facility had NSR NOx emission increases, and no SOx RECLAIM facilities had an NSR SOx emission increase due to expansion or modification. Consistent with all prior compliance years, there were sufficient NOx and SOx RTCs available to allow for expansion, modification, and modernization by RECLAIM facilities.

RECLAIM is required to comply with federal NSR emissions offset requirements at a 1.2-to-1 offset ratio programmatically for NOx emission increases and a 1-to-1 offset ratio for SOx emission increases on a programmatic basis. In Compliance Year 2021, RECLAIM demonstrated federal equivalency with a programmatic NOx offset ratio of 169-to-1 based on the compliance year's total unused allocations and total NSR emission increases for NOx. There were no SOx NSR emission increases that resulted from starting operations of new or modified permitted sources during the compliance year. RECLAIM inherently complies with the federally-required 1-to-1 SOx offset ratio for any compliance year, provided aggregate SOx emissions under RECLAIM are lower than or equal to aggregate SOx allocations for that compliance year. As shown in Chapter 3 (Table 3-2 and Figure 3-2), there was a surplus of SOx RTCs during Compliance Year 2021. Therefore, RECLAIM more than complied with the federally-required SOx offset ratio and further quantification of the SOx offset ratio is unnecessary. Also, the NNI requirement is satisfied by the program's 1-to-1 offset ratio. In addition, RECLAIM requires application of, at a minimum, California Best Available Control Technology (BACT), which is at least as stringent as federal Lowest Achievable Emission Rate (LAER) for major sources. The same BACT guidelines are used to determine BACT applicable to RECLAIM and non-RECLAIM facilities.

Background

Emissions increases from the construction of new or modified stationary sources in non-attainment areas are regulated by both federal NSR and state NNI requirements to ensure that progress toward attainment of ambient air quality standards is not hampered. RECLAIM is designed to comply with federal NSR and state NNI requirements without hindering facilities' ability to expand or modify their operations.¹

¹ Federal NSR applies to federal major sources (sources with the potential to emit at least 10 tons of NOx or 70 tons of SOx per year for the South Coast Air Basin) and state NNI requirements apply to all NOx sources and to SOx sources with the potential to emit at least 15 tons per year in the South Coast Air Basin. RECLAIM's NSR provisions apply to all facilities in the program, including those not subject to

Title 42, United States Code Section 7511a, paragraph (e), requires major sources in extreme non-attainment areas to offset emission increases of extreme non-attainment pollutants and their precursors at a 1.5-to-1 ratio based on potential to emit. However, if all major sources in the extreme non-attainment area are required to implement federal BACT, a 1.2-to-1 offset ratio may be used. Federal BACT is comparable to California's BARCT. South Coast AQMD requires all major sources to employ federal BACT/California BARCT at a minimum and, therefore, is eligible for a 1.2-to-1 offset ratio for ozone precursors (*i.e.*, NOx and VOC).

The federal offset requirement for major SO₂ sources is at least a 1-to-1 ratio, which is lower than the aforementioned 1.2-to-1 ratio. Even though the South Coast Air Basin is in attainment with SO₂ standards, SOx is a precursor to PM2.5. This Basin is in Serious Non-attainment with the 2006 Federal 24-hour average standard and 2012 Federal annual standard for PM2.5. The applicable offset ratio for PM2.5 is at least 1-to-1, thus, the applicable offset ratio for SOx is 1-to-1. Health and Safety Code Section 40920.5 requires "no net increase in emissions from new or modified stationary sources of nonattainment pollutants or their precursors" (*i.e.*, a 1-to-1 offset ratio on an actual emissions basis). All actual RECLAIM emissions are offset at a 1-to-1 ratio provided there is not a programmatic exceedance of aggregate allocations, thus satisfying the federal offset ratio for SOx and state NNI requirements for both SOx and NOx. Annual RTC allocations follow a programmatic reduction to reflect changes in federal BACT/California BARCT and thereby comply with federal and state offset requirements.

RECLAIM requires, at a minimum, California BACT for all new or modified sources with increases in hourly potential to emit of RECLAIM pollutants. South Coast AQMD uses the same BACT guidelines in applying BACT to both RECLAIM and non-RECLAIM facilities. Furthermore, BACT for major sources is at least as stringent as LAER (LAER is not applicable to minor facilities as defined in Rule 1302(t)). Thus, RECLAIM complies with both state and federal requirements regarding control technologies for new or modified sources. In addition to offset and BACT requirements, RECLAIM subjects RTC trades that are conducted to mitigate emissions increases over the sum of the facility's starting allocation and non-tradable/non-usable credits to trading zone restrictions to ensure net ambient air quality improvement within the sensitive zone established by Health and Safety Code Section 40410.5. Furthermore, facilities with actual RECLAIM emissions that exceed their initial allocation by 40 tons per year or more are required to analyze the potential impact of their emissions increases through air quality modeling.

Rule 2005 requires RECLAIM facilities to provide (hold), prior to the start of operation, sufficient RTCs to offset the annual increase in potential emissions for the first year of operation at a 1-to-1 ratio. The same rule also requires all new RECLAIM facilities² and all other RECLAIM facilities that increase their annual allocations above the level of their starting allocations plus non-tradable/non-usable credits to provide sufficient RTCs to offset the annual potential emissions

federal NSR or state NNI. (Although the threshold for RECLAIM inclusions is four tons per year of NOx or SOx emissions, some RECLAIM facilities have actual emissions much less than 4 tons per year).

² New facilities are facilities that received all South Coast AQMD Permits to Construct on or after October 15, 1993.

increase from new or modified source(s) at a 1-to-1 ratio at the commencement of each compliance year after the start of operation of the new or modified source(s). Although RECLAIM allows a 1-to-1 offset ratio for emissions increases, RECLAIM complies with the federal 1.2-to-1 offset requirement for NOx on an aggregate basis as explained earlier. This annual program audit report assesses NSR permitting activities for Compliance Year 2021 to verify that programmatic compliance of RECLAIM with federal and state NSR requirements has been maintained.

NSR Activity

Evaluation of NSR data for Compliance Year 2021 shows that RECLAIM facilities were able to expand and modify their operations while complying with NSR requirements. During Compliance Year 2021, a total of one NOx RECLAIM facility (in Cycle 2) was issued permits to operate, which resulted in a total of 8.760 tons per year of NOx emission increases from starting operations of new or modified sources. There were no SOx NSR emission increases that resulted from starting operations of new or modified permitted sources. These emission increases were calculated pursuant to Rule 2005(d) – Emission Increase. As in previous years, there were adequate unused RTCs (NOx: 1,474 tons, SOx: 367 tons; see Chapter 3) in the RECLAIM universe available for use to offset emission increases at the appropriate offset ratios.

NSR Compliance Demonstration

RECLAIM is designed to programmatically comply with the federal NSR offset requirements. Meeting the NSR requirement (offset ratio of 1.2-to-1 for NOx and at least 1-to-1 for SOx) also demonstrates compliance with the state NNI requirements. Section 173 (c) of the federal Clean Air Act (CAA) states that only emissions reductions beyond the requirements of the CAA, such as federal Reasonably Available Control Technology (RACT), shall be considered creditable as emissions reductions for offset purposes. Since the initial allocations (total RTC supply in Compliance Year 1994) already met federal RACT requirements when the program was initially implemented, any emissions reductions beyond the initial allocations are available for NSR offset purposes until RACT becomes more stringent. The programmatic offset ratio calculations presented in the Annual RECLAIM Audit Reports for Compliance Years 1994 through 2004 relied upon aggregate Compliance Year 1994 allocations as representing RACT. However, staff recognizes that RACT may have become more stringent in the intervening years, so that it may no longer be appropriate to calculate the programmatic offset ratio based upon aggregate 1994 allocations.

Aggregate allocations for each compliance year represent federal BACT, which is equivalent to local BARCT. Federal BACT is more stringent than federal RACT (*i.e.*, the best available control technology is more stringent than what is reasonably available), so staff started using current allocations (federal BACT) as a surrogate for RACT as the basis for calculating programmatic NOx and SOx offset ratios in the annual program audit report for Compliance Year 2005 and is continuing to do so for NOx in this report. This is a more conservative (*i.e.*, more stringent) approach than using actual RACT and is much more conservative than using aggregate Compliance Year 1994 allocations. The advantage of this approach is that, as long as the calculated NOx offset ratio is at least 1.2-to-1, it

provides certainty that RECLAIM has complied with federal and state offset requirements without the need to know exactly what RACT is for RECLAIM facilities. However, if this very conservative approach should ever fail to demonstrate that the aggregate NOx offset ratio for any year is at least 1.2-to-1, that will not necessarily mean RECLAIM has not actually complied with the federally-required 1.2-to-1 NOx offset ratio. Rather it will indicate that further analysis is required to accurately identify RACT so that the actual offset ratio can be calculated, and a compliance determination made.

Provided aggregate RECLAIM emissions do not exceed aggregate allocations, all RECLAIM emissions are offset at a ratio of 1-to-1. This leaves all unused allocations available to provide offsets beyond the 1-to-1 ratio for NSR emission increases. Unused allocations are based on all Cycle 1 and Cycle 2 RTCs of a given compliance year and the aggregate RECLAIM emissions for the selected time period. The NSR emission increase is the sum of emission increases due to permit activities at all RECLAIM facilities during the same compliance year. The aggregate potential RECLAIM offset ratios are expressed by the following formula:

Offset Ratio = (1 + <u>compliance year's total unused allocations</u>)-to-1

As stated in the paragraph under the title "NSR Activity", permits to operate issued to one RECLAIM facility resulted in 8.760 tons of NOx emission increase pursuant to Rule 2005(d). Additionally, as identified in Table 3-1 (Annual NOx Emissions for Compliance Years 1994 through 2021), 1,474 tons of Compliance Year 2021 NOx RTCs remained unused. Therefore, the Compliance Year 2021 NOx programmatic offset ratio calculated from this methodology is 169-to-1 as shown below:

NOx Offset Ratio =
$$(1 + \frac{1.474 \text{ tons}}{8.760 \text{ tons}})$$
-to-1
= 169-to-1

RECLAIM continues to generate sufficient excess emission reductions to provide a NOx offset ratio greater than the 1.2-to-1 required by federal law. Since RECLAIM does not dedicate all unused RTCs to NSR uses in any given year, it does not actually provide a 169-to-1 offset ratio; but this analysis does demonstrate that RECLAIM provides more than enough unused RTCs to account for the 1.2-to-1 required offset ratio. This compliance with the federal offset requirements is built into the RECLAIM program through annual reductions of the allocations assigned to RECLAIM facilities and the subsequent allocation adjustments adopted by the Board to implement BARCT. The required offset ratio for SOx is 1-to-1. Since RECLAIM facilities are required to secure, at a minimum, adequate RTCs to cover their actual emissions, the SOx 1-to-1 offset ratio is met automatically provided there is no programmatic exceedance of aggregate SOx allocations for that compliance year. As identified in Table 3-2 (Annual SOx Emissions for Compliance Years 1994 through 2021), there were 367 tons of excess (unused) SOx RTCs for Compliance Year 2021. Since there were no SOx emission increases that resulted from starting operations of new or modified permitted sources during the compliance year, there is certainty that both the federally-required SOx offset ratio and the California NNI requirement for SOx were satisfied.

BACT and modeling are also required for any RECLAIM facility that installs new equipment or modifies sources if the installation or modification results in an increase in emissions of RECLAIM pollutants. Furthermore, the RTC trading zone restrictions in Rule 2005, limit trades conducted to offset emission increases over the sum of the facility's starting allocation and non-tradable/non-usable credits to ensure net ambient air quality improvement within the sensitive zone, as required by state law.

The result of the review of NSR activity in Compliance Year 2021 shows that RECLAIM complies with both state NNI and federal NSR requirements. South Coast AQMD staff will continue to monitor NSR activity under RECLAIM to assure continued progress toward attainment of ambient air quality standards without hampering economic growth in South Coast AQMD.

Modeling Requirements

Rule 2004, as amended in May 2001, requires RECLAIM facilities with actual NOx or SOx emissions exceeding their initial allocation in Compliance Year 1994 by 40 tons per year or more to conduct modeling to analyze the potential impact of the increased emissions. The modeling analysis is required to be submitted within 90 days of the end of the compliance year. For Compliance Year 2021, one RECLAIM facility was subject to the 40-ton modeling requirement for NOx emissions, and no facilities for SOx emissions.

This modeling is performed with an U.S. EPA approved air dispersion model to assess the impact of a facility's NOx or SOx emission increase on compliance with all applicable state and federal ambient air quality standards (AAQS). Air dispersion modeling submitted by each facility is reviewed by staff and revised as necessary to comply with South Coast AQMD's air dispersion modeling procedures including use of appropriate meteorological data for the facility location. Per Rule 2004(q)(3), the modeling submitted by a facility must include source parameters and emissions for every major source located at the facility. For comparison against applicable state and federal AAQS, the predicted modeling impacts due to a facility's NOx or SOx emission increases are added to the highest background NOx or SOx concentration measured at the nearest ambient air monitoring station during the previous three years. Modeling runs are performed with worst-case emissions data for averaging periods that coincide with the averaging period of each applicable AAQS (*e.g.*, 1-hr, 24-hr, annual).

The one facility had initial NOx allocations in 1994 and exceeded their initial allocations by more than 40 tons in Compliance Year 2021. The facility submitted modeling that demonstrated that NOx emissions from their major sources during 2021 will not cause an exceedance of any state or federal NO₂ AAQS.

CHAPTER 5 COMPLIANCE

Summary

Based on South Coast AQMD Compliance Year 2021 audit results, 240 of the 253 NOx RECLAIM facilities (95%) complied with their NOx allocations, and 28 of the 29 SOx facilities (97%) complied with their SOx allocations based on South Coast AQMD audit results. Therefore, 14 facilities exceeded their allocations (13 facilities exceeded their NOx allocations, and one facility exceeded its SOx allocation). The 13 facilities that exceeded their NOx allocations had aggregate NOx emissions of 59.6 tons and did not have adequate allocations to offset 27.7 tons (or 46.5%) of their combined emissions. The facility that exceeded its SOx allocation had SOx emissions of 566.5 tons and did not have adequate allocations to offset 89.8 tons (or 15.9%) of its emissions. The NOx and SOx exceedance amounts are relatively small compared to the overall allocations for Compliance Year 2021 (0.41% of total NOx allocations and 4.1% of total SOx allocations). The exceedances from these facilities did not impact the overall RECLAIM emission reduction goals. The overall RECLAIM NOx and SOx emission reduction targets and goals were met for Compliance Year 2021 (i.e., aggregate emissions for all RECLAIM facilities were below aggregate allocations). Pursuant to Rule 2010(b)(1)(A), all affected facilities had their respective exceedances deducted from their annual allocations for the compliance year subsequent to the date of South Coast AQMD determination that the facilities exceeded their Compliance Year 2021 allocations.

Background

RECLAIM facilities have the flexibility to choose among compliance options to meet their annual allocations by reducing emissions, trading RTCs, or a combination of both. However, this flexibility must be supported by standardized emission MRR requirements to ensure the reported emissions are real, quantifiable, and enforceable. As a result, detailed MRR protocols are specified in the RECLAIM regulation to provide accurate and verifiable emission reports.

The MRR requirements are designed to provide accurate and up-to-date emission reports. Once facilities install and complete certification of the required monitoring and reporting equipment, they are relieved from command-and-control rule limits and requirements subsumed under Rule 2001. Mass emissions from RECLAIM facilities are then determined directly by monitoring and reporting equipment for some sources and from data generated by monitoring equipment for others. If monitoring equipment fails to produce quality-assured data or the facility fails to file timely emissions reports, RECLAIM rules require emissions be determined by a rule-prescribed methodology known as Missing Data Procedures or "MDP." Depending on past performance of the monitoring equipment (*i.e.*, availability of quality-assured data) and the duration of the missing data period, MDP use a tiered approach to calculate emissions. As availability of quality-assured data increases, the MDP-calculated emissions become more representative of the actual emissions, but when the availability of quality-assured data is low, MDP calculations become more conservative and approach, to some extent, "worst case" assessments.

Allocation Compliance

Requirements

At the beginning of the RECLAIM program in 1994 or at the time a facility is subsequently included in the RECLAIM program, each RECLAIM facility is issued an annual allocation for each compliance year pursuant to the methodology prescribed in Rule 2002. A facility in existence prior to October 1993 is issued allocations by South Coast AQMD based on its historical production rate. A facility without an operating history prior to 1994 receives no allocation and must purchase enough RTCs to cover the emissions for their operations, except facilities that have ERCs to offset emission increases prior to entering RECLAIM are issued RTCs generated by converting the surrendered ERCs to RTCs. Additionally, all facilities entering RECLAIM holding any ERCs generated at and held by the individual facility itself have those ERCs converted to RTCs and added to their allocated RTCs. Knowing their emission goals, RECLAIM facilities have the flexibility to manage their emissions in order to meet their allocations in the most cost-effective manner. Facilities may employ emission control technology or process changes to reduce emissions, buy RTCs, or sell unneeded RTCs.

Facilities may buy RTCs or sell excess RTCs at any time during the year in order to ensure that their emissions are covered. There is a thirty-day reconciliation period commencing at the end of each of the first three quarters of each compliance year. In addition, after the end of each compliance year, there is a 60-day reconciliation period (instead of 30 days as at the end of the first three quarters) during which facilities have a final opportunity to buy or sell RTCs for that compliance year. These reconciliation periods are provided for facilities to review and correct their emission reports as well as securing adequate allocations. Each RECLAIM facility must hold sufficient RTCs in its allocation account to cover (or reconcile with) its quarterly as well as year-to-date emissions for the compliance year at the end of each reconciliation period. By the end of each quarterly and annual reconciliation period, each facility is required to certify the emissions for the preceding quarter and/or compliance year by submitting its Quarterly Certification of Emissions Reports (QCERs) and/or APEP report, respectively.

Compliance Audit

Since the beginning of the program, South Coast AQMD staff has conducted annual audits of each RECLAIM facility's emission reports to ensure their integrity and reliability. All facilities that submitted emission reports during a compliance year are subject to compliance audits, even for those that are shutdown or have a change of operator. This results in additional facility audits over the number of active facilities in the universe at the end of a compliance year. For Compliance Year 2021, a total of 253 facility audits were completed. The audit process also includes conducting field inspections to check process equipment, monitoring devices, and operational records. Additionally, emissions calculations are performed in order to verify emissions reported electronically to South Coast AQMD or submitted in QCERs and APEP reports. For Compliance Year 2021, these inspections revealed that some facilities did not obtain or record valid monitoring data, failed to submit emission reports when due, made errors in quantifying their emissions (*e.g.*, arithmetic errors), used incorrect emission and adjustment factors (*e.g.*, bias adjustment factors), failed to correct fuel usage to standard conditions, used emission calculation methodologies not allowed under the rules, or failed to properly apply MDP. Appropriate compliance actions are taken based on audit findings.

Whenever an audit revealed a facility's emissions to be in excess of its annual allocation, the facility was provided an opportunity to review the audit and to present additional data to further refine audit results. This extensive and rigorous audit process ensures valid and reliable emissions data.

Compliance Status

During this compliance year, a total of 14 RECLAIM facilities failed to reconcile their emissions (13 facilities that exceeded their NOx Allocations and one facility that exceeded its SOx allocations). Seven of these 14 facilities failed to acquire adequate RTCs to offset their reported emissions, in addition to their audited emissions. The remaining seven facilities exceeded allocations based on their audited emissions only. The list of facilities that failed to reconcile their emissions during Compliance Year 2021 is provided in Appendix D.

Based on audit findings, eight facilities were found to have under-reported their NOx emissions and didn't hold sufficient NOx RTCs to reconcile their audited emissions. Among the eight facilities found to have under-reported their emissions, the reasons for the under-reporting include one or more of the following causes:

- use of incorrect emission calculation method,
- use of incorrect emission factor, brake horsepower (BHP), or operating time in emission calculation,
- failed to report emissions for all NOx sources, and
- failed to properly apply missing data procedures.

Overall, the Compliance Year 2021 allocation compliance rates for facilities are 95 percent (240 out of 253 facilities) for NOx RECLAIM and 97 percent (28 out of 29 facilities) for SOx RECLAIM.¹ For purposes of comparison, the allocation compliance rates for Compliance Year 2020 were 93 percent and 100 percent for NOx and SOx RECLAIM facilities, respectively. In Compliance Year 2021, the 13 facilities that had NOx emissions in excess of their individual NOx allocations had 59.6 tons of NOx emissions and didn't have adequate RTCs to cover 27.7 tons of those tons (or 46.5% of their total emissions). The NOx exceedance amounts are relatively small compared to the overall allocations for Compliance Year 2021 (0.41% of aggregate NOx allocation). The facility that had SOx emissions in excess of its individual SOx allocation (see Chapter 7) had 566.5 tons of SOx emissions and didn't have adequate RTCs to cover 89.8 tons of those tons (or 15.9% of its total emissions). The SOx exceedance amount is also relatively small compared to the overall allocations for Compliance Year 2021 (4.1% of

¹ Compliance rates for both NOx and SOx are based on 253 NOx and 29 SOx completed audits, respectively.

aggregate SOx allocations). Pursuant to Rule 2010(b)(1)(A), all affected facilities had their NOx and SOx Allocation exceedance deducted from their annual emissions allocations for the compliance year subsequent to South Coast AQMD's determination that the facilities exceeded their Compliance Year 2021 allocations.

Impact of Missing Data Procedures

MDP was designed to provide a method for determining emissions when an emission monitoring system does not yield valid emissions. For major sources, these occurrences may be caused by failure of the monitoring systems, the data acquisition and handling systems, or by lapses in the Continuous Emissions Monitoring System (CEMS) certification period. Major sources are also required to use MDP for determining emissions whenever daily emissions reports are not submitted by the applicable deadline. When comparing actual emissions with a facility's use of substituted MDP emissions, the range of MDP emissions can vary from "more representative" to being overstated to reflect a "worst case"² scenario. For instance, an MDP "worst case" scenario may occur for major sources that fail to have their CEMS certified in a timely manner, and therefore, have no valid CEMS data that can be used for substitution. In other cases, where prior CEMS data is available. MDP is applied in tiers depending on the duration of missing data periods and the historical availability of monitoring systems. As the duration of missing data periods gets shorter and the historical availability of monitoring systems gets higher, the substitute data yielded by MDP becomes more representative of actual emissions.³

In addition to MDP for major sources, RECLAIM rules also define MDP for large sources and process units. These procedures are applicable when a process monitoring device fails or when a facility operator fails to record fuel usage or other monitored data (*e.g.*, hours of operation). The resulting MDP emissions reports are reasonably representative of the actual emissions because averaged or maximum emissions from previous operating periods may be used. However, for extended missing data periods (more than two months for large sources or four quarters or more for process units) or when emissions data for the preceding year are unavailable, large source and process unit MDP are also based on maximum operation or worst-case assumptions.

Based on APEP reports, 77 NOx facilities and 15 SOx facilities used MDP in reporting portions of their annual emissions during Compliance Year 2021. In terms of mass emissions, 4.0 percent of the total reported NOx emissions and 5.8 percent of the total reported SOx emissions in the APEP reports were calculated using MDP for Compliance Year 2021. Table 5-1 compares the impact of MDP on reported annual emissions for the last few compliance years to the second compliance year, 1995 (MDP was not fully implemented during Compliance Year 1994).

² Based on uncontrolled emission factor at maximum rated capacity of the source and 24 hours per day operation.

³ Based on averaged emissions during periods before and after the period for which data is not available.

Table 5-1MDP Impact on Annual Emissions

Year	Percent of Reported Emissions Using Substitute Data*		
	NOx	SOx	
1995	23.0% (65 ; 6,070)	40.0% (12 ; 3,403)	
2010	7.0% (93 ; 488)	6.1% (23 ; 168)	
2011	6.2% (94 ; 435)	12.4% (19 ; 328)	
2012	7.5% (95 ; 560)	4.5% (13 ; 114)	
2013	3.9% (107 ; 287)	5.6% (15 ; 113)	
2014	3.3% (97 ; 247)	3.0% (13 ; 66)	
2015	6.9% (98 ; 502)	10.9% (14 ; 229)	
2016	3.9% (91 ; 288)	6.2% (14 ; 125)	
2017	3.8% (92 ; 273)	6.3% (15 ; 126)	
2018	3.7% (90 ; 252)	7.0% (16 ; 150)	
2019	5.4% (93 ; 343)	9.5% (16 ; 161)	
2020	3.3% (89 ; 184)	6.6% (15 ; 93)	
2021	4.0% (77 ; 207)	5.8% (15 ; 95)	

* Numbers in parentheses that are separated by a semicolon represent the number of facilities that reported use of MDP in each compliance year and tons of emissions based on MDP.

Most of the issues associated with CEMS certifications were resolved prior to Compliance Year 1999. Since then, very few facilities have had to submit emissions reports based on the worst-case scenario under MDP, which may considerably overstate the actual emissions from major sources. As an example, most facilities that reported emissions using MDP in 1995 did so because they did not have their CEMS certified in time to report actual emissions. Since their CEMS had no prior data, MDP called for an application of the most conservative procedure to calculate substitute data by assuming continuous uncontrolled operation at the maximum rated capacity of the facility's equipment, regardless of the actual operational level during the missing data periods. As a result, the calculations yielded substitute data that may have been much higher than the actual emissions. In comparison to the 65 NOx facilities implementing MDP in Compliance Year 1995, 77 facilities reported NOx emissions using MDP in Compliance Year 2021. Even though the number of facilities is higher than in 1995, the percentage of emissions reported using MDP during Compliance Year 2021 is much lower than it was in 1995 (4% compared to 23%). Additionally, in terms of quantity, NOx emissions determined by the use of MDP in Compliance Year 2021 were about three percent of those in Compliance Year 1995 (207 tons compared to 6,070 tons). Since most CEMS were certified and had been reporting actual emissions by the beginning of Compliance Year 2000, facilities that had to calculate substitute data were able to apply less conservative methods of calculating MDP for systems with high availability and shorter duration missing data periods. Therefore, the substitute data they calculated for their missing data periods were more likely to be representative of the actual emissions.

It is important to note that portions of annual emissions attributed to MDP include actual emissions from the sources as well as the possibility of overestimated emissions. As shown in Table 5-1, approximately four percent of reported NOx annual emissions were calculated using MDP in Compliance Year 2021. MDP may significantly overestimate emissions from some of the sources that operate intermittently and have low monitoring system availability, and/or lengthy missing data periods. Even though a portion of the four percent may be overestimated emissions due to conservative MDP, a significant portion (or possibly all) of it could have also been actual emissions from the sources. Unfortunately, the portion that represents the actual emissions cannot be readily estimated because the extent of this effect varies widely, depending on source categories and operating parameters, as well as the tier of MDP applied. For Compliance Year 2021, a significant portion of NOx MDP emissions data (73%) and of SOx MDP emissions data (92%) were reported by refineries, which tend to operate near maximum capacity for 24 hours per day and seven days per week, except for scheduled shutdowns for maintenance and barring major breakdowns or other unforeseeable circumstances. Missing data emissions calculated using the lower tiers of MDP (i.e., 1N Procedure or 30-day maximum value) for facilities such as refineries that have relatively constant operation near their maximum operation are generally reflective of actual emissions because peak values are close to average values for these operations.

Emissions Monitoring

Overview

The reproducibility of reported RECLAIM facility emissions (and the underlying calculations)—and thereby the enforceability of the RECLAIM program—is assured through a tiered hierarchy of MRR requirements. A facility's equipment falls into an MRR category based on the kind of equipment it is and on the level of emissions produced or potentially produced by the equipment. RECLAIM divides all NOx sources into major sources, large sources, process units, and equipment exempt from obtaining a written permit pursuant to Rule 219. All SOx sources are divided into major sources, process units, and equipment exempt from obtaining a written permit pursuant to Rule 219. Table 5-2 shows the monitoring requirements applicable to each of these categories.

Table 5-2	
Monitoring Requ	irements for RECLAIM Sources

Source Category	Major Sources (NOx and SOx)	Large Sources (NOx only)	Process Units and Rule 219 Equipment (NOx and SOx)
Monitoring Method	Continuous Emissions Monitoring System (CEMS) or Alternative CEMS (ACEMS)	Fuel Meter or Continuous Process Monitoring System (CPMS)	Fuel Meter, Timer, or CPMS
Reporting Frequency	Daily	Monthly	Quarterly

Continuous Emissions Monitoring System (CEMS)

Requirements

CEMS represent both the most accurate and the most reliable method of calculating emissions because they continuously monitor all of the parameters necessary to directly determine mass emissions of NOx and SOx. They are also the most costly method. These attributes make CEMS the most appropriate method for the largest emission-potential equipment in the RECLAIM universe, major sources.

Alternative Continuous Emissions Monitoring Systems (ACEMS) are alternatives to CEMS that are allowed under the RECLAIM regulation. These are devices that do not directly monitor NOx or SOx mass emissions; instead, they correlate multiple process parameters to arrive at mass emissions. To be approved for RECLAIM MRR purposes, ACEMS must be determined by South Coast AQMD to be equivalent to CEMS in relative accuracy, reliability, reproducibility, and timeliness.

For Compliance Year 2021, even though the number of major sources monitored by either CEMS or ACEMS represent 18 percent and 67 percent of all permitted RECLAIM NOx and SOx sources, respectively, reported emissions revealed that 79 percent of all RECLAIM NOx emissions and 98 percent of all RECLAIM SOx emissions were determined by CEMS or ACEMS.

Compliance Status

By the end of calendar year 1999, almost all facilities that were required to have CEMS had their CEMS certified or provisionally approved. The only remaining uncertified CEMS are for sources that recently became subject to major source reporting requirements and sources that modified their CEMS. Typically, there will be a few new major sources each year. Therefore, there will continue to be a small number of CEMS in the certification process at any time.

Semiannual and Annual Assessments of CEMS

RECLAIM facilities conduct their Relative Accuracy Test Audit (RATA) of certified CEMS using private sector testing laboratories approved under South Coast
AQMD's Laboratory Approval Program (LAP). These tests are conducted either semiannually or annually, depending on the most recent relative accuracy value (the sum of the average differences and the confidence coefficient) for each source. The interval is annual only when all required relative accuracies obtained during an audit are 7.5 percent or less (*i.e.*, more accurate).

To verify the quality of CEMS, the RATA report compares the CEMS data against data taken simultaneously, according to approved testing methods (also known as reference methods), by a LAP-approved source testing contractor. In order to have a passing RATA, each of the following relative accuracy performance criteria must be met: The relative accuracy of the CEMS results relative to the reference method results must be within ±20 percent for pollutant concentration, ±15 percent for stack flow rate, and ±20 percent for pollutant mass emission rate. In addition, the RATAs reveal whether CEMS data must be adjusted for low readings compared to the reference method (bias adjustment factor), and by how much. The RATA presents two pieces of data: 1) the CEMS bias (how much it differs from the reference method on the average), and 2) the CEMS confidence coefficient (how variable that bias or average difference is).

Tables 5-3 and 5-4 summarize the 2021 and 2022 calendar years' passing rates, respectively, for submitted RATAs of certified CEMS for NOx and SOx concentration, total sulfur in fuel gas concentrations, stack flow rate (in-stack monitors and F-factor based calculations), and NOx and SOx mass emissions. However, the tables do not include SOx mass emissions calculated from total sulfur analyzer systems because such systems serve numerous devices, and therefore are not suitable for mass emissions-based RATA testing. As noted in the footnotes for each table, the calendar year 2021 and 2022 passing rates are calculated from RATA data submitted before January 14, 2022, and January 13, 2023, respectively, and may exclude some RATA data from the fourth quarter of each year.

Table 5-3Passing Rates Based on RATAs of Certified CEMS in 20211

Concentration					Stack Flow Rate				Mass Emissions				
NOx		SO ₂		Total ² In-S Sulfur Mo		In-S Mo	Stack nitor	ck F-Factor or Based Calc.		r NOx		S	Ox³
No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass
462	100	139	100	20	100	42	100	471	100	439	100	136	100

¹ The calculation of passing rates includes all RATAs submitted by January 14, 2022.

² Includes Cylinder Gas Audit (CGA) tests.

³ Does not include SOx emissions calculated from total sulfur analyzers.

Concentration				Stack Flow Rate				Mass Emissions					
NOx SO ₂		O 2	Total ² Sulfur		In-Stack Monitor		F-Factor Based Calc.		NOx		so	⊃x³	
No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass
416	100	127	100	20	100	38	100	451	100	381	100	107	100

Table 5-4Passing Rates Based on RATAs of Certified CEMS in 20221

¹ The calculation of passing includes all RATAs submitted by January 13, 2023.

² Includes Cylinder Gas Audit (CGA) tests.

³ Does not include SOx emissions calculated from total sulfur analyzers.

As indicated in Tables 5-3 and 5-4, the passing rates for NOx/SO₂ concentration, stack flow rate, and mass emissions were at or near 100 percent Since the inception of RECLAIM there have been significant improvements with respect to the availability of reliable calibration gas, the reliability of the reference method, and an understanding of the factors that influence valid total sulfur analyzer data.

Electronic Data Reporting of RATA Results

Facilities operating CEMS under RECLAIM are required to submit RATA results to South Coast AQMD. An electronic reporting system, known as Electronic Data Reporting (EDR), allows RATA results to be submitted electronically using a standardized format in lieu of the traditional formal source test reports in paper form. This system minimizes the amount of material the facility must submit to South Coast AQMD and also expedites reviews. In calendar year 2022, 99 percent of RATA results were submitted via EDR.

Non-Major Source Monitoring, Reporting, and Recordkeeping

Emissions quantified for large sources are primarily based on concentration limits or emission rates specified in the Facility Permit. Other variables used in the calculation of large source emissions are dependent on the specific process of the equipment, but generally include fuel usage, applicable dry F-factor, and the higher heating value of the fuel used, which are collectively used to calculate stack flow rate. RECLAIM requires large sources to be source tested within defined three-year windows in order to validate fuel meter accuracy and the equipment's concentration limit or emission rate. Since emissions quantification is fuel-based, the monitoring equipment required to quantify emissions is a nonresettable fuel meter that must be corrected to standard temperature and pressure. Large source emission data must be submitted electronically on a monthly basis.

Process unit emission calculations are similar to those of large sources in that emissions are quantified using the fuel-based calculations for either a concentration limit or an emission factor specified in the Facility Permit. Similar to large sources, variables used in emission calculations for process units are dependent on the equipment's specific process, but generally include fuel usage, applicable dry F-factor, and the higher heating value of the fuel used. Process units that are permitted with concentration limits are also required to be sourcetested, but within specified five-year windows rather than three-year windows. Emissions for equipment exempt from obtaining a written permit pursuant to Rule 219 are quantified using emission factors and fuel usage. No source testing is required for such exempt equipment. Since emissions calculations are fuel-based for both process units and exempt equipment, the monitoring equipment required to quantify emissions is a non-resettable fuel meter, corrected to standard temperature and pressure. Alternately, a timer may be used to record operational time. In such cases, fuel usage is determined based on maximum rated capacity of the source. Process units and exempt equipment must submit emission reports electronically on a quarterly basis.

Emissions Reporting

Requirements

RECLAIM uses electronic reporting technology to streamline reporting requirements for both facilities and South Coast AQMD, and to help automate compliance tracking. Under RECLAIM, facilities report their emissions electronically on a per device basis to South Coast AQMD's Central Station computer as follows:

- Major sources must use a Remote Terminal Unit (RTU) to telecommunicate emission data to South Coast AQMD's Central Station. The RTU collects data, performs calculations, generates the appropriate data files, and transmits the data to the Central Station. This entire process is required to be performed by the RTU on a daily basis without human intervention.
- Emission data for all equipment other than major sources may be transmitted via RTU or compiled manually and transmitted to the Central Station via modem. Alternatively, operators of non-major sources may use South Coast AQMD's internet-based application, Web Access To Electronic Reporting System (WATERS) to transmit emission data for non-major sources via internet connection. The data may be transmitted directly by the facility or through a third party.

Compliance Status

The main concern for emission reporting is the timely submittal of accurate daily emissions reports from major sources. If daily reports are not submitted by the specified deadlines, RECLAIM rules may require that emissions from CEMS be ignored and the emissions be calculated using MDP. Daily emission reports are submitted by the RTU of the CEMS to South Coast AQMD's Central Station via telephone lines. Often communication errors between the two points are not readily detectable by facility operators. Undetected errors can cause facility operators to believe that daily reports were submitted when they were not received by the Central Station. In addition to providing operators a means to confirm the receipt of their reports, the WATERS application can also display electronic reports that were submitted to, and received by, the Central Station. This system helps reduce instances where MDP must be used for late or missing daily reports, because the operators can verify that the Central Station received their daily reports and can resubmit them if there were communication errors.

Protocol Review

Even though review of MRR protocols was only required by Rule 2015(b)(1) for the first three compliance years of the RECLAIM program, staff continues to review the effectiveness of enforcement and MRR protocols. Based on such review, occasional revisions to the protocols may be needed to achieve improved measurement and enforcement of RECLAIM emission reductions, while minimizing administrative costs to RECLAIM facilities and South Coast AQMD.

Since the RECLAIM program was adopted, staff has produced rule interpretations and implementation guidance documents to clarify and resolve specific concerns about the protocols raised by RECLAIM participants or observed by South Coast AQMD staff. In situations where staff could not interpret existing rule requirements to adequately address the issues at hand, the protocols and/or rules have been amended.

CHAPTER 6 REPORTED JOB IMPACTS

Summary

This chapter compiles data as reported by RECLAIM facilities in their APEP reports. The analysis focuses exclusively on job impacts at RECLAIM facilities and determining if those job impacts were directly attributable to RECLAIM as reported by those facilities. Additional benefits to the local economy (e.g., generating jobs for consulting firms, source testing firms and CEMS vendors) attributable to the RECLAIM program, as well as factors outside of RECLAIM (e.g., the prevailing economic climate), impact the job market. However, these factors are not evaluated in this report. Also, job losses and job gains are strictly based on RECLAIM facilities' reported information. South Coast AQMD staff is not able to independently verify the accuracy of the facility reported job impact information.

According to the Compliance Year 2021 employment survey data gathered from APEP reports, RECLAIM facilities reported a net loss of 1,381 jobs, representing 1.70 percent of their total employment. No RECLAIM facility cited RECLAIM as a factor contributing to the addition of any jobs during Compliance Year 2021. No facility reported job losses due to RECLAIM, during Compliance Year 2021.

Background

The APEP reports submitted by RECLAIM facilities include survey forms that are used to evaluate the socioeconomic impacts of the program. Facilities were asked to indicate the number of jobs at the beginning of Compliance Year 2021 and any changes in the number of jobs that took place during the compliance year in each of three categories: manufacturing, sale of products, and non-manufacturing. The numbers of jobs gained and lost reported by facilities in each category during the compliance year were tabulated.

Additionally, APEP reports ask facilities that shut down during Compliance Year 2021 to provide the reasons for their closure. APEP reports also allow facilities to indicate whether the RECLAIM program led to the creation or elimination of jobs during Compliance Year 2021.

Since data regarding job impacts and facility shutdowns are derived from the APEP reports, the submittal of these reports is essential to assessing the influence that the RECLAIM program has on these issues. The following discussion represents data obtained from APEP reports submitted to South Coast AQMD for Compliance Year 2021 and clarifying information collected by South Coast AQMD staff. South Coast AQMD staff is not able to verify the accuracy of the reported job impact information.

Job Impacts

Table 6-1 summarizes job impact data gathered from Compliance Year 2021 APEP reports and follow-up contacts with facilities. A total of 110 facilities reported 7,713 job gains, and 180 facilities reported a total of 9,094 job losses. Net job gains were reported in the manufacturing category (966). Net job losses were reported in the final two categories: sales of products (21), and nonmanufacturing (2,326). Table 6-1 shows a total net loss of 1,381 jobs, which represents a net decrease of 1.70 percent at RECLAIM facilities during Compliance Year 2021.

Table 6-1	
Job Impacts at RECLAIM Facilities for Compliance	(ear 2021

Description	Manufacturing	Sales of Products	Non- Manufacturing	Total*
Initial Jobs	37,937	576	42,499	81,012
Overall Job Gain	3,642	29	4,042	7,713
Overall Job Loss	2,676	50	6,368	9,094
Final Jobs	38,903	555	40,173	79,631
Net Job Change	966	-21	-2,326	-1,381
Percent (%) Job Change	2.55%	-3.65%	-5.47%	-1.70%
Facilities Reporting Job Gains	76	13	73	110
Facilities Reporting Job Losses	91	20	76	180

The total number of facilities reporting job gains or losses does not equal the sum of the number of facilities reporting job changes in each category (*i.e.*, the manufacture, sales of products, and non-manufacture categories) due to the fact that some facilities may report changes under more than one of these categories.

Data for two of the three RECLAIM facilities that ceased operations in Compliance Year 2021, as listed in Appendix C, are included in Table 6-1. One facility shut down to move production to other facilities in their network. The remaining two facilities that ceased operations cited financial reasons for their closures: one facility declared bankruptcy; and the other stated that manufacturing, production or raw material costs were too high. According to their APEP reports, the shutdown of these three facilities led to a total loss of 63 jobs (57 manufacturing jobs, 0 sales jobs, and 6 non-manufacturing jobs).

No RECLAIM facilities attributed job gains or losses to RECLAIM for Compliance Year 2021.

The analysis in this report only considers job gains and losses at RECLAIM facilities. It should be noted that this analysis of socioeconomic impacts based on APEP reports and follow-up interviews is focused exclusively on changes in employment that occurred at RECLAIM facilities. The effect of the program on the local economy outside of RECLAIM facilities, including consulting and source testing jobs, is not considered.

It is not possible to compare the impact of the RECLAIM program on the job market *vis-à-vis* a scenario without RECLAIM. This is because factors other than RECLAIM (*e.g.*, the prevailing economic climate) also impact the job market.

Furthermore, there is no way to directly compare job impacts attributed to RECLAIM to job impacts attributed to command-and-control rules that would have been adopted in RECLAIM's absence, because these command-and-control rules do not exist for these facilities. As mentioned previously, the effect of the RECLAIM program on the local economy outside of RECLAIM facilities (*e.g.*, generating jobs for consulting firms, source testing firms and CEMS vendors) is also not considered in this report.

CHAPTER 7 AIR QUALITY AND PUBLIC HEALTH IMPACTS

Summary

Audited RECLAIM emissions have been in an overall downward trend since the program's inception. Compliance Year 2021 NOx and SOx emissions decreased four percent and increased 29 percent, respectively, relative to Compliance Year 2020. Quarterly calendar year 2021 NOx emissions fluctuated within three percent of the mean NOx emissions for the year. Quarterly calendar year 2021 SOx emissions fluctuated within 24 percent of the year's mean SOx emissions. There was no significant shift in seasonal emissions from the winter season to the summer season for either pollutant; however, SOx emission trends differed slightly in comparison to previous calendar years with fourth quarter emissions continuing an upward trend, unlike previous calendar years.

The California Clean Air Act (CCAA) required a 50 percent reduction in population exposure to ozone, relative to a baseline averaged over three years (1986 through 1988), by December 31, 2000. The South Coast Air Basin achieved the December 2000 target for ozone well before the deadline. In calendar year 2022, the per capita exposure to ozone (the average length of time each person is exposed) continued to be well below the target set for December 2000.

Air toxic health risk is primarily caused by emissions of certain volatile organic compounds (VOCs) and fine particulates, such as metals. RECLAIM facilities are subject to the same air toxic, VOC, and particulate matter regulations as other sources in the Basin. All sources are subject, where applicable, to the NSR rule for toxics (Rule 1401 – New Source Review of Toxic Air Contaminants). In addition, new or modified sources with NOx or SOx emission increases are required to be equipped with BACT, which minimizes to the extent feasible the increase of NOx and SOx emissions. RECLAIM and non-RECLAIM facilities that emit air toxics are required to report those emissions to South Coast AQMD. Those emissions reports are used to identify candidates for the Air Toxics Hot Spots program (AB2588). This program requires emission inventories and. depending on the type and amount of emissions, facilities may be required to do public notice and/or prepare and implement a plan to reduce emissions. There is no evidence that RECLAIM has caused or allowed higher health risks from air toxics in areas adjacent to RECLAIM facilities, than would occur under command-and-control, because RECLAIM facilities must comply with the same air toxics rules as non-RECLAIM facilities.

Background

RECLAIM is designed to achieve the same, or higher level of, air quality and public health benefits as would have been achieved from implementation of the control measures and command-and-control rules that RECLAIM subsumed. Therefore, as a part of each annual program audit, South Coast AQMD staff evaluates per capita exposure to air pollution, air toxic risk reductions, emission trends, and seasonal fluctuations in emissions. South Coast AQMD staff also generates quarterly emissions maps depicting the geographic distribution of RECLAIM emissions. These maps are generated and posted quarterly on South Coast AQMD's website,¹ and include all the quarterly emissions maps presented in previous annual program audit reports. This chapter addresses:

- Emission trends for RECLAIM facilities;
- Seasonal fluctuations in emissions;
- Per capita exposure to air pollution; and
- Toxics impacts.

Emission Trends for RECLAIM Sources

Concerns were expressed during program development that RECLAIM might cause sources to increase their aggregate emissions during the early years of the program due to perceived over-allocation of emissions. As depicted in Figures 7-1 and 7-2, which show NOx and SOx emissions from RECLAIM sources since 1989, the analysis of emissions from RECLAIM sources indicates that overall, RECLAIM emissions have been in a downward trend since program inception, and the emission increases during early years of RECLAIM that were anticipated by some did not materialize.

Figure 7-1 NOx Emission Trend for RECLAIM Sources



Note: 1989-1993 emissions presented in this figure are the emissions from the facilities in the 1994 NOx universe.

¹ Quarterly emission maps from 1994 to present can be found at: <u>http://www.aqmd.gov/home/programs/business/about-reclaim/quarterly-emission-maps.</u>



Figure 7-2 SOx Emission Trend for RECLAIM Sources

Note: 1989-1993 emissions presented in this figure are the emissions from the facilities in the 1994 SOx universe.

NOx emissions decreased every year from Compliance Year 1995 through Compliance Year 2010. Annual NOx emissions remained within a narrow range (7,246 tons to 7,691 tons annually) between Compliance Years 2011 and 2017. A trend of reduced NOx emissions is seen for the past four compliance years. Compliance Year 2021 NOx emissions were more than 1,900 tons below this range at 5,299 tons. Since Compliance Year 1995, annual SOx emissions have also followed a general downward trend. Annual SOx emissions steadily declined between Compliance Years 2007 and 2013 and remained within a narrow range between Compliance Year 2013 and 2018 (between 2,024 tons and 2,176 tons) and continued decreasing significantly during Compliance Years 2019 and 2020, hitting a record low of 1,436 tons in Compliance Year 2020. However, in Compliance Year 2021, SOx emissions increased by 29 percent, to 1,846 tons. The increase in SOx emissions in Compliance Year 2021, in comparison to Compliance Year 2020, can be partially attributed to a significant rise in substituted SOx emissions due to an extended CEMS failure, in addition to increased industrial activity and a recovering economy following a rollback of Covid-19 related restrictions. As discussed in Chapter 3, NOx and SOx emissions are much lower than the programmatic goals (see Figures 3-1 and 3-2).

The increase in NOx and SOx emissions from Compliance Year 1994 to 1995 can be attributed to the application of MDP at the onset of RECLAIM implementation. RECLAIM provides for emissions from each major source's first year in the program to be quantified using an emission factor and fuel throughput (interim reporting) while they certify their CEMS. However, at the beginning of the program (Compliance Year 1994), many facilities had difficulties certifying their CEMS within this time frame, and consequently reported their Compliance Year 1995 emissions using MDP. As discussed in Chapter 5, since CEMS for these major sources had no prior data, MDP required the application of the most conservative procedure to calculate substitute data. As a result, the application of MDP during this time period yielded substitute data that may have been much higher than the actual emissions. In addition, emissions after Compliance Year 1995 decreased steadily through 2000. Thus, RECLAIM facilities did not increase their actual aggregate emissions during the early years of the program.

Seasonal Fluctuation in Emissions for RECLAIM Sources

Another concern during program development was that RECLAIM might cause facilities to shift emissions from the winter season into the summer ozone season and exacerbate poor summer air quality since RECLAIM emission goals are structured on an annual basis. To address this concern, "seasonal fluctuations" were added as part of the analysis required by Rule 2015. Accordingly, South Coast AQMD staff performed a two-part analysis of the quarterly variation in RECLAIM emissions:

- In the first part, staff qualitatively compared the quarterly variation in Compliance Year 2021 RECLAIM emissions to the quarterly variation in emissions from the RECLAIM universe prior to the implementation of RECLAIM.
- 2. In the second part, staff analyzed quarterly audited emissions during calendar year 2021 and compared them with quarterly audited emissions for prior years to assess if there had been such a shift in emissions. This analysis is reflected in Figures 7-3 through 7-6.²

Quarterly emissions data from the facilities in RECLAIM before they were in the program is not available. Therefore, a quantitative comparison of the seasonal variation of emissions from these facilities while operating under RECLAIM with their seasonal emissions variation prior to RECLAIM is not feasible. However, a qualitative comparison has been conducted, as follows:

- NOx emissions from RECLAIM facilities are dominated by refineries and power plants.
- SOx emissions from RECLAIM facilities are dominated by refineries.
- Prior to RECLAIM, refinery production was generally highest in the summer months because more people travel during summer, thus increasing demand for gasoline and other transportation fuels.
- Electricity generation prior to RECLAIM was generally highest in the summer months because of increased demand for electricity to drive air conditioning units.

Historically, emissions from refineries (NOx and SOx) and from power plants (NOx) are typically higher in the summer months, which was the trend prior to implementation of RECLAIM for the reasons described above. Therefore, provided a year's summer quarter RECLAIM emissions do not exceed that year's quarterly average emissions by a substantial amount, it can be concluded that,

² Data used to generate these figures were derived from audited data. Similar figures for calendar years 1994 through 2007 in previous annual reports were generated from a combination of audited and reported data available at the time the reports were written.

for that year, RECLAIM has not resulted in a shift of emissions to the summer months relative to the pre-RECLAIM emission pattern.

Figure 7-3 shows the 2021 mean quarterly NOx emission level, which is the average of the aggregate audited emissions for each of the four quarters, and the 2021 audited quarterly emissions. Figure 7-4 compares the 2021 quarterly NOx emissions with the quarterly emissions from 2010 through 2020. During calendar year 2021, quarterly NOx emissions varied from three percent below the mean in the first quarter (January through March) to about three percent above the mean in the third quarter (July through September). Figure 7-4 shows that the calendar year 2021 quarterly emissions profile is roughly consistent with previous years under RECLAIM, albeit with reduced NOx emissions. Figures 7-3 and 7-4, along with the qualitative analysis performed above show that in calendar year 2021 there has not been a significant shift in NOx emissions from the winter months to the summer months.

Figure 7-3 Calendar Year 2021 NOx Quarterly Emissions





Figure 7-4 Quarterly NOx Emissions from Calendar Years 2010 through 2021

Similar to Figure 7-3 and 7-4 for NOx guarterly emissions. Figure 7-5 presents the 2021 mean quarterly SOx emissions and the 2021 audited quarterly emissions, while Figure 7-6 compares the 2021 quarterly SOx emissions with the quarterly emissions from 2010 through 2020. Figure 7-5 shows that quarterly SOx emissions during calendar year 2021 varied from 23 percent below the mean in the first guarter (January through March) to about 24 percent above the mean in the fourth guarter (October through December). Figure 7-6 shows that the calendar year 2021 guarterly emissions profile is roughly consistent with previous years under RECLAIM. In the fourth quarter of calendar year 2021, SOx emissions increased relative to prior years due to the required application of conservative data substitution from an extended CEMS failure. This data substitution likely over-estimates actual emissions, and as detailed in Chapter 3, Compliance Year 2021 SOx emissions are relatively low and there is an ample supply of SOx RTCs in the market. Both Figures 7-5 and 7-6, along with the qualitative analysis performed above, show that in calendar year 2021 there was not a significant shift in SOx emissions from the winter months to the summer months.

Figure 7-5 Calendar Year 2021 SOx Quarterly Emissions





Figure 7-6 Quarterly SOx Emissions from Calendar Years 2010 through 2021

Per Capita Exposure to Pollution

The predicted effects of RECLAIM on air quality and public health were thoroughly analyzed through modeling during program development. The results were compared to the projected impacts from continuing traditional command-and-control regulations and to implementing control measures in the 1991 AQMP. One of the criteria examined in the analysis was per capita population exposure.

Per capita population exposure reflects the length of time each person is exposed to unhealthful air quality. The modeling performed in the program development analysis projected that the reductions in per capita exposure under RECLAIM in calendar year 1994 would be nearly identical to the reductions projected for implementation of the control measures in the 1991 AQMP, and the reductions resulting from RECLAIM would be greater in calendar years 1997 and 2000. As reported in previous annual reports, actual per capita exposures to ozone for 1994 and 1997 were below the projections.

As part of the Children's Environmental Health Protection Act that was passed in 1999, and in consultation with the Office of Environmental Health Hazard Assessment (OEHHA), CARB is to "review all existing health-based ambient air quality standards to determine whether these standards protect public health, including infants and children, with an adequate margin of safety." As a result of that requirement, CARB adopted a new 8-hour ozone standard (0.070 ppm), which became effective May 17, 2006, in addition to the 1-hour ozone standard (0.09 ppm) already in place. Table 7-1 shows the number of days that both the state 8-hour ozone standard of 0.070 ppm and the 1-hour standard of 0.09 ppm were exceeded.

In July 1997, the U.S. EPA established an ozone National Ambient Air Quality Standard (NAAQS) of 0.085 ppm based on an 8-hour average measurement. As part of the Phase I implementation that was finalized in June 2004, the federal 1-hour ozone standard (0.12 ppm) was revoked effective June 2005. Effective May 27, 2008, the 8-hour NAAQS for ozone was reduced to 0.075 ppm. Table 7-1 shows monitoring results based on this 8-hour federal standard. Effective December 28, 2015, the 8-hour NAAQS for ozone was further reduced to 0.070 ppm, the level of the current California Ambient Air Quality Standard. Table 7-1 shows that the South Coast Air Basin exceeded both the newer 8-hour federal 0.07 ppm standard and the state 0.07 ppm standard by 124 days and 127 days, respectively, in 2022. A difference in the number of days per year the Basin exceeds each standard periodically occurs due to the differing language and methods for deriving exceedance days in the federal and state rules.

Table 7-1 summarizes ozone data for calendar years 2001 through 2022 in terms of the number of days that exceeded the state's 1-hour and 8-hour ozone standards, the 2008 and 2015 federal ambient 8-hour ozone standard, and both the Basin's maximum 1-hour and 8-hour ozone concentrations in each calendar year. This table shows that the number of days that exceeded each standard in 2022 decreased when compared to 2021.

Table 7-1 Summary of Ozone Data³

Year	Days exceeding state 1-hour standard (0.09 ppm)	Days exceeding state 8-hour standard (0.07 ppm)	Days exceeding old federal 8-hour standard (0.075 ppm)	Days exceeding new federal 8-hour standard (0.07 ppm)	Basin Maximum 1-hour ozone concentration (ppm)	Basin Maximum 8-hour ozone concentration (ppm)
2001	121	154	128	N/A	0.19	0.144
2002	116	147	132	N/A	0.169	0.144
2003	125	153	133	N/A	0.194	0.153
2004	105	152	115	N/A	0.163	0.145
2005	99	138	116	N/A	0.182	0.145
2006	102	128	112	N/A	0.175	0.142
2007	96	127	108	N/A	0.171	0.137
2008	102	140	119	N/A	0.176	0.131
2009	102	131	113	N/A	0.176	0.128
2010	79	124	102	N/A	0.143	0.123
2011	90	125	106	N/A	0.160	0.136
2012	97	140	111	N/A	0.147	0.112
2013	70	119	88	N/A	0.151	0.122
2014	74	129	92	N/A	0.141	0.11
2015	71	115	81	113	0.144	0.127
2016	83	132	103	132	0.163	0.121
2017	109	148	122	145	0.158	0.136
2018	84	141	108	141	0.142	0.125
2019	82	129	101	126	0.137	0.117
2020	132	160	142	157	0.185	0.139
2021	91	135	113	130	0.148	0.12
2022	88	127	106	124	0.155	0.122

The CCAA, which was enacted in 1988, established targets for reducing overall population exposure to severe non-attainment pollutants in the Basin—a 25 percent reduction by December 31, 1994, a 40 percent reduction by December 31, 1997, and a 50 percent reduction by December 31, 2000, relative to a calendar years' 1986-88 baseline. These targets are based on the average number of hours a person is exposed ("per capita exposure"⁴) to ozone

³ The reported number of days exceeding each ozone standard and Basin maximum concentrations for 2001 to 2020 statistics have been revised in accordance with updated rounding methodologies, consistent with the methodology used for ongoing AQMP development. 2022 exceedance statistics and maximum concentrations are based on preliminary data and are subject to change.

⁴ South Coast AQMD staff divides the air Basin into a grid of square cells and interpolates recorded ozone data from ambient air quality monitors to determine ozone levels experienced in each of these cells. The total person-hours in a county experiencing ozone higher than the state ozone standard is determined by summing over the whole county the products of the number of hours exceeding the state ozone standard per grid cell with the number of residents in the corresponding cell. The per capita ozone exposures are

concentrations above the state 1-hour standard of 0.09 ppm. Table 7-2 shows the 1986-88 baseline per capita exposure, the actual per capita exposures each year since 1994 (RECLAIM's initial year), and the 1997 and 2000 targets set by the CCAA for each of the four counties in the district and the Basin overall. As shown in Table 7-2, the CCAA reduction targets were achieved as early as 1994 (actual 1994 Basin per capita exposure was 37.6 hours, which is below the 2000 target of 40.2 hours). The per capita exposure continues to remain much lower than the CCAA targets. Relative to calendar year 2021, the 2022 per capita exposures were slightly higher for the Basin, as well as Los Angeles and Orange Counties, and lower for Riverside and San Bernardino Counties. For calendar year 2022, the actual per capita exposure for the Basin was 2.099 hours, which represents a 97.4 percent reduction from the 1986-88 baseline level.

then calculated by dividing the sum of person-hours by the total population within a county. Similar calculations are used to determine the Basin-wide per capita exposure by summing and dividing over the whole Basin.

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Calendar Year	Basin	Los Angeles	Orange	Riverside	San Bernardino
1986-88 baseline ¹	80.5	75.8	27.2	94.1	192.6
1994 actual	37.6	26.5	9	71.1	124.9
1995 actual	27.7	20	5.7	48.8	91.9
1996 actual	20.3	13.2	4	42.8	70
1997 actual	5.9	3	0.6	13.9	24.5
1998 actual	12.1	7.9	3.1	25.2	40.2
2000 actual	3.8	2.6	0.7	8.5	11.4
2001 actual	1.73	0.88	0.15	6	5.68
2002 actual	3.87	2.16	0.13	11.12	12.59
2003 actual	10.92	6.3	0.88	20.98	40.21
2004 actual	3.68	2.26	0.50	6.82	12.34
2005 actual	3.11	1.43	0.03	6.06	12.54
2006 actual	4.56	3.08	0.68	8.02	13.30
2007 actual	2.90	1.50	0.35	4.65	10.53
2008 actual	4.14	2.04	0.26	7.50	14.71
2009 actual	2.87	1.54	0.08	3.88	10.54
2010 actual	1.18	0.38	0.11	2.45	4.48
2011 actual	2.10	0.85	0.02	3.46	8.13
2012 actual	2.37	1.05	0.05	2.59	9.78
2013 actual	1.31	0.52	0.07	1.61	5.50
2014 actual	1.84	1.26	0.29	1.47	6.02
2015 actual	1.96	0.76	0.10	2.14	8.47
2016 actual	2.64	1.14	0.07	2.19	11.56
2017 actual	4.55	2.56	0.24	4.73	16.79
2018 actual	1.97	0.90	0.14	2.37	7.79
2019 actual	2.34	1.15	0.33	2.25	9.16
2020 actual	6.82	5.67	2.02	4.60	18.25
2021 actual	2.05	0.56	0.07	2.41	9.64
2022 actual	2.10	1.05	0.14	1.48	8.77
1997 target ²	48.3	45.5	16.3	56.5	115.6
2000 target ³	40.2	37.9	13.6	47	96.3

Table 7-2⁵ Per Capita Exposure to Ozone above the State One-Hour Standard of 0.09 ppm (hours)

¹ Average over three years, 1986 through 1988.

 2 60% of the 1986-88 baseline exposures.

³ 50% of the 1986-88 baseline exposures.

Table 7-2 shows that actual per capita exposures during all the years mentioned were well under the 1997 and 2000 target exposures limits. It should also be noted that air quality in the Basin is a complex function of meteorological conditions and an array of different emission sources, including mobile, area, RECLAIM stationary sources, and non-RECLAIM stationary sources. Therefore, the reduction of per capita exposure beyond the projected level is not necessarily wholly attributable to implementation of the RECLAIM program in lieu of the command-and-control regulations.

⁵ Previously reported per capita ozone exposures for 2017, 2019-2021 inadvertently contained minor discrepancies. Although they did not change any of this report's conclusions, the data has been corrected and the relevant table has been updated.

Toxic Impacts

Based on a comprehensive toxic impact analysis performed during program development, it was concluded that RECLAIM would not result in any significant impacts on air toxic emissions. Nevertheless, to ensure that the implementation of RECLAIM does not result in adverse toxic impacts, each annual program audit is required to assess any increase in the public health exposure to air toxics potentially caused by RECLAIM.

One of the safeguards to ensure that the implementation of RECLAIM does not result in adverse air toxic health impacts is that RECLAIM sources are subject to the same air toxic statutes and regulations (*e.g.*, South Coast AQMD Regulation XIV, State AB 2588, State Air Toxics Control Measures, Federal National Emissions Standards for Hazardous Air Pollutants, etc.) as other sources in the Basin. Additionally, air toxic health risk is primarily caused by emissions of VOC and fine particulates such as certain metals. VOC sources at RECLAIM facilities are subject to source-specific command-and-control rules the same way as are non-RECLAIM facilities, in addition to the air toxic's requirements described above. Sources of fine particulates and toxic metal emissions are also subject to the above-identified regulations pertaining to air toxic emissions. Moreover, new or modified RECLAIM sources with NOx or SOx emission increases are also required to be equipped with BACT, which minimizes to the extent feasible NOx and SOx emissions, which are precursors to particulate matter.

There have been concerns raised that trading RTCs could allow for higher production at a RECLAIM facility, which may indirectly cause higher emissions of air toxics, and thereby make the health risk in the vicinity of the facility worse. Other South Coast AQMD rules and programs for air toxics apply to facilities regardless of them being in RECLAIM or under traditional command and control rules. Emission increases at permit units are subject to new source review. RECLAIM facilities must also comply with any applicable Regulation XIV rules for toxics. Permits generally include limiting throughput conditions for new source review or applicable source specific rules. AB2588 and Rule 1402 – Control of Toxic Air Contaminants from Existing Sources could also be triggered based on risk, which would require the facility to take appropriate risk reduction measures.

Under the AER program, facilities that emit either: 1) four tons per year or more of VOC, NOx, SOx, or PM, or 100 tons per year or more of CO; or 2) any one of 24 toxic air contaminants and ozone depleting compounds emitted above specific thresholds (Rule 301 Table IV), are required to report their emissions annually to South Coast AQMD. Beginning with the FY 2000-01 reporting cycle, air toxics emission reporting for the AB2588 Program was incorporated into South Coast AQMD's AER Program. The data collected in the AER program is used to determine which facilities will be required to take further actions under the AB2588 Program.

Facilities in the AB2588 Program are required to submit a comprehensive toxics inventory, which is then prioritized using Board-approved procedures⁶ into one of three categories: low, intermediate, or high priority. Facilities ranked with low priority are exempt from future reporting. Facilities ranked with intermediate

⁶ The toxics prioritization procedures can be found at: <u>http://www.aqmd.gov/home/regulations/</u> <u>compliance/toxic-hot-spots-ab-2588</u>.

priority are classified as South Coast AQMD tracking facilities, which are then required to submit a complete toxics inventory once every four years. In addition to reporting their toxic emissions quadrennially, facilities designated as high priority are required to submit a health risk assessment (HRA) to determine their impacts to the surrounding community.

According to South Coast AQMD's 2021 Annual Report on the AB2588 Air Toxics "Hot Spots" program,⁷ staff has reviewed and approved 355 HRAs as of the end calendar of year 2021. About 95 percent of the facilities have cancer risks below 10 in a million and 95 percent of the facilities have acute and chronic non-cancer hazard indices less than 1. Facilities with cancer risks above 10 in a million or a non-cancer hazard index above 1 are required to issue public notices informing the community. A public meeting is held during which South Coast AQMD discusses the health risks from the facility. South Coast AQMD has conducted such public notification meetings for 62 facilities under the AB2588 Program.

The Board has also established the following action risk levels in Rule 1402: a cancer burden of 0.5, a cancer risk of 25 in a million, and a hazard index of 3.0. Facilities above any of the action risk levels must reduce their risks below the action risk levels within three years. To date, 30 facilities have been required to reduce risks and all of these facilities have reduced risks well below the action risk levels mandated by Rule 1402.

The impact of the above rules and measures are analyzed in Multiple Air Toxic Exposure Studies (MATES), which South Coast AQMD staff conducts periodically to assess cumulative air toxic impacts to the residents and workers of southern California. The fifth version of MATES (*i.e.*, MATES V) was conducted over a one-year period from May 2018 to April 2019, and the final MATES V report was released in August 2021.⁸ Monitoring conducted at that time indicated that the Basin-wide population-weighted air toxics exposure was reduced by 54 percent since MATES IV (conducted from July 2012 to June 2013). The results of these recent MATES studies continue to show that the region-wide cumulative air toxic impacts on residents and workers in southern California have been declining. Therefore, staff has not found any evidence that would suggest that the substitution of NOx and SOx RECLAIM for the command-and-control rules and the measures RECLAIM subsumes caused a significant increase in public exposure to air toxic emissions relative to what would have happened if the RECLAIM program was not implemented.

⁷ The 2021 AB2588 Annual Report can be found at: <u>http://www.aqmd.gov/docs/default-source/planning/</u> risk-assessment/ab2588 annual report 2021.pdf.

⁸ The Final MATES V Report can be found at: <u>http://www.aqmd.gov/docs/default-source/planning/mates-v/mates-v-final-report-9-24-21.pdf</u>.

APPENDIX A RECLAIM UNIVERSE OF SOURCES

The RECLAIM universe of active sources as of the end of Compliance Year 2021 is provided below.

Facility ID	Cycle	Facility Name	Program
800088	2	3M COMPANY	NOx
23752	2	AEROCRAFT HEAT TREATING CO INC	NOx
115394	1	AES ALAMITOS, LLC	NOx
115389	2	AES HUNTINGTON BEACH, LLC	NOx/SOx
115536	1	AES REDONDO BEACH, LLC	NOx
148236	2	AIR LIQUIDE LARGE INDUSTRIES U.S., LP	NOx/SOx
3417	1	AIR PROD & CHEM INC	NOx
101656	2	AIR PRODUCTS AND CHEMICALS, INC.	NOx
5998	1	ALL AMERICAN ASPHALT	NOx
114264	1	ALL AMERICAN ASPHALT	NOx
3704	2	ALL AMERICAN ASPHALT, UNIT NO.01	NOx
187165	1	ALTAIR PARAMOUNT, LLC	NOx/SOx
800196	2	AMERICAN AIRLINES, INC,	NOx
16642	1	ANHEUSER-BUSCH LLC., (LA BREWERY)	NOx/SOx
117140	2	AOC, LLC	NOx
174406	1	ARLON GRAPHICS LLC	NOx
183832	2	AST TEXTILE GROUP, INC.	NOx
181510	1	AVCORP COMPOSITE FABRICATION, INC	NOx
117290	2	B BRAUN MEDICAL, INC	NOx
800016	2	BAKER COMMODITIES INC	NOx
800205	2	BANK OF AMERICA NT & SA, BREA CENTER	NOx
40034	1	BENTLEY PRINCE STREET INC	NOx
185801	1	BERRY PETROLEUM COMPANY, LLC	NOx
166073	1	BETA OFFSHORE	NOx
132068	1	BIMBO BAKERIES USA INC	NOx
1073	1	BORAL ROOFING LLC	NOx
185574	1	BRIDGE ENERGY, LLC	NOx
185575	2	BRIDGE ENERGY, LLC	NOx
185600	2	BRIDGE ENERGY, LLC	NOx
185601	2	BRIDGE ENERGY, LLC	NOx

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Facility ID	Cycle	Facility Name	Program
190051	2	BRIDGE POINT LONG BEACH LLC	NOx/SOx
25638	2	BURBANK CITY, BURBANK WATER & POWER	NOx
128243	1	BURBANK CITY, BURBANK WATER & POWER, SCPPA	NOx
800344	1	CALIFORNIA AIR NATIONAL GUARD, MARCH AFB	NOx
138568	1	CALIFORNIA DROP FORGE, INC	NOx
46268	1	CALIFORNIA STEEL INDUSTRIES INC	NOx
107653	2	CALMAT CO	NOx
107654	2	CALMAT CO	NOx
107655	2	CALMAT CO	NOx
107656	2	CALMAT CO	NOx
153992	1	CANYON POWER PLANT	NOx
94930	1	CARGILL INC	NOx
22911	2	CARLTON FORGE WORKS	NOx
141555	2	CASTAIC CLAY PRODUCTS, LLC	NOx
14944	1	CENTRAL WIRE, INC.	NOx/SOx
195649	2	CENTRIO ENERGY LOS ANGELES INC.	NOx
148925	1	CHERRY AEROSPACE	NOx
800030	2	CHEVRON PRODUCTS CO.	NOx/SOx
172077	1	CITY OF COLTON	NOx
129810	1	CITY OF RIVERSIDE PUBLIC UTILITIES DEPT	NOx
139796	1	CITY OF RIVERSIDE PUBLIC UTILITIES DEPT	NOx
164204	2	CITY OF RIVERSIDE, PUBLIC UTILITIES DEPT	NOx
182561	1	COLTON POWER, LP	NOx
182563	1	COLTON POWER, LP	NOx
38440	2	COOPER & BRAIN - BREA	NOx
126536	1	CPP - POMONA	NOx
63180	1	DARLING INGREDIENTS INC.	NOx
3721	2	DART CONTAINER CORP OF CALIFORNIA	NOx
7411	2	DAVIS WIRE CORP	NOx
143738	2	DCOR LLC	NOx
143739	2	DCOR LLC	NOx
143740	2	DCOR LLC	NOx
143741	1	DCOR LLC	NOx
800037	2	DEMENNO-KERDOON DBA WORLD OIL RECYCLING	NOx
125579	1	DIRECTV	NOx
800189	1	DISNEYLAND RESORT	NOx

Facility ID	Cycle	Facility Name	Program
142536	2	DRS SENSORS & TARGETING SYSTEMS, INC	NOx
180908	1	ECO SERVICES OPERATIONS CORP.	NOx/SOx
115663	1	EL SEGUNDO ENERGY CENTER LLC	NOx
195782	2	EMERALD SOCAL, LLC	NOX
195800	2	EMERALD SOCAL, LLC	NOx
186899	1	ENERY HOLDINGS LLC/LGHTHP_6_ICEGEN	NOx
9053	1	ENWAVE LOS ANGELES INC.	NOx
800372	2	EQUILON ENTER. LLC, SHELL OIL PROD. US	NOx/SOx
95212	1	FABRICA	NOx
11716	1	FONTANA PAPER MILLS INC	NOx
346	1	FRITO-LAY, INC.	NOx
2418	2	FRUIT GROWERS SUPPLY CO	NOx
142267	2	FS PRECISION TECH LLC	NOx
12428	2	GOLD BOND BUILDING PRODUCTS, LLC.	NOx
124723	1	GREKA OIL & GAS	NOx
137471	2	GRIFOLS BIOLOGICALS INC	NOx
156741	2	HARBOR COGENERATION CO, LLC	NOx
157359	1	HENKEL ELECTRONIC MATERIALS, LLC	NOx
123774	1	HERAEUS PRECIOUS METALS NO. AMERICA, LLC	NOx
113160	2	HILTON COSTA MESA	NOx
800066	1	HITCO CARBON COMPOSITES INC	NOx
2912	2	HOLLIDAY ROCK CO INC	NOx
800003	2	HONEYWELL INTERNATIONAL INC	NOx
196134	2	HONOR RANCHO WAYSIDE CANYON HOLDINGS LLC	NOx
196133	2	HONOR RANCHO WAYSIDE CANYON HOLDINGS, LLC	NOx
187348	2	HYDRO EXTRUSION USA, LLC	NOx
193561	1	IBY, LLC	NOx
124808	2	INEOS POLYPROPYLENE LLC	NOx/SOx
129816	2	INLAND EMPIRE ENERGY CENTER, LLC	NOx
157363	2	INTERNATIONAL PAPER CO	NOx
16338	1	KAISER ALUMINUM FABRICATED PRODUCTS, LLC	NOx
187823	2	KIRKHILL INC	NOx
800335	2	LA CITY, DEPT OF AIRPORTS	NOx
800170	1	LA CITY, DWP HARBOR GENERATING STATION	NOx
800074	1	LA CITY, DWP HAYNES GENERATING STATION	NOx
800075	1	LA CITY, DWP SCATTERGOOD GENERATING STN	NOx

Facility ID	Cycle	Facility Name	Program
800193	2	LA CITY, DWP VALLEY GENERATING STATION	NOx
61962	1	LA CITY, HARBOR DEPT	NOx
550	1	LA CO., INTERNAL SERVICE DEPT	NOx
173904	2	LAPEYRE INDUSTRIAL SANDS, INC	NOx
192519	1	LEGACY BY-PRODUCTS LLC	NOx
141295	2	LEKOS DYE AND FINISHING, INC	NOx
144455	2	LIFOAM INDUSTRIES, LLC	NOx
83102	2	LIGHT METALS INC	NOx
7416	1	LINDE INC.	NOx
42630	1	LINDE INC.	NOx
115314	2	LONG BEACH GENERATION, LLC	NOx
17623	2	LOS ANGELES ATHLETIC CLUB	NOx
58622	2	LOS ANGELES COLD STORAGE CO	NOx
800080	2	LUNDAY-THAGARD CO DBA WORLD OIL REFINING	NOx/SOx
14049	2	MARUCHAN INC	NOx
3029	2	MATCHMASTER DYEING & FINISHING INC	NOx
182970	1	MATRIX OIL CORP	NOx
2825	1	MCP FOODS INC	NOx
176952	2	MERCEDES-BENZ WEST COAST CAMPUS	NOx
94872	2	METAL CONTAINER CORP	NOx
800207	1	METRO ST HOSP (EIS USE)	NOx
12372	1	MISSION CLAY PRODUCTS	NOx
11887	2	NASA JET PROPULSION LAB	NOx
115563	1	NCI GROUP INC., DBA, METAL COATERS OF CA	NOx
172005	2	NEW- INDY ONTARIO, LLC	NOx
131732	2	NEWPORT FAB, LLC	NOx
800408	1	NORTHROP GRUMMAN SYSTEMS	NOx
18294	1	NORTHROP GRUMMAN SYSTEMS CORP	NOx
800409	2	NORTHROP GRUMMAN SYSTEMS CORPORATION	NOx
130211	2	NOVIPAX, INC	NOx
89248	2	OLD COUNTRY MILLWORK INC	NOx
47781	1	OLS ENERGY-CHINO	NOx
183564	2	ONNI TIMES SQUARE LP	NOx
183415	2	ONTARIO INTERNATIONAL AIRPORT AUTHORITY	NOx
35302	2	OWENS CORNING ROOFING AND ASPHALT, LLC	NOx/SOx
7427	1	OWENS-BROCKWAY GLASS CONTAINER INC	NOx/SOx

Facility ID	Cycle	Facility Name	Program
45746	2	PABCO BLDG PRODUCTS LLC, PABCO PAPER, DBA	NOx/SOx
17953	1	PACIFIC CLAY PRODUCTS INC	NOx
59618	1	PACIFIC CONTINENTAL TEXTILES, INC.	NOx
2946	1	PACIFIC FORGE INC	NOx
800168	1	PASADENA CITY, DWP	NOx
171107	2	PHILLIPS 66 CO/LA REFINERY WILMINGTON PL	NOx/SOx
171109	1	PHILLIPS 66 COMPANY/LOS ANGELES REFINERY	NOx/SOx
11435	2	PQLLC	NOx/SOx
136	2	PRESS FORGE CO	NOx
105903	1	PRIME WHEEL	NOx
8547	1	QUEMETCO INC	NOx/SOx
19167	2	R J. NOBLE COMPANY	NOx
20604	2	RALPHS GROCERY CO	NOx
193132	1	RAYTHEON COMPANY	NOx
193134	2	RAYTHEON COMPANY	NOx
193153	2	RAYTHEON COMPANY	NOx
20203	2	RECONSERVE OF CALIFORNIA-LOS ANGELES INC	NOx
189040	1	RED COLLAR PET FOODS, INC	NOx
180410	2	REICHHOLD LLC 2	NOx
800113	2	ROHR, INC.	NOx
4242	2	SAN DIEGO GAS & ELECTRIC	NOx
15504	2	SCHLOSSER FORGE COMPANY	NOx
14926	1	SEMPRA ENERGY (THE GAS CO)	NOx
152707	1	SENTINEL ENERGY CENTER LLC	NOx
184288	2	SENTINEL PEAK RESOURCES CALIFORNIA, LLC	NOx
184301	1	SENTINEL PEAK RESOURCES CALIFORNIA, LLC	NOx
188635	1	SFII FLYTE, LLC	NOx
800129	1	SFPP, L.P.	NOx
37603	1	SGL TECHNIC LLC	NOx
131850	2	SHAW DIVERSIFIED SERVICES INC	NOx
117227	2	SHCI SM BCH HOTEL LLC, LOEWS SM BCH HOTE	NOx
16639	1	SHULTZ STEEL CO	NOx
191420	2	SIERRA ALUMINUM, DIV OF SAMUEL, SON & CO	NOx
191415	2	SIERRA ALUMINUM, DIV OF SAMUEL, SON & CO	NOx
101977	1	SIGNAL HILL PETROLEUM INC	NOx
187885	2	SMITHFIELD PACKAGED MEATS CORP	NOx

Facility ID	Cycle	Facility Name	Program
119596	2	SNAK KING CORPORATION	NOx
185352	2	SNOW SUMMIT, LLC.	NOx
4477	1	SO CAL EDISON CO	NOx
800127	1	SO CAL GAS CO	NOx
800128	1	SO CAL GAS CO	NOx
8582	1	SO CAL GAS CO/PLAYA DEL REY STORAGE FAC	NOx
169754	1	SO CAL HOLDING, LLC	NOx
5973	1	SOCAL GAS CO	NOx
14871	2	SONOCO PRODUCTS CO	NOx
160437	1	SOUTHERN CALIFORNIA EDISON	NOx
800338	2	SPECIALTY PAPER MILLS INC	NOx
1634	2	STEELCASE INC, WESTERN DIV	NOx
126498	2	STEELSCAPE, INC	NOx
105277	2	SULLY MILLER CONTRACTING CO	NOx
19390	1	SULLY-MILLER CONTRACTING CO.	NOx
3968	1	TABC, INC	NOx
18931	2	ТАМСО	NOx/SOx
174591	1	TESORO REF & MKTG CO LLC, CALCINER	NOx/SOx
174655	2	TESORO REFINING & MARKETING CO, LLC	NOx/SOx
151798	1	TESORO REFINING AND MARKETING CO, LLC	NOx/SOx
800436	1	TESORO REFINING AND MARKETING CO, LLC	NOx/SOx
96587	1	TEXOLLINI INC	NOx
16660	2	THE BOEING COMPANY	NOx
115241	1	THE BOEING COMPANY	NOx
800067	1	THE BOEING COMPANY	NOx
14736	2	THE BOEING CO-SEAL BEACH COMPLEX	NOx
11119	1	THE GAS CO./ SEMPRA ENERGY	NOx
153199	1	THE KROGER CO/RALPHS GROCERY CO	NOx
191386	2	THE NEWARK GROUP, INC. DBA GREIF, INC	NOx
97081	1	THE TERMO COMPANY	NOx
800330	1	THUMS LONG BEACH	NOx
129497	1	THUMS LONG BEACH CO	NOx
800325	2	TIDELANDS OIL PRODUCTION CO	NOx
68118	2	TIDELANDS OIL PRODUCTION COMPANY ETAL	NOx
171960	2	TIN, INC. DBA INTERNATIONAL PAPER	NOx
137508	2	TONOGA INC, TACONIC DBA	NOx

Facility ID	Cycle	Facility Name	Program
181667	1	TORRANCE REFINING COMPANY LLC	NOx/SOx
182049	2	TORRANCE VALLEY PIPELINE CO LLC	NOx
182050	1	TORRANCE VALLEY PIPELINE CO LLC	NOx
182051	1	TORRANCE VALLEY PIPELINE CO LLC	NOx
53729	1	TREND OFFSET PRINTING SERVICES, INC	NOx
165192	2	TRIUMPH AEROSTRUCTURES, LLC	NOx
43436	1	TST, INC.	NOx
800026	1	ULTRAMAR INC	NOx/SOx
9755	2	UNITED AIRLINES INC	NOx
800149	2	US BORAX INC	NOx
800150	1	US GOVT, AF DEPT, MARCH AIR RESERVE BASE	NOx
800393	1	VALERO WILMINGTON ASPHALT PLANT	NOx
193552	1	VERNON ENVIRONMENTAL RESPONSE TRUST	NOx/SOx
14502	2	VERNON PUBLIC UTILITIES	NOx
195802	2	VERNON PUBLIC UTILITIES	NOx
14495	2	VISTA METALS CORPORATION	NOx
191677	1	VORTEQ PACIFIC	NOx
146536	1	WALNUT CREEK ENERGY, LLC	NOx/SOx
42775	1	WEST NEWPORT OIL CO	NOx/SOx
195338	2	WG HOLDINGS SPV, LLC	NOx
195344	2	WG HOLDINGS SPV, LLC	NOx
127299	2	WILDFLOWER ENERGY LP/INDIGO GEN., LLC	NOx
193314	2	ZENITH ENERGY WEST COAST TERMINALS LLC	NOx
193318	2	ZENITH ENERGY WEST COAST TERMINALS LLC	NOx
193323	1	ZENITH ENERGY WEST COAST TERMINALS LLC	NOx
193329	1	ZENITH ENERGY WEST COAST TERMINALS LLC	NOx
193330	2	ZENITH ENERGY WEST COAST TERMINALS LLC	NOx

APPENDIX B FACILITY INCLUSIONS

As discussed in Chapter 1, no facilities were added to the RECLAIM universe in Compliance Year 2021. As of January 5, 2018, inclusion of new facilities is not allowed pursuant to amendments to Rule 2001.

APPENDIX C RECLAIM FACILITIES CEASING OPERATION OR EXCLUDED

South Coast AQMD staff is aware of the following RECLAIM facilities that permanently shut down all operations, inactivated all their RECLAIM permits, or were excluded from the RECLAIM universe during Compliance Year 2021. The reasons for shutdowns and exclusions cited below are based on the information provided by the facilities and other information available to South Coast AQMD staff.

Facility ID Facility Name City and County SIC Pollutant(s) 1994 Allocation	12155 ARMSTRONG FLOORING INC South Gate, Los Angeles County 3996 NOx 6,920 lbs.
Reason for Shutdown	The facility shut down during February 2021 to move production to other facilities in the Armstrong network. All RECLAIM permits were inactivated by April 2021 and demolition was completed in August 2021.
Facility ID	22607
Facility Name	CALIFORNIA DAIRIES, INC
City and County	Artesia, Los Angeles County
SIC Delluterat(a)	2023 No.
	NUX 12,422 lba
Reason for Shutdown	The facility ceased operation in June 2020 and permanently closed in August 2020 due to manufacturing, production or raw material costs being too high. The property was sold in December 2021 for real estate development.
Facility ID	184958
Facility Name	BRONCS INC. DBA WEST COAST TEXTILES
City and County	Garden Grove, Orange County
SIC	2261
Reason for Shutdown	The facility filed for bankruptcy in February 2019 and all equipment was removed by January 2020. All RECLAIM permits were inactivated by February 2021.

APPENDIX D FACILITIES THAT EXCEEDED THEIR ANNUAL ALLOCATION FOR COMPLIANCE YEAR 2021

The following is a list of facilities that did not have enough RTCs to cover their NOx emissions in Compliance Year 2021 based on the results of audits conducted by South Coast AQMD staff.

Facility ID	Facility Name	Compliance Year	Pollutant
11435	PQ LLC	2021	NOx
17623	Los Angeles Athletic Club	2021	NOx
20203	Reconserve of California-Los Angeles Inc	2021	NOx
42775	West Newport Oil Co	2021	NOx
138568	California Drop Forge Inc.	2021	NOx
141295	Lekos Dye and Finishing, Inc	2021	NOx
150201/ 195344	Breitburn Operation LP / WG Holdings SPV, LLC	2021	NOx
156741	Harbor Cogeneration Co, LLC	2021	NOx
174655	Tesoro Refining & Marketing Co, LLC	2021	SOx
186899	Enery Holdings LLC/LGHTHP_6_ICEGEN	2021	NOx
190051	Bridge Point Long Beach LLC	2021	NOx
193323	Zenith Energy West Coast Terminals LLC	2021	NOx
800325	Tidelands Oil Production Co	2021	NOx
800393	Valero Wilmington Asphalt Plant	2021	NOx

APPENDIX E REPORTED JOB IMPACTS ATTRIBUTED TO RECLAIM

Each year RECLAIM facility operators are asked to provide employment data in their APEP reports. The report asks company representatives to quantify job increases and/or decreases, and to report the positive and/or negative impacts of the RECLAIM program on employment at their facilities. This appendix is included in each Annual RECLAIM Audit Report to provide detailed information for facilities reporting that RECLAIM contributed to job gains or losses.

Facilities with reported job gains or losses attributed to RECLAIM:

No RECLAIM facilities reported job gains or losses attributed to RECLAIM for Compliance Year 2021.

ATTACHMENT B

RESOLUTION NO. 23-____

A Resolution of the Governing Board of the South Coast Air Quality Management District (South Coast AQMD) to approve staff's recommendation to determine that paragraphs (d)(1) through (d)(4) of Rule 2004 continue without change, as reported in the prior year's evaluation and review of the compliance and enforcement aspects of the RECLAIM program, with confirmation that circumstances have not changed, and additional analysis is not required.

A Resolution of the South Coast AQMD Governing Board directing the Executive Officer to submit to CARB and U.S. EPA the Annual RECLAIM Audit with Report and recommendation, including the determination that paragraphs (d)(1) through (d)(4) of Rule 2004 continue without change.

WHEREAS, Rule 2015 requires the Executive Officer to present an annual program audit of the RECLAIM program that includes the average annual price of each type of RECLAIM Trading Credit (RTC) price, including NOx RTC, to the South Coast AQMD Governing Board;

WHEREAS, the Executive Officer prepared the Annual RECLAIM Audit Report for 2021 Compliance Year and presented the annual program audit of the RECLAIM program on March 3, 2023;

WHEREAS, the Executive Officer determined that NOx RTC prices exceeded \$15,000 per ton as part of the Annual RECLAIM Audit Report for 2021 Compliance Year;

WHEREAS, Rule 2015 (b)(6) requires the Executive Officer to conduct an evaluation and review of the compliance and enforcement aspects of the NOx RECLAIM program, including the deterrent effect of Rule 2004 paragraphs (d)(1) through (d)(4), following the determination of a NOx RTC price exceedance of \$15,000 per ton;

WHEREAS, Rule 2015 provides that if the South Coast AQMD Governing Board determines that applicable RTC pricing thresholds in Rule 2015 are exceeded, then the South Coast AQMD Governing Board may elect to amend paragraphs (d)(1) through (d)(4) of Rule 2004 if revisions are determined to be appropriate in light of the results of the evaluation;

WHEREAS, the Executive Officer has previously determined that NOx RTC prices exceeded \$15,000 per ton as part of the Annual RECLAIM Audit Report for 2020 Compliance Year presented to the South Coast AQMD Governing Board on March 4, 2022;

WHEREAS, staff conducted the Rule 2015 evaluation and review which concluded and recommended that paragraphs (d)(1) through (d)(4) of Rule 2004 of the NOx RECLAIM program should continue without change on August 5, 2022;

WHEREAS, the South Coast AQMD Governing Board on August 5, 2022 approved the staff recommendation that paragraphs (d)(1) through (d)(4) of Rule 2004 continue without change, as reported in the evaluation and review of the compliance and enforcement aspects of the RECLAIM program;

WHEREAS, a staff review of the August 5, 2022 analysis has confirmed that the circumstances associated with the compliance and enforcement aspects of the RECLAIM program have not changed and that continuing analysis is not required; and

NOW, THEREFORE BE IT RESOLVED that the South Coast AQMD Governing Board does hereby approve the Annual RECLAIM Audit Report for 2021 Compliance Year;

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board does hereby approve staff's recommendation to determine that paragraphs (d)(1) through (d)(4) of Rule 2004 continue without change, as reported in the August 2022 evaluation and review of the compliance and enforcement aspects of the RECLAIM program, with staff's confirmation that circumstances have not changed and continuing analysis is not required;

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board does hereby direct the Executive Officer to submit to CARB and U.S. EPA the Annual RECLAIM Audit Report for 2021 Compliance Year and August 2022 evaluation and review of the compliance and enforcement aspects of the RECLAIM program, including the determination that paragraphs (d)(1) through (d)(4) of Rule 2004 continue without change.

DATE: _____

CLERK OF THE BOARDS

Attachment C

Annual RECLAIM Audit Report for 2021 Compliance Year

Board Meeting March 3, 2023

Background

- REgional Clean Air Incentives Market (RECLAIM) Adopted October 1993
 - Cap and trade program for largest NOx and SOx sources
 - Each facility was issued an allocation of RECLAIM Trading Credits (RTCs) that declines over time
 - At the end of each compliance year, operators must hold sufficient RTCs to cover annual emissions
 - Operators can make reductions or purchase RTCs
- Board directed staff to develop command-and-control rules requiring RECLAIM sources to implement Best Available Retrofit Control Technology (BARCT)
 - 24 landing rules have been amended and/or adopted by the Board
 - RTCs cannot be used to meet NOx limits in these rules
- Rule 2015 requires an annual audit of the RECLAIM program
 - This is the Annual RECLAIM Audit Report for Compliance Year 2021
NOx and SOx Emissions and Allocations Trend

NOx emissions in Compliance Year 2021 Below Allocations by 1,474 tons (22%)

SOx emissions in Compliance Year 2021 Below Allocations by 367 tons (17%)



2021 Annual RECLAIM Audit Findings



Number of Facilities

237 facilities at the end of Compliance Year 2021

3 less facilities than Compliance Year 2020



Overall Goals

Met overall NOx and SOx program goals Implemented NOx/SOx allocation shaves



Compliance Rate

High rate of facility compliance – Facilities had sufficient RTCs to reconcile emissions

95% of NOx facilities 97% of SOx facilities



RTC Price

Annual average discrete prices for future NOx RTCs exceeded \$53,669/ton* threshold Compliance Year 2024: \$59,191 Compliance Year 2025: \$60,000

* Health and Safety Code 39616 program review. Adjusted by September 2022 CPI.

Requirements for RTC Price Exceedances Price Triggers

- There are two rules in RECLAIM that establish price thresholds
 - Rule 2002 Allocations for NOx and SOx
 - Rule 2015 Backstop Provisions
- If RTCs exceed price thresholds, Rules 2002 and 2015 require reporting of the exceedance and potential actions

Rule 2002 NOx Price Thresholds

- 12-month rolling average threshold of \$22,500 per ton
- 3-month rolling average threshold of \$35,000 per ton

Rule 2015 NOx Price Threshold

Annual average threshold of \$15,000 per ton

Rule 2002 Exceedance Actions

- Assessment to determine impacts from pricing increases
- Consider converting non-tradable/nonusable RTCs to tradable/usable RTCs

Rule 2015 Exceedance Actions

- Review compliance and enforcement aspects of RECLAIM
- Consider amending program structure

NOx RTC Price Exceedances

Rules 2002 and 2015 Summary and Recommendation

Rule 2002 Thresholds	Rule 2015 Thresholds
RTC prices exceeded Rule 2002 thresholds in 2022 and continue to exceed in 2023	RTC prices exceeded Rule 2015 thresholds in 2022 and continue to exceed in 2023
Assessment to determine impacts from price increases presented to Board in June 2022	Evaluation and review of RECLAIM program compliance and enforcement aspects reported to Board in August 2022
Board determined that thresholds were exceeded and not to convert non-tradable/non-usable RTCs to tradable/usable RTCs for Compliance Year 2022	Board determined that Rule 2004(d)(1) through (d)(4) continue without change and directed staff to send report to CARB and U.S. EPA

Circumstances have not changed since previous assessment and review. Staff recommends no additional analysis and no further actions are required.

Staff Recommendations

- Approve the Annual RECLAIM Audit Report for 2021 Compliance Year
- Determine that Rule 2004 (d)(1) through (d)(4) continue without change, as reported in the August 2022 evaluation and review of the compliance and enforcement aspects of the RECLAIM program
- Direct the Executive Officer to submit the Annual RECLAIM Audit Report and the August 2022 evaluation and review of the compliance and enforcement aspects of the RECLAIM program to CARB and U.S. EPA

1 Back to Agenda

BOARD MEETING DATE: March 3, 2023

AGENDA NO. 27

- PROPOSAL: Approve and Adopt Technology Advancement Office Clean Fuels Program 2022 Annual Report and 2023 Plan Update, Resolution and Membership Changes for Clean Fuels Advisory Group
- SYNOPSIS: Each year by March 31, South Coast AQMD must submit to the California Legislative Analyst an approved Annual Report for the past year and a Plan Update for the current calendar year for the Clean Fuels Program. These actions are to: 1) approve and adopt the Technology Advancement Clean Fuels Program Annual Report for 2022 and 2023 Plan Update; 2) adopt the Resolution finding that proposed projects do not duplicate any past or present programs; 3) approve and adopt membership changes to the SB 98 Clean Fuels Advisory Group; and 4) receive and file membership changes to the Technology Advancement Advisory Group.

COMMITTEE: Technology, February 17, 2022; Recommended for Approval

RECOMMENDED ACTIONS:

- 1. Approve and adopt the attached Technology Advancement Office Clean Fuels Program 2022 Clean Fuels Annual Report and 2023 Plan Update and include it in South Coast AQMD's Clean Fuels Program;
- 2. Adopt the attached Resolution finding that the Technology Advancement Office Clean Fuels Program Plan Update for 2023 and its proposed projects do not duplicate any past or present programs of specified organizations;
- 3. Approve and adopt membership changes to the Senate Bill (SB) 98 Clean Fuels Advisory Group; and
- 4. Receive and file membership changes to the Technology Advancement Advisory Group.

Wayne Nastri Executive Officer

AK:PSK:MAW

Background

Achieving federal and state ambient air quality standards within the South Coast Air Basin (Basin) requires emission reductions from both mobile and stationary sources beyond those available from existing technologies. The 2022 AQMP was approved by the Board in December 2022 and includes measures relying on a mix of currently available technologies as well as the development and commercialization of near-zero and zero-emission mobile and stationary advanced technologies. The 2022 AQMP projects an additional 83 percent NOx reduction by 2037 is required, to achieve state and national air quality standards, the majority of which must come from on- and offroad mobile sources. Achieving the needed NOx reductions will require widespread deployment of zero-emission technologies, wherever feasible, as well as further development and commercialization of advanced technologies.

California Health and Safety Code (H&SC) 40448.5(e) requires the Clean Fuels Program to consider, among other factors, the current and projected economic costs and availability of fuels, the cost-effectiveness of emission reductions associated with clean fuels compared with other pollution control alternatives, the use of new pollution control technologies in conjunction with traditional fuels as an alternative means of reducing emissions, potential effects on public health, ambient air quality, visibility within the region, and other factors determined to be relevant by South Coast AQMD. The Legislature recognized the need for flexibility, allowing focus on a broad range of technology areas, including cleaner fuels, which can help South Coast AQMD in achieving federal and state air quality standards.

The South Coast AQMD Technology Advancement Office (TAO) Clean Fuels Program is an integral part of strategies to achieve the significant NOx reductions called for in the 2022 AQMP. In its first 34 years, from 1988 to 2022, the Clean Fuels Program leveraged \$250 million into \$1.6 billion in projects, mainly through public-private partnerships in conjunction with private industry, technology developers, academic institutions, research institutions and government agencies. This public-private partnership approach has enabled South Coast AQMD to historically leverage public funds with outside investments in a ratio of about \$4 of outside funding to every dollar of Clean Fuels funding. Incentive programs such as the Carl Moyer Program provides a unique synergy to push market penetration of technologies developed and demonstrated by the Clean Fuels Program. This synergy enables South Coast AQMD to act as a leader in both technology development and commercialization efforts of cleaner transportation technologies that target the reduction of criteria and toxic pollutants.

H&SC Section 40448.5.1 requires that South Coast AQMD adopt a plan that describes the expected costs and benefits of proposed projects prior to any Clean Fuels Program expenditures and find that the proposed projects do not duplicate programs of other organizations specified in the H&SC provision. In 1999, SB 98 amended this provision by requiring annual updates to this Plan as well as a 30-day Public Notice to specified

interested parties and the public prior to the annual public hearing at which the Board considers action on the Clean Fuels Program. SB 98 also requires the preparation of an annual report that includes the prior year's accomplishments and other information. This annual report requires review by an advisory group and approval by the Board, prior to submittal to specified offices of the California Legislature.

This legislation also specifies the make-up of the 13-member SB 98 Clean Fuels Advisory Group and its primary responsibility, which is to make recommendations regarding the most cost-effective projects that advance and implement clean fuels technologies and improve public health. The membership of the SB 98 Clean Fuels Advisory Group was initially approved by the Board in September 1999. Changes to the composition are reviewed by the Technology Committee on an as-needed basis, subject to full Board approval as required by the charter. Prior to the formation of the SB 98 Clean Fuels Advisory Group, South Coast AQMD had formed the Technology Advancement Advisory Group (TAAG) to review and assess the Clean Fuels Program. The charter and membership of the TAAG was revised in 1999 with formation of the SB 98 Clean Fuels Advisory Group so the functions of the two advisory groups would be complementary. The TAAG's charter specifies membership changes must be approved by the Technology Committee and membership changes to the Clean Fuels Advisory Group by the Board.

Finding of No Duplication of Technology Projects

These actions are for the Board to approve and adopt the TAO Clean Fuels Program 2022 Annual Report and 2023 Plan Update and, as part of the Board's consideration of the 2023 Plan Update, to make a finding that the update and its proposed projects do not duplicate any past or present programs of specified organizations. The review process by the two advisory groups helps to ensure that South Coast AQMD efforts do not duplicate projects. The advisory groups provide feedback to staff on the documents during biannual meetings and through subsequent correspondences. The advisory group members include experts in different fields, current or retired members of national laboratories, state or federal agencies, academia, and/or the private sector. Staff monitors specific technologies through efforts at state and federal collaboratives, partnerships and industry coalitions. Staff also invites other technical experts to review the Annual Report and Plan Update. Through this effort, staff is confident there is no duplication of technology projects represented in the Plan Update, as required in the H&SC.

These actions are to adopt a Resolution finding that proposed projects do not duplicate any past or present programs (Attachment A); approve and adopt membership changes to the SB 98 Clean Fuels Advisory Group and receive and file membership changes to the Technology Advancement Advisory Group (Attachment B); and approve and adopt the combined TAO Clean Fuels Program 2022 Annual Report and 2023 Plan Update (Attachment C).

Clean Fuels Program Annual Report 2022

The Annual Report covers projects and progress of the Program for calendar year 2022 consistent with H&SC 40448.5.1(d). Specifically, this report includes the following required elements:

- A description of the core technologies that South Coast AQMD considers critical to ensure attainment and/or maintenance of ambient air quality standards and a description of the efforts made to overcome commercialization barriers;
- Staff analysis of the impact of TAO's Clean Fuels Program on the private sector and on research, development and commercialization efforts by major vehicle and energy firms;
- A description of projects funded by South Coast AQMD, including a list of recipients, key subcontractors (if known), co-funders, matching state or federal funds, and expected and actual results of each project advancing and implementing clean fuels technology and improving public health;
- The title and purpose of all projects undertaken pursuant to the Clean Fuels Program, the names of the contractors and key subcontractors involved in each project, and the amount of money expended or committed for each project;
- A summary of the progress made toward the goals of the Clean Fuels Program; and
- Funding priorities identified for the next year and relevant audit information for previous, current and future years covered by the report.

Under the Clean Fuels Program during 2022, twenty-one (21) new projects or studies were executed and five continuing contracts were modified, adding additional dollars to sponsor research, development, demonstration and deployment (RD³) projects and technology assessment and transfer contracts for alternative and clean fuel technologies. South Coast AQMD contribution to these projects through the Clean Fuels Program was approximately \$7.4 million, with total project costs of over \$74.1 million, which includes coordinated funding from other governmental agencies, private sector, academia and research institutions. The \$7.4 million includes approximately \$304,000 recognized into the Clean Fuels Fund as pass-through funds from project partners to facilitate project administration by the Clean Fuels Program. These projects address a wide range of air quality issues with a diverse mix of advanced technologies. Figure 1 shows the distribution of funding committed from the Clean Fuels Program through executed agreements in 2022.



Figure 1: Distribution of Executed Clean Fuels Program Contracts in CY 2022 (\$7.4M)

Executed agreements typically follow the Board awards due to the time necessary to negotiate contracts. During this phase, project awards may be reduced in scope, encounter delays in execution, or may not be contracted at all due to unforeseen difficulties following Board approval. As such, the funding distribution represents a "snapshot-in-time" of the Clean Fuels Program for the year being reported.

During 2022, South Coast AQMD supported a variety of projects and technologies, ranging from near-term to long-term RD³ activities. This "technology portfolio" strategy provides South Coast AQMD the ability and flexibility to leverage state and federal funding while also addressing the specific needs of the Basin. Projects executed in 2022 included demonstration of zero-emission trucks and infrastructure, demonstration of zero-emission cargo handling equipment, deployment of pre-commercial fuel cell transit buses, natural gas engine emissions and efficiency improvements, and microgrid technology development. Executed contracts for projects with substantial outside cofunding in 2022 resulted in higher leveraging of Clean Fuels dollars. Typical leveraging has been \$4 for every \$1 in Clean Fuels funding. In 2022, leveraging was nearly \$10 for every \$1 of Clean Fuels funds.

In addition to the new projects, 46 RD³ and 11 technology assessments and transfer/outreach projects were completed in 2022. Summaries of each of the technical projects completed in 2022 are provided in Appendix C of the combined Clean Fuels Program Annual Report and Plan Update.

The Clean Fuels Program in 2022 continued to leverage other outside opportunities with the South Coast AQMD securing new awards of almost \$3.3 million from federal, state and local funding. While this revenue may not be recognized into the Clean Fuels Fund, it is part of the overall RD³ effort implemented under the Clean Fuels Program. Staff continues to aggressively pursue applicable funding opportunities that may focus on GHG reductions, energy efficiency and reductions in petroleum usage, while remaining committed to lead in the development of advanced technologies that lower criteria and toxic pollutants. Leveraging dollars and applying for funds is critical given the magnitude of required funding identified in the 2022 AQMP that is needed to achieve federal ozone air quality standards.

Clean Fuels Program Plan Update 2023

The attached Clean Fuels Program Draft Plan Update identifies potential projects to be considered for funding during 2023. The proposed projects reflect promising near-zero and zero-emissions technology and infrastructure applications that are emerging in different source categories. This update includes several proposed projects, not all of which are expected to be funded in the current fiscal year given the available budget and/or fruition of the projects. Some of the proposed projects for 2023 include but are not limited to: 1) Large deployments of medium- and heavy-duty zero-emission trucks and infrastructure; 2) Microgrid demonstrations to support large heavy duty truck charging and hydrogen fueling; 3) High-power charging to decrease dwell time of battery electric trucks; 4) Development and demonstration of green hydrogen production pathways. Projects not funded in 2023 may be considered for funding in subsequent years.

In addition to identifying proposed projects to be considered for funding, the Draft Plan Update confirms ten key technical areas of highest priority to South Coast AQMD. These high priority areas are listed below based on the proposed funding distribution shown in Figure 2:

- Hydrogen/Mobile Fuel Cell Technologies;
- Electric/Hybrid Technologies (battery-electric and hybrid-electric trucks and container transport technologies with zero-emission operations);
- Zero-Emission Infrastructure (especially large-scale fueling and production facilities and stations that support medium- and heavy-duty vehicles);
- Engine Systems/Technologies (alternative and renewable fuels for truck and rail applications);

- Renewable Natural Gas Infrastructure (renewable natural gas and renewable fuels);
- Stationary Clean Fuel Technologies (microgrids that support EV and hydrogen infrastructure and renewables);
- Fuel and Emissions Studies;
- Emission Control Technologies;
- Health Impacts Studies within disadvantaged communities; and
- Technology Transfer and Outreach.

These priorities represent areas where South Coast AQMD funding will have the greatest impact. In keeping with the diverse and flexible "technology portfolio" approach, these priorities may shift during the year to capture opportunities such as cost-sharing by the state government, the federal government or other entities; or address specific technology issues which affect residents within South Coast AQMD's jurisdiction.

Figure 2 depicts the potential distribution of South Coast AQMD Clean Fuels funds, based on projected program costs of \$19.8 million for the ten project areas discussed previously. The expected actual project expenditures for 2023 will be less than the total projected program cost since not all projects will materialize. The target allocations are based on balancing technology priorities, technical challenges and opportunities, and near-term versus long-term benefits within the constraints of available South Coast AQMD funding. Specific contract awards throughout 2023 will be based on this proposed allocation, the quality of proposals received, evaluation of projects against standardized criteria, and Board approval. At that time, additional details will be provided about the technology, its application, the specific scope of work, the project team capabilities, and project cost-sharing.

These technical priorities will necessarily be balanced by funding availability and the availability of qualified projects. Revenues from several sources support South Coast AQMD's technology advancement program. The principal revenue source is the Clean Fuels Program, which under H&SC Section 40448.5 and Vehicle Code Section 9250.11 establishes mechanisms to collect revenues from mobile and stationary sources to support the program's objectives, albeit with constraints on the use of the funds. Grants and cost-sharing revenue contracts from various government agencies, such as CARB, CEC, National Renewable Energy Laboratory, U.S. EPA and DOE, also support technology advancement efforts and these agencies may be asked to cost-share.



Figure 2: Projected Funding Distribution for Potential Projects in 2023 (\$19.8M)

As required, the Annual Report and Plan Update have been reviewed by the SB 98 Clean Fuels Advisory Group. Staff recommends Board approval of the Clean Fuels Program Annual Report for 2022 and adoption of the Clean Fuels Program Plan Update for 2023 as well as finding that the proposed projects do not duplicate programs of other organizations specified in the H&SC provision.

Attachments

- A. Resolution
- B. Qualifications and Expertise of Proposed New Advisory Group Members
- C. TAO Clean Fuels Program 2022 Annual Report and 2023 Plan Update
- D. Presentation

ATTACHMENT A

RESOLUTION NO. 23-____

A Resolution of the Governing Board (the Board) of the South Coast Air Quality Management District (South Coast AQMD) approving the Technology Advancement Office Clean Fuels Program Annual Report for 2022 and adopting the Clean Fuels Program Plan Update for 2023.

WHEREAS, the Board initiated a Clean Fuels Program in 1988 to expedite the demonstration and commercialization of advanced low emission and zero emission technologies and clean fuels;

WHEREAS, Health and Safety Code Sections 40404 and 40448.5 require the South Coast AQMD to coordinate and manage a Clean Fuels Program to accelerate the utilization of clean-burning fuels within the South Coast Air Basin;

WHEREAS, Health and Safety Code Section 40512 and Vehicle Code Section 9250.11 authorize funding for the South Coast AQMD Clean Fuels Program;

WHEREAS, SB 98 (Alarcon), chaptered into state law on June 8, 1999, extended the funding authority for the Clean Fuels Program and added administrative provisions under Health and Safety Code Section 40448.5.1 regarding program planning and reporting, including:

- Providing notice to interested parties and the public at least 30 days prior to the annual public hearing at which the Board or a committee of the Board takes action to approve the clean-burning fuels program.
- Consulting with the SB 98 Clean Fuels Advisory Group regarding approval of the required annual report. The results of that consultation shall be provided to the Board prior to its approval of the report.
- Submitting the Clean Fuels Program annual report to the office of the Legislative Analyst and to the committees of the Legislature responsible for improving air quality on or before March 31 of each year that the clean-burning fuels program is in operation;

WHEREAS, SB 1646 (Padilla), chaptered into state law on September 30, 2008, reauthorized the funding authority for the Clean Fuels Program, removed the sunset of January 1, 2010, and reinstated the five percent administrative cap;

WHEREAS, the Technology Advancement Office Clean Fuels Program Plan Update has been reviewed and commented on by both the Technology Advancement Advisory Group and the SB 98 Clean Fuels Advisory Group; WHEREAS, Health and Safety Code Section 40448.5.1 requires that the South Coast AQMD coordinate and ensure non-duplication of clean fuels-related projects with specified organizations, including the: CARB, CEC, California air quality management districts or air pollution control districts, a public transit district or authority within the geographic jurisdiction of the South Coast AQMD, San Diego Transit Corporation, North County Transit District, Sacramento Regional Transit District, Alameda-Contra Costa Transit District, San Francisco Bay Area Rapid Transit District, Santa Barbara Metropolitan Transit District, Los Angeles Department of Water and Power, Sacramento Municipal Utility District, Pacific Gas and Electric Company, Southern California Gas Company, Southern California Edison Company, San Diego Gas and Electric Company, or the Office of Mobile Sources within the U.S. Environmental Protection Agency;

WHEREAS, based on communications with the organizations specified in Health and Safety Code Section 40448.5.1 and review of their programs, the proposed program and projects included in the Technology Advancement Office Clean Fuels Program Plan Update do not duplicate any other past or present program or project funded by those organizations;

WHEREAS, notice has been provided to interested parties and the public at least 30 days prior to the public hearing at which the Board is to consider approving the cleanburning fuels program; and

WHEREAS, the SB 98 Clean Fuels Advisory Group has reviewed the Technology Advancement Office Annual Report;

NOW, THEREFORE, BE IT RESOLVED that the Board finds the Technology Advancement Office Clean Fuels Program Plan Update does not duplicate any past or present programs or projects funded by the above-specified organizations;

BE IT FURTHER RESOLVED that the Board approves the Technology Advancement Office Clean Fuels Program Annual Report for 2022;

BE IT FURTHER RESOLVED that the Board approves the Technology Advancement Office Clean Fuels Program Plan Update for 2023; and

BE IT FURTHER RESOLVED that the Board hereby directs staff to forward the Technology Advancement Office Clean Fuels Program Annual Report 2022 and Plan Update 2023 to the California Legislature and the Legislative Analyst.

ATTACHMENT B Qualifications and Expertise of Proposed New Advisory Group Members

SB 98 Clean Fuels Advisory Group* Elizabeth John Elizabeth John is Manager of the Medium- and Heavy-Duty Zero Emission Technologies Branch in the Fuels and Transportation Division of CEC, California Energy Commission (CEC) where she oversees grant activities funded under the Clean Transportation Program. Her responsibilities include deploying zero-emission vehicle charging and refueling infrastructure to support advanced freight and transit technologies, hydrogen strategy work, deployment of hydrogen refueling stations, capacity building of California companies to produce renewable hydrogen fuel, and school bus charging infrastructure. She holds a B.A. in political science from University of California Davis and a M.A. in public policy and administration from California State University Sacramento. Rosalie Barinas Rosalie Barcinas is Director of Electrification & Customer Services Policy, Southern California Strategy & Regulatory Affairs. Ms. Barcinas has over 20 years of Edison (SCE) experience that spans across SCE in policy development and advocacy, operations, external engagement, permitting for major infrastructure projects and land rights management. Previously she oversaw operations of the electric, water, and gas systems, special projects, and overall strategy for the long-term sustainability of Catalina Island operations. She recently transitioned to her current position and leads strategy and oversight of policy development and regulatory case management regarding decarbonization through electrification and for customer programs and services. She also supports multiple Employee Resource Groups and Diversity, Equity, and Inclusion efforts across SCE. She has a B.S. in mathematics from California State University Long Beach.

*The charter of the CFAG requires membership changes to be approved by the full South Coast AQMD Board.

Technology Advancement Advisory Group**

reemongy navancement navisory Group	
Marcus Alexander	Marcus Alexander is a Technical Leader in the Electric Transportation
Electric Power Research	program of the Power Delivery and Utilization Sector. As part of the
Institute (EPRI)	Electric Transportation team, Mr. Alexander is primarily responsible for
	vehicle systems analysis, analysis of environmental impacts of electric
	transportation, and analysis of infrastructure demand and vehicle grid
	impacts. Mr. Alexander received a B.S. in Mechanical Engineering (1999)
	and a M.S. in Electrical Engineering (2003) from the University of
	California, Davis. His Master's thesis focused on a flexible electronics
	platform for prototype automotive development.
David Park	David Park is Industry Affairs Director of the Hydrogen Fuel Cell
Hydrogen Fuel Cell	Partnership. His role aligns economics of fuel cell electric vehicle
Partnership	manufacturing with retail and commercial hydrogen supply chain and
	provides industry consensus feedback to state and federal government
	agencies tasked with stimulating ZEV markets. His core background is
	development of public policy related to transportation and the environment
	guided by his experience in management of real world implementation of
	advanced transportation demonstration projects. He has advised
	transportation policy in public, private and nonprofit sectors. He has
	degrees in environmental engineering and public health.

**The charter of the TAAG requires membership changes to be approved by the Board's Technology Committee.

CLEAN FUELS PROGRAM

2023 Plan Update

In 1988, SB 2297 (Rosenthal) was signed into law (Chapter 1546) establishing South Coast AQMD's Clean Fuels Program and reaffirming the existence of the TAO to administer the Clean Fuels Program. The funding source for the Clean Fuels Program is a \$1 motor vehicle registration surcharge that was originally approved for a limited five-year period, but legislation eventually extended both the Program and surcharge indefinitely. The Clean Fuels Program has evolved over the years but continues to fund a broad array of technologies spanning near- and long-term implementation. Similarly, planning will remain an ongoing activity for the Clean Fuels Program, which must remain flexible to address evolving technologies as well capitalize on the latest progress in technologies, research areas and data.

Every year, South Coast AQMD re-evaluates the Clean Fuels Program to develop a Plan Update based on reassessment of clean fuel technologies and direction of the South Coast AQMD Board. This Plan Update for CY 2023 targets several projects to achieve near-term emission reductions needed for the South Coast to meet health-based NAAQS.

Overall Strategy

The overall strategy of TAO's Clean Fuels Program is based on emission reduction technology needs identified through the AQMP process and South Coast AQMD Board directives to protect the health of the approximately 18 million residents (nearly half the population of California) in the Basin. The 2022 AQMP, which was released in May 2022 and adopted in December 2022 by the South Coast AQMD Board, is the long-term regional "blueprint" that relies on fair-share emission reductions from all jurisdictional levels (e.g., federal, state and local). The 2022 AQMP is composed of stationary and mobile source emission reductions from traditional regulatory control measures, incentive-based programs, projected co-benefits from climate change programs, mobile source strategies and reductions from federally regulated sources (e.g., aircraft, locomotives and ocean-going vessels). CARB's Proposed 2022 State SIP Strategy included a revised mobile source strategy required for the Basin to meet the 2015 8-hour ozone standard of 70 ppb by 2037. The Proposed 2022 State SIP Strategy for both mobile and stationary sources require rapid deployment of zero emission technologies to achieve air quality targets.

The emission reductions and control measures in the 2022 AQMP rely on commercial adoption of a mix of currently available technologies as well as the expedited development and commercialization of clean fuel mobile and stationary advanced technologies in the Basin to achieve air quality standards. The 2022 AQMP identifies that 83 percent NOx emission reductions from the 2018 level and 67 percent additional reductions in 2037 beyond already adopted regulations and programs are necessary to meet the 2015 8-hour ozone standard by 2037. The majority of NOx reductions must come from mobile sources, including both on- and off-road sources. Notably, South Coast AQMD is currently only one of two regions in the nation designated as an extreme nonattainment area of the 2015 8-hour ozone NAAQS (the other region is California's San Joaquin Valley).

The 2022 AQMP shows the need for economy-wide transition to zero emission technologies where feasible, and low NOx emission technologies in other applications.

Current state efforts in developing regulations for on- and off-road vehicles and stationary equipment are expected to significantly reduce NOx emissions, but additional measures are needed to achieve the 2023, 2031, and 2037 ozone attainment deadlines. To support fleet turnover the Clean Fuels Program continues to emphasize commercialization and deployment of HD low NOx engines with alternative fuel sources and

large scale deployment of zero emission HD trucks like the Joint Electric Truck Scaling Initiative (JETSI) Pilot Project.¹

While zero emission technologies, battery and fuel cell electric vehicles are making progress or becoming commercialized, the number of zero emission trucks needed to be deployed in time to meet the 2031 and 2037 ozone standards will be difficult to achieve. To enable widespread deployments of battery electric trucks and achieve the needed decline in prices from scale production, several challenges need to be addressed. These challenges include providing an easier process for fleets and independent owner operators to purchase battery electric trucks and not have to worry about difficulties with installing charging infrastructure, charging dwell times, and ability to match duty cycles with diesel trucks. Projects such as the JETSI 100 BET deployment and EPRI Electric Truck Research and Utilization Center (eTRUC) project to development and demonstrate large battery electric truck deployment with higher powered chargers. These projects will implement two 500 kW and up to 1 MW charging sites and will focus on addressing the complexity of integrating 50 battery electric trucks.

Within the South Coast Basin, large fleets are starting to purchase BETs with near term delivery dates. Several fleets have trucks being delivered in 2023 but unfortunately the installation of infrastructure lags the delivery of the trucks. This difficulty of adding infrastructure to charge BETs is often a hindrance that many fleets have chosen not to tackle and simply have reverted to purchasing new diesel trucks. The infrastructure challenge is something that public truck charging stations alongside technology solutions will help mitigate the frustrations with purchasing BETs. Unfortunately in the South Coast Air Basin the infrastructure for public truck charging does not exist but many companies have efforts in place to install infrastructure. The best design and business practices for installing public infrastructure will be something that South Coast AQMD staff will closely monitor.

Diesel truck emissions are the largest NOx emission category in the South Coast Air Basin. While CARB has the proposed Advanced Clean Fleets regulation and existing truck regulations there is a need to tackle interstate truck emissions. On June 3, 2016, South Coast AQMD petitioned U.S. EPA to initiate rulemaking for a lower national NOx standard for on-road HD engines to achieve additional mobile source emission reductions. The national NOx standard for on-road HD vehicles is estimated to result in 70 to 90 percent NOx emission reductions from this source category in 14 to 25 years, respectively. CARB estimates that 60 percent of total on-road HD vehicle miles traveled in the Basin are from vehicles purchased outside of California, which points to the need for a more stringent federal as well as state standard for on-road HD vehicles.

U.S. EPA has acknowledged the need for additional NOx reductions through a harmonized and comprehensive national NOx reduction program for HD on-highway engines and vehicles. On November 13, 2018, U.S. EPA announced the Cleaner Truck Initiative, and on January 6, 2020, they issued an Advance Notice of Proposed Rule to reduce NOx emissions from on-road HD trucks. After some delay, in March 2022, U.S. EPA issued the Notice of Proposed Rule Making (NPRM) and finalized the rule in December 2022. Numerous organizations, including South Coast AQMD, submitted comments to U.S. EPA urging the adoption of the most stringent rule as fast as feasible. South Coast AQMD comments suggested that U.S. EPA should align with the already adopted CARB Omnibus regulation. The CARB regulation imposes two-phase NOx standards starting in model year 2024 with the ultimate standard of 0.02 g/bhp-hr in 2027, 90% below today's NOx standard, while the U.S. EPA proposal considers three NOx options of 0.05, 0.035 and 0.02 g/bhp-hr in 2027. Despite these efforts, the implementation and effectiveness of U.S. EPA and CARB regulations are unable to help South Coast AQMD meet its 2023 federal ozone attainment deadline

¹ The project, known as Joint Electric Truck Scaling Initiative, or JETSI, will be one the largest commercial deployment of battery-electric trucks in North America to date, helping to significantly increase the number of zero-emission HD trucks available for goods movement while achieving necessary emission reductions. This is the first battery-electric truck project jointly financed by CARB and the CEC, and the largest investment of its kind.

of 80ppb ozone. Given that the Basin must attain the 70-ppb ozone NAAQS by 2037, a new on-road HD engine NOx emission standard is critical given the time needed for OEMs to develop and produce compliant vehicles, and for national fleet turnover to occur.

Figure 29 shows the difference in NOx reductions in the Basin from on-road HD trucks under three scenarios: baseline (no change in the NOx standard) in blue, a 0.02 g/bhp-hr NOx standard adopted only in California in yellow, and lastly, a federal 0.02 g/bhp-hr NOx standard in orange. Although a single 0.02 g/bhp-hr standard no longer reflects the current adopted and proposed options of NOx standards, Figure 29 is still relevant because it shows the significant contribution by federally regulated trucks to the Basin NOx inventory as well as the relatively long turnover time from when the regulation is first adopted. (e.g. 10 years for 50% NOx reduction and 20 years for 80% NOx reduction). These two facts support the urgency for the Basin to have a more stringent nationwide NOx regulation as soon as feasible.



Figure 29: NOx Reduction Comparison: No New Regulations vs Low NOx Standard in California only vs National Standard

South Coast AQMD completed MATES V in August 2021 to update the emissions inventory of toxic air contaminants, as well as modeling to characterize risks, including measurements and analysis of ultrafine particle concentrations typically emitted or subsequently formed from vehicle exhaust. Findings from the MATES V report showed that air toxics cancer risk based on modeling data has decreased by over 50% since MATES IV, with an average multi-pathway air toxics cancer risk at 454-in-a-million. The highest risk locations are at LAX, the Ports, and along goods movement and transportation corridors. Diesel PM continues to be the major contributor accounting for over 60% of the overall air toxics cancer risk. For the first time, chronic non-cancer risk was estimated with a chronic hazard index of 5.9 across the 10 stations in the MATES V study. U.S. EPA approved the use of the CARB EMFAC 2017 model for on-road vehicles for use in the State Implementation Plan and transportation conformity analyses, which assesses emissions from off-road equipment such as yard tractors, top handlers, and rubber tire gantry cranes, is being replaced by category-specific methods and inventory models developed for specific regulatory support projects.

A key strategy of the Clean Fuels Program, which allows significant leveraging of Clean Fuels funding (historically \$4 to every \$1 of Clean Fuels funds), is its public-private partnerships with private industry, technology developers, academic institutions, research institutions and government agencies. Since 1988, the Clean Fuels Program provided more than \$250 million toward projects nearing \$1.6 billion. Leveraging of the Clean Fuels Fund is based on actual executed contracts and total project costs from the prior year's Clean Fuels Annual Report and Plan Update. In 1998, South Coast AQMD's Carl Moyer Program was launched. The two programs produce a unique synergy, with the Carl Moyer Program (and other subsequent incentive programs) providing the necessary funding to push market penetration of commercial technologies partially developed and demonstrated by the Clean Fuels Program. This synergy enables South Coast AQMD to act as a leader in technology development and commercialization efforts targeting reduction of criteria pollutants. Since the Carl Mover Program began, South Coast AOMD has begun implemented other incentive programs (i.e., Volkswagen Mitigation, Proposition 1B-Goods Movement, and Community Air Protection Program), with cumulative funding of over \$200 million in 2022. There is \$15.6 million in Year 3 AB 617 Community Air Protection Program (CAPP) incentive funding reserved for zero emission trucks in the East Los Angeles/Boyle Heights/West Commerce, Southeast Los Angeles, San Bernardino/Muscoy, and Wilmington/Carson/West Long Beach AB 617 communities, all of which identified zero emission trucks as a funding priority in their CERPs. The 2022 AQMP also included control measures to develop an indirect source regulation for the San Pedro Ports and strengthen fleet rules to take advantage of incentives to further accelerate emission reductions.

Despite several current California incentive programs to deploy cleaner technologies and offset the higher procurement costs of cleaner technologies, significant additional resources and technology development is needed to achieve the NAAQS for this region. There are several emerging key technologies that are discussed in detail later that will provide NOx and GHG co-benefits while requiring less vehicle purchase incentives.

As technologies move towards commercialization, such as HD fuel cell trucks, the Clean Fuels Program has partnered with large OEMs, such as Daimler and Volvo to deploy these vehicles. These OEM partnerships allow the Clean Fuels Program to leverage their research, design, engineering, manufacturing, sales and service, and financial resources to move advanced technologies from the laboratories to the field and into customers' hands. The OEMs have the resources to develop advanced technology vehicles such as battery electric and fuel cell powertrains, manufacture in large quantities, and utilize their distribution networks to support sales across the state.

Figure 30 outlines a developmental progression for technology demonstration and deployment projects funded by the Clean Fuels Program and the relationship incentive programs administered by TAO play in that progression. The Clean Fuels Program funds various stages of technology projects, typically ranging from Technology Readiness Levels 3-8, to provide a portfolio of technology choices and achieve near-term and long-term emission reduction benefits.



Figure 30: Stages of Clean Fuels Program Funding

Many technologies that address the Basin's needed NOx reductions align with the state's GHG reduction efforts. U.S. EPA $(2022)^2$ noted that the transportation sector contributed 36 percent of overall GHG emissions. Due to these co-benefits, South Coast AQMD has been successful in partnering with the state and public/private partnerships to leverage its Clean Fuels funding extensively.

Program and Funding Scope

This Draft 2023 Plan Update includes projects to research, develop, demonstrate and advance deployment a variety of technologies, from near-term to long-term, that are intended to address the following challenges:

- 1) implementation of new and changing federal requirements, such as the more stringent federal 8-hour ozone standard of 70 ppb promulgated by U.S. EPA in late 2015;
- 2) implementation of new technology measures including accelerated development of technologies nearing commercialization and deployment of commercially ready technologies; and
- 3) continued development of near-term cost-effective approaches and long-term technology development.

The overall scope of projects in the Draft 2023 Plan Update remains sufficiently flexible to address new technologies and control measures identified in the 2022 AQMP, dynamically evolving technologies, and new research and data. The latter includes findings from MATES V and revised emission inventories from EMFAC 2017.

Within the core technology areas defined later in this section, project objectives range from near term to long term. The Clean Fuels Program concentrates on supporting development, demonstration and technology commercialization and deployment efforts rather than fundamental research. The nature and typical time-to-product for Clean Fuels Program projects are described below, from near term to long term.

- *Deployment* or technology *commercialization* efforts focus on increasing utilization of clean technologies in conventional applications, promising immediate and growing emission reduction benefits. These are expected to result in commercially available products as early as 2022, including obtaining required certifications from CARB and EPA. It is often difficult to transition users to non-traditional technologies or fuels due to higher incremental costs or required changes to user behavior, even if these technologies or fuels offer significant benefits. In addition to the government's role to reduce risk by funding technology development and testing, it is also necessary to offset incremental costs through incentives to accelerate the use of cleaner technologies. The increased use of these clean fuel technologies also depends on efforts to increase stakeholder confidence that these technologies are viable and cost-effective in the long term.
- Several technologies ready to begin field *demonstration* in 2023 are expected to result in commercially available products in the 2024-2027 timeframe, and technologies being demonstrated generally are in the process of being verified or certified by CARB and EPA. Field demonstrations provide a controlled environment for manufacturers to gain real-world experience and address end-user issues that arise prior to the commercial introduction of technologies. Field demonstrations provide real-world evidence of performance to allay any concerns by early adopters as well as preliminary emissions reduction potential.
- Finally, successful technology *development* projects are expected to begin as early as late 2023 with durations of two or more years. Additionally, field demonstrations to gain long term verification of performance may also be needed prior to commercialization. Certification and

² U.S. Greenhouse Gas Emissions and Sinks 1990-2020. 2022. <u>https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions</u>

commercialization would be expected to follow. Projects may involve the development of emerging technologies that are considered long-term and higher risk, but with significant emission reductions potential. Commercial introduction of such long-term technologies would not be expected until 2028 or later.

Core Technologies

The following technologies have been identified as having the greatest potential to enable the emission reductions needed to achieve the NAAQS and thus form the core of the Clean Fuels Program.

The goal is to fund viable projects in all categories. However, not all project categories will be funded in 2023 due to funding limitations, and the focus will remain on control measures identified in the 2022 AQMP, with consideration for availability of suitable projects. The project categories identified below are appropriate within the context of the current air quality challenges and opportunities for technology advancement.

Within these areas, there is significant opportunity for South Coast AQMD to leverage its funds with other funding partners to expedite the demonstration and deployment of clean technologies in the Basin. A concerted effort is continually made to form public private partnerships to maximize leveraging of Clean Fuels funds.

Several of the core technologies discussed below are synergistic. For example, a HD vehicle such as a transit bus or drayage truck, may utilize a hybrid electric drive train with a fuel cell operating on hydrogen fuel or an internal combustion engine (ICE) operating on an alternative fuel as a range extender. Elements of the core hybrid electric system may overlap. Similarly, a hydrogen powered engine may utilize a natural gas HD vehicle that also combusts gaseous fuel and requires a compressed tank storage system; elements of the similar combustion and fuel storage may overlap.

Priorities may shift during the year in keeping with the diverse and flexible technology portfolio approach or to leverage opportunities such as cost-sharing by the state or federal government or other entities. Priorities may also shift to address specific technology issues which affect residents within the South Coast AQMD's jurisdiction. For example, AB 617, signed by the Governor in 2017, implements actions and provides incentive funding for priorities designated in CERPs by six AB 617 communities within the South Coast region, and additional flexibility will be needed to develop new strategies and technologies for those disadvantaged communities.

The following ten core technology areas are listed by current South Coast AQMD priorities based on the goals for 2023.

Hydrogen / Mobile Fuel Cell Technologies

South Coast AQMD supports hydrogen fuel cell technologies as one option in the technology portfolio; the agency is dedicated to assisting federal and state government programs to deploy LD, medium, and HD fuel cell electric vehicles (FCV).

Calendar Years 2015-2019 were a critical timeframe for the introduction of LD hydrogen FCVs. In 2014, Hyundai introduced the Tucson FCV for lease. In 2015, Toyota commercialized the Mirai, the first FCV available to consumers for purchase. In December 2016, Honda started commercial lease of its 2017 Honda Clarity FCV. The 2019 Hyundai Nexo was the second FCV offered for sale and lease in California. In the past, Clean Fuels funding has gone towards leases for LD FCVs as part of its technology outreach efforts for conferences and events in disadvantaged communities.

Fuel cells can play a role in MD and HD applications where battery recharge time and vehicle range, although improving, is insufficient to meet fleet operational requirements. The California Fuel Cell Partnership's (CaFCP's) 2030 Vision³ released in July 2018 provides a broader framework for the earlier *MD and HD Fuel Cell Electric Truck Action Plan* completed in October 2016, which focused on Class 4 parcel delivery trucks and Class 8 drayage trucks with infrastructure development and established metrics for measuring progress. The CaFCP's *HD Vision* released in July 2021 describes 70,000 fuel cell electric trucks supported by 200 HD hydrogen stations operating in California and beyond.

Another player in the HD fuel cell truck space is Cummins (CWI) who recently purchased Hydrogenics and Efficient Drivetrains, Inc. (EDI) to develop fuel cell power trains. CWI is currently working on the ZECT 2 and a CEC/South Coast AQMD project to develop and demonstrate fuel cell drayage trucks with next generation fuel cell module - easy to package system design and other innovative integration strategies. In 2022, Volvo and Daimler also announced a joint venture to develop fuel cell powered trucks. South Coast AQMD has created many alliances with large OEMs and will continue to fund projects with these OEMs over the next year to develop HD fuel cell trucks. In June 2021, South Coast AQMD recognized \$500k from U.S. EPA to demonstrate two Hyundai Class 8 fuel cell trucks with a range of up to 500 miles for regional and long-haul operations.

The CaFCP *Fuel Cell Electric Bus Road Map* released in September 2019 supports implementation of CARB's Innovative Clean Transit and Zero Emission Airport Shuttle regulations. As part of the \$46 million Fuel Cell Electric Bus Commercialization Consortium project, for which the Clean Fuels Fund contributed \$1 million, Center for Transportation and the Environment (CTE), in partnership with New Flyer, Trillium, and OCTA, wrapped up its deployment of ten 40-foot New Flyer XHE40 fuel cell transit buses and installed a liquid storage hydrogen station capable of fueling up to 50 fuel cell transit buses at OCTA in February 2021. This project also deployed 10 fuel cell transit buses and a hydrogen station upgrade at Alameda-Contra Costa Transit District (AC Transit). The ten fuel cell buses at OCTA accumulated almost 300,000 miles of revenue service during the demonstration with an overall uptime of 67%.

SunLine Transit Agency (SunLine) received a U.S. EPA Targeted Airshed grant in June 2020 to deploy five fuel cell transit buses, in addition to their existing fleet of 26 fuel cell and four battery electric transit buses as well as a recently upgraded 900 kg/day hydrogen station capable of supporting up to 30 fuel cell transit buses. SunLine has accepted and commissioned one of the buses into its fleet. In August 2021, the Clean Fuels Program committed \$531,166 to a \$2 million project to develop and demonstrate two MD fuel cell transit buses at SunLine. Additional outlets for hydrogen fueling infrastructure for these buses will also be developed.

In March 2021, Frontier Energy was awarded \$25,000 to perform a high-flow bus fueling protocol development project as a part of the DOE H2@Scale program with partners including SoCalGas, Shell, and NREL. NREL was also awarded \$25,000 for California HD Infrastructure Research, and UC Davis was awarded \$50,000 for California Hydrogen Systems Analysis. These projects aim to fill in the gaps between LD and HD hydrogen fueling infrastructure to encourage the expansion of hydrogen fueling infrastructure as more state and federal policies are developed or passed. In addition, as more fuel cell MHDVs are commercialized, this research becomes more pivotal to ensuring sufficient hydrogen fueling stations are available.

The Draft 2023 Plan Update identifies key opportunities while clearly leading the way for pre-commercial demonstrations of OEM FCVs. Future projects may include the following:

³ CaFCP's *The California Fuel Cell Revolution, A Vision For Advancing Economic, Social, and Environmental Priorities* (Vision 2030), September 4, 2018.

- development and demonstration of cross-cutting fuel cell applications (e.g. scalable and costeffective fuel cell powertrain components);
- development and demonstration of fuel cells in off-road, locomotive and commercial harbor craft applications such as port cargo handling equipment, switcher locomotives and tugs;
- demonstration of FCVs in controlled fleet applications in the Air Basin;
- coordination with FCV OEMs to develop an understanding of their progress in overcoming barriers to economically competitive FCVs and develop realistic scenarios for large scale introduction;
- development and implementation of strategies with government and industry to build increasing scale and renewable content in the hydrogen market including certification and testing of hydrogen as a commercial fuel to create a business case for investments as well as critical assessments of market risks to guide and protect these investments; and
- repurposing fuel cells and hydrogen tanks for other secondary energy production and storage uses, as well as reusing fuel cells and hydrogen tanks, and approaches to recycle catalysts and other metals.

Electric / Hybrid Technologies

To meet the NAAQS, a primary focus continues to be on zero and near-zero emission technologies. A key strategy to achieve these goals is wide-scale transportation electrification. South Coast AQMD supports projects to address concerns regarding cost, battery life, all-electric range, and OEM commitment. Integrated transportation systems can encourage further emission reductions by matching EVs to typical consumer and fleet duty cycles and demands including drayage, short regional haul, and last mile delivery. Class 8 battery electric trucks from Daimler and Volvo are now CARB and U.S. EPA certified, commercially available, and eligible for incentives from Hybrid and Zero Emission Truck and Bus Voucher Incentive Project (HVIP), Carl Moyer, Prop 1B, VW Settlement, Voucher Incentive Program, and CAPP funds.

Development and deployment of zero emission goods movement and freight handling technologies remains one of the top priorities for the South Coast AQMD to support balanced and sustainable growth at the San Pedro Bay Ports as well as freight/logistics facilities throughout the Basin. The South Coast AQMD continues to work with our regional partners, including the San Pedro Bay Ports, Southern California Association of Governments (SCAG) and Los Angeles County Metropolitan Transportation Authority (Metro) to demonstrate and deploy technologies that are technically feasible, cost-effective with the assistance of incentives and/or grant funding, and beneficial to all stakeholders. Specific technologies include zero emission trucks/freight handling equipment (battery and/or fuel cell), or plug-in hybrid powertrains, locomotives with hydrogen fuel cells, hybrid and battery electric technologies, and linear synchronous motors for locomotives and trucks. Additionally, the California Sustainable Freight Action Plan outlines a blueprint to transition the state's freight system to an environmentally cleaner, more efficient and economical system, including a call for a zero and near-zero emission vehicle pilot project in Southern California. The City of Los Angeles Zero Emission 2028 Roadmap 2.0 in preparation for the 2028 Olympics corroborates this effort, calling for an additional 25% each in GHG and criteria pollutant reductions. The San Pedro Bay Ports Clean Air Action Plan Update (2022) calls for zero emissions cargo handling equipment by 2030 and zero emission drayage trucks by 2035, respectively.

HD hybrid vehicles have historically been optimized for fuel economy, new generation hybrid powertrains that use a systems approach for co-optimizing both criteria emissions and fuel economy could provide another technology pathway to meet the air quality goals of the Basin. These hybrid systems in both plugin and non-plug-in configurations, focus on electrifying key engine subsystems and energy recovery to provide engine assistance during transient operations. Furthermore, the availability of additional electrical power such as 48-volt systems could allow for electric aftertreatment heaters for better transient control through thermo-management and therefore better NOx control at a reduced cost compared to traditional aftertreatment systems. South Coast AQMD views these next generation hybrid powertrains as capable of being deployed without the need for incentives, by providing fuel economy benefits which could provide another potential cost-effective pathway for near term NOx emission reductions. Furthermore, CARB's Advanced Clean Trucks (passed June 2020) and Advanced Clean Fleets (Board consideration October 2022) regulations allow sales of plug-in hybrid vehicles capable of zero-emission operation as a compliance pathway for meeting the manufacturer and fleet zero emission vehicle mandate.

New, ongoing, and recently completed zero emission battery electric technology projects include: 1) Joint Electric Truck Scaling Initiative (JETSI) Pilot Project with deployment of 100 Daimler and Volvo Class 8 battery electric trucks for drayage and regional haul at NFI and Schneider funded by \$16 million from CARB, \$11 million from CEC, \$8 million from Mobile Source Air Pollution Reduction Review Committee (MSRC), \$5.5 million from the Clean Fuels Fund, \$5 million from SCE, and \$3 million from the San Pedro Bay Ports; 2) Switch-On Project with deployment of 70 Volvo Class 8 battery electric drayage/freight trucks at eight fleets funded with \$20 million from the U.S .EPA Targeted Airshed grant; 3) deployment of two additional Class 8 battery electric drayage trucks as part of the CARB Volvo LIGHTS project through a \$500,000 U.S. EPA Clean Air Technology Initiative grant; 4) deployment of two Volvo Class 8 battery electric trucks at Producers Dairy in Fresno as part of the CARB Greenhouse Gas Reduction Fund Zero Emission Drayage Truck Project; 5) Daimler Customer Experience project to demonstrate eight Class 6 and 8 battery electric trucks and fast charging infrastructure funded with \$1 million by the Clean Fuels Fund; and 6) commercial deployment of 35 Daimler Class 6 and Class 8 battery electric trucks funded by \$4 million from the U.S. EPA Targeted Airshed grant.

Opportunities to develop and demonstrate technologies that could enable expedited widespread use of precommercial and commercial battery electric and hybrid-electric vehicles in the Basin include the following:

- demonstration of battery electric and fuel cell electric technologies for cargo handling and container transport operations, e.g., HD battery electric or plug-in electric drayage trucks with all electric range;
- large scale deployments of commercial battery electric vehicles (i.e. 50 or more vehicles) to prove feasibility and development of fleet tools to assist in successful operation for drayage and short regional haul operations;
- demonstration of MD battery electric and fuel cell electric vehicles in package delivery or last mile operations, e.g., battery electric walk-in vans with fuel cell or plug-in hybrid range extender;
- development and demonstration of battery and fuel cell electric off-road equipment; e.g. battery electric off-road construction equipment, yard tractors, or top-handler with wireless charger;
- development and demonstration of hybrid and plug-in hybrid vehicle technology;
- development of hybrid vehicles and technologies for off-road equipment;
- demonstration of niche application battery and fuel cell electric MD and HD vehicles, including school and transit buses and refuse trucks with short-distance fixed service routes;
- demonstration of integrated programs that make best use of electric drive vehicles through interconnectivity between fleets of shared electric vehicles and mass transit, and rideshare services that cater to multiple users and residents in disadvantaged communities;
- development of eco-friendly intelligent transportation system (ITS), geofencing, and Eco-Drive strategies to maximize emission reductions and energy consumption by operating in zero emission mode when driving in disadvantaged communities; demonstrations that encourage electric drive

vehicle deployment in autonomous applications; optimized load-balancing strategies and improved characterization of in-duty drayage cycles and modeling/simulations for cargo freight and market analysis for zero emission HD trucks;

- development of higher density battery technologies for use in HD vehicles;
- repurposing EV batteries for other or second life energy storage uses, as well as reusing battery packs and approaches to recycle lithium, cobalt and other metals; and
- development of a methodology to increase capability to accept fast-charging and resultant life cycle and demonstration of effects of fast-charging on battery life and vehicle performance.

Zero Emission Infrastructure

Significant demonstration and commercialization efforts for zero emission infrastructure are funded by the Clean Fuels Program as well as other local, state and federal programs. Zero emission infrastructure has become an increasing focus of the Clean Fuels Program in order to support large scale demonstration and deployment of hydrogen fuel cell and battery electric vehicles and equipment. This category is being presented separately from Hydrogen/Fuel Cell and Electric/Hybrid Technologies for the first time in the Draft 2023 Plan Update.

Hydrogen Infrastructure

With lead times on retail level hydrogen fueling stations requiring 18-36 months for permitting, construction and commissioning, plans for future stations need to be implemented. While coordination with the California Division of Measurement Standards (DMS) to establish standardized measurements for hydrogen fueling started in 2014, additional efforts to offer hydrogen for sale in higher volumes are still needed specifically with upcoming ZE vehicle and infrastructure policy deadlines on a national and state level. Moreover, CARB's Low Carbon Fuel Standard (LCFS) regulation provides incentives for producing and dispensing the low carbon intensity (CI) hydrogen for FCVs, enabling station operators to remain solvent and cover part of their operational cost and consequently reducing the dollar per kilogram cost of hydrogen for consumers. Lastly, a deliberate and coordinated effort is necessary to ensure that hydrogen supply, and fueling reliability matching those of existing gasoline and diesel fueling stations. The current network of hydrogen fueling stations to support the current number of LD FCVs on the road and future MHD FCVs is insufficient, and supply of hydrogen and additional hydrogen production, specifically the carbon-neutral hydrogen, continue to be challenges that need to be addressed.

In 2019, the Clean Fuels Program awarded \$1.2 million to Equilon (Shell) as part of the H2Freight project for a new 1,000 kg/day HD hydrogen fueling station using hydrogen produced by a new tri-generation fuel cell on POLB property leased by Toyota. The station was commissioned in 2021 and continues its soft open operation with ongoing data collection and analysis. As part of the \$83 million Shore-to-Store project led by the POLA, for which the Clean Fuels Program committed \$1 million, Toyota and Kenworth deployed 10 Class 8 fuel cell trucks and Equilon (Shell) built two large capacity hydrogen fueling stations in Wilmington and Ontario. Kenworth leveraged the development on the fuel cell truck demonstrated in South Coast AQMD's ZECT 2 project and integrated Toyota's fuel cells into the Kenworth trucks. These fuel cell trucks are deployed at fleets including UPS, Total Transportation Services, Southern Counties Express, and Toyota Logistics Services at the Ports of Los Angeles and Port Hueneme, as well as other fleets in Riverside County. Most of the fuel cell trucks completed the demonstration phase. Also, the Ontario and Wilmington stations are commissioned and NREL continues to collect and analyze the data.

New, ongoing, and recently completed hydrogen infrastructure projects include: 1) POLA Shore to Store project with deployment of two 400 kg/day hydrogen fueling stations in Wilmington and Ontario for HD

fuel cell trucks and 2) retrofit of existing hydrogen infrastructure stations to accommodate HD fuel cell trucks by First Element to demonstration Hyundai Class 8 fuel cell trucks.

Electric Charging Infrastructure

The challenges of installing charging infrastructure include costs, permitting, UL certification of equipment, utility interconnection requirements and the ability of utilities to upgrade power to specific fleet sites, all of which need to be better understood and streamlined.

Continued technology advancements in LD infrastructure have facilitated development of corresponding codes and standards for MD and HD infrastructure including UL certification of the CCS2 connector for the Volvo LIGHTS battery electric truck demonstration project. Additionally, SCE's Charge Ready Transport Program and Los Angeles Department of Water and Power's (LADWP) Commercial EV Charging Station Rebate Program includes funding for MD and HD vehicles and infrastructure.

LD EV charging infrastructure is commercially available and MD and HD charging infrastructure is becoming commercially available. The CCS1 connector continues to be the standard connector for MD and HD charging up to 350 kW direct current (DC). Charging Interface Initiative (CharIN) released a Megawatt Charging System (MCS) connector in June 2022 for Class 6 -8 EVs designed for a maximum current of 3,000 A at up to 1,250V for charging up to 3.75 MW DC. Currently there are no MD or HD EVs capable of accepting charging above 350 kW DC. There is also an agreed upon SAE J3068 connector standard for single-phase and three-phase AC charging. Challenges and costs of installing MD and HD charging infrastructure increase exponentially compared to LD infrastructure. Each year there are more commercially available options for MD and HD charging infrastructure.

South Coast AQMD is seeking DOE funding to lead a regional collaborative to create a MD/HD charging and hydrogen fueling infrastructure plan for the South Coast Air Basin. This will supplement SCAG's existing effort to create a six county regional MD/HD charging and hydrogen fueling infrastructure plan as part of a CEC eTRUC project to develop and demonstrate high power DC fast charging for HD battery electric trucks. A detailed plan for the San Pedro Bay Ports and the I-710 corridor will be created using advanced modeling and additional data sources. In a related effort, Metro has committed \$50 million of its funding to deploy charging for HD battery electric trucks between the San Pedro Bay Ports and along the I-710 south corridor.

New, ongoing, and recently completed electric charging infrastructure projects include: 1) Joint Electric Truck Scaling Initiative (JETSI) Pilot Project with installation of 350 kW DC fast chargers to support 100 Daimler and Volvo Class 8 battery electric trucks at NFI and Schneider; 2) Switch-On Project with installation of multiple DC fast chargers to support 70 Volvo Class 8 battery electric drayage/freight trucks at eight fleets; and 3) deployment of two 150 kW DC fast chargers at Producers Dairy in Fresno as part of the CARB Greenhouse Gas Reduction Fund Zero Emission Drayage Truck Project.

The Draft 2023 Plan Update identifies key opportunities while clearly leading the way for demonstration and deployment of hydrogen fueling and charging infrastructure. Future projects may include the following:

- continued development and demonstration of distributed hydrogen production and fueling stations from multiple providers, including energy stations with electricity and renewable hydrogen coproduction and higher pressure (10,000 psi) hydrogen dispensing and scalable/higher throughput;
- development of additional sources of hydrogen production and local generation of hydrogen for fueling stations far from local production sources to better meet demand of FCVs;
- development of carbon-natural (or low carbon intensity) hydrogen production, distribution, and infrastructure network through a partnership with regional hydrogen hub projects;

- large scale deployments of commercial large fleet and public charging infrastructure to meet needs for owner operators/small fleets/large fleets for various segments (drayage, last mile delivery, short regional haul);
- development of fleet tools to assist in successful operation for drayage, last mile delivery, and short regional haul operations;
- demonstration and installation of infrastructure to support battery electric and fuel cell electric LD, MD and HD fleets, and ways to reduce cost and incentivize incremental costs over conventionally fueled vehicles, meet fleet operational needs, improve reliability, and integrate with battery energy storage, renewable energy and energy management strategies (e.g., vehicle-to-grid or vehicle-tobuilding functionality, demand response, load management);
- creation of MD/HD charging and hydrogen fueling regional infrastructure planning efforts; and
- deployment of infrastructure corresponding to codes and standards specific to LD, MD and HD vehicles, including standardized connectors, fuel quality, communication protocols, and open standards and demand response protocols for EV chargers to communicate across charging networks.

Engine Systems/Technologies

To achieve the emission reductions required for the Basin, ICEs used in the HD sector will require widespread implementation of zero emission technologies as outlined in CARB's 2020 Mobile Source Strategy. The path to 100% zero emission trucking sector will take time and the CARB HD On-Road "Omnibus" Low NOx regulation and EPA's proposed Cleaner Trucks Initiative (CTI) shows the need for ultra-low NOx ICE engines.

In 2016, CWI achieved a new ultra-low NOx threshold by commercializing the first on-road HD engine to be certified to CARB's optional low NOx standard of 0.02g NOx/bhp-hr. The 8.9 liter (8.9L) ISL-G natural gas engine demonstrated that an ICE could achieve NOx exhaust emission levels 90 percent cleaner than the existing federal standard. Powering these vehicles with low Carbon Intensity renewable fuels or biomethane, to help address GHG objectives, became a game changer for the HD transportation sector. The 8.9L engine works well in refuse and other vocational trucks as well as transit and school buses.

In 2017, CWI, with South Coast AQMD and other project partners, achieved certification of the 12L natural gas engine. The 12L engine in Class 8 drayage trucks and 60-foot articulated transit buses expanded the scope of this near-zero technology. Both CARB and U.S. EPA certified the 12L engine at 0.02 g/bhp-hr for NOx. New for 2020, CWI certified its 6.7L natural gas engine to 0.02 g/bhp-hr NOx for the first time, further ensuring the viability of near-zero engine options for all market segments.

Although no near-zero emission diesel technology is commercially available today, development and demonstration efforts have proven low NOx diesel technology is viable. South Coast AQMD has been working closely with CARB, U.S. EPA and others on defining low NOx diesel technology pathways via several projects, including the Ultra-Low Emissions Diesel Engine Program at Southwest Research Institute (SwRI), opposed piston engine development with Achates Power Inc., and Thermal Management using Cylinder Deactivation (CDA) with West Virginia University.

More recently, CWI announced a hydrogen powered ICE with near –zero NOx capabilities ready for implementation in the 2027 timeframe. As a result, the Draft 2023 Plan Update includes on-road truck demonstrations using hydrogen as a fuel for internal combustion. These demonstration efforts are considered key milestones in driving up the TRL level toward full commercialization as a bridge and complementary technology toward zero emission technology, especially for high horsepower and long-haul applications where zero emission technologies and supporting infrastructure will take longer to become commercially available.

The Draft 2023 Plan Update continues to incorporate pursuit of cleaner engines and hybrid powertrains for the HD sector but is starting to transition to large scale pre-commercial demonstration and deployment efforts as current near-zero NOx ICE technologies are becoming readily available. Future projects will continue to support the development, demonstration and emissions verification/certification of engines and powertrains that can achieve needed near-term emission reductions. At the same time, aggressive GHG emission reduction targets set forth by both CARB and U.S. EPA have invigorated interest in revisiting low- and zero carbon alternative fuels for those high power/torque applications. While the GHG benefit is relatively easy to assess by fuel source, it is also important to understand the criteria emissions impact under real-world conditions and over its useful lifetime to ensure reduction of both criteria and GHGs are fully realized.

The Draft 2023 Plan Update includes potential projects that the South Coast AQMD might participate with federal, state, and other private companies towards these efforts. Specifically, these projects are expected to target the following:

- development of ultra-low emissions and improved higher efficiency gaseous and liquid fuel powered engines for HD vehicles and high horsepower applications projects that move these technologies to a higher technology readiness level and commercialization;
- development and demonstration of gaseous and liquid fuel powered engines to support hybrid and plug-in hybrid vehicle technology;
- development and demonstration of alternative fuel engines for on- and off-road applications;
- development and demonstration of engine systems that employ advanced engine design features, CDA, improved exhaust or recirculation systems, and aftertreatment devices; and
- further development of robust aftertreatment systems which can maintain certified emissions levels under a wide variety of duty-cycles and throughout the vehicle's useful life.

EPA's recent proposal to create a new national low NOx standard for on-highway HD engines starting in 2027 will further motivate manufacturers to develop lower-NOx emitting technologies expected to result in greater NOx emission reductions than a "California only" low NOx standard for on-road HD engines. Low- and zero carbon alternative fuels for new low emitting engines will continue to emerge as timelines for GHG reductions approach.

RNG Infrastructure (RNG and Renewable Fuels)

Significant demonstration and commercialization efforts funded by the Clean Fuels Program as well as other local, state and federal agencies are underway to: 1) support the upgrade and buildup of public and private infrastructure projects, 2) expand the network of public-access and fleet fueling stations based on the population of existing and anticipated vehicles, 3) put in place infrastructure that will ultimately be needed to accommodate transportation fuels with very low gaseous and GHG emissions, and 4) support local production of clean, low carbon intensity, renewable transportation fuels.

Hydrogen fueling stations continue to be positioned to support both public and private fleet applications. Funding has been applied to provide fueling at key points for all classes of vehicles, with an emphasis on HD vehicle users travelling on major goods movement corridors, including local ports, and along I-15 and The Greater Interstate Clean Transportation Corridor (ICTC) Network. Upgrades and expansions are also needed on RNG stations to refurbish or increase capacity for some of the stations installed five or more years ago as well as standardize fueling station design, especially to ensure growth of alternative fuels throughout the Basin and beyond. There is also a continuing and growing interest for complete transition to renewable fuels, particularly natural gas delivered through existing natural gas pipelines. Future funding will be needed to support local production and use of renewable natural gas and electricity to produce green

hydrogen for light and HD vehicles. The growing interest in low carbon, renewable transportation fuels that also power ultra-low to zero emission vehicles will expand the scope of this category to provide support of local production and distribution of such fuels and help accelerate fleet turnover. SB 350 (De León) further established a target to double the energy efficiency in electricity and renewable natural gas end uses by 2030.

Projects expected to be developed and co-funded for infrastructure development are:

- development and demonstration of low carbon intensity renewable transportation fuels including renewable natural gas, renewable hydrogen, renewable methanol, and renewable electricity from zero emission sources and from renewable feedstocks, such as biomass and biowaste;
- development and demonstration of advanced, cost-effective methods for manufacturing synthesis gas for conversion to renewable natural gas and renewable (biomass-based) hydrogen;
- enhancement of safety and emission reductions from existing natural gas fueling equipment;
- technology solutions to help with the expansion of fueling infrastructure, fueling stations, and equipment, with an emphasis on renewable energy sources; and
- technology solutions to help with the expansion of infrastructure connected with existing fleets, public transit, and transportation corridors, including demonstration and deployment of closed loop systems for dispensing and storage.

Stationary Clean Fuel Technologies

Although stationary source NOx emissions are small compared to mobile sources in the Basin, there are applications where cleaner fuel technologies or processes can be applied to reduce NOx, VOC and PM emissions. A demonstration project funded in part by the South Coast AQMD at a local sanitation district consisted of retrofitting an existing biogas engine with a digester gas cleanup system and catalytic exhaust emission control. The retrofit system resulted in significant reductions in NOx, VOC and CO emissions. This project demonstrated that cleaner, more robust renewable distributed generation technologies exist that not only improve air quality but enhance power quality and reduce electricity distribution congestion.

SCR has been used as aftertreatment for combustion equipment for NOx reduction. SCR requires the injection of ammonia or urea that is reacted over a catalyst bed to reduce the NOx formation during the combustion process. Challenges arise if ammonia distribution within the flue gas or operating temperature is not optimal resulting in ammonia emissions leaving the SCR in a process referred to as "ammonia slip." The ammonia slip may also lead to the formation of secondary particulate matter in the form of ammonium sulfate and ammonia nitrate. As discussed in engine systems, the use of low and zero carbon fuels could also be used in stationary applications; it is easier to develop optimized engine systems and stationary sources typically operate in steady-state modes.

Additionally, alternative energy storage could be achieved through vehicle-to-grid or vehicle-to-building technologies, as well as power-to-gas that could allow curtailed renewable electricity to be stored as hydrogen fuel. Microgrid demonstration and deployment projects to support large scale deployment of zero emission vehicles and equipment could also be incorporated into new or existing deployment projects to facilitate installation of infrastructure. UCR's Sustainable Integrated Grid Initiative and UCI's Advanced Energy and Power Program, funded in part by the South Coast AQMD, for example, could assist in evaluation of these technologies.

Projects conducted under this category may include:

- development and demonstration of reliable, low emission stationary technologies and fuels (e.g., new innovative low NOx burners and fuel cells);
- exploration of renewables, waste gas and produced gas sources for cleaner stationary technologies;
- evaluation, development and demonstration of advanced control technologies for stationary sources;
- vehicle-to-grid, vehicle-to-building, or other stationary energy demonstration projects to develop sustainable, low emission energy storage alternatives and reduce total cost of ownership (TCO); and
- development and demonstration of microgrids with photovoltaic/fuel cell/battery storage/EV chargers and energy management to support large scale deployment of zero emission vehicles and equipment.

The development, demonstration, deployment and commercialization of advanced stationary clean fuel technologies will support control measures in the 2022 AQMP that reduce emissions of NOx and VOCs from traditional combustion sources by replacement or retrofits with zero and near-zero emission technologies.

Fuel and Emissions Studies

Monitoring of pollutants in the Basin is extremely important, especially when linked to a particular sector of the emissions inventory. This information highlights the need for further emission studies to identify emissions from high polluting sectors resulting from these technologies.

Over the past few years, the South Coast AQMD has funded emission studies to evaluate the impact of tailpipe emissions of biodiesel, renewable diesel, and ethanol fueled vehicles mainly focusing on criteria pollutants and GHG emissions. These studies showed that biofuels, especially biodiesel in some applications and duty cycles, can contribute to higher NOx emissions while reducing other criteria pollutant emissions. South Coast AQMD has participated in several renewable diesel and ethanol-blend gasoline studies led by CARB to approve these renewable fuels in California.

In addition, as the market share for gasoline direct injection (GDI) vehicles has rapidly increased from 4 percent of all vehicle sales in the U.S. to an estimated 60 percent between 2009 and 2016, it is important to understand air quality impacts from these vehicles. South Coast AQMD has funded studies to investigate both physical and chemical composition of tailpipe emissions, focusing on PM from GDI vehicles as well as secondary organic aerosol formation formed by the reaction of gaseous and particulate emissions from natural gas and diesel HD vehicles. The results from these studies suggest the addition of a particulate filter for controlling particulate emissions from GDI vehicles.

In 2017, South Coast AQMD initiated a basin wide in-use real-world emissions study, including fuel usage profile characterization and an assessment of the impacts of current technology and alternative fuels. Preliminary results suggest real-world emissions vary greatly between applications and fuel types; but alternative fueled technologies such as natural gas fueled vehicles, especially ones certified to near-zero emission levels, are significantly lower in emissions compared to diesel baseline. The results of the study also contributed to the new EMFAC 2021 emissions model.

In 2020, CARB adopted the Omnibus regulation to the next lower-level NOx standard, particularly highlighting the need to address the gap between certification values and in-use emissions. The new regulation included a new low-load cycle, new in-use emissions testing metric based on 3-Bin Moving Average Windows (3B-MAW), as well as a new concept to assess NOx across the entire vehicle population via onboard emission sensors. The 3B-MAW will be a game changer for future combustion technologies,

as it addresses the shortfalls of previous in-use testing methods and should address the gap between in-use emissions and the certification standard, an issue commonly seen in the Basin where low-speed, low load operations are more common. It is important to continue conducting real-world emissions studies on existing and new technologies to help stakeholders better understand the impacts of emissions in real time to a specific geographic area, as well as ensuring emissions are low throughout the useful life of the vehicle.

To assess issues with legacy fleets, SB 210 was signed into law in 2019 and directs CARB to develop and implement a new comprehensive HD inspection and maintenance (HD I/M) program to support higher emitter issues due to mal-maintenance/deterioration to ensure trucks maintain their emissions for their intended useful life. The HD I/M program includes an emissions measurement campaign from a large population of a current fleet of trucks which is critical for the success of this program. Mass screening methods such as remote sensing technology, which can be setup near roadsides and on freeway overpasses has gained the spotlight for enabling a new suite of technology for assessing emissions in-use when compared to traditional measurements. In August 2021, CARB staff shared findings and recommendations from the pilot program. CARB suggested that on-board diagnostics (OBD) and Roadside Emissions Monitoring Device (REMD) testing would likely be the best combination of technologies for a future statewide vehicle compliance and enforcement program. Together with Automated License Plate Recognition (ALPR) camera technologies that are able to capture 80% of license plates, this can be another tool to assist in any enforcement efforts. A statewide vehicle compliance program is being phased in with vehicle screening starting in 2023, enforcement of compliance certificate requirements starting in July 2023, and periodic testing and certified devices for OBD submissions in 2024. The newly adopted HD I/M rule should address the concerns of high emitters in the legacy fleets which are expected to remain in service well into the 2030s, further reducing emissions in our region. South Coast AQMD also recognizes HD I/M is one of the few regulations that can provide much needed immediate emission reductions.

In recent years, there has also been an increased interest at the state and federal level in the use of alternative fuels to reduce petroleum oil dependency, GHG emissions and air pollution. To sustain and increase biofuel utilization, it is essential to identify feedstocks that can be processed in a more efficient, cost-effective and sustainable manner. More recently, various low and zero carbon initiatives have stirred up a new round of interest in alternative fuel combinations such as ethanol, hydrogen and other engineered bio/renewable fuels. In 2019, South Coast AQMD, SoCalGas, and UCR/CE-CERT launched a study to assess emission impacts of hydrogen-natural gas blends on near-zero emission natural gas engines. Test results will be available in late 2022. Similar emissions work is being considered to support the use of zero-carbon fuels. Based on higher average summer temperatures over the past few years, there is interest on how higher temperatures impact ozone formation. A project was launched in 2019 to evaluate meteorological factors and trends contributing to recent poor air quality in the Basin. These types of studies may be beneficial to support the CERPs developed under AB 617, as well as other programs targeting benefits to residents in disadvantaged communities.

Some areas of focus include:

- demonstration of remote sensing technologies to target different high emission applications and sources;
- studies to identify health risks associated with ultrafine and ambient particulate matter to characterize toxicity and determine specific combustion sources;
- in-use emission studies using biofuels, including renewable diesel and other alternative fuels;
- in-use emission studies to determine impact of new technologies, in particular new near-zero emission engine technologies and hybrids on local air quality as well as the benefit of telematics on emission reduction strategies;

- lifecycle energy and emissions analyses to evaluate conventional and alternative fuels;
- analysis of fleet composition and its associated impacts on criteria pollutants;
- evaluation of emissions impact of low- and zero-carbon fuels/blends on the latest technology engines; and
- evaluation of impact of higher ambient temperatures on emissions of primary and secondary air pollutants.

Emission Control Technologies

Although engine technology and engine systems research are required to reduce emissions at the combustion source, dual fuel technologies and post-combustion cleanup methods are also needed to address on-road and off-road equipment emissions. Existing diesel emissions can be greatly reduced with introduction of RNG, hydrogen, biofuels, synthetic and low carbon fuels into the engine but also via aftertreatment controls such as close coupled catalysts, advanced SCR and DPF catalysts coupled with electrically heated diesel exhaust fluid (DEF) dosers as well as advanced control strategies using cylinder deactivation, which have proven to lower emissions to near-zero and increase efficiency. Gas to Liquid (GTL) fuels formed from natural gas or other hydrocarbons rather than petroleum feedstock and emulsified diesel, provide low emission fuels for use in diesel engines. As emissions from engines become lower, lubricant contributions to VOC and PM emissions become increasingly important. Recently, particulate matter (PM and PN) emissions from GDI fueled LD vehicles, natural gas fueled MD and HD vehicles have gathered attention due to the lack of particulate filters. While relative PM levels are low and below the applicable standard, concerns on ultra-fine emissions needs to be assessed. South Coast AQMD will continue to fund studies to help mitigate emissions concerns for gasoline and natural gas fueled engines. Onboard emissions sensors have been identified by CARB and other agencies as a reliable method for assessing in-use emissions compliance. At the same time, researchers have proposed to use sensors, coupled with GPS, cellular connection, weather, traffic, and other online air quality models together to enable advanced concepts like Geofencing, Eco-routing, and more. Similar strategy have been presented in CARB's latest 2022 SIP Strategy. The most promising of these technologies will be considered for funding, specifically:

- evaluation and demonstration of new emerging liquid fuels, including alternative and renewable diesel and other GTL fuels;
- development and demonstration of renewable-diesel engines and advanced aftertreatment technologies for mobile applications (including heated dosing technologies, close coupled catalysts, electronically heated catalysts and other advanced selective catalytic reduction systems) as well as non-thermal regen technology;
- development and demonstration of low-VOC and PM lubricants for diesel and natural gas engines;
- develop, evaluate, and demonstrate onboard sensor-based emissions monitoring methodology; and
- develop, evaluate, and demonstrate cloud-based emissions and energy management system.

Health Impacts Studies

Assessment of potential health risks linked to exposure to pollution is extremely important. Studies indicate that ultrafine particulate matter (PM) can produce irreversible damage to children's lungs, which highlights the need for further studies to identify health effects resulting from these technologies.

Previous studies of ambient levels of toxic air contaminants, such as the MATES studies, have found that diesel exhaust is the major contributor to health risk from air toxics. South Coast AQMD completed

MATES V in August 2021 to update the emissions inventory of toxic air contaminants, as well as modeling to characterize risks, including measurements and analysis of ultrafine particle concentrations typically emitted or subsequently formed from vehicle exhaust. Findings from the MATES V report showed that air toxics cancer risk based on modeling data has decreased over 50% since MATES IV, with average multipathway air toxics cancer risk at 454-in-a-million. The highest risk locations are at LAX and the Ports along goods movement and transportation corridors. Diesel PM continues to be the major contributor accounting for over 60% of the overall air toxics cancer risk. For the first time, chronic non-cancer risk was estimated with a chronic hazard index of 5.9 across the 10 stations in the MATES V study.

Furthermore, despite recent advancements in toxicological research related to air pollution, the relationship between particle chemical composition and health effects is still not completely understood, especially for biofuels, natural gas and other alternative fuels. In 2015, South Coast AQMD funded chamber studies as part of the 200 Vehicle Study to further investigate the toxicological potential of emissions from MD and HD vehicles, such as ultrafine particles and vapor phase substances, and to determine whether substances such as volatile or semi-volatile organic compounds are being emitted in lower mass emissions that could pose harmful health effects, the results are due to be finalized by end of 2022.

Technology Transfer and Outreach

Since the Clean Fuels Program depends on the deployment and adoption of demonstrated technologies, technology transfer and outreach efforts are essential to its success. This core area encompasses assessment of advanced technologies, including retaining outside technical assistance to expedite implementation of low emission and clean fuel technologies, coordinating activities with other organizations and educating end users of these technologies. Technology transfer efforts include supporting various incentive programs that encourage the purchase of cleaner technologies, cosponsoring technologies to various audiences, workshops, and other events, and disseminating information on advanced technologies to various audiences (i.e., residents in AB 617 or disadvantaged communities, local governments, funding agencies, technical audiences). South Coast AQMD's AB 617⁴ program is designed to reduce emissions in communities regarding available zero and near-zero emission technologies and incentives to accelerate the adoption of cleaner technologies. Incentivizing deployment of zero emission HD trucks has been included in the CERPs and an RFP for zero emission HD truck incentive funding will be released in 2022 for these AB 617 communities.

Target Allocations to Core Technology Areas

Figure 31 presents the potential allocation of available funding, based on South Coast AQMD projected program costs of \$19.8 million for all potential projects. The actual project expenditures for 2023 will be less than the total South Coast AQMD projected program costs since not all projects will materialize. Target allocations are based on balancing technology priorities, technical challenges and opportunities discussed previously, and near term versus long term benefits with the constraints on available South Coast AQMD funding. Although the Clean Fuels Program must consider cost effectiveness of emission reductions as one of several factors in determining which technologies to fund the Legislature allows for flexibility in prioritizing technologies with a higher cost effectiveness if it is deemed necessary for South Coast AQMD to meet its NAAQS. The 2022 AQMP specifically calls for accelerated deployment of zero emission technologies wherever feasible to achieve the 2015 8-hour ozone standard and the associated CARB 2020 Mobile Source Strategy shows the need for rapid implementation of zero-emission transportation. Specific contract awards throughout 2023 will be based on this proposed allocation, quality of proposals received, and evaluation of projects against standardized criteria and ultimately South Coast AQMD Board approval.

⁴ <u>http://www.aqmd.gov/nav/about/initiatives/environmental-justice/ab617-134</u>



Figure 31: Projected Cost Distribution for Potential South Coast AQMD Projects in 2023 (\$19.8M)

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CLEAN FUELS PROGRAM

Program Plan Update for 2023

This section presents the Clean Fuels Program Plan Update for 2023. The proposed projects are organized by program areas and described in further detail, consistent with the South Coast AQMD budget, priorities and the best available information on the state-of-the-technology. Although not required, this Plan also includes proposed projects that may also be funded by revenue sources other than the Clean Fuels Program, through state and federal grants for clean fuel technologies, incentive programs such as AB 617 Community Air Protection Program (CAPP) funding, Volkswagen Mitigation and Carl Moyer, and VOC and NOx mitigation.

Table 16 summarizes potential projects for 2023 as well as the distribution of South Coast AQMD costs in some areas as compared to 2022. The funding allocation continues the focus on development and demonstration of zero and near-zero emission technologies including infrastructure to support vehicles and off-road equipment. For the 2023 Draft Plan Update, there is a continuing focus on zero emission technologies including funding for hydrogen/fuel cell technologies, electric/hybrid technologies, and zero emission infrastructure. Zero emission infrastructure was formerly included within hydrogen/fuel cell and electric/hybrid technologies, but given its increasing importance it is now being presented as a separate category. There are significant decreases in funding for RNG infrastructure and engine systems/ technologies as near-zero engine development has been significantly reduced as funding is increasingly shifted to zero emission technologies and infrastructure for future planned projects in 2023, including:

- HD zero emission battery electric and fuel cell trucks;
- HD zero emission infrastructure development, demonstration, deployment and planning;
- Onboard sensor development for emissions monitoring and improved efficiency;
- Microgrid demonstrations to support zero emission infrastructure;
- Battery and fuel cell electric transit and school bus fleet charging/fueling infrastructure;
- HD diesel truck replacements with zero emission trucks; and
- Fuel and emissions studies, such as conducting airborne measurements and analysis of NOx emissions and assessing emission impacts of hydrogen-natural gas fuel blends on near-zero emission HD natural gas engines.

As in prior years, funding allocations again align well with the South Coast AQMD's FY 2022-23 Goals and Priority Objectives, which includes supporting development of cleaner advanced technologies. Overall, the Clean Fuels Program is designed to ensure a broad portfolio of technologies, complement state and federal efforts, and maximize opportunities to leverage technologies in a synergistic manner.

Each of the proposed projects described in this Plan, once fully developed, will be presented to the South Coast AQMD Governing Board for approval prior to contract initiation. This Plan Update reflects the maturity of the proposed technology and identifies contractors to implement projects, participating host sites and fleets, and securing sufficient cost-sharing to complete projects, and other necessary factors. Recommendations to the South Coast AQMD Governing Board will include descriptions of technologies to be demonstrated or deployed, their applications, proposed scope of work, and capabilities of selected contractor(s) and project teams, in addition to the expected costs and project benefits as required by H&SC 40448.5.1.(a)(1). Based on communications with all organizations specified in H&SC 40448.5.1.(a)(2) and review of their programs, projects proposed in this Plan do not appear to duplicate any past or present projects.

Funding Summary of Potential Projects

The remainder of this section contains the following information for each of the potential projects summarized in Table 16.

Proposed Project: Descriptive title and a designation for future reference.

Expected South Coast AQMD Cost: Estimated proposed South Coast AQMD cost-share as required by H&SC 40448.5.1.(a)(1).

Expected Total Cost: Estimated total project cost including South Coast AQMD cost-share and cost-share of outside organizations expected to be required to complete the proposed project. This is an indication of how much South Coast AQMD public funds are leveraged through its cooperative efforts.

Description of Technology and Application: Brief summary of proposed technology to be developed and demonstrated, including expected vehicles, equipment, fuels, or processes that could benefit.

Potential Air Quality Benefits: Brief discussion of expected benefits of proposed project, including expected contribution towards meeting the goals of the 2022 AQMP, as required by H&SC 40448.5.1.(a)(1). In general, the most important benefits of any technology research, development and demonstration program are not necessarily realized in the near-term. Demonstration projects are generally intended to be proof-of-concept for an advanced technology in a real-world application. While emission benefits, for example, will be achieved from the demonstration, true benefits will be seen over a longer term, as a successfully demonstrated technology is eventually commercialized and implemented on a wide scale.

	Expected	Expected
Proposed Project	SCAQMD	Total Cost
	Cost \$	\$

Table 16: Summary of Potential Projects for 2023

Hydrogen/Mobile Fuel Cell Technologies

Develop and Demonstrate Hydrogen Research to Support Innovative Technology Solutions for Fueling Fuel Cell Vehicles		50,000	800,000
Develop and Demonstrate MD and HD Fuel Cell Vehicles		4,000,000	15,000,000
Si	ubtotal	\$4,050,000	\$15,800,000

Electric/Hybrid Technologies

Develop and Demonstrate MD and HD On-Road and Off-Road Battery Electric and Hybrid Vehicles and Equipment	3,400,000	26,800,000
Demonstrate Alternative Energy Storage	300,000	1,000,000
Demonstrate Light-Duty Battery Electric Vehicles and Plug-In Hybrid Vehicles	160,000	160,000
Subtotal	\$3,860,000	\$27,960,000

Zero Emission Infrastructure

Develop and Demonstrate Hydrogen Production and Fueling Stations	2,000,000	6,500,000
Develop and Demonstrate Electric Charging Infrastructure	4,500,000	47,361,774
Subtotal	\$6,500,000	\$53,861,774

Engine Systems/Technologies

Develop and Demonstrate Advanced Gaseous- and Liquid-Fueled MD and HD Engines & Vehicle Technologies to Achieve Ultra-Low Emissions	500,000	2,000,000
Develop and Demonstrate Alternative Fuel and Clean Conventional Fueled Light-Duty Vehicles	0	0
Develop and Demonstrate Low Emission Locomotive Technologies and After Treatment Systems	176,300	1,000,000
Subtotal	\$676,300	\$3,000,000

RNG Infrastructure (Renewable Natural Gas and Renewable Fuels)

Demonstrate Near-Zero Emission Hybrid and Hydrogen ICE Vehicles in Various Applications	0	0
Develop, Maintain and Expand Renewable Fuel Infrastructure	200,000	2,100,000
Demonstrate Renewable Transportation Fuel Manufacturing and Distribution Technologies	0	0
Subtotal	\$200,000	\$2,100,000

Stationary Clean Fuel Technologies

Develop and Demonstrate Microgrids with Photovoltaic/Fuel Cell/Battery Storage/EV Chargers and Energy Management	1,000,000	4,000,000
Develop and Demonstrate Zero or Near-Zero Emission Energy Generation Alternatives	200,000	1,000,000
Subtotal	\$1,200,000	\$5,000,000

Table 10. Summary of 1 otential 110 jects for 2023 (cont u)		
Proposed Project	Expected SCAQMD Cost \$	Expected Total Cost \$

Table 16: Summary of Potential Projects for 2023 (cont'd)

Fuel and Emissions Studies

Conduct In-Use Emission Studies for Advanced Technology Vehicle Demonstrations	500,000	2,000,000
Conduct Emission Studies on Biofuels, Alternative Fuels and Other Related Environmental Impacts	400,000	1,500,000
Identify and Demonstrate In-Use Fleet Emission Reduction Technologies and Opportunities	400,000	1,500,000
Subtotal	\$1,300,000	\$5,000,000

Emission Control Technologies

Develop and Demonstrate Advanced Aftertreatment Technologies On-Highway	250,000	1,000,000
Develop Methodology and Evaluate and Demonstrate Onboard Sensors for On-Road HD Vehicles	250,000	1,000,000
Demonstrate On-Road Technologies in Off-Road and Retrofit Applications	176,300	800,000
Subtotal	\$676,300	\$2,800,000

Health Impacts Studies

Evaluate Ultrafine Particle Health Effects	88,150	1,000,000
Conduct Monitoring to Assess Environmental Impacts	132,225	500,000
Assess Sources and Health Impacts of Particulate Matter	132,225	300,000
Subtotal	\$352,600	\$1,800,000

Technology Transfer and Outreach

Assess and Support Advanced Technologies and Disseminate Information	600,000	1,000,000
Support Implementation of Various Clean Fuels Incentive Programs	350,000	400,000
Subtotal	950,000	\$1,400,000
TOTALS FOR POTENTIAL PROJECTS	\$19,765,200	\$118,721,774

Technical Summaries of Potential Projects

Hydrogen / Mobile Fuel Cell Technologies

Proposed Project: Develop and Demonstrate Hydrogen Research to Support Innovative Technology Solutions for Fueling Fuel Cell Vehicles

Expected South Coast AQMD Cost:	\$50,000
Expected Total Cost:	\$800.000

Description of Technology and Application:

California regulations require automakers to place increasing numbers of ZEVs into service every year. By 2050, CARB projects that 87% of LD vehicles on the road will be zero emission battery and FCVs.

Many stakeholders are working on hydrogen and fuel cell products, markets, requirements, mandates and policies. California has been leading the way for hydrogen infrastructure and FCV deployment. This leadership has advanced a hydrogen network that is not duplicated anywhere in the U.S. and is unique in the world for its focus on providing a retail fueling experience. In addition, the advancements have identified many lessons learned for hydrogen infrastructure development, deployment and operation. Other interested states and countries are using California's experience as a model case, making success in California paramount to enabling market acceleration and uptake in the U.S. U.S. leadership for hydrogen technologies is rooted in California, a location for implementing many DOE H2@Scale pathways, such as reducing curtailment and stranded resources, reducing petroleum use and emissions, and developing and creating jobs. The technical research capability of the national laboratories can be used to assist California in decisions and evaluations, as well as to verify solutions to problems impacting the industry. Because these challenges cannot be addressed by one agency or one laboratory, in 2018, a hydrogen research consortium was organized to combine and collaborate. Moreover, in 2022 California announced its intention to develop a renewable hydrogen hub as a part of the DOE announcement for an \$8B funding opportunity to establish up to ten regional hydrogen hubs to build self-sustaining hydrogen economies of producers and infrastructure in the nation. The Governor's Office of Business and Economic Development (GO-Biz) established Alliance for Renewable Clean Hydrogen Energy Systems (ARCHES) to unite critical public and private stakeholders to build the framework for a California renewable, clean hydrogen hub as such additional hydrogen research studies and projects are foreseen in 2023.

The California Hydrogen Infrastructure Research Consortium focuses on top research needs and priorities to address near-term problems to support California's continued leadership in innovative hydrogen technology solutions needed for fueling FCVs. These tasks also provide significant contributions to the DOE H2@Scale Initiative. For instance, advances in fueling methods and components can support the development of supply chains and deployments. Tasks completed include data collection from operational stations, component failure fix verification (i.e., nozzle freeze lock), reporting about new fueling methods for MD and HD applications and HD tasks to develop HD reference station design, model HD station capacity with high flowrates and provide near-real-time verification of fuel quality with on-site hydrogen contaminant detectors (HCDs) for use at both LD and HD stations. The tasks are supported by leading researchers at NREL and coordinating national labs and managed in detail (e.g., schedule, budget, roles, milestones, tasks, reporting requirements) in a hydrogen research consortium project management plan. The UC Davis Institute of Transportation study on hydrogen systems analysis in 2021 is intended to evaluate the current hydrogen polices and their impact on a carbon neutral transportation by 2050 with data analysis and modeling support of the current hydrogen resources.

These efforts are complemented by projects undertaken and supported by the HFCP and its members over the last few years such as the *H2 Fuel Cell Electric Trucks, A Vision for Freight Movement in California – and Beyond* document released in July 2021 establishing a vision for 70,000 Class 8 FC trucks supported by 200 hydrogen fueling stations by 2035, including barriers that need to be overcome, CARB's Advanced Clean Truck Regulation adopted in June 2020, and anticipated adoption of the Advanced Clean Fleets Regulation in 2022.

This project area would enable co-funding support for additional or follow on mutually agreed technical tasks with the California Hydrogen Infrastructure Research Consortium members, the HFCP, UC Davis as well as other collaborative efforts that may be undertaken to advance hydrogen infrastructure technologies including the upcoming hydrogen hubs efforts.

Potential Air Quality Benefits:

The 2022 AQMP identifies the use of alternative fuels and zero emission transportation technologies as necessary to lower NOx and VOC emissions to meet federal air quality standards. One of the major advantages of FCVs is the fact that they use hydrogen, a fuel that can be domestically produced from a variety of resources such as natural gas (including biogas), electricity (stationary turbine technology, solar or wind), and biomass. The technology and means to produce hydrogen fuel to support FCVs are available but require optimization to achieve broad market scale. The deployment of large numbers of FCVs, which is one strategy to attain air quality goals, requires a well-planned and robust hydrogen fueling infrastructure network. These South Coast AQMD projects, with significant additional funding from other governmental and private entities, will work towards providing the necessary hydrogen production and fueling infrastructure network for our region.

Proposed Project: Develop and Demonstrate MD and HD Fuel Cell Vehicles

Expected South Coast AQMD Cost:	\$4,000,000
Expected Total Cost:	\$15,000,000

Description of Technology and Application:

This proposed project would support evaluation, including demonstrating promising fuel cell technologies for applications using direct hydrogen with proton exchange membrane (PEM) fuel cell technology. Battery dominant fuel cell hybrids are another potential technology to reduce costs and potentially enhance the performance of FCVs.

The California ZEV Action Plan specifies actions to help deploy an increasing number of ZEVs, including MD and HD ZEVs. CARB's Advanced Clean Truck and Fleet and Innovative Clean Transit Bus Regulations will also increase deployment of MD and HD FCVs. Fleets are useful demonstration sites because economies of scale exist in central fueling, training skilled personnel to operate and maintain FCVs, monitoring and collecting data on vehicle performance, and OEM technical and customer support. In some cases, MD and HD FCVs could leverage the growing network of hydrogen stations and provide an early base load of fuel consumption until the number of LD FCVs grows. These vehicles could include hybrid-electric vehicles powered by fuel cells and equipped with batteries capable of being charged from the grid and even supplying power to the grid.

In 2012, the DOE awarded South Coast AQMD funds to demonstrate Zero Emission Container Transport (ZECT) technologies. In 2015, the DOE awarded South Coast AQMD additional funds to develop and demonstrate additional fuel cell truck platforms and vehicles under ZECT II. Both ZECT I and ZECT II enabled the largest strides in Technology Readiness Level (TRL) of hybrid, battery electric and fuel cell HD trucks on the overall vehicle design and architecture. Especially, the fuel cell drayage truck's TRL prior to this project was at a strong Level 4 with several proof-of-concept vehicles constructed and it has advanced the TRL to a Level 7 with ZECT II. The Clean Fuels Program cost-shared the demonstration of transit buses at OCTA which was completed in September 2021. In 2020, the U.S. EPA Targeted Airshed Grant Program awarded South Coast AQMD five fuel cell transit buses to be deployed at SunLine Transit which was also cost-shared by the Clean Fuels Program.

This category may include projects in the following applications:

On-Road:	Off-Road:
Transit Buses	Vehicle Auxiliary Power Units
Shuttle Buses	Construction Equipment
• MD & HD Trucks	Lawn and Garden Equipment
	 Cargo Handling Equipment

Potential Air Quality Benefits:

The 2022 AQMP identifies the need to implement ZEVs. South Coast AQMD adopted fleet regulations require public and some private fleets within the Basin to acquire alternatively fueled vehicles when making new purchases. CARB is revising the Advanced Clean Fleets for adoption in 2022 to impose 100% zero emission vehicle fleet targets for last mile delivery, drayage and public fleets in 2035. In the future, such vehicles could be powered by zero emission fuel cells operating on hydrogen fuel. The proposed projects have the potential to accelerate the commercial viability of FCVs. Expected immediate benefits include the establishment of zero and near-zero emission proof-of-concept vehicles in numerous applications. Over the longer term, the proposed projects could help foster wide-scale implementation of FCVs in the Basin. The

proposed projects could also lead to significant fuel economy improvements, manufacturing innovations and the creation of high-tech jobs in Southern California, besides realizing the air quality benefits projected in the AQMP as well as GHG reductions. Currently, the range of the trucks in the ZECT II project have a targeted range of 150 miles. Future projects would include extending the range of the FCVs up to 400 miles and demonstrate improvements in reliability and durability of powertrain systems and hydrogen storage systems. For fuel cell transit buses, projects are being proposed that reduce the cost of the fuel cell bus to less than \$1 million through advanced technologies for the fuel cell stack, higher density and lower cost batteries, and increased production volumes.

Electric / Hybrid Technologies

Proposed Project:	Develop and Demonstrate MD and HD On-Road and Off-Road Battery Electric and
	Hybrid Vehicles and Equipment

Expected South Coast AQMD Cost:	\$3,400,000
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\$26,800,000
1

Description of Technology and Application:

The significance of transportation in overall carbon emissions is increasing as energy utilities move toward cleaner and more sustainable ways to generate electricity. U.S. EPA (2022)⁵ estimated that transportation was responsible for 27 percent of the nation's carbon emissions, while the electricity sector emissions accounted for 25 percent.

The South Coast AQMD has long been a leader in promoting early demonstrations of next generation LD vehicle propulsion technologies (and fuels). However, given the commercial availability of LD EVs, priorities have shifted. South Coast AQMD will continue to evaluate market offerings and proposed technologies in LD vehicles to determine if any future support is required.

Meanwhile, MD and HD vehicles make up 5⁶ percent of vehicles in the U.S. and drive 11⁷ percent of all vehicle miles traveled each year yet are responsible for more than 25⁸ percent of all the fuel burned annually. Moreover, the 2022 AQMP identified MD and HD vehicles as the largest source of NOx emissions in the Basin. Electric and hybrid technologies have gained momentum in the LD sector with commercial offerings by most of the automobile manufacturers. Unfortunately, significant emission reductions are needed for MD and HD vehicles and off-road equipment, exacerbated by low turnover of these vehicles by fleets and high incremental costs for battery electric vehicles and equipment compared to conventional-fueled vehicles and equipment.

The South Coast AQMD has investigated the use of electric and hybrid technologies to achieve similar performance as conventional-fueled counterparts while achieving emission reductions and improved fuel economy. Multiple natural gas and diesel hybrid vehicles have been developed and demonstrated under the DOE funded Zero Emissions Cargo Transport (ZECT), CARB Greenhouse Gas Reduction Fund (GGRF) and NREL's Natural Gas Vehicle Consortium. These hybrid trucks all share plug-in capability and ability to operate in zero emission mode, and some leveraging advanced concepts such as geofencing and EcoDrive to maximize emission reductions in disadvantaged communities. CARB's Advanced Clean Trucks (ACT) and Advanced Clean Fleets (ACF) regulations further provided additional compliance flexibility for plug-in hybrids. Vehicle based hybrid systems continue to progress for additional emission reductions and efficiency improvements. Engine powertrain based hybrid systems began to emerge since the introduction of optional hybrid powertrain test procedures.

Vehicle categories to be considered for potential or future demonstration and deployment projects include drayage/freight/regional haul trucks, utility trucks, last mile delivery vans, shuttle buses, transit buses, waste haulers, construction equipment, cranes and other off-road equipment such as yard tractors, forklifts, top

⁵ U.S. Greenhouse Gas Emissions and Sinks 1990-2020. 2022. <u>https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions</u>

⁶ <u>https://www.bts.gov/content/number-us-aircraft-vehicles-vessels-and-other-conveyances</u>

⁷ <u>https://www.bts.gov/content/us-vehicle-miles</u>

⁸ https://www.bts.gov/content/fuel-consumption-mode-transportation

handlers, and RTG cranes. Innovations that may be considered for demonstration and deployment include advancements in the auxiliary power unit, either ICE or other heat engine; and battery-dominant plug-in hybrid systems utilizing off-peak charging, with advanced battery technologies including alternative chemistries, design, and management systems. Alternative fuels are preferred in these projects, e.g., natural gas, especially from renewable sources, LPG, hydrogen, gas-to-liquid (GTL) and hydrogen-natural gas blends, but conventional fuels such as gasoline, renewable diesel, or even modified biodiesel may be considered if emission benefits can be demonstrated as equivalent or superior to alternative fuels. Both new designs and retrofit technologies and related charging infrastructure will be considered.

Both on-road vehicles and off-road equipment are transitioning increasingly towards zero emission technologies. Off-road equipment includes cargo handling equipment as well as construction equipment. The Volvo LIGHTS project included certification of Volvo's Class 8 battery electric truck, and the demonstration of a zero-emission freight handling system including 30 Class 8 battery electric trucks, 29 battery electric yard tractors and forklifts, 56 chargers and solar/energy storage at fleets DHE and NFI. Volvo Construction Equipment just recently finished demonstrating a small battery electric compact excavator and wheel loader in California that was commercially released in late 2021. Several other manufacturers have released battery electric and hybrid equipment, and more are becoming commercially available. CARB has introduced the Clean Off-Road Equipment Voucher Incentive Project (CORE) which have been seeing great success in deploying zero-emission cargo handling equipment and switch locomotives. The most recent round of funding in 2022 included off-road construction equipment. Since the applications are more diverse in this sector, continued development and incentives are needed to accelerate progress in this sector, especially for large mobile off-road equipment where infrastructure solutions are more difficult.

This project category will develop and demonstrate:

- various electric vehicles and equipment;
- anticipated costs for electric vehicles and equipment;
- customer interest and preferences for these alternatives;
- integration of technologies into prototype vehicles and fleets;
- battery electric and hybrid-electric MD and HD vehicles (e.g., drayage/freight/regional haul trucks, utility trucks, delivery vans, shuttle buses, transit buses, waste haulers);
- development and demonstration of battery electric off-road equipment, (e.g., battery electric offroad cargo handling such as yard tractors, forklifts and top-handlers, and construction equipment;
- development and demonstration of hybrid and plug-in hybrid vehicle technology; and

Potential Air Quality Benefits:

The 2022 AQMP identifies zero or near-zero emission vehicles as a key attainment strategy. Plug-in hybrid electric technologies have the potential to achieve near-zero emission while retaining the range capabilities of conventional-fueled vehicles, a key factor expected to enhance broader consumer acceptance. Given the variety of EV systems under development, it is critical to determine actual emission reductions and performance metrics compared to conventional-fueled vehicles. Successful demonstration of optimized prototypes would promise to enhance the deployment of zero and near-zero emission technologies.

Expected benefits include the establishment of criteria for emission evaluations, performance requirements, and customer acceptability of the technology. This will help both regulatory agencies and OEMs to expedite introduction of zero and near-zero emission vehicles in the Basin, which is a high priority of the 2022 AQMP.

Proposed Project: Demonstrate Alternative Energy Storage

Expected South Coast AQMD Cost:	\$300,000
Expected Total Cost:	\$1,000,000

Description of Technology and Application:

The South Coast AQMD has been involved in the development and demonstration of energy storage systems for electric and hybrid-electric vehicles, mainly lithium ion chemistry battery packs. Over the past few years, new technologies, especially lithium-ion batteries have shown robust performance. Other technology manufacturers have also developed energy storage devices including beyond lithium-ion batteries, flywheels, hydraulic systems and ultracapacitors. Energy storage systems optimized to combine the advantages of ultracapacitors and high-energy but low-power advanced batteries could yield benefits. Beyond lithium-ion batteries (e.g., lithium-sulfur, lithium-oxygen, sodium-ion, flow, and solid-state batteries) also have opportunities to achieve higher energy density, longer cycle life, and lower cost.

This project category is to apply these advanced storage technologies in vehicle platforms to identify best fit applications, demonstrate their viability (reliability, maintenance and durability), gauge market preparedness, evaluate costs relative to current lithium-ion batteries and provide a pathway to commercialization. The use of alternative energy storage and generation (i.e. solar) could also be in combination with a large scale deployment of 50 or more battery electric trucks and charging infrastructure at a single fleet location for energy storage optimization for grid reliability and offset electricity demand charges.

The long-term objective of this project is to decrease fuel consumption and resulting emissions without any changes in performance compared to conventional-fueled vehicles. This effort will support several projects for development and demonstration of battery electric and hybrid electric vehicles using advanced energy storage strategies and conventional or alternative fuels. The overall net emissions and fuel consumption of these types of vehicles are expected to be much lower than traditional engine systems. Both new and retrofit technologies will be considered.

Additionally, this project will also assess potential for second life uses of electric vehicle batteries for storage as well as the longer term more cost-effective recycling approaches currently in a nascent "pilot" stage, especially for metals such as lithium and cobalt.

Potential Air Quality Benefits:

Certification of battery electric and hybrid electric vehicles and engines and their integration into the Basin's transportation sector is a high priority under the 2022 AQMP. This project is expected to further efforts to develop alternative energy storage technologies that could be implemented in MD and HD trucks, buses, off-road equipment, and other applications. Benefits will include proof of concept for new technologies, diversification of transportation fuels and lower emissions of criteria, toxic pollutants and greenhouse gases.

Proposed Project: Demonstrate Light-Duty Battery Electric Vehicles and Plug-In Hybrid Vehicles

Expected South Coast AQMD Cost:	\$160,000
Expected Total Cost:	\$160,000

Description of Technology and Application:

This proposed project would support the demonstration of limited production and early commercial LD BEVs and PHEVs using advanced technology, mainly through showcasing this technology. Recent designs of LD BEVs and PHEVs provide increased electric range, improved efficiency and recharge times, and other advanced safety, energy, autonomous and performance features in new platforms and applications that can accelerate EV adoption.

South Coast AQMD has included BEVs and PHEVs as part of its demonstration fleet since the development of early conversion vehicles. South Coast AQMD installed 92 Level 2 EV charging ports in 2017 and a DC fast charger with CHAdeMO and CCS1 connectors in 2018 to support public and workplace charging as a means of education outreach regarding BEV and PHEV technology. Thirty networked Level 2 fleet chargers were added through the Southern California Edison Charge Ready Fleet program in 2020, which will help South Coast AQMD acquire 8,500 GVW and over ZEVs like LD trucks and vans to comply with the upcoming CARB Advanced Clean Fleet regulation.

LD BEVs and PHEVs are available from most established OEMs and several new OEMs. Current legislation extends solo carpool lane access only for MY 2019 and later vehicles, with all Clean Air Vehicle decals expiring between 2023 - 2025, unless legislation is adopted to continue.

Potential Air Quality Benefits:

The 2022 AQMP identifies the need to implement LD EVs. South Coast AQMD adopted fleet regulations require public and some private fleets within the Basin to acquire alternatively fueled vehicles when making new purchases. In the future, such vehicles could be powered by BEVs. The proposed projects have the potential to accelerate commercial viability of BEVs and PHEVs. Expected immediate benefits include the deployment of ZEVs in South Coast AQMD's demonstration fleet. Over the longer term, the proposed projects could also lead to significant fuel economy improvements, manufacturing innovations and the creation of high-tech jobs in Southern California, besides realizing the air quality benefits projected in the 2022 AQMP.

Zero Emission Infrastructure

Proposed Project: Develop and Demonstrate Hydrogen Production and Fueling Stations

Expected South Coast AQMD Cost:	\$2,000,000
Expected Total Cost:	\$6.500.000

Description of Technology and Application:

Alternative fuels, such as hydrogen and the use of advanced technologies, such as FCVs, are necessary to meet future clean air standards. A key element in the widespread acceptance and resulting increased use of alternative fuel vehicles is the development of a reliable and robust infrastructure to support the fueling of vehicles, cost-effective production and distribution and clean utilization of these new fuels.

A challenge to the entry and acceptance of direct-hydrogen FCVs is the limited number and scale of hydrogen fueling and production sites. This project would support the development and demonstration of hydrogen fueling technologies with a focus on MD/HD fueling infrastructure. Proposed projects would address:

Fleet and Commercial Fueling Stations: Further expansion of the hydrogen fueling network based on retail models, providing renewable generation, adoption of standardized measurements for hydrogen fueling, other strategic fueling locations, dispensing pressures that support zero emission vehicle deployment and compatibility with existing CNG stations may be considered.

Energy Stations: Multiple-use energy stations that can produce hydrogen for FCVs or stationary power generation are considered an enabling technology and potentially cost-competitive with large-scale reforming. System efficiency, emissions, hydrogen throughput, hydrogen purity and system economics will be monitored to optimize strategies for hydrogen fueling infrastructure deployment and to produce power and hydrogen from renewable feedstocks (e.g., biomass, digester gas) and store hydrogen in larger scale.

Innovative Fueling Appliances: Home or small scale fueling/charging is an attractive advancement for alternative clean fuels for potential applications. This project would evaluate an innovative hydrogen refueler for cost, compactness, performance, durability, emission characteristics, ease of assembly and disassembly, maintenance and operations. Other issues such as setbacks, building permits, building code compliance and UL ratings for safety would also be evaluated.

• CARB projections for on-road FCVs counts are now 30,800 in 2024 and 61,000 in 2027 in California⁹ and the majority of these do not include MD and HD vehicles deployed in the Basin. To meet demand, the number of hydrogen fueling infrastructures needs to be significantly increased and become more reliable in terms of uptime and supply. South Coast AQMD will seek additional funding from CEC and CARB to construct and operate hydrogen fueling stations and take advantage of funding opportunities that may arise soon with the California hydrogen hub application and others such as anticipated adoption of the Advanced Clean Fleets Regulation.

Potential Air Quality Benefits:

The 2022 AQMP identifies the use of alternative clean fuels in mobile sources as a key attainment strategy. Pursuant to AQMP goals, the South Coast AQMD has several fleet rules in effect that require public and

⁹ California Air Resources Board. 2021 Annual Evaluation of Fuel Cell Vehicle Deployment & Hydrogen Fuel Station Network Development (AB 8 Report). September 2021.

certain private fleets to purchase clean-burning alternative-fueled vehicles when adding or replacing vehicles to their vehicle fleets. The Warehouse Indirect Source Rule (ISR) also requires certain warehouse owners and operators to comply with the rule by operating clean fuel vehicle technologies. FCVs constitute some of the cleanest alternative-fuel vehicles today. Since hydrogen is a key fuel for FCVs, this project would address some of the barriers faced by hydrogen as a fuel with the focus on MD/HD infrastructure and thus assist in accelerating its acceptance and ultimate commercialization. In addition to supporting the immediate deployment of the demonstration fleet, expanding the hydrogen fuel infrastructure should contribute to the market acceptance of fuel cell technologies in the long run, leading to substantial reductions in NOx, VOC, CO, PM and toxic compound emissions from vehicles.

Proposed Project: Develop and Demonstrate Electric Charging Infrastructure

Expected South Coast AQMD Cost:	\$4,500,000
Expected Total Cost:	\$47.361.774

Description of Technology and Application:

There is a critical need to address gaps in EV charging infrastructure availability. Thirty nine percent of the 2,826,923¹⁰ EVs sold in the U.S. since 2010 were in California, and of those sales in California, almost half (46 percent) of CVRP¹¹ rebates issued as of April 2021 were for vehicles in the South Coast AQMD. In addition, the California *ZEV Action Plan*, which was updated in 2018, calls for 5 million ZEVs and supporting infrastructure by 2030.

There are separate challenges associated with infrastructure for LD EVs vs. MD and HD EVs, which are on opposite ends of the commercialization spectrum. LD EVs and charging infrastructure have long been commercially available with an SAE J1772 connector standard for Level 1 and Level 2 charging. Availability of public fast charging and workplace charging continues to increase and is needed particularly for residents in multi-unit dwellings without easy access to home charging. Availability and costs to deploy infrastructure are the main challenges for LD EVs.

MD and HD EVs are becoming more commercially available, with Daimler and Volvo obtaining CARB certification of their Class 6 and/or 8 battery electric trucks in 2020. Standards for charging infrastructure to support MD and HD EVs has generally been with the CCS1 connector in North America. Although Volvo and ABB obtained UL certification of the CCS2 connector in 2020, which is a connector standard predominantly used in Europe and other parts of the world, the CCS1 connector continues to be the standard connector for charging up to 350 kW DC. A Megawatt Charging System connector is under development by the Charging Interface Initiative (CharIN) for Class 6 -8 EVs for charging up to 4.5 MW DC, although there are no EVs which are currently capable of accepting charging above 350 kW DC. There is also an agreed upon SAE J3068 connector standard for single-phase and three-phase AC charging. The challenges and costs of installing MD and HD charging infrastructure are exponentially increased compared to LD infrastructure. Each year there are more commercially available options for MD and HD on-road EVs and off-road equipment, charging infrastructure to HD EVs, equipment, and infrastructure. As the deployment of MD and HD EVs and off-road equipment has increased, there is an increasing reliance on the use of standardized charging connectors that are UL or Nationally Recognized Testing Laboratory (NRTL) certified charging infrastructure, as opposed to proprietary charging infrastructure and connectors which can only be used with EVs and equipment manufactured by that OEM or equipment manufacturer. Further, for off-road mobile applications where a fixed charging solution is not feasible, innovative solutions must be explored and demonstrated.

The South Coast AQMD is actively pursuing development of intelligent transportation systems, such as Volvo's EcoDrive 2.0 software platform being utilized for the GGRF Zero Emission Drayage Truck (ZEDT) and Volvo LIGHTS projects, to improve traffic efficiency of battery electric and fuel cell electric drayage/freight trucks. This system provides truck drivers real-time vehicle operation feedback based on changing traffic and road conditions where trucks can dynamically change their speed to better flow through intersections. EcoDrive also uses geofencing capabilities to operate in zero emissions mode while traveling through disadvantaged communities. A truck eco-routing system can provide the eco-friendliest travel route based on truck engine/emission control characteristics, loaded weight, road grade and real-time traffic

¹⁰ <u>https://www.veloz.org/ev-market-report/</u>. Q2 2022 data uploaded on 8/23/22.

¹¹ <u>https://cleanvehiclerebate.org/eng/rebate-statistics</u>

conditions. Integrated programs can interconnect fleets of electric drive vehicles with mass transit via webbased reservation systems that allow multiple users. These integrated programs can match the features of EVs (zero emissions, zero start-up emissions, short range) to typical consumer demands for mobility in a way that significantly reduces emissions of pollutants and greenhouse gases. As part of the demonstration of the Volvo diesel plug-in hybrid electric truck for the ZEDT project, this truck will be demonstrated in California for six months starting in November 2020 and data will be collected on the performance of EcoDrive 2.0 through the connector vehicle corridor in Carson that was set up as part of the CEC funded Eco FRATIS¹² freight transportation connected truck project.

This project category is one of South Coast AQMD's continued efforts to:

- deploy a network of DC fast charging infrastructure (350kW or more) and rapidly expand the existing network of public EV charging stations including energy storage systems;
- deploy DC fast charging infrastructure (500 kW or more) in conjunction with energy storage and/or solar to support large scale deployments of 50 or more battery electric trucks at a single fleet location;
- charging infrastructure and innovative systems (i.e. solar or battery swap) to support MD and HD vehicle and off-road equipment demonstration and deployment projects;
- regional planning for MD/HD charging;
- Develop MD/HD charging infrastructure solutions that provide easier installation through reduced grid reliance and increased resiliency;
- support investigation of fast charging impacts on battery life;
- develop intelligent transportation system strategies for cargo containers; and
- develop freight load-balancing strategies as well as to conduct market analysis for zero emission HD trucks in goods movement.

Potential Air Quality Benefits:

The 2022 AQMP identifies zero emission vehicles as a key attainment strategy. MD/HD infrastructure is currently a limiting factor to deploying battery electric trucks for many fleets. This proposed project category will reduce PM pollution along major roadways through the expansion of the public EV charging infrastructure network by allowing drivers to shift away from conventional-fueled vehicles to battery and fuel cell EVs. In addition, this project will assist in achieving improved fuel economy and lower tailpipe emissions, further helping the region to achieve NAAQS and protect public health. Expected benefits include the establishment of criteria for emission evaluations, performance requirements and customer acceptability of the technology. This will help both regulatory agencies and OEMs to expedite introduction of ZEVs in the Basin, which is a high priority of the 2022 AQMP.

¹² https://www.aapa-ports.org/files/PDFs/ITS%20POLA%204.24.2019.pdf

Engine Systems / Technologies

Proposed Project: Develop and Demonstrate Advanced Gaseous- and Liquid-Fueled MD and HD Engines and Vehicles Technologies to Achieve Ultra-Low Emissions

Expected South Coast AQMD Cost:	\$500,000
Expected Total Cost:	\$2,000,000

Description of Technology and Application:

The objective of this proposed project would be to support development and certification of nearcommercial prototype low emission MD and HD gaseous- and liquid-fueled engine technologies, as well as integration and demonstration of these technologies in on-road vehicles. The NOx emissions target for this project area is 0.02 g/bhp-hr or lower and the PM emissions target is below 0.01 g/bhp-hr. The recent development of low-NOx diesel or natural gas engine hybrid/plug-in hybrid powertrain has also shown the potential for achieving lower NOx as a combined system. To achieve these targets, an effective emissions control strategy must employ advanced fuel system and engine design features such as CDA, aggressive engine calibration and improved thermal management, improved exhaust gas recirculation (EGR) systems, and aftertreatment devices that are optimized using a system approach. This effort is expected to result in several projects, including:

- development and demonstration of advanced engines in MD and HD vehicles and high horsepower (HP) applications;
- development of durable and reliable retrofit technologies to significantly reduce NOx emissions;
- field demonstrations of advanced technologies in various fleets operating with different classes of vehicles;
- development and demonstration of CNG, propane and diesel hybrid powertrain technology; and
- development and demonstration of optimized engine systems for use with low- and zero carbon alternative fuels such as hydrogen

Anticipated fuels for these projects include but are not limited to alternative fuels (fossil fuel-based and renewable natural gas, propane, hydrogen blends, ethanol, electric and hybrid), conventional and alternative diesel fuels, ultra-low sulfur diesel, renewable diesel, dimethyl ether and gas-to-liquid fuels. There has been significantly more interest as well as a mandate requiring the use of renewable fuels across all sectors due to CARB's Low Carbon Fuel Standard (LCFS). Projects listed under Fuel/Emissions Studies will assess the emissions impact of renewable fuels on past and future optimized combustion technologies. Several key diesel engine development projects that have demonstrated the ability to achieve 0.02 g/bhp-hr NOx under laboratory conditions are near the on-road truck demonstration stage. Truck integration and packaging are another critical step towards commercialization. Prototype trucks are typically placed in revenue service to collect real-world performance data as well as end user feedback for production engines. Furthermore, with the new in-use and low-load emissions requirements within the CARB Omnibus and the U.S. EPA CTI regulations, we expect these new generation of low-emission engines to comply with the low emissions standard for their full useful life.

The use of alternative fuel in HD trucking applications has been demonstrated in certain local fleets within the Basin. These vehicles typically require 200-400 HP engines. Higher HP alternative fuel engines for long-haul applications are beginning to be introduced. However, vehicle range, lack or limited accessible public infrastructure, lack of experience with alternative fuel engine technologies, limited selection of appropriate alternative fuel engine products, and high initial cost have made it difficult for more fleets to

adopt and deploy larger quantity of alternative fuel vehicles. For example, in recent years, several large trucking fleets have expressed interest in using alternative fuels but requires higher horsepower engines that able to fulfill the full range of needs. However, at this time the choice of engines over 400 HP or more was not available. Continued development of cleaner dedicated alternative gaseous- or diesel-fueled engines over 400 HP with low NOx emissions, would increase availability to end-users and provide additional emission reductions for long-haul applications. The applications that require high power/torque levels such as long haul are also the applications where zero emission technologies and supporting infrastructures will take longer to become commercially available. South Coast has been supporting effort for developing high power natural gas engines that address that gap.

Moreover, as incentive funding shifts away as clean combustion technologies reach full commercial readiness, development of cost-effective technologies that do not rely on incentives are key to drive additional market penetration and emissions reduction. South Coast AQMD has investigated the emergence of cost-effective hybrid and plug-in hybrid powertrain technologies to achieve targeted lower-NOx emission standard while with improved fuel economy. Cost-effective hybrid technologies that offer reasonable payback period could potentially offer a faster commercialization pathway for reducing both NOx and GHG in the near term by strategically utilizing the existing ICEs and electric components together to assists engine operation and maintain aftertreatment temperature and efficiency. Manufacturers of Emission Controls Association's (MECA) 2019 low NOx white paper analysis shows that these newly integrated hybrid powertrains could potentially achieve the CARB 2024-2026 NOx standard of 0.05 g/bhp-hr while maintaining reasonable costs and offering a feasible pathway to 0.02 g/bhp-hr. Due to the slow fleet turn over, the legacy 2010+ diesel fleet will remain in service well into the 2030s and beyond, especially for the high powered applications. Thus, continued development of cost-effective low emission engine technologies is key to reduce the impact of legacy fleets in our region.

Potential Air Quality Benefits:

This project is intended to expedite the commercialization of near-zero emission gaseous- and liquid-fueled MD and HD engine technology both in the Basin and in intrastate operation. The emissions reduction benefits of replacing one 4.0 g/bhp-hr HD engine with a 0.02 g/bhp-hr engine in a vehicle that consumes 10,000 gallons of fuel per year is about 1,400 lb/yr of NOx. MD and HD engines between 6L to 12L using natural gas and propane achieving NOx emissions of 0.02 g/bhp-hr have been certified and commercialized, with larger displacement and advanced technology (e.g., opposed piston) engines still undergoing development. Further, renewable or blended alternative fuels can also reduce HD engine particulate emissions by over 90 percent compared to current diesel technology. The key to future engine system project success are emissions, cost-effectiveness and availability of future incentives. This project is expected to lead to increased availability of low emission alternative fuel HD engines. Fleets can use the engines and vehicles emerging from this project to comply with South Coast AQMD fleet regulations and towards compliance of the 2022 AQMP control measures as well as future CARB and U.S. EPA low NOx regulations.

Proposed Project: Develop and Demonstrate Alternative Fuel and Clean Conventional Fueled Light-Duty Vehicles

Expected South Coast AQMD Cost:	\$0
Expected Total Cost:	\$ 0

Description of Technology and Application:

Although new conventionally fueled vehicles are much cleaner than their predecessors, not all match the lowest emissions standards often achieved by alternative fuel vehicles. This project would assist in the development, demonstration and certification of both alternative-fueled and conventional-fueled vehicles to meet the strictest emissions requirements by the state, e.g., SULEV for light-duty vehicles. The candidate fuels include CNG, LPG, ethanol, GTL, renewable diesel and hydrogen, and other novel technologies including electric hybrids. The potential vehicle projects may include:

- certification of CNG light-duty sedans and pickup trucks used in fleet services;
- assessment of "clean diesel" vehicles, including hybrids and their ability to attain SULEV standards;
- assessment of other clean technologies; and
- other fuel and technology combinations may also be considered under this category.

Potential Air Quality Benefits:

The 2022 AQMP identifies the use of alternative clean fuels in mobile sources as a key attainment strategy. Pursuant to AQMP goals, South Coast AQMD has in effect several fleet rules that require public and certain private fleets to purchase clean-burning alternative-fueled vehicles when adding or replacing vehicles to their vehicle fleets. This project is expected to lead to increased availability of low emission alternative-and conventional-fueled vehicles for fleets as well as consumer purchase.

Proposed Project:	Develop and	Demonstrate	Low	Emission	Locomotive	Technologies	and	After
	Treatment Sys	stems						

Expected South Coast AQMD Cost:	\$176,300
Expected Total Cost:	\$1,000,000

Description of Technology and Application:

This project aims to support the development and demonstration of gaseous and liquid-fueled locomotive engines. With the upcoming revision of locomotive regulations and the plan to establish Tier 5 or cleaner locomotive emission standards, railroads are exploring the possibility of transitioning from diesel to cleaner fuels or installing aftertreatments to the existing locomotives. The railroad is also considering alternative fuels for its potential economic benefit as compared with diesel fuel. The requirements of locomotive engines as primary generators of electricity to power the locomotive poses serious challenges. From an operational standpoint, there is a significant difference between natural gas and diesel energy density, a fuel tender would need to provide sufficient fuel for an acceptable range. Locomotives operate at a specific duty cycle different than conventional on-road engines. The engines often run at low speed and have extended periods of idle time. The durability requirements also surpass other forms of transportation.

Large displacement gaseous fueled engines are still in early stages of commercialization in the U.S., especially in the marine sector. The development of engines and systems to fill this need is currently ongoing in the locomotive sector. Engine emissions are expected to be below the current 0.2g/bhp-hr NOx standard. Adaptation of alternative fueled locomotives in coordination with required infrastructure improvements by leading manufacturers in the industry, shows great potential for further research and cost savings with fewer maintenance costs and better reliability. Depending on the type of combustion strategy, aftertreatments are likely needed to achieve Tier 4 or cleaner emission standards. Urea-based selective catalytic reduction (SCR) or exhaust gas recirculation (EGR) can be used to reduce NOx emissions and methane slip. Similar low and zero carbon fueled engines could migrate as a retrofit option.

Potential Air Quality Benefits:

The 2022 AQMP identifies the use of low emissions technologies for locomotives where zero emission technologies are not yet commercially available. This project is expected to reduce emissions of around 97 tons per year of NOx per locomotive. The reduction of PM and GHG emissions also show great potential mitigation in environmental justice communities.

RNG Infrastructure (Renewable Natural Gas and Renewable Fuels)

Proposed Project: Demonstrate Near-Zero Emission Hybrid and Hydrogen ICE Vehicles in Various Applications

Expected South Coast AQMD Cost:	\$0
Expected Total Cost:	\$0

Description of Technology and Application:

Natural gas vehicles (NGVs) have been very successful in reducing emissions in the Basin due to the deployment by fleet owners and operators of HD vehicles utilizing this fuel. Currently, an increasing number of on-road HD natural gas engines are being certified to CARB's optional low-NOx standards which are significantly lower in NOx emissions than the current on-road HD standard. This technology category seeks to support the expansion of OEMs producing engines or systems certified to the lowest optional NOx standard or near-zero emission and useable in a wide variety of MD and HD applications, including Class 6 vehicles such as school buses and in passenger and goods delivery vans, Class 7 vehicles such as transit buses, waste haulers, street sweepers, sewer-vector trucks, dump trucks, concrete mixers, commercial box trucks, Class 8 tractors used in goods movement and drayage operations, and off-road equipment such as construction vehicles and yard hostlers. This category can also include advancing engine technologies to improve engine efficiencies that will help attract HD vehicle consumers to NGVs. Under Engine Systems, South Coast AQMD supports efforts for development of high-powered NGVs to support long-haul applications. Increasing natural gas engine availability for the full range of applications would increase NGV deployment in long-haul applications where diesel engines have been the only feasible option.

Potential Air Quality Benefits:

NGVs have inherently lower engine criteria pollutant emissions relative to conventionally fueled vehicles, especially older diesel-powered vehicles. Recently, on-road HD engines have been certified to near-zero emission levels that are 90% lower in NOx than the current on-road HDV standard. California's On-Road Truck and Bus Regulation requires all on-road HDVs to meet the current standard by January 1, 2023. The deployment of near-zero emission vehicles would significantly further emission reductions relative to the state's current regulatory requirements. Incentivizing the development and demonstration of near-zero emission NGVs in private and public fleets, goods movement applications, and transit buses will help reduce local emissions and emissions exposure to nearby residents. NGVs can also have lower GHG emissions and increase energy diversity, help address national energy security objectives, and reduce biomass waste produced from such feedstocks. Deployment of additional NGVs is consistent with the 2022 AQMP goal to reduce criteria pollutants. When fueled by RNG, it supports California's objectives of reducing GHGs and carbon intensity of the state's transportation fuel supply, as well as the federal government's objective of increasing domestically produced alternative transportation fuels.

Proposed Project: Develop, Maintain & Expand Renewable Fuel Infrastructure

Expected South Coast AQMD Cost:	\$200,000
Expected Total Cost:	\$2,100,000

Description of Technology and Application:

This project supports the development, maintenance and expansion of natural gas fueling infrastructure in strategic locations throughout the Basin, including the Ports, and advancing technologies and station design to improve fueling and fueling efficiencies of HD NGVs. This category supports broader deployment of near-zero emission HD vehicles and implementation of South Coast AQMD's fleet rules. In addition, as natural gas fueling infrastructure begins to age or has been placed in demanding usage, components will deteriorate. This project offers facilities the opportunity to replace worn-out equipment or to upgrade existing fueling and/or garage and maintenance equipment to provide increased fueling capacity to public agencies, private fleets and school districts.

Potential Air Quality Benefits:

The 2022 AQMP identifies the use of alternative clean fuels in mobile sources as a key attainment strategy. HD NGVs have significantly lower emissions than their diesel counterparts and represent one of the cleanest ICE-powered vehicles available today. The project has the potential to significantly reduce the installation and operating costs of NGV fueling infrastructure and improve vehicle fueling times through improved fueling system designs and high-flow nozzles. New or improved NGV infrastructure helps facilitate near-zero emission NGVs in private and public fleets. It is expected that the lower fuel cost of natural gas relative to diesel and added financial incentives of RNG under the state's Low Carbon Fuel Standard (LCFS) program attract fleets and consumers to this technology. Increased exposure and fleet and consumer acceptance of NGVs will lead to significant and direct reductions in NOx, VOC, CO, PM and toxic compound mobile source emissions. Such increased penetration of NGVs will provide direct emission reductions of NOx, VOC, CO, PM and air toxic compounds throughout the Basin.

Proposed Project: Demonstrate Renewable Transportation Fuel Manufacturing and Distribution Technologies

Expected South Coast AQMD Cost:	\$0
Expected Total Cost:	\$0

Description of Technology and Application:

The transportation sector represents a significant source of criteria pollution in the Basin. Clean, alternative fuel-powered transportation is a necessary component for this region to meet NAAQS. Alternative fuels produced from renewable sources such as waste biomass help further efforts associated with landfill and waste diversion, GHG reduction, energy diversity and petroleum dependency. Locally produced renewable fuels further reduce concerns associated with out-of-state production and transmission of fuel and help support the local economy. Renewable fuels recognized as a transportation fuel under the state's LCFS program and the federal government's Renewable Fuel Standard program can provide financial incentives, including reduced fuel price and operational costs, which act as incentives to purchase and deploy alternative or renewable energy powered vehicles.

This project category will consider development and demonstration of technologies for the production and use of renewable transportation fuels such as RNG, renewable diesel (RD), and renewable hydrogen (RH). These renewable fuels can be converted from various waste biomass feed stocks, including municipal solid wastes, green waste, and biosolids produced at wastewater treatment facilities generated from anaerobic digestion, gasification, and pyrolysis.

The main objectives of this project are to investigate, develop and demonstrate:

- commercially viable methods for converting renewable feed stocks into CNG, LNG, hydrogen or diesel (e.g., production from biomass);
- economic small-scale natural gas liquefaction technologies;
- utilization of various gaseous feed stocks locally available;
- commercialize incentives for fleets to site, install and use RNG refueling facilities; and
- pipeline interconnection in the local gas grid to supply users.

Potential Air Quality Benefits:

The 2022 AQMP relies on a significant increase in the penetration of zero and near-zero emission vehicles in the Basin to attain the NAAQS by 2037. This project would help develop renewable transportation fuel production and distribution facilities to improve local production and use of renewable fuels to help reduce transportation costs and losses as well as reduce total operating costs of zero and near-zero emission vehicles to be competitive with comparable diesel fueled vehicles. Such advances in production and use are expected to lead to greater infrastructure development. Additionally, this project could support the state's goal of redirecting biomass waste for local fuel production and reduce GHGs associated with these waste biomass feedstocks.

Stationary Clean Fuel Technologies

Proposed Project: Develop and Demonstrate Microgrids with Photovoltaic/Fuel Cell/Battery Storage/EV Chargers and Energy Management

Expected Total Cost: \$4,000,000

Description of Technology and Application:

CARB has proposed the Advanced Clean Truck Regulation which is part of a holistic approach to accelerate a large-scale transition of zero emission MD and HD vehicles from Class 2B to Class 8. 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 2030. By 2030, zero emission truck/chassis sales would need to be 50% of Class 4–8 straight trucks sales and 15% of all other truck sales.

The commercialization of zero emission HD trucks is currently under way with two of the largest manufacturers offering commercial products in California. Both Daimler and Volvo obtained CARB certification of their Class 6 and/or 8 battery electric trucks in 2020, with these trucks eligible for HVIP and other incentives and commercially available for sale. South Coast AQMD also received \$16M in CARB and \$11M in CEC funding, as well as \$34M in co-funding from project partners for the deployment of 100 Daimler and Volvo Class 8 battery electric trucks, solar, and energy storage for the JETSI Pilot Project for drayage and regional haul applications. Ever larger deployments of zero emission trucks will be needed for the technology to have an impact on air quality.

Large deployments of zero emission Class 8 battery electric trucks (BETs) each carrying 300+ kWh of battery-stored energy or fuel cell trucks (FCTs) carrying 30-50 kg of hydrogen will require costly infrastructure that creates a barrier for some fleets to adopt zero emission technologies. Many fleet operators lease their facilities making the capital expenditure of EV or hydrogen infrastructure impossible to recoup in a short period of time. In order to comply with existing and upcoming regulatory requirements, fleets are having to navigate challenges in installing and maintaining charging and/or fueling infrastructure. Microgrids can be instrumental in meeting the challenge of providing large amounts of energy cost-effectively for EV charging or hydrogen generation to support zero emission vehicle charging and fueling. Additionally, if the microgrid equipment is owned by a third party and energy is sold to the fleet through a power purchase agreement, the financial challenge of large capital investment can be avoided by the fleets.

A microgrid is a group of interconnected loads and distributed energy resources within clearly defined electrical boundaries that acts as a single controllable entity with respect to the grid. A microgrid can connect and disconnect from the grid to enable it to operate in both grid-connected and island-mode. Microgrids can work synergistically with the utility grid to provide power for zero emission vehicle fueling by managing when energy from the grid is used–during off-peak hours when it is the least expensive. Then during peak demand periods, the microgrid would use energy from battery storage or onsite generation. Most technologies that make up microgrids include photovoltaic, fuel cells, battery storage, along with hardware and software for the energy management system (EMS). When grid service is interrupted, the microgrid can disconnect from and continue to operate as an energy island independent from the grid. Having assurance of an uninterrupted power source is an important consideration for fleets. If the microgrid is connected to the fleet's logistics and telematics systems, additional benefits in terms of infrastructure cost and battery life for BETs can be realized. If the EMS is fed information on the route a truck is planning to travel, it can charge the vehicle with enough energy for the trip so the truck will operate within the desired 20-80% state of charge (SOC) of the battery having the least amount of impact to battery life. Additionally,

if the EMS is connected to the logistics system, it can plan charging schedules with 150 kW or lower power chargers which will have less impact on battery life than 350+ kW chargers and lower charging costs.

Electricity demand of electric and fuel cell HD trucks is substantial. For a 100-vehicle fleet of BETs with 300 kWh batteries, 30 MW hours/day of electricity would be required to charge these BETs. For a 100-vehicle fleet of FCTs the hydrogen requirement is 2,000 kg/day. Microgrids can provide energy for EV and hydrogen infrastructure to enable large zero emission vehicle deployments and make charging and fueling economical and reliable. Staff has demonstrated several microgrid projects with University of California Irvine and has toured the microgrid at University of California San Diego. Currently, several pilot projects are being discussed with microgrid developers and fleets that involve various configurations of microgrid technologies and different business models. Proposed projects would include development and demonstration of microgrids utilizing various types of renewable and zero emitting onsite generation (fuel cell tri-generation, power to gas, photovoltaic, wind), energy storage, connectivity to logistics systems, vehicle-to-grid and vehicle-to-building technologies. Projects that demonstrate different business models will be considered, such as projects involving a separate entity owning some or all the microgrid equipment and engaging in a power purchase agreement to provide energy to fleets transitioning to zero emission trucks. Proposed projects would partner with truck OEMs and their major customers, such as large- and medium-sized fleets looking at microgrid solutions for their operations in the Basin.

Potential Air Quality Benefits:

Microgrids can provide grid resilience and potentially support large deployments of zero emission MD and HD trucks that are necessary to meet the AQMP target of 83 percent NOx emission reductions from the 2018 level and 67 percent additional reductions in 2037 beyond already adopted regulations and programs by 2037. Both renewable and zero emitting power generation technologies that make up a microgrid can provide a well-to-wheel zero emission pathway for transporting goods. Projects could potentially reduce a significant class of NOx and CO emissions in excess of the assumptions in the 2022 AQMP and further enhance South Coast AQMD's ability to enforce full-time compliance.

Proposed Project: Develop and Demonstrate Zero or Near-Zero Emission Energy Generation Alternatives

Expected South Coast AQMD Cost:	\$200,000
Expected Total Cost:	\$1.000.000

Description of Technology and Application:

The objective of this project is to support development and demonstration of clean energy, renewable alternatives in stationary applications. The technologies to be considered include thermal, photovoltaic and other solar energy technologies; wind energy systems; energy storage potentially including vehicle to grid or vehicle to building functionalities for alternative energy storage; biomass conversion; and other renewable energy and recycling technologies. Innovative solar technologies, such as solar thermal air conditioning and photovoltaic-integrated roof shingles, are of particular interest. Also, in the agricultural sections of the Basin, wind technologies could potentially be applied to drive large electric motor-driven pumps to replace highly polluting diesel pumps. Besides renewable technologies, electrolyzer technology could be used to generate hydrogen as a clean fuel. Hydrogen, when used in ICEs, can potentially reduce tail-pipe emissions of NOx, while in fuel cells emissions are reduced to zero.

This project is expected to result in pilot-scale production demonstrations, scale-up process design and cost analysis, overall environmental impact analysis and projections for ultimate clean fuel costs and availability. This project is expected to result in several projects addressing technological advancements in these technologies that may improve performance and efficiency, potentially reduce capital and operating costs, enhance the quality of natural gas generated from renewable sources for injection into natural gas pipelines, improve reliability and identify markets that could expedite implementation of successful technologies.

Potential Air Quality Benefits:

The 2022 AQMP identifies that the development and implementation of non-polluting power generation could gain maximum air quality benefits. Polluting fossil fuel-fired electric power generation needs to be replaced with clean, renewable energy resources or other advanced zero emission technologies, such as hydrogen fuel cells, particularly in a distributed generation context to help provide grid resiliency as the transportation sector becomes more reliant on electricity.

This project is expected to accelerate implementation of advanced zero emission energy sources. Expected benefits include directly reducing emissions by displacement of fossil generation; proof-of-concept and potential viability for zero emission power generation systems; increased exposure and user acceptance of the new technology; reduced fossil fuel usage; and potential for increased use, once successfully demonstrated, with resulting emission benefits, through expedited implementation. These technologies would also have a substantial influence in reducing GHG emissions.

Fuel and Emissions Studies

Proposed Project: Conduct In-Use Emission Studies for Advanced Technology Vehicle Demonstrations

Expected South Coast AQMD Cost:	\$500,000
Expected Total Cost:	\$2,000,000

Description of Technology and Application:

Hybrid electric, hybrid hydraulic, plug-in electric hybrid and battery-electric and fuel cell electric vehicles will all play a role in the future of transportation. Each of these transportation technologies has attributes that could provide unique benefits to different transportation sectors. Identifying optimal placement of each transportation technology will provide the co-benefits of maximizing environmental benefit and return on investment.

South Coast AQMD has been supporting rapid deployment of near-zero emission natural gas technologies since the first HD engine became commercially available in 2015. As more near-zero emission natural gas, propane and other alternative fuel technologies penetrate different segments, in-use assessment of real-world benefit is needed especially as CARB and U.S. EPA have introduced a new in-use testing metric.

The CARB EMFAC 2017 model that the 2022 AQMP is based on uses emissions data from in-use emissions studies for calculating emission factors for HD trucks rather than certification data which has a relatively limited data set for alternative fuel vehicles. For the recently released EMFAC 2021, more complete natural gas engine modules have been included for the first time with emissions data gathered from the currently funded South Coast AQMD in-use emissions characterization effort. CARB and U.S. EPA low-NOx regulations focus on addressing the gap of in-use and certification values by introducing a new methodology that includes emissions from all operations. While staff expects the in-use emissions from new engines to perform closer to certification values, there is still a significant population of the MY 2010+ legacy fleet expected to remain in service well into the 2030s. There is always a need to better assess real world truck emissions, fuel economy, and activity from engines, hybrid powertrain and zero emission technologies for continued technology improvements and verification of emission reductions.

Environmental benefits for each technology class are duty-cycle and application specific. Identifying attributes of a specific application or drive cycle that would take best advantage of a specific transportation technology would speed adoption and make optimal use of financial resources in the demonstration and deployment of a technology. Adoption rates would be accelerated since intelligent deployment of a certain technology would ensure that a high percentage of demonstration vehicles showed positive results, which would spur adoption of this technology in similar applications, as opposed to negative results derailing further development of a certain technology.

This project would review and potentially coordinate application specific drive cycles for specific applications. Potential emission reductions and fossil fuel displacement for each technology in a specific application would be quantified on a full-cycle basis. This information could be used to develop a theoretical database of potential environmental benefits of different transportation technologies when deployed in specific applications. This duty-cycle requirement, often based on traditional vehicles, is used for planning purposes for building MD and HD public fueling stations. Furthermore, some of the standardized test cycles, like the chassis dyno-based cycle, can be used to evaluate efficiency of zero-emissions vehicles and direct comparisons with diesel and natural gas vehicles.

Another project would be characterization of intermediate volatility organic compound (IVOC) emissions, which is critical in assessing ozone and secondary organic aerosol (SOA) precursor production rates. Diesel

vehicle exhaust and unburned diesel fuel are major sources and contribute to formation of urban ozone and SOA, which is an important component of PM2.5. NGVs are also a concern due to lack of particulate filters, however the actual impact based on current and projected vehicle populations needs to be further studied.

While early developments in autonomous and vehicle-to-vehicle controls are focused on LD vehicles, early application of this technology to HD, drayage and container transport technologies is more likely. Impacts on efficiency and emissions could be substantial. A project to examine this technology to assess its effect on goods movement and emissions associated with goods movement could be beneficial at this time.

Potential Air Quality Benefits:

Development of an emissions reduction database for various application specific transportation technologies would assist in targeted deployment of new transportation technologies. This database coupled with application specific vehicle miles traveled and population data would assist in intelligently deploying advanced technology vehicles to attain the maximum environmental benefit. These two data streams would allow vehicle technologies to be matched to an application that is best suited to the specific technology, as well as selecting applications that are substantial enough to provide significant environmental benefits. Demonstration of a quantifiable reduction in operating cost through intelligent deployment of vehicles will also accelerate commercial adoption of various technologies. Accelerated adoption of lower emitting vehicles will further assist goals in the 2022 AQMP.

Proposed	Project:	Conduct	Emission	Studies	on	Biofuels,	Alternative	Fuels	and	Other	Related
		Environm	iental Impa	icts							

Expected South Coast AQMD Cost:	\$400,000
Expected Total Cost:	\$1,500,000

Description of Technology and Application:

The use of renewable fuels such as biofuels can be an important strategy to reduce petroleum dependency, air pollution and greenhouse gas emissions and help with California's aggressive GHG reduction goals. Biofuels are receiving increased attention due to national support and state activities resulting from SB 32, AB 1007 and the Low-Carbon Fuel Standard. With an anticipated increase in renewable fuel use, it is the objective of this project to further analyze these fuels to better understand their benefits and impacts not only on GHGs but also air pollution and associated health effects.

In various diesel engine studies, replacement of petroleum diesel fuel with renewable fuel has demonstrated reduced PM, CO and air toxics emissions. Renewable fuel also has the potential to reduce GHG emissions if made from renewable feedstocks such as soy and canola. However, certain blends of biodiesel can increase NOx emissions for some engines and duty cycles, which exacerbates ozone and PM2.5 challenges faced in the Basin. In addition, despite recent advancements in toxicological research in the air pollution field, the relationship between biodiesel particle composition and associated health effects is still not completely understood.

Ethanol is another biofuel that is gaining increased national media and state regulatory attention. CARB's reformulated gasoline regulation increases ethanol content to 10% as a means to increase the amount of renewable fuels in the state. As in the case of biodiesel, ethanol has demonstrated in various emission studies to reduce PM, CO and toxic emissions. However, the relationship between particle composition and associated health effects from the combustion of ethanol is not well understood either. In 2019, U.S. EPA approved 15% ethanol (E15) blends for year-round use and CARB, along with South Coast AQMD and other agencies, launched an emissions study of E15 to assess the emissions impact of the current fleet of California light duty vehicles. South Coast AQMD also has been monitoring efforts in using ethanol as a primary fuel for MD and HD applications in optimized engine systems that allows both criteria and GHG reductions which could be another pathway for reducing emissions due to abundance of ethanol from the light duty sector.

CARB recently proposed a regulation on commercialization of alternative diesel fuels, including biodiesel and renewable diesel, while noting that biodiesel in older HD vehicles can increase NOx. The need for emerging alternative diesel fuels for HD trucks and transit buses is also being studied. Researchers have proposed evaluating the emissions impact of RNG and other natural gas blends such as renewable hydrogen or pure hydrogen.

To address these concerns on potential health effects associated with biofuels, namely biodiesel and ethanol blends, this project will investigate physical and chemical composition and associated health effects of tailpipe PM emissions from LD to HD vehicles burning biofuels to ensure public health is not adversely impacted by broader use of these fuels. This project also supports future studies to identify mitigation measures to reduce NOx emissions from biofuels. Additionally, a study of well-to-wheel emissions from for the extraction and use of shale gas might be considered.

The Power-to-Gas concept has renewed interest in hydrogen-fossil fuel blends, and its emissions impact on the latest ICE technologies needs to be reassessed. Hydrogen fueled ICEs were studied heavily in the early 2000s and results have shown significant possible criteria emission reductions with optimized engine

calibration. Since then, ICE technologies have been fitted with advanced aftertreatment technologies to allow engines to be certified to today's lower NOx standards. Therefore, emissions impact assessment is needed on the latest ICE technologies.

In an effort to evaluate contribution of meteorological factors to high ozone and PM2.5 episodes occurring in the Basin, mainly as a result of higher summer temperatures and increased air stagnation following droughts, a comprehensive study is necessary to evaluate trends of meteorological factors that may adversely impact air quality in the Basin. The study will assist in better understanding potential impact of recent weather trends on criteria pollutant emissions and developing more effective strategies for improving air quality in the future.

Potential Air Quality Benefits:

If renewable diesel, biodiesel and biodiesel blends can be demonstrated to reduce air pollutant emissions with the ability to mitigate NOx impacts, this technology will become a viable strategy in meeting air pollutant standards as well as the goals of SB 32 and the Low-Carbon Fuel Standard. The use of biodiesel is an important effort for a sustainable energy future. Emission studies are critical to understanding emission benefits and any tradeoffs (NOx impacts) that may result from using this alternative fuel. With reliable information on the emissions from using biodiesel and biodiesel blends, this can ensure the use of biodiesel without creating additional NOx emissions. Additionally, understanding meteorological factors on criteria pollutant emissions may help identify mitigation strategies, possibly through targeted advanced transportation deployment.

Proposed Project:	Identify and Demonstra	te In-Use Fleet	Emission	Reduction	Technologies	and
	Opportunities					

Expected South Coast AQMD Cost:	\$400,000
Expected Total Cost:	\$1,500,000

Description of Technology and Application:

New technologies, such as alternative fueled HD engines, are extremely effective at reducing emissions because they are designed to meet the most stringent emissions standards while maintaining vehicle performance. In addition, many new vehicles are now equipped with telematics enabling motorists to obtain transportation information such as road conditions to avoid excessive idling and track information about vehicle maintenance needs, repair history, tire pressure and fuel economy. Telematics have been shown to reduce emissions from new vehicles through various vehicle usage optimization strategies. Unfortunately, many in-use fleets lack telematic systems, particularly HD engines in trucks, buses, construction equipment, locomotives, commercial harbor craft and cargo handling equipment, and have fairly long working lifetimes (up to 20 years due to remanufacturing in some cases). Even LD vehicles routinely have lifetimes exceeding 200,000 miles and 10 years. The in-use fleet, especially the oldest vehicles, are responsible for the majority of emissions. In the last few years, real-time emissions and fuel economy data reporting along with telematics has been demonstrated with large fleets as fleet management tools to identify high emitters and increase operational efficiency. Similar efforts have already been proposed by CARB as part of the HD I/M regulation. Moreover, the same telematic systems are being installed on zero emission trucks where fleet and charging management are important. Cloud based fleet management concepts are being proposed by researchers to maximize range and air quality benefits of zero emission trucks.

This project category is to investigate near-term emission control technologies that can be cost-effectively applied to reduce emissions from the in-use fleet. The first part of the project is to identify and conduct proof-of-concept demonstrations of feasible candidate technologies, such as:

- remote sensing for HD vehicles including license plate recognition systems;
- annual testing for high mileage vehicles (>100,000 miles);
- replace or upgrade emission control systems at 100,000-mile intervals;
- on-board emission diagnostics with remote notification;
- low-cost test equipment for monitoring and identifying high emitters;
- test cycle development for different class vehicles (e.g. four-wheel drive SUVs);
- electrical auxiliary power unit replacements;
- development, deployment and demonstration of smart vehicle telematic systems;
- fleet and charger management concepts; and
- low cost NOx sensor development.

Potential Air Quality Benefits:

Many of the technologies identified can be applied to LD and HD vehicles to identify and subsequently remedy high-emitting vehicles in the current fleet inventory. Estimates suggest that 5 percent of existing fleets account for up to 80 percent of the emissions. Identification of higher emitting vehicles would assist with demand-side strategies, where higher emitting vehicles have correspondingly higher registration charges. Identification and replacement of high-emitting vehicles has been identified in the Community

Emission Reduction Plans (CERPs) from multiple AB 617 communities as a high priority for residents living in these communities, particularly as HD trucks frequently travel on residential streets to bypass traffic on freeways surrounding these disadvantaged communities.

Emission Control Technologies

Proposed Project: Develop and Demonstrate Advanced Aftertreatment Technologies for On-Highway

Expected South Coast AQMD Cost:	\$250,000
Expected Total Cost:	\$1,000,000

Description of Technology and Application:

There are several aftertreatment technologies which have shown substantial emission reductions in diesel engines. These technologies include zoned catalyst soot filters, early light -off catalysts, dual SCR systems, pre-NOx absorbers, and ammonia slip catalysts. Additional heating technologies enabled by availability of a 48 volt battery system or plug-in hybrid system can be used to keep desired catalyst temperatures using heated dosing and heated catalysts which are part of the complete aftertreatment system design for near-zero emission NOx engines. This project category is to develop and demonstrate these aftertreatment technologies alone or in tandem with an alternative fuel to produce the lowest possible PM, ultrafine PM, nanoparticles, NOx, CO, carbonyl and hydrocarbon emissions in retrofit and new applications. With increasing focus on zero and near-zero emission goods movement technologies, this category should examine idle reduction concepts and technologies that can be employed at Ports and airports. The proposed Clean Truck Initiative by U.S. EPA as well as the adopted CARB Omnibus Regulation will require aftertreatment systems to maintain certification levels to a much longer useful life via new in-use testing performance metrics. Technology durability and in-use performance will need to be further studied.

Possible projects include advancing technologies for on-road truck demonstrations beyond lab based testing, retrofit applications such as HD line-haul and other large displacement diesel engines, street sweepers, and waste haulers. Applications for off-road may include construction equipment, yard hostlers, gantry cranes, locomotives, commercial harbor craft, ground support equipment and other similar industrial applications. Potential fuels to be considered in tandem are low-sulfur diesel, emulsified diesel, biodiesel, gas-to-liquids, hydrogen and natural gas. This project category will also explore performance, economic feasibility, viability (reliability, maintainability and durability) and ease-of-use to ensure a pathway to commercialization.

Potential Air Quality Benefits:

Transfer of mature emission control technologies, such as DPFs and oxidation catalysts, to the off-road sector is a potentially low-risk endeavor that can have immediate emission reductions. Further development and demonstration of other technologies, such as early light –off SCR and heated dosing, could also have NOx reductions of up to 90%.

Proposed Project: Develop Methodology and Evaluate and Demonstrate Onboard Sensors for On-Road HD Vehicles

Expected South Coast AQMD Cost:	\$250,000
Expected Total Cost:	\$1,000,000

Description of Technology and Application:

New HD on-road vehicles represent one of the largest categories in the NOx emissions inventory in the Basin. The 2022 AQMP identifies that 83 percent NOx emission reductions from the 2018 level and 67 percent additional reductions beyond already adopted regulations and programs are necessary to meet the 2015 8-hour ozone standard by 2037. Previous in-use emission studies, including studies funded by the South Coast AQMD, have shown significantly higher NOx emissions from on-road HD vehicles than the certification limit under certain in-use operations, such as low power duty cycles. In CARB's adopted HD On-Road "Omnibus" Low NOx regulation, in addition to the lower certification values, there is a low load test cycle and revisions to the not-to-exceed compliance tests. NOx sensor data reporting is also introduced where the vehicle computer is required to store a past period of emissions data to ensure real-world emission reductions are realized over various duty cycles, especially those low power duty cycles in urban areas. An alternative proposed new methodology is to continuously measure real-time emissions from trucks with onboard sensors. Both industry, government and regulators are looking to use sensors to better monitor emissions compliance and leverage the real-time data from sensors to enable advances concepts such as geofencing. CARB's newly adopted HD I/M rules addresses in-use emissions from the older legacy fleets and also has onboard sensors as one of the emission testing methods.

This project category is to investigate near term and long-term benefits from onboard sensors to understand in-use emissions better and reduce emissions from the advanced management concept. The first part of the project is to identify and conduct proof-of-concept demonstrations of feasible candidate technologies, such as:

- laboratory evaluation/verification of new and baseline sensors;
- development and evaluation of next generation sensors;
- development of algorithms to extract sensor information into mass-based metric;
- demonstrate feasibility to monitor emissions compliance using sensors;
- identify low cost option for cost and benefit analysis;
- demonstrate sensors on natural gas and other mobile sources such as LD, off-highway and commercial harbor craft; and
- development, deployment and demonstration of smart energy/emissions management systems.

Potential Air Quality Benefits:

The proposed research projects will assist the trucking industry to monitor emissions, using sensors as one of the design platform options and identify freight routes which result in lower emissions. Reduction of NOx and PM emissions from mobile sources is imperative for the Basin to achieve NAAQS and protect public health.

Proposed Project: Demonstrate On-Road Technologies in Off-Road and Retrofit Applications

Expected South Coast AQMD Cost:	\$176,300
Expected Total Cost:	\$800,000

Description of Technology and Application:

On-road HD engines have demonstrated progress in meeting increasingly stringent federal and state requirements. New HD engines have progressed from 2 g/bhp-hr NOx in 2004 to 0.2 g/bhp-hr NOx in 2010, which is an order of magnitude decrease in just six years. Off-road engines, however, have considerably higher emissions limits depending on engine size. For example, Tier 3 standards for HD engines require only 3 g/bhp-hr NOx. There are apparent opportunities to implement cleaner on-road technologies in off-road applications. There is also an opportunity to replace existing engines in both on-road and off-road applications with the cleanest available technology. Current regulations don't usually require repowering (engine replacement) or remanufacturing to meet cleaner emission standards as engines are retired. Unfortunately, this does not take advantage of recently developed clean technologies.

Exhaust gas cleanup strategies, such as EGR, SCR, DPF, electrostatic precipitators, baghouses and scrubbers, have been used successfully for many years on stationary sources. The exhaust from the combustion source is routed to the cleaning technology, which typically requires a large footprint for implementation. This large footprint has made installation of such technologies on some mobile sources prohibitive. However, in cases where the mobile source is required to idle for long periods of time, it may be more effective to route emissions from the mobile source to a stationary device to clean the exhaust stream.

Projects in this category will include utilizing proven clean technologies in novel applications, such as:

- demonstrating certified LNG and CNG on-road engines as well as other clean alternative fuels in off-road applications including yard hostlers, locomotives, commercial harbor craft, gantry cranes, waste haulers and construction equipment;
- implementing lower emission engines requirement in repower applications for both on-road and off-road applications; and
- applying stationary best available control technologies, such as EGR, SCR, scrubbers, DPF, baghouses and electrostatic precipitators, to appropriate on- and off-road applications, such as idling locomotives, commercial harbor craft at dock and HD line-haul trucks at weigh stations.

Potential Air Quality Benefits:

Transfer of mature emission control technologies, such as certified engines and SCR, to the off-road and retrofit sectors offers high potential for immediate emission reductions. Further development and demonstration of these technologies will assist in regulatory efforts which could require such technologies and retrofits.
Health Impacts Studies

Proposed Project: Evaluate Ultrafine Particle Health Effects

Expected South Coast AQMD Cost:	\$88,150
Expected Total Cost:	\$1,000,000

Description of Technology and Application:

Reducing diesel exhaust from vehicles has become a high priority in the Basin since CARB identified the particulate phase of diesel exhaust as a surrogate for all toxic air contaminants emitted from diesel exhaust. Additionally, health studies indicate that ultrafine particulate matter (UPM) may be more toxic on a permass basis than other fractions. Several control technologies have been introduced and others are under development. Recent studies have shown that control technologies applied to mobile sources have been effective in reducing the mass of particulates emitted. However, there is also evidence that UPM on and near roadways has increased, even while the mass of particulates has decreased. To have a better understanding of changes in ultrafine particulate emissions from the application of new technologies and health effects of these emissions, an evaluation and comparison of UPM and potential impacts on community exposure, particularly in disadvantaged communities, is needed.

In this project, measurements and chemical composition of UPM will be done, as well as studies conducted from HD vehicles to measure, evaluate and compare UPM, PAH and other relevant toxic emissions from different types of fuels such as gasoline, CNG, low-sulfur diesel, biofuels and others. This project needs to be closely coordinated with development of technologies for alternative fuels, aftertreatment technologies, and new engine development to determine health benefits of such technologies.

Furthermore, gasoline direct injection (GDI) vehicles are known for higher efficiency and power output but the PM emissions profile is not well understood especially on secondary organic aerosol (SOA) formation potential. As manufacturers introduce more GDI models in the market to meet new fuel economy standards, it is important to understand SOA potential from these vehicles as it could further impact ambient PM concentration in our region. In 2015 a project with UCR CE-CERT to investigate the physical and chemical composition of aerosols from GDI vehicles using a mobile environmental chamber was designed and constructed to characterize secondary emissions. Based on initial results indicating an increase in particle numbers, follow-up in-use studies to assess PM emissions including with and without particle filters will be beneficial. Similar studies should also be conducted on natural gas MD and HD vehicles to understand potential emissions impacts are being considered.

Potential Air Quality Benefits:

The 2022 AQMP for the Basin relies on significant penetration of low emission vehicles to attain federal clean air standards. Reduction of PM emissions from combustion of diesel and other fuels is a major priority in achieving these standards. This project would help to better understand the nature and number of UPM generated by different types of fuels and advanced control technologies as well as provide information on potential health effects of UPM. Such an understanding is important to assess the emission reduction potentials and health benefits of these technologies. In turn, this will have a direct effect on the policy and regulatory actions for commercial implementation of alternative fuel vehicles in the Basin.

Proposed Project: Conduct Monitoring to Assess Environmental Impacts

Expected South Coast AQMD Cost:	\$132,225
Expected Total Cost:	\$500,000

Description of Technology and Application:

Facilities, buildings, structures, or highways which attract mobile sources of pollution are considered "indirect" sources. Ambient and saturation air monitoring near sources such as ports, airports, rail yards, freight/logistics distribution centers and freeways is important to identify emissions exposure to surrounding communities and provide data to assess health impacts. This could include the study of indirect sources such as warehouses which are impacted by South Coast AQMD's Indirect Source Regulations. This project category would identify areas of interest and conduct ambient air monitoring, emissions monitoring, analyze data and assess potential health impacts from mobile sources. These projects would need to be at least one year in duration in order to properly assess air quality impacts in surrounding communities.

Potential Air Quality Benefits:

The proposed project will assist in evaluation of adverse public health impacts associated with mobile sources. The information will be useful in (a) determining whether indirect sources have a relatively higher impact on residents living in close proximity, particularly in disadvantaged communities; and (b) providing guidance to develop some area-specific control strategies in the future should it be necessary.

Proposed Project: Assess Sources and Health Impacts of Particulate Matter

Expected South Coast AQMD Cost:	\$132,225
Expected Total Cost:	\$300,000

Description of Technology and Application:

Previous studies of ambient levels of toxic air contaminants, such as the MATES studies, have found that diesel exhaust is the major contributor to health risk from air toxics. Analyses of diesel particulate matter (DPM) in ambient samples have been based on measurements of elemental carbon. While the bulk of particulate elemental carbon in the Basin is thought to be from combustion of diesel fuels, it is not a unique tracer for diesel exhaust.

The MATES III study collected particulate samples at ten locations in the Basin. Analysis of particulate bound organic compounds was utilized as tracers to estimate levels of ambient DPM as well as estimate levels of PM from other major sources. Other major sources that were taken into consideration include automobile exhaust, meat charbroiling, road dust, wood smoke and fuel oil combustion. Analyzing for organic compounds and metals in conjunction with elemental carbon upon collected particulate samples was used to determine contributing sources.

MATES IV, completed in 2015, included an air monitoring program and updated emissions inventory of toxic air contaminants. MATES IV also measured UPM concentrations and black carbon at monitoring sites as well as near sources such as airports, freeways, rail yards, busy intersections and freight/logistics warehouse operations.

South Coast AQMD completed MATES V in August 2021 to update the emissions inventory of toxic air contaminants, as well as modeling to characterize risks, including measurements and analysis of ultrafine particle concentrations typically emitted or subsequently formed from vehicle exhaust. Findings from the MATES V report showed that air toxics cancer risk based on modeling data has decreased by about 50% since MATES IV, with average multi-pathway air toxics cancer risk at 454-in-a-million. The highest risk locations are at LAX and the Ports along goods movement and transportation corridors. Diesel PM continues to be the major contributor accounting for over 60% of the overall air toxics cancer risk. For the first time, chronic non-cancer risk was estimated with a chronic hazard index of 5.9 across the 10 stations in the MATES V study.

This project category would include other related factors, such as toxicity assessment based on age, source (HD, LD engines) and composition (semi-volatile or non-volatile fractions) to better understand health effects and potential community exposure, particularly in disadvantaged communities. Additionally, early identification of new health issues could be of considerable value and could be undertaken in this project category.

Potential Air Quality Benefits:

Results of this work will provide a more robust, scientifically sound estimate of ambient levels of DPM as well as levels of PM from other significant combustion sources, including gasoline and diesel generated VOCs. This will allow a better estimation of potential exposure and health effects from toxic air contaminants from diesel exhaust in the Basin. This information in turn can be used to determine health benefits of promoting clean fuel technologies.

Technology Transfer and Outreach

Proposed Project: Assess and Support Advanced Technologies and Disseminate Information

Expected South Coast AQMD Cost:	\$600,000
Expected Total Cost:	\$1,000,000

Description of Project:

This project supports assessment of clean fuels and advanced technologies, progress towards commercialization and dissemination of information on demonstrated technologies. The objective of this project is to expedite transfer of technology developed from Technology Advancement Office projects to the public domain, industry, regulatory agencies and the scientific community. This project is a fundamental element in South Coast AQMD's outreach efforts by coordinating activities with other organizations to expedite implementation of advanced engines and clean fuels technologies.

This project may include the following:

- technical review and assessment of technologies, projects and proposals;
- support for alternative and zero emission charging and fueling infrastructure;
- advanced technology curriculum development, mentoring and outreach to local schools;
- emission studies and assessments of near-zero and zero emission alternatives;
- preparation of reports, presentations at conferences, improving public relations and public communications of successful clean technology demonstration projects;
- participation in and coordination of workshops and various meetings;
- support for training programs related to fleet operation, maintenance and fueling of alternative fuel vehicles and equipment;
- publication of technical papers as well as reports and bulletins; and
- dissemination of information, including websites development and updates.

These objectives will be achieved by consulting with industry, scientific, health, medical and regulatory experts and co-sponsoring related conferences and organizations, resulting in multiple contracts. In addition, an ongoing outreach campaign will be conducted to encourage decision-makers to voluntarily switch to alternatively fueled vehicles and train operators to purchase, operate and maintain these vehicles/equipment and associated infrastructure.

Potential Air Quality Benefits:

As the Clean Fuels Program transitions increasingly to zero emission vehicle, equipment and infrastructure technologies, there will continue to be challenges in assisting fleets and others to successfully make this transition. The benefits of highlighting challenges, lessons learned, and success stories in the use of zero emission and near-zero emission vehicles, equipment and infrastructure can expedite acceptance and commercialization of these technologies. The emission reduction benefits will contribute to the goals of the 2022 AQMP.

Proposed Project: Support Implementation of Various Clean Fuels Incentive Programs

Expected South Coast AQMD Cost:	\$350,000
Expected Total Cost:	\$400,000

Description of Project:

This project supports implementation of incentive programs, including state and federal grant programs, Carl Moyer, Prop 1B, VW, VIP, CAPP, lower emission school bus, Replace Your Ride, and South Coast AQMD residential EV charger rebate program. Implementation support includes application review, funds allocation, equipment owner reports collection, documentation to CARB, verification of vehicle operation, and other support as needed. Information dissemination is critical to successfully implementing coordinated and comprehensive incentive programs. Outreach will be directed to vehicle OEMs, dealers, individuals and fleets.

Potential Air Quality Benefits:

South Coast AQMD will provide matching funds to implement several key incentive programs to reduce emissions in the Basin. The benefit of highlighting zero emission vehicle, equipment and infrastructure incentives is to expedite acceptance and commercialization of advanced technologies. Future emission reduction benefits will contribute to the goals of the 2022 AQMP. Carl Moyer, Prop 1B, VW, VIP, CAPP, and lower emission school bus incentive programs can reduce large amounts of NOx and PM emissions, and toxic air contaminants in the Basin.

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ATTACHMENT C TECHNOLOGY ADVANCEMENT OFFICE CLEAN FUELS PROGRAM DRAFT 2022 ANNUAL REPORT & 2023 PLAN UPDATE

South Coast Air Quality Management District

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South Coast Air Quality Management District

Technology Advancement Office

Aaron Katzenstein, Ph.D., Deputy Executive Officer

Vacant, Assistant Deputy Executive Officer

Daniel Garcia, Community Programs & Special Incentives Walter Shen, Off-Road Incentives, Inspections & Special Projects Manager Mei Wang, On-Road Incentives, Contracts & Outreach Manager Vacant, Technology Demonstration Manager

Sam Cao, Ph.D., Program Supervisor Ping Gui, Program Supervisor Seungbum Ha, Ph.D., Program Supervisor Maryam Hajbabaei, Ph.D., Program Supervisor Victor Juan, Program Supervisor Patricia Kwon, Program Supervisor Tom Lee, Program Supervisor Joseph Lopat, Program Supervisor Yuh Jiun Tan, Program Supervisor Kelly Trainor Gamino, Program Supervisor Alyssa Yan, Program Supervisor

Christina Kusnandar, Sr. Staff Specialist Ash Nikravan, Sr. Staff Specialist

David Chen, Air Quality Specialist Darren Ha, Air Quality Specialist Justin Joe, Air Quality Specialist Charlize Li, Air Quality Specialist Alicia Ibarra Martinez, Air Quality Specialist Frances Maes, Air Quality Specialist Krystle Martinez, Air Quality Specialist Greg Ushijima, Air Quality Specialist Nick Volpone, Air Quality Specialist George Wu, Air Quality Specialist Fan Xu, Ph.D., Air Quality Specialist Andrew Yoon, Air Quality Specialist Liliana Garcia, Assistant Air Quality Specialist Mariel Maranan, Assistant Air Quality Specialist Kevin Perozo, Assistant Air Quality Specialist Veronica Tejada, Assistant Air Quality Specialist Kristina Voorhees, Assistant Air Quality Specialist Alan Wang, Assistant Air Quality Specialist

Justin Chuang, Air Quality Inspector II Matthew Fung, Air Quality Inspector II Kenny Heralal, Air Quality Inspector II Jonathan Rocha, Air Quality Inspector II

Penny Shaw Cedillo, Sr. Administrative Assistant Maria Allen, Administrative Assistant I Marjorie Eaton, Administrative Assistant I Donna Vernon, Administrative Assistant I

Michelle White, Sr. Public Affairs Specialist Ana Troccoli, Staff Assistant Tribrina Brown, Contracts Assistant Margarita Cabral, Contracts Assistant Jessie Conaway, Contracts Assistant Priscilla Pineda, Contracts Assistant Benigna Taylor, Contracts Assistant Cynthia Snyder, Sr. Office Assistant Emmanuel Del Rosario, Office Assistant [This Page Intentionally Left Blank]

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EXECUTIVE SUMMARY

Introduction

South Coast Air Quality Management District (South Coast AQMD) is the air pollution control agency for Orange County and the urban portions of Los Angeles, Riverside and San Bernardino counties. This region, which encompasses the South Coast Air Basin (Basin) as well as small portions of the Mojave Desert and Salton Sea Air Basins, historically experiences the worst air quality in the nation due to the natural geographic and atmospheric conditions of the region, coupled with the high population density and associated mobile and stationary source emissions.

In 1988, SB 2297 (Rosenthal) was signed into law (Chapter 1546). It initially established a "five-year program to increase the use of clean fuels," but subsequent legislation extended and eventually removed the sunset clause for the Program. That legislation also reaffirmed the existence of the Technology Advancement Office (TAO) to administer the Clean Fuels Program. The Clean Fuels Program is an integral part of South Coast AQMD's effort to achieve the significant nitrogen oxides (NOx) emission reductions called for in the 2022 Air Quality Management Plan (AQMP) because it affords South Coast AQMD the ability to fund research, development, demonstration and accelerated deployment of clean fuels and transformative transportation technologies.

Using funding from a \$1 motor vehicle registration fee, the Clean Fuels Program encourages, fosters and supports clean fuels and transportation technologies, such as hydrogen fuel cells, advanced natural gas (NG) technologies, alternative fuel engines, battery electric vehicles, plug-in hybrid electric vehicles and related fueling infrastructure including renewable fuels. A key strategy of the Program is its public-private partnerships with private industry, technology developers, academic institutions, research institutions, and government agencies. Since 1988, the Clean Fuels Program leveraged nearly \$250 million into \$1.6 billion in projects. Leveraging of the Clean Fuels Fund is based on executed contracts and total project costs from the prior year's Clean Fuels Annual Report and Plan Update.

As technologies move towards commercialization, such as battery and fuel cell electric trucks, the Clean Fuels Program has been able to partner with large original equipment manufacturers (OEMs), such as Daimler, Volvo, Hyundai and Peterbilt to deploy these vehicles at scale. These OEM partnerships allow the Program to leverage their research, product development, customer relationships, and financial resources needed to move advanced technologies from the laboratories to the field and into customers' hands. The OEMs have the resources and capabilities to design, engineer, test, manufacture, market, distribute and service quality products under brand names that are trusted. This is the type of scale needed to achieve emission reductions to attain national ambient air quality standards (NAAQS).

While South Coast AQMD aggressively seeks to leverage funds, it plays a leadership role in technology development and commercialization, along with its partners, to accelerate the reduction of criteria pollutants. The Clean Fuels Program has traditionally supported a portfolio of technologies at different technology readiness levels. This helps with the development of new technologies across many different mobile sectors in need of new technologies that provide emission reductions and health benefits. This approach enhances the region's chances of achieving the NAAQS.

California Health and Safety Code (H&SC) 40448.5(e) calls for the Clean Fuels Program to consider factors such as: current and projected economic costs and availability of fuels; cost-effectiveness of emission reductions associated with clean fuels compared with other pollution control alternatives; use of new pollution control technologies in conjunction with traditional fuels as an alternative means of reducing

emissions; potential effects on public health, ambient air quality, visibility within the region; and other factors determined to be relevant by South Coast AQMD. The Legislature recognized the need for flexibility, allowing focus on a broad range of technology areas, including cleaner fuels, vehicles and infrastructure, which helps South Coast AQMD continue to make progress toward achieving its clean air goals.

California H&SC 40448.5.1 requires South Coast AQMD to prepare and submit a Clean Fuels Annual Report and Plan Update annually to the Legislative Analyst by March 31. The Clean Fuels Annual Report looks at Program accomplishments in the prior calendar year (CY) and Clean Fuels Plan Update looks ahead at proposed projects for the next CY, re-calibrating technical emphasis of the Program.

Setting the Stage

The overall strategy of the Clean Fuels Program is largely based on emission reduction technology needs identified in the AQMP and the South Coast AQMD Board directives to protect the health of almost 18 million residents (nearly half the population of California) in the Basin. The 2022 AQMP, which was released in May 2022 and adopted in December 2022 by the South Coast AQMD Board, is the long-term regional "blueprint" that identifies the fair-share emission reductions from all jurisdictional levels (e.g., federal, state and local). The 2022 AQMP is composed of stationary and mobile source emission reductions from traditional regulatory control measures, incentive-based programs, projected co-benefits from climate change programs, mobile source strategies and other innovative approaches, including indirect source measures and incentive programs, to reduce emissions from federally regulated sources (e.g., locomotives and ocean-going vessels). CARB's Proposed 2022 State SIP Strategy included a revised mobile source strategy required for the Basin to meet the 2015 8-hour ozone standard of 70 ppb by 2037. The Proposed 2022 State SIP Strategy for both mobile and stationary sources require rapid deployment of zero emission technologies to achieve air quality targets.



Figure 1: NOx Emissions by Source Category

Ground level ozone (a key component of photochemical smog) is formed by a chemical reaction between NOx and volatile organic compound (VOC) emissions in the presence of sunlight. NOx emission reduction is the key to improve ozone air quality and attain the ozone NAAQS in the Basin. Approximately 85 percent of NOx emissions are from mobile sources in 2018, as shown in Figure 1. Furthermore, NOx emissions, along with VOC emissions, also lead to the secondary formation of PM2.5 in the atmosphere [particulate matter measuring 2.5 microns or less in size, expressed as micrograms per cubic meter (μ g/m3)].

The emission reductions and control measures in the 2022 AQMP rely on commercial adoption of a mix of currently available technologies as well as the expedited development and commercialization of clean fuel mobile and stationary advanced technologies in the Basin to achieve air quality standards. The 2022 AQMP identifies that 83 percent NOx emission reductions from the 2018 level and 67 percent additional reductions in 2037 beyond already adopted regulations and programs are necessary to meet the 2015 8-hour ozone standard by 2037. Figure 2 illustrates the needed NOx reductions in the Basin by source category. The majority of NOx reductions must come from mobile sources, both on-road and off-road sources. Notably, South Coast AQMD is currently only one of two regions in the nation designated as an extreme nonattainment area of the 2015 8-hour ozone NAAQS (the other region is California's San Joaquin Valley).



Figure 2: NOx Emissions and Reductions Required to Attain 2015 Standard

The 2022 AQMP shows the need for economy-wide transition to zero emission technologies where feasible along with the CARB 2020 Mobile Source Strategy, and low NOx technologies in other applications.

Clean Fuels Program

The Clean Fuels Program, established in California H&SC 40448.5, is an important mechanism to encourage and accelerate the advancement and commercialization of clean fuels in stationary and mobile source technologies.

Figure 3 provides a conceptual design of the wide scope of the Clean Fuels Program and the relationship with incentive programs. Various stages of technology projects are funded to provide a portfolio of technology choices as well as achieve near-term and long-term emission reductions. The Clean Fuels Program typically funds projects in the Technology Readiness Level (TRL) ranging between 3-8.



Figure 3: Stages of Clean Fuels Program Funding

Below is a summary of the 2022 Clean Fuels Annual Report and 2023 Plan Update. Every Annual Report and Plan Update is reviewed by two advisory groups—the Clean Fuels Advisory Group, legislatively mandated by SB 98 (chaptered, 1999), and the Technology Advancement Advisory Group, created by the South Coast AQMD Board in 1990. These stakeholder groups review and assess the overall direction of the Program. The two groups meet approximately every six months to provide expert analysis and feedback on potential projects and areas of focus. Key technical experts working in the fields of the Program's core technologies also typically attend and provide feedback. Preliminary review and comment are also provided by South Coast AQMD's Board and other interested parties and stakeholders, as deemed appropriate.

2022 Annual Report

In CY 2022, the South Coast AQMD Clean Fuels Program executed 21 new contracts, projects or studies and modified 5 continuing projects adding dollars toward research, development, demonstration and deployment projects as well as technology assessment and transfer of alternative fuel and clean fuel technologies. Table 2 shows major funding partners in CY 2022. Table 5 lists the 26 projects or studies, which are further described in this report. The Clean Fuels Program contributed over \$7.4 million in partnership with other governmental organizations, private industry, academia and research institutes, and interested parties, with total project costs of approximately \$74.1 million. The \$7.4 million includes \$304,000 recognized into the Clean Fuels Fund as pass-through funds from project partners for project administration by the Clean Fuels Program. Table 6 provides information on this outside funding received into the Clean Fuels Fund. Additionally, in CY 2022, the Clean Fuels Program continued to leverage outside funding opportunities, securing new awards totaling almost \$3.3 million from federal, state and local funding opportunities. Table 7 provides a comprehensive summary of these federal, state and local revenues awarded to South Coast AQMD during CY 2022. Like the last several years, the significant project scope of a few key contracts executed in 2022 resulted in high leveraging of Clean Fuels dollars. Typical historical leveraging is \$4 for every \$1 in Clean Fuels funding. In 2022, South Coast AQMD exceeded this upward trend with almost \$10 leveraged for every \$1 in Clean Fuels funds. Leveraging dollars and aggressively pursuing funding opportunities is critical given the magnitude of needed funding identified in the 2022 AQMP to achieve NAAQS.

The projects or studies executed in 2022 included a diverse mix of advanced technologies. The following core areas of technology advancement for 2022 executed contracts (in order of funding percentage) include:

- 1. Electric and Hybrid Vehicle Technologies and Infrastructure (including battery electric and hybrid electric trucks developed by OEMs and container transport technologies with zero emission operations);
- 2. Technology Assessment and Transfer/Outreach;
- 3. Engine Systems/Technologies (including alternative and renewable fuels for truck and rail applications);
- 4. Hydrogen and Mobile Fuel Cell Technologies and Infrastructure;
- 5. Stationary Clean Fuels Technologies (including microgrids and renewables);
- 6. Fuel and Emissions Studies;
- 7. Fueling Infrastructure and Deployment (NG and renewable fuels); and
- 8. Emissions Control Technologies; and
- 9. Health Impacts Studies

Figure 11 on page 25 shows the distribution by percentage of executed agreements in 2022 across these core technologies.

During CY 2022, South Coast AQMD supported a variety of projects and technologies, ranging from nearterm to long-term research, development, demonstration and deployment activities. This "technology portfolio" strategy provides South Coast AQMD the ability and flexibility to leverage state and federal funding while also addressing the specific needs of the Basin. Projects included significant battery electric and hybrid electric technologies and infrastructure to develop and demonstrate medium- (MD) and heavy-(HD) vehicles in support of transitioning to near-zero and zero emission goods movement; development, demonstration and deployment of large displacement ultra-low NOx engines; and demonstration of hydrogen fuel cell MD and HD vehicles and infrastructure.

In addition to the 26 executed contracts and projects, 46 research, development, demonstration and deployment projects or studies and 11 technology assessment and transfer contracts were completed in 2022, as listed in Table 15 on page 62. Appendix C includes two-page summaries of technical projects completed in 2022. As of January 1, 2023, there were 74 open contracts in the Clean Fuels Program; Appendix B lists these open contracts by core technology.

In accordance with California H&SC Section 40448.5.1(d), this annual report must be submitted to the state legislature by March 31, 2023, after approval by the South Coast AQMD Board.

2023 Plan Update

The Clean Fuels Program is re-evaluated annually to develop the annual Plan Update based on a reassessment of the technology progress and direction for the agency. The Program continually seeks to support the development and deployment of cost-effective clean fuel technologies with increased collaboration with OEMs to achieve large scale deployment. The design and implementation of the Clean Fuels Program Plan must balance the needs in the various technology sectors with technology readiness on the path to commercialization, emission reduction potential and co-funding opportunities. For several years, the state has focused a great deal of attention on climate change and petroleum reduction goals, but South Coast AQMD has remained committed to developing, demonstrating and commercializing technologies that reduce criteria pollutants, specifically NOx and toxic air contaminants (TACs). Most of these technologies address the Basin's need for NOx and TAC reductions and garner reductions in greenhouse

gases (GHG) and petroleum use. Due to these co-benefits, South Coast AQMD has been successful in partnering with the state and public/private partnerships to leverage its Clean Fuels funding.

To identify technology and project opportunities where funding can make a significant difference in deploying cleaner technologies in the Basin, South Coast AQMD engages in outreach and networking efforts. These activities range from close involvement with state and federal collaboratives, partnerships and industrial coalitions, to the issuance of Program Opportunity Notices (PONs) to solicit project ideas and concepts and Requests for Information (RFIs) to determine the current state of technologies and their development and commercialization challenges. Additionally, unsolicited proposals from OEMs and other clean fuel technology developers are regularly received and reviewed. Potential development, demonstration and certification projects resulting from these outreach and networking efforts are included conceptually within the 2023 Clean Fuels Plan Update.

Assembly Bill (AB) 617¹ requires reduced exposure to communities most impacted by air pollution; TAO conducts additional outreach to AB 617 communities regarding available zero and near-zero emission technologies and incentives to accelerate deployment of cleaner technologies. Cleaner technologies such as near-zero and zero emission HD trucks are now included in the Community Emission Reduction Plans (CERPs) for these AB 617 communities, and an RFP for a zero emission HD truck loaner program is being developed and will be released in 2023. This program will allow smaller fleets and independent owner operators to learn about zero emission trucks by trying them out in their business operations. This program is being funded through Community Air Protection Program (CAPP) funds but utilizes zero emission truck technologies developed under the Clean Fuels Program.

Since 2020, CARB has adopted several critical milestone regulations for reducing emissions from on-road HD mobile sources. These regulations include: 1) Advanced Clean Truck (ACT) regulation which mandates an increasingly higher percentage of zero emission truck sales starting in 2024, 2) Omnibus Low NOx regulation which requires lower exhaust NOx standards on HD engines starting in 2024, and 3) HD Vehicle Inspection and Maintenance Program for removing high emitters from legacy trucks. CARB is also taking the proposed Advanced Clean Fleets regulation as well as the 2022 State Implementation Plan (SIP) Strategy for Board consideration in 2023.

On the federal level, U.S. EPA has finalized a national low NOx truck rule in December 2022. The "Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards," sets more stringent emissions from HD vehicles starting in model year 2027. This regulation is one of three rulemakings planned under the EPA Clean Trucks Plan. Two additional rulemakings are planned for 2023 that would include Phase 3 heavy-duty GHG standards and light- (LD) and MD vehicle standards for model years 2027.² Though there are some slight differences when compared to CARB Omnibus regulation for 2027. Both the federal and state low-NOx regulations complement various zero emission regulations and will together bring much needed mobile source NOx reductions to the South Coast Air Basin.

Regionally, South Coast AQMD adopted the Warehouse Actions and Investments to Reduce Emissions (WAIRE) program to reduce NOx and DPM emissions from indirect sources such as warehouse facilities. The San Pedro Bay Ports implemented the Clean Truck Fund (CTF) to generate funds for achieving the goal of zero emission drayage trucks by 2035. Despite these major efforts, additional NOx emission reductions in the South Coast Air Basin are needed to meet ozone attainment target deadlines.

¹ <u>https://ww2.arb.ca.gov/capp</u>

² Final Rule and Related Materials for Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards | US EPA

The Plan Update includes projects to develop, demonstrate and commercialize a variety of technologies, from near-term to long-term commercialization, that are intended to provide significant emission reductions over the next five to ten years. Areas of focus include:

- developing and demonstrating technologies to reduce emissions from goods movement and Portrelated activities, including zero emission drayage trucks and infrastructure;
- developing and demonstrating ultra-low NOx, gaseous and liquid alternative/renewable fueled, large displacement/high efficiency engines and HD zero emission engine technologies;
- mitigating criteria pollutant emissions from the production of renewable fuels, such as renewable natural gas, diesel and hydrogen as well as other renewable, low/zero carbon fuels and waste streams;
- producing transportation fuels and energy from renewable and waste stream sources;
- developing and demonstrating electric-drive (fuel cell, battery, plug-in hybrid and non-plug-in hybrid) technologies across LD, MD and HD platforms;
- establishing large-scale hydrogen fueling and electric vehicle (EV) charging infrastructure to support LD, MD and HD zero emission vehicles;
- ultra-fast, higher power charging for HD battery electric vehicles;
- developing and demonstrating zero emission microgrids that utilize battery energy storage systems and onsite clean power generation to support transportation electrification demands associated with goods movement and freight handling activities.

Table 16 (page 87) lists potential projects across ten core technologies by funding priority:

- Hydrogen / Mobile Fuel Cell Technologies;
- Electric / Hybrid Technologies (battery electric and hybrid electric trucks and container transport technologies with zero emission operations);
- Zero Emission Infrastructure (especially large-scale fueling and production facilities and stations that support MD and HD vehicles);
- Engine Systems / Technologies (alternative and renewable fuels for truck and rail applications);
- RNG Infrastructure (renewable natural gas and renewable fuels);
- Stationary Clean Fuel Technologies (microgrids that support EV and Hydrogen infrastructure and renewables);
- Fuel and Emission Studies;
- Emission Control Technologies;
- Health Impact Studies within disadvantaged communities; and
- Technology Assessment and Transfer / Outreach
- These potential projects for 2023 total \$19.8 million of Clean Fuels funding, with the anticipation of total project costs of \$118.7 million, leveraging \$6 for every \$1 of Clean Fuel funds spent. Some proposed projects may also be funded by other funding sources, such as state and federal grants for clean fuel technologies, incentive programs such as AB 617 CAPP funding, Volkswagen Mitigation, and Carl Moyer, and other mitigation funds.

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CLEAN FUELS PROGRAM

Background and Overview

Program Background

The Basin, which comprises all of Orange County and the urban portions of Los Angeles, San Bernardino and Riverside counties, has the worst air quality in the nation due to a combination of factors, including high vehicle population, high vehicle miles traveled within the region, and geographic and atmospheric conditions favorable for photochemical oxidant (smog) formation. This region, which encompasses the South Coast Air Basin as well as small portions of the Mojave Desert and Salton Sea Air Basins, is home to almost 18 million residents (nearly half the population of California). Due to this confluence of factors, which present unique challenges, the state legislature enabled South Coast AQMD to implement the Clean Fuels Program to accelerate the implementation and commercialization of clean fuels and advanced mobile source technologies.

In 1988, SB 2297 (Rosenthal) was signed into law (Chapter 1546). It initially established a "five-year program to increase the use of clean fuels," but subsequent legislation extended and eventually removed the sunset clause for the Program. That legislation also reaffirmed existence of the Technology Advancement Office (TAO) to administer the Clean Fuels Program. The Clean Fuels Program is an integral part of South Coast AQMD's effort to achieve the significant NOx reductions called for in the 2022 AQMP.

California H&SC section 40448.5(e) calls for the Clean Fuels Program to consider, among other factors, current and projected economic costs and availability of fuels, cost-effectiveness of emission reductions associated with clean fuels compared with other pollution control alternatives, use of new pollution control technologies in conjunction with traditional fuels as an alternative means of reducing emissions, potential effects on public health, ambient air quality, visibility within the region, and other factors determined to be relevant by South Coast AQMD. The Legislature recognized the need for flexibility, allowing focus on a broad range of technology areas, including cleaner fuels, vehicles and infrastructure, which helps South Coast AQMD continue to make progress toward achieving its clean air goals.

In 1999, further state legislation was passed which amended the Clean Fuels Program. Specifically, as stated in the H&SC section 40448.5.1(d), South Coast AQMD must submit an annual report to the Legislature, on or before March 31, that includes:

- 1. Description of the core technologies that South Coast AQMD considers critical to ensure attainment and maintenance of ambient air quality standards and a description of the efforts made to overcome barriers to commercialization of those technologies;
- 2. Analysis of the impact of South Coast AQMD's Clean Fuels Program on the private sector and on research, development and commercialization efforts by major automotive and energy firms, as determined by South Coast AQMD;
- 3. Description of projects funded by South Coast AQMD, including a list of recipients, subcontractors, co-funding sources, matching state or federal funds and expected and actual results of each project advancing and implementing clean fuels technology and improving public health;
- 4. Title and purpose of all projects undertaken pursuant to the Clean Fuels Program, names of the contractors and subcontractors involved in each project and amount of money expended for each project;
- 5. Summary of progress made toward the goals of the Clean Fuels Program; and
- 6. Funding priorities identified for the next year and relevant audit information for previous,

current and future years covered by the Clean Fuels Program.

Furthermore, H&SC section 40448.5.1(a)(2) requires South Coast AQMD to find that the proposed program and projects funded as part of the Clean Fuels Program will not duplicate any other past or present program or project funded by the state board and other government and utility entities. This finding does not prohibit funding for programs or projects jointly funded with another public or private agency where there is no duplication. Concurrent with adoption and approval of the annual report and plan update every year, the Board will consider the efforts TAO has undertaken in the prior year to ensure no such duplication has occurred then make a finding through a Resolution attesting such.

The following section describes the various panels of external experts that help review the Clean Fuels Program every year.

Program Review

In 1990, South Coast AQMD initiated an annual review of its technology advancement program by an external panel of experts. That external review process has evolved, in response to South Coast AQMD policies and legislative mandates, into two external advisory groups. The Technology Advancement Advisory Group (one of six standing Advisory Groups that make up the South Coast AQMD Advisory Council) is made up of stakeholders representing industry, academia, regulatory agencies, scientific community and environmental non-governmental organizations (NGOs). The Technology Advancement Advisory Group serves to:

- Coordinate the Clean Fuels program with related local, state and national activities;
- Review and assess the overall direction of the program; and
- Identify new project areas and cost-sharing opportunities.

In 1999, the second advisory group was formed as required by SB 98 (Alarcon). Under H&SC Section 40448.5.1(c), this advisory group must comprise 13 members with expertise in clean fuels technology and policy or public health and appointed from the scientific, academic, entrepreneurial, environmental and public health communities. This legislation further specified conflict-of-interest guidelines prohibiting members from advocating expenditures towards projects in which they have professional or economic interests. The objectives of the SB 98 Clean Fuels Advisory Group are to make recommendations regarding projects, plans and reports, prior to submittal of the required annual report to the South Coast AQMD Governing Board. In 1999, after formation of the SB 98 Clean Fuels Advisory Group, South Coast AQMD revisited the charter and membership of the Technology Advancement Advisory Group to ensure their functions would complement each other.

On an as-needed basis, changes to the composition of the Clean Fuels Advisory Group are reviewed by the South Coast AQMD Board while changes to the Technology Advancement Advisory Group are reviewed by the South Coast AQMD Board's Technology Committee.

The charter for the Technology Advancement Advisory Group calls for approximately 12 technical experts representing industry, academia, state agencies, scientific community and environmental interests. Traditionally, there has been exactly 12 members on this advisory group, but in CY 2019 staff recommended to the Board's Technology Committee that it add representatives from the Ports of Long Beach and Los Angeles, as both entities are integral players and stakeholders in demonstrating near-zero and zero emission technologies in and around the Ports and surrounding disadvantaged communities. With the addition of the Port representatives, there are currently 13 members on the Technology Advancement Advisory Group.

Current membership changes to both advisory groups are considered by the South Coast AQMD Board and its Technology Committee, respectively, as part of consideration of each year's Annual Report and Plan Update. Members of the SB 98 Clean Fuels Advisory Group and Technology Advancement Advisory Group are listed in Appendix A, with proposed changes, duly noted, subject to either South Coast AQMD Board approval or the Board's Technology Committee, per the advisory group's charters.

The review process of the Clean Fuels Program now includes, at minimum: 1) two full-day retreats of both Advisory Groups, typically in the summer and winter; 2) review by other technical experts; 3) occasional technology forums or roundtables bringing together interested parties to discuss specific technology areas; 4) review by the Technology Committee of the South Coast AQMD Board; 5) public hearing of the Annual Report and Plan Update before the full South Coast AQMD Board, along with adoption of the Resolution finding that the proposed program and projects funded as part of the Clean Fuels Program will not duplicate any other past or present program or project funded by the state board and other government and utility entities, as required by the H≻ and 6) annual submittal of the Clean Fuels Program Annual Report and Plan Update to the Legislature by March 31.

The Need for Advanced Technologies & Cleaner Fuels

Achieving federal and state clean air standards in South Coast Air Basin will require emission reductions from both mobile and stationary sources beyond those expected using current technologies.



NOx Emissions: 351 tons/day

Figure 4: NOx Contribution by Source Category to 2018 Emission Inventory

Ground level ozone (a key component of smog) is created by a chemical reaction between NOx and volatile organic compound (VOC) emissions in sunlight. This is noteworthy because the primary driver for ozone formation in the Basin is NOx emissions, and mobile sources contribute approximately 85 percent of the NOx emissions in this region, as shown in Figure 4. Furthermore, NOx emissions, along with VOC emissions, also lead to the formation of PM2.5 [particulate matter measuring 2.5 microns or less in size, expressed as micrograms per cubic meter (μ g/m3)], including secondary organic aerosols.

To fulfill near- and long-term emission reduction targets, the 2022 AQMP currently relies on a mix of currently available technology as well as accelerated development and demonstration of advanced technologies that are not yet commercialized. Significant reductions are anticipated from implementation of advanced control technologies for on-road and off-road mobile sources. Air quality standards for ozone (70 ppb, 8-hour average) and fine particulate matter, promulgated by U.S. EPA, are projected to require



additional long-term control measures for NOx and VOC.

Figure 5: NOx Contribution Source Category in 2018 and 2037

The need for advanced mobile source technologies and clean fuels is best illustrated by Figure 5 which identifies NOx emissions by source category in 2018 and 2037. NOx reductions identified in the 2022 AQMP will require the Clean Fuels Program to accelerate advancement of clean transportation technologies used as control strategies in the AQMP. Given this contribution, significant emission reductions from these sources are needed. 2022 AQMP mobile source strategies call for deploying cleaner technologies (both zero and near-zero emission) into fleets, requiring cleaner and renewable fuels, and ensuring continued clean performance in use. Federal actions are also required to address sources that are subject to federal regulations and beyond the regulatory authority of South Coast AQMD and CARB.

Health studies also indicate a greater need to reduce NOx emissions and TAC emissions. The South Coast AQMD Multiple Air Toxics Exposure Study (MATES) V study (2021), and the prior four MATES studies, assessed air toxic levels, updated risk characterization, and determined gradients from selected sources.

In summary, advanced, energy efficient and renewable technologies are needed for attainment, but also to protect the health of residents, reduce long-term dependence on petroleum-based fuels, and support a more sustainable energy future. Conventional strategies and traditional supply and consumption need to be retooled to achieve NAAQS. To meet this need for advanced, clean technologies, the South Coast AQMD Board continues to aggressively carry out the Clean Fuels Program and promote alternative fuels through its TAO.

As technologies move towards commercialization, such as battery electric and fuel cell trucks, the Clean Fuels Program partners with large OEMs, such as Daimler Trucks North America, LLC (DTNA), Volvo and Kenworth, to deploy these vehicles at scale. These OEM partnerships allow the Program to leverage the research, product creation and financial resources that are needed to move advanced technologies from the laboratories to the field and into customers' hands. OEMs have the resources and abilities to design, engineer, test, manufacture, market, distribute and service quality products under brand names that are trusted. This is the type of scale needed to achieve emission reductions to meet NAAQS.

As advanced technologies and cleaner fuels are commercial-ready, there needs to be a concerted effort to get them into the marketplace and on the roads. South Coast AQMD's Carl Moyer Program, which was

launched in 1988, along with recent Volkswagen Mitigation Trust and CAPP, help achieve these results. These programs provide incentives to push market penetration of the technologies developed and demonstrated by the Clean Fuels Program. The synergy between the Clean Fuels program and incentive programs enable South Coast AQMD to play a leadership role in both technology development and commercialization efforts targeting reduction of criteria pollutants. Funding for both research, development, demonstration and deployment (RD³⁾ projects as well as incentives remains critical given the magnitude of additional funding identified in the 2022 AQMP to achieve NAAQS.

Emission Reductions Resulting from Clean Fuels Program

The Clean Fuels Program has encouraged projects that increase the utilization of clean-burning fuels over the 34-year lifetime of the program. Many of the technologies that were supported during the early years of the program, are now seeing commercial deployments, e.g. fuel cell buses, while others saw great success only to be eventually phased out, e.g., methanol buses and vehicles. Of all the technologies that the Clean Fuels Program have supported, there are two recent technologies that have been commercialized and are providing emissions benefits through incentives programs, ultra-low NOx (near-zero emission or NZE) NG engines and zero emission trucks (ZETs).

The Clean Fuels Program has been supporting the development of low and near-zero emission HD NG engines since the early 2000's. In 2003, South Coast AQMD conducted a joint project with California Energy Commission (CEC), U.S. DOE and National Renewable Energy Laboratory (NREL) to advance development of HD NG engines to meet the upcoming 2010, 0.2 g/bhp-hr NOx standard. The result was the Cummins-Westport, Inc (CWI) 8.9-liter engine that certified to 0.2 g NOx/bhp-hr, three years before the mandated 2010 national standard. In 2013, recognizing the need for accelerated NOx reductions in the HD sector, South Coast AQMD, CEC, and SoCalGas issued a joint solicitation to develop and demonstrate an NZE engine for commercial use. CWI developed and commercialized the first 0.02 g/bhp-hr NOx 8.9-liter NG engine (L9N). Additional projects with CEC, SoCalGas and Clean Energy produced the CWI 11.9-liter NZE engine (ISX12N) certified in 2018 for port fleet operations, also first of its kind, including a 20-truck demonstration project at the San Pedro Bay Ports. These engines are now commercially available and offered by all major truck OEMs.

The Clean Fuels Program has also supported the development of ZETs including battery electric trucks (BETs) and fuel cell electric trucks (FCETs). U.S. DOE funded the Zero Emission Cargo Transport 1 (ZECT 1) project developed and demonstrated Class 8 battery electric trucks. The ZECT 1 project gave birth to many other BET and hybrid truck projects, including subsequent projects such as the CARB Greenhouse Gas Reduction Fund (GGRF) Zero Emission Drayage Truck (ZEDT) project, which demonstrated 44 battery electric and CNG and diesel hybrid electric drayage trucks at multiple California Ports. The ZEDT project included 25 BYD 8TT BETs, 12 Peterbilt/Meritor/ TransPower 579 BETs, two Kenworth CNG hybrid electric trucks based on their T680 daycab, three Volvo diesel plug-in hybrid electric trucks, and two Volvo VNR Electric BETs. More recently, the Clean Fuels Program co-funded large Daimler and Volvo BET projects. For the Daimler Innovation Fleet project, Daimler deployed 14 Class 8 eCascadia and six Class 6 eM2 trucks and installed seven DC fast charging stations at fleet locations in 2019. Volvo deployed 30 Class 8 BETs and installed Level 2, AC, 50 and 150 kW DC fast chargers, and solar/storage as part of their CARB GGRF Low Impact Green Heavy Transport Solutions (LIGHTS) in 2022. Daimler deployed two Class 6 and six Class 8 BETs for its Customer Experience project which will be completed in 2023. Daimler will be deploying 15 Class 6 and 20 Class 8 BETs and chargers for commercial fleet distribution/delivery operations for its Zero Emission Electric Delivery Trucks project which will be completed in 2024. In 2021, South Coast AQMD was awarded CARB and CEC funding for the Joint Electric Truck Scaling Initiative (JETSI) Pilot project to deploy 100 BETs and 350 kW DC fast chargers for two fleets, NFI Interactive Logistics, LLC (NFI) and Schneider National Inc (Schneider). The Volvo VNR Electric truck and DTNA eCascadia will be deployed in 2023 and are commercially available. Examples of BETs that South Coast AQMD has developed and demonstrated with co-funding from various

partners are shown in Figure 6.



Figure 6: Clean Fuel Technology Trucks South Coast AQMD and Partners Developed and Demonstrated

To quantify some of the emissions benefit from NZE and ZE truck deployments, Table 1 summarizes the potential emissions reductions as result of the technologies directly supported by the Clean Fuels Program. South Coast AQMD staff compiled incentive program data between 2017 and 2022 from our Technology Incentives Group to calculate the NOx emissions reductions associated with deployment projects of NZE and ZE heavy-duty vehicles (HDVs) in the Basin. Note the programs below required scrappage, that meant each vehicle deployed eliminated an older diesel truck, and the emission reductions are based on the program guidelines established by CARB.

 Table 1: Potential Emissions Benefit from NZE and ZE Truck Deployment Projects (2017-2022)

Emissions Benefit from Technology Development



Although the emission reductions may seem modest, these technologies represent almost 4% of the total emission reductions for on-road heavy-duty diesel trucks in 2023³, and the numbers will only continue to grow, thanks in part to the support by the Clean Fuels Program.

Program Funding

The Clean Fuels Program is established under H&SC Sections 40448.5 and 40512 and Vehicle Code Section 9250.11. This legislation establishes mechanisms to collect revenues from mobile and stationary sources to support the program objectives and identifies the constraints on the use of funds. In 2008, these funding mechanisms were reauthorized under SB 1646 (Padilla), which removed the funding sunset of January 1, 2010, and established the five percent administrative cap instead of the previous cap of two-and-half percent.

Specifically, the Clean Fuels Program is funded through a \$1 fee on motor vehicles registered in the South Coast AQMD. Revenues collected from these motor vehicles must be used to support mobile source projects. Stationary source projects are funded by an emission fee surcharge on stationary sources emitting more than 250 tons of pollutants per year within South Coast AQMD. This revenue is typically about \$13.5 million and \$350,000, respectively, every year. For CY 2022, the funds available through each of these mechanisms were as follows:

•	Mobile sources (DMV revenues)	\$13,762,116
•	Stationary sources (emission fee surcharge)	\$292,311

The Clean Fuels Program also receives grants and cost-sharing revenue contracts from various agencies, on a project-specific basis, that supplement the South Coast AQMD program. Historically, such cooperative project funding revenues have been received from CARB, CEC, U.S. EPA (including but not limited to their Diesel Emissions Reduction Act or DERA, Clean Air Technology Initiative or CATI, and Airshed

³ 1.69 tpd reductions vs. 44.5 tpd in on-road heavy-duty diesel inventory in 2023.

programs), U.S. Department of Energy (DOE) and U.S. Department of Transportation (DOT). These supplemental revenues depend in large part on the originating agency, its budgetary and planning cycle and the specific project or intended use of the revenues. Table 6 on page 27 lists the supplemental grants and revenues totaling \$304,000 for contracts executed in CY 2022.

Table 7 on page 28 lists the federal, state and other revenue totaling almost \$3.3 million awarded to South Coast AQMD in 2022 for projects that are part of the overall Clean Fuels Program's RD³ efforts, even if for financial tracking purposes revenue is recognized into another special revenue fund other than the Clean Fuels Fund (Fund 31).

The final and perhaps most significant funding source can best be described as an indirect source, i.e., funding not directly received by South Coast AQMD. This indirect source is the cost-sharing provided by private industry and other public and private organizations. The public-private partnerships with private industry, technology developers, academic institutions, research institutions and government agencies are a key strategy of the Clean Fuels Program. Historically, the TAO has been successful in leveraging its available public funds with \$4 of outside funding for each \$1 of South Coast AQMD funding. Since 1988, the Clean Fuels Program has leveraged nearly \$250 million into over \$1.6 billion in projects. For 2022, the Clean Fuels Program leveraged \$1 of Clean Fuels Funds to almost \$10 of outside funding. This leverage was the result of two key significant project awards for the JETSI pilot project in 2022. Specifically, two contracts with DTNA and NFI to deploy Class 8 BETs, charging infrastructure and distributed energy resource technologies with substantial co-funding of \$26.6 and \$30.5 million, respectively. Through these public-private partnerships, South Coast AQMD shared the investment risk of developing new technologies along with the benefits of expedited development and commercial availability, increased end-user acceptance, reduced emissions from demonstration projects and ultimately increased use of clean technologies in the Basin. While South Coast AQMD aggressively seeks to leverage funds, it continues to act in a leadership role in technology development and commercialization efforts, along with its partners, to accelerate the reduction of criteria pollutants. Leveraging dollars and aggressively applying for additional funds whenever funding opportunities arise is more important than ever given, as previously noted, the magnitude of additional funding identified in the 2022 AQMP to achieve NAAQS. The Clean Fuels Program has also avoided duplicative efforts by coordinating and jointly funding projects with major funding agencies and organizations. The major funding partners for 2022 are listed in Table 2 on page 19.

2022 Overview

This report summarizes the progress of the Clean Fuels Program for CY 2022. The Clean Fuels Program cost-shares projects to develop and demonstrate zero, near-zero and low emissions clean fuels and advanced technologies to advance technology and promote commercialization and deployment of promising or proven technologies not only for the Basin but Southern California and the nation as well. These projects are conducted through public-private partnerships with industry, technology developers, academic and research institutes and local, state and federal agencies.

This report also highlights achievements and summarizes project costs of the Clean Fuels Program in CY 2022. During the period between January 1 and December 31, 2022, South Coast AQMD executed 21 new contracts/agreements, projects or studies and modified 5 continuing projects adding dollars during CY 2022 that support clean fuels and advanced zero, near-zero and low emission technologies (see Table 5). The Clean Fuels Program contribution for these projects was over \$7.4 million, inclusive of \$304,000 received into the Clean Fuels Fund as cost-share for contracts executed in this reporting period. Total project costs are over \$74.1 million.

The projects executed in 2022 address a wide range of issues with a diverse technology mix including nearterm emissions reductions and long-term planning efforts. The report not only provides information on outside funding received into the Clean Fuels Fund as cost-share for contracts executed in this period (summarized in Table 6), but also funds awarded to South Coast AQMD for projects that fall within the scope of the Clean Fuels Program's RD³ efforts but may have been recognized (received) into another special revenue fund for financial tracking purposes (nearly \$3.3 million in 2022, see Table 7). In 2022, the South Coast AQMD was awarded nearly \$2.6 million from US EPA for electrification of cargo handling equipment, \$220,000 from CARB for the JETSI Pilot Project, and \$500,000 from U.S. EPA for deployment of zero emission mobile clinics. These projects will advance the commercialization of BETs and FCETs, and cargo handling equipment technologies. More details on this financial summary are in this report. South Coast AQMD will continue to pursue federal, state and private funding opportunities in 2023 to amplify leverage, while acknowledging that support of a promising technology is not contingent on outside cost-sharing and affirming that South Coast AQMD will remain committed to playing a leadership role in developing advanced technologies that lower criteria pollutants.

Core Technologies

Given the diversity of sources that contribute to the air quality problems in the Basin, there is no single technology or "Silver Bullet" that can solve all the problems. A number of technologies are required, and these technologies represent a wide range of applications, with full emissions benefit "payoffs," i.e., full commercialization and mass deployment occurring at different times. The broad technology areas of focus – the "Core Technologies" – for the Clean Fuels Program are as follows:

- Hydrogen / Mobile Fuel Cell Technologies and Infrastructure;
- Engine Systems / Technologies (including alternative and renewable fuels for truck and rail applications);
- Electric / Hybrid Vehicle Technologies and Related Infrastructure (including battery electric and hybrid electric trucks and container transport technologies with zero emission operations);
- Fueling Infrastructure and Deployment (NG and renewable fuels);
- Stationary Clean Fuels Technologies (including microgrids and renewables);
- Fuel and Emissions Studies;
- Emissions Control Technologies;
- Health Impacts Studies; and
- Technology Assessment and Transfer / Outreach.

At its January 2022 retreat, the Technology Advancement and SB-98 Clean Fuels Advisory Groups asked staff to take another look at these core technologies to determine if they still fit within the strategy of the Clean Fuels Program. That effort will be undertaken in 2023.

South Coast AQMD continually seeks to support the deployment of lower-emitting technologies. The Clean Fuels Program is shaped by two basic factors:

- 1. Zero, near-zero and low emission technologies needed to achieve clean air standards in the Basin; and
- 2. Available funding to support technology development within the constraints imposed by that funding.

South Coast AQMD strives to maintain a flexible program to address dynamically evolving technologies and the latest progress in the state of the technology while balancing the needs in the various technology sectors with technology readiness, emissions reduction potential and co-funding opportunities. Although the Clean Fuels Program is significant, national and international activities affect the direction of technology trends. As a result, the Clean Fuels Program must be flexible to leverage and accommodate these changes in state, national and international priorities. Nonetheless, while state and federal governments have continued to turn a great deal of their attention to climate change, South Coast AQMD has remained committed to developing, demonstrating and commercializing zero and near-zero emission technologies. Fortunately, many, if not the majority, of technology sectors that address our need for NOx reductions also garner GHG reductions. Due to these "co-benefits," South Coast AQMD has been successful in partnering with state and federal government. Even with leveraged funds, the challenge for South Coast AQMD remains the need to identify project or technology opportunities in which its available funding can make a difference in achieving progressively cleaner air in the Basin.

To achieve this, South Coast AQMD employs various outreach and networking activities as well as evaluates new ways to expand these activities. These activities range from close involvement with state and federal collaboratives, partnerships and industrial coalitions, to the issuance of PONs to solicit project ideas and concepts as well as the issuance of RFIs to determine the state of various technologies and the development and commercialization challenges faced by those technologies. Additionally, in the absence of PONs, unsolicited proposals from OEMs and other clean fuel technology developers are accepted and reviewed.

Historically, mobile source projects have targeted low-emission developments in automobiles, transit buses, MD and HD trucks and non-road applications. These vehicle-related efforts have focused on advancements in engine design, electric powertrains and energy storage/conversion devices (e.g., fuel cells and batteries); and implementation of clean fuels (e.g., NG, propane and hydrogen) including infrastructure development. Stationary source projects have included a wide array of advanced low NOx technologies and clean energy alternatives such as fuel cells, solar power and other renewable and waste energy systems. The focus in recent years has been on zero and near-zero emission technologies with increased attention to HD and MD trucks to reduce emissions from mobile sources, which contribute to more than 80 percent of the current NOx emissions in this region. However, while mobile sources include both on- and off-road vehicles as well as aircraft and ships, only the federal government has the authority to regulate emissions from aircraft and ships. South Coast AQMD is exploring opportunities to expand its authority in ways that would allow the agency to do more to foster technology development for ship and train activities as well as locomotives related to goods movement. In the absence of regulatory authority, South Coast AQMD is expanding its portfolio of RD³ projects to include marine and ocean-going vessels. Utilizing mitigation funds, funding from San Pedro Bay Ports and industry partners, RD³ projects to demonstrate emissions reduction technology in the marine sector where NOx emissions are increasing are being pursued.

The 2022 AQMP included five facility-based mobile source measures, also known as indirect source measures. Staff has been developing both voluntary and regulatory measures in a process that has included extensive public input. Indirect source measures are distinct from traditional air pollution control regulations in that they focus on reducing emissions from the vehicles associated with a facility rather than emissions from a facility itself.

For example, newly established indirect source measures for warehouses focuses on reducing emissions from trucks servicing the warehouse. Measures for Ports will concentrate on emissions from ships, trucks, locomotives and cargo handling equipment at the Ports. Measures covering new development and redevelopment projects could aim to reduce emissions from construction equipment, particularly HD diesel earth-moving vehicles.

Specific projects are selected for co-funding from competitive solicitations, cooperative agency agreements and unsolicited proposals. Criteria considered in project selection include emissions reduction potential, technological innovation, potential to reduce costs and improve cost effectiveness, contractor experience and capabilities, overall environmental impacts or benefits, commercialization and business development potential, cost-sharing and cost-sharing partners, and consistency with program goals and funding constraints. The core technologies for South Coast AQMD programs that meet both the funding constraints and 2022 AQMP needs for achieving clean air are briefly described below.

Hydrogen / Mobile Fuel Cell Technologies and Infrastructure

Toyota and Hyundai commercialized HD fuel cell vehicles in passenger sector in 2015 and Honda started delivering their Fuel Cell Clarity in 2016. Automakers continue development efforts and collaborate to

broaden application of fuel cells to increase manufacturing scale and reduce cost to commercialize fuel cell vehicles. However, although progress is being made, the greatest challenge for the viability of fuel cell vehicles remains the installation and operations of hydrogen fueling stations. AB 8 requires CEC to allocate \$20 million annually from the Alternative and Renewable Fuel and Vehicle Technology Program until there are at least 100 publicly accessible hydrogen stations in operation in California. Of the 107 stations funded by CEC and CARB by the end of 2022, partially funded by South Coast AQMD for those in our region, there is one legacy and 54 retail operational in California. CEC and CARB staffs expect that California will exceed the 100-station goal in AB 8 in 2023, with more than 179 stations by 2027. AB 8 also requires CARB to annually assess current and future fuel cell vehicles (FCVs) and hydrogen stations in the marketplace. The Joint Agency Staff Report on Assembly Bill 8: 2021 Annual Assessment of Time and Cost Needed to Attain 100 Hydrogen Refueling Stations in California⁴ released in December 2021 covering 2021 findings states that there were 9,647 fuel cell vehicles registered in California by October 2021. CARB's 2022 Annual Evaluation projects 37,500 fuel cell electric vehicles (FCEVs) in California by 2025 and 65,600 by the end of 2028, after accounting for estimated vehicle retirements. Additionally, the California Fuel Cell Partnership's (CaFCP) The California Fuel Cell Revolution, A Vision For Advancing Economic, Social, and Environmental Priorities (Vision 2030) includes the need for up to 1,000 refueling stations statewide as well as the need for 200 heavy-duty stations to support 70,000 fuel cell trucks by 2035.

Clearly, South Coast AQMD must continue to support infrastructure required to refuel retail fuel cell vehicles and the nexus to MD and HD trucks including reducing the cost to deploy HD hydrogen infrastructure. To that end, South Coast AQMD co-funded a liquid hydrogen station capable of fueling up to 50 fuel cell transit buses and 10 fuel cell transit buses at OCTA. South Coast AQMD Clean Fuels funding of \$1,000,000 is committed towards the CARB Zero and Near Zero-Emission Freight Facilities (ZANZEFF) Ship to Store project to deploy 10 HD FCETs and install three HD hydrogen stations in Wilmington and Ontario; this contract is also supported by the \$1,200,000 Clean Fuels funding committed to the CEC co-funded HD Shell station on Port of Long Beach (POLB) property leased to Toyota. South Coast AQMD is also actively engaged in finding alternatives to reduce the cost of hydrogen (e.g., large-scale hydrogen refueling stations or production facilities) and potential longer-term fuel cell power plant technology. South Coast AQMD is also administering the DOE-funded ZECT project (ZECT 2), to develop and deploy six HD drayage FCETs. Two FCETs are manufactured by Transportation Power Inc. (TransPower), two FCET by US Hybrid, one FCET by Kenworth, and one FCET by Hydrogenics (a Cummins Inc. company). Six of the seven vehicle designs, and integration, are completed, and four of the FCETs are in demonstration. The battery and fuel cell dominant FCETs have a range of 150-200 miles.

South Coast AQMD also cofounded research studies on hydrogen systems and heavy-duty hydrogen fueling infrastructure, and high-flow bus fueling protocols that are led by UC Davis, DOE, and NREL.

Engine Systems / Technologies

MD and HD on-road vehicles contributed approximately 23 percent of the Basin's 2018 NOx emissions inventory based on 2022 AQMP data. More importantly, on-road HD diesel trucks account for 33 percent of the on-road mobile source PM2.5, a known TAC. Furthermore, according to CARB, trucks and buses are responsible for 37 percent of California's GHGs and criteria emissions. While MATES IV found a dramatic decrease in ambient levels of diesel PM and other air toxics, diesel PM is still the major driver of air toxics health risks. Clearly, significant emission reductions will be required from mobile sources, especially from the HD sector, to attain the NAAQS. Even with the announced rollout of ZETs in 2021 by Volvo and Daimler, it is anticipated that it would take ten years for a large enough deployment of those trucks to have an impact on air quality.

The use of alternative fuels in HD vehicles can provide significant reductions in NOx and particulate

emissions. The current NOx emissions standard for HD engines is 0.2 g/bhp- hr. South Coast AQMD, along with various local, state and federal agencies, continues to support the development and demonstration of alternative-fueled low emission HD engine technologies, using NG, renewable natural gas or hydrogen, renewable diesel and potentially other renewable or waste stream fuels, for applications in HD trucks, transit and school buses, rail operations, and refuse collection and delivery vehicles to meet future federal emission standards. South Coast AQMD is supporting three contracts to convert the model year 2021 new Ford MD gasoline engine to near-zero NOx level by using NG and propane.

In 2021, CARB adopted Heavy-Duty Engine and Vehicle Regulation (Omnibus Regulation), which is to drastically cut NOx from conventional HD engines. The new regulation reduces the current heavy-truck NOx standard from 0.20 grams per brake horsepower hour to 0.050 g/bhp-hr from 2024 to 2026, and to 0.020 g/bhp-hr in 2027. In late 2022, EPA adopted HD truck standards for tighter emission limits in two stages, starting in model year 2027. However, the U.S. EPA standard doesn't provide the same level of emission reductions as California's Omnibus rule. It is anticipated that additional action will be necessary to reduce emissions from HD trucks.

Electric / Hybrid Vehicle Technologies and Infrastructure

There has been more developments and attention on electric and hybrid vehicles due to a confluence of factors, including the highly successful commercial introductions of hybrid LD passenger vehicles, plug-in electric vehicles (PEVs), and battery electric vehicles (BEVs) by the major OEMs and increased public attention on global warming, approval of the CARB Advanced Clean Cars II regulation establishing an annual roadmap for 100% ZEV for new LD and light trucks by 2035. This regulation codifies the LD vehicle goals in California Governor Newsom's Executive Order N-79-20.

According to the CEC⁵, new LD ZEV sales in California are 345,818 in 2022 with cumulative sales of 1,399,913 vehicles. This includes annual LD ZEV sales of 292,496 BEVs, 50,748 PHEVs, and 2,574 FCEVs. In the four counties comprising the South Coast Air Basin, 167,375 LD ZEVs were sold, including 141,436 BEVs, 24,342 PHEVs, and 1,595 FCEVs. Larger batteries and longer range continue to be the trend for LD BEVs with the Lucid Air Dream Performance with a 118 kWh battery and 520 mile U.S. EPA estimated range and the Tesla Model S with a 100 kWh battery and 405 mile U.S. EPA estimated range as two examples of these longer range LD BEVs.

Technology transfer to MD and HD applications has made significant progress, especially with commercialization of Class 6 - 8 BETs by the major OEMs as well as MD shuttle bus, delivery van, transit bus, and cargo handling equipment through freight handling and goods movement demonstration and deployment projects in the South Coast Air Basin. As with hydrogen and fuel cell technologies, South Coast AQMD is actively pursuing research, development and demonstration projects for MD and HD BETs and their commercialization. The Clean Fuels Program has also supported the development of ETs including BETs and FCETs. U.S. DOE funded the ZECT 1 project to develop and demonstrate BETs and plug-in hybrid electric trucks (PHETs): four BETs from TransPower, two BETs from US Hybrid, two series PHETs from TransPower, and three parallel PHETs from US Hybrid. As the models developed in ZECT I project have been improved, BETs have an all-electric range of up to 220-275 miles for the latest 2023 models and PHETs have a range of up to 250 miles. The ZECT 1 project gave birth to many other BET and hybrid truck projects including subsequent projects such as the GGRF ZEDT project, which demonstrated 44 battery electric and CNG and diesel hybrid electric drayage trucks at multiple California Ports. The ZEDT project included 25 BYD 866 BETs, 12 Peterbilt/Meritor/TransPower 579 BETs, two Kenworth CNG hybrid electric trucks based on their T680 daycab, three Volvo diesel plug-in hybrid electric trucks, and two Volvo VNR Electric BETs. More recently, the Clean Fuels Program co-funded large Daimler and

⁵ <u>https://www.energy.ca.gov/data-reports/energy-almanac/zero-emission-vehicle-and-infrastructure-statistics/new-zev-sales.</u> Accessed January 22, 2023.
Volvo BET projects. For the Daimler Innovation Fleet project, Daimler deployed 14 Class 8 eCascadia and six Class 6 eM2 trucks and installed seven DC fast charging stations at fleet locations in 2019. Volvo deployed 30 Class 8 BETs and installed Level 2, AC, 50 kW and 150 kw DC fast chargers, and solar/storage as part of their CARB GGRF Low Impact Green Heavy Transport Solutions (LIGHTS) in 2022. Daimler deployed two Class 6 and six Class 8 BETs for its Customer Experience project which will be completed in 2023. Daimler will be deploying 15 Class 6 and 20 Class 8 BETs and chargers for commercial fleet distribution/delivery operations for its Zero Emission Electric Delivery Truck project which will be completed in 2024. In 2021, South Coast AQMD was awarded CARB and CEC funding for the Joint Electric Truck Scaling Initiative (JETSI) Pilot Project to deploy 100 BETs and 350 kW DC fast chargers for two fleets, NFI and Schneider.

Battery and hybrid electric off-road and marine applications including battery electric yard tractors, forklifts, top handlers, RTG cranes, locomotives, ocean going vessels, and construction equipment are included in multiple demonstration projects to accelerate commercialization and deployment of these technologies. South Coast AQMD has demonstrated a battery electric excavator and wheel loader with Volvo Construction Equipment as part of a FY 18 U.S. EPA Targeted Airshed Grant award and is proposing to demonstrate 1.5 ton and 2.5 ton asphalt compactors. South Coast AQMD is also demonstrating in 2023 the first battery electric line haul locomotive deployed in California in partnership with U.S. EPA, BNSF, and Progress Rail. An electric drive diesel hybrid tugboat will be demonstrated by fleet operator Centerline Logistics Corporation with co-funding from POLB and CARB. These pilot demonstration and deployment projects are key to additional emission reductions from the off-road construction, locomotive, and marine sectors.

Fueling Infrastructure and Deployment (Natural Gas/Renewable Fuels)

A key element for increased use of alternative fueled vehicles and resulting widespread acceptance is the availability of the supporting refueling infrastructure. The refueling infrastructure for gasoline and diesel fuel is well established and accepted by the driving public. Alternative, clean fuels, such as alcohol-based fuels, propane, hydrogen, and even electricity, are much less available or accessible, whereas NG and renewable fuels have recently become more readily available and cost-effective. Nonetheless, to realize emissions reduction benefits, alternative fuel infrastructure, especially fuels from renewable feedstocks, must be developed in tandem with the growth in alternative fueled vehicles. While California appears to be on track to meet its Renewable Portfolio Standard targets of 33 percent by 2020 and 50 percent by 2030 as required by SB 350 (chaptered October 2015), the objectives of the South Coast AQMD are to expand the infrastructure to support zero and near-zero emission vehicles through the development, demonstration and installation of alternative fuel vehicle refueling technologies. However, this category is predominantly targeted at NG and renewable natural gas (RNG) infrastructure and deployment (electric and hydrogen fueling are included in their respective technology categories). The Clean Fuels Program will continue to examine opportunities where current incentive funding is either absent or insufficient.

Stationary Clean Fuel Technologies

Given the limited funding available to support low emission stationary source technology development, this area has historically been limited in scope. To gain the maximum air quality benefits in this category, higher polluting fossil fuel-fired electric power generation needs to be replaced with clean, renewable energy resources or other advanced zero and near zero-emission technologies, such as solar, energy storage, wind, geo-thermal energy, bio-mass conversion and stationary fuel cells. Although combustion sources are lumped together as stationary, the design and operating principles vary significantly and thus also the methods and technologies for control of their emissions. Included in the stationary category are boilers, heaters, gas turbines and reciprocating engines as well as microgrids and some renewables. The key technologies for this category focus on using advanced combustion processes, development of catalytic add-on controls, alternative fuels and technologies and stationary fuel cells in novel applications.

Although stationary source NOx emissions are small compared to mobile sources in the Basin, there are applications where cleaner fuel technologies or processes can be applied to reduce NOx, VOC and PM emissions. Recent demonstration projects funded in part by the South Coast AQMD include a local sanitation district retrofitting an existing biogas engine with a digester gas cleanup system and catalytic exhaust emission control. The retrofit system resulted in significant reductions in NOx, VOC and carbon monoxide (CO) emissions. This project demonstrated that cleaner, more robust renewable distributed generation technologies exist that not only improve air quality but enhance power quality and reduce electricity distribution congestion. Another ongoing demonstration project consists of retrofitting a low NOx ceramic burner on an oil heater without the use of reagents, such as ammonia nor urea, which is anticipated to achieve selective catalytic reduction (SCR) NOx emissions or lower. SCR requires the injection of ammonia or urea that is reacted over a catalyst bed to reduce the NOx formed during the combustion process. Challenges arise if ammonia distribution within the flue gas or operating temperature is not optimal resulting in ammonia emissions leaving the SCR in a process referred to as "ammonia slip". The ammonia slip may also lead to the formation of particulate matter in the form of ammonium sulfates. Based on the successful deployment of this project, further emission reductions may be achieved by other combustion sources (such as boilers) by the continued development of specialized low NOx burners without the use of reagents.

Health Impacts, Fuel and Emissions Studies

The monitoring of pollutants in the Basin is extremely important, especially when focused on (1) a sector of the emissions inventory (to identify the responsible technology) or (2) exposure to pollution (to assess potential health risks). Several studies indicate that areas with high levels of air pollution can produce irreversible damage to children's lungs. This information highlights the need for further emissions and health studies to identify the emissions from high polluting sectors as well as the health effects resulting from these technologies. As we transition to new fuels and forms of transportation, it is important to understand the impacts that changing fuel composition will have on exhaust emissions and in turn on ambient air quality. This area focuses on exhaust emissions studies, with a focus on NOx and PM2.5 emissions and a detailed review of other potential toxic tailpipe emissions, for alternative fuel and diesel engines. These types of in-use emissions studies have found significantly higher emissions than certification values for heavy-duty diesel engines, depending on the duty-cycle. South Coast AQMD has recently completed a three-year in-use emissions study of 200 next-generation technology HD vehicles in the Basin. Multiple Air Toxics Exposure Study V (MATES V) was completed in 2021 and is aimed at understanding the activity pattern of different vocations and real-world emissions emitted from different technologies. Key findings of the MATES V study showed a 54% decline in overall multi-pathway cancer risk from MATES IV and diesel PM remains the main risk driver contributing to 67% of the overall multi-pathway cancer risk based on population-weighted estimates. Cancer risk decreased at every monitoring station in the South Coast Air Basin with the highest risk at the Inland Valley San Bernardino monitoring station. Communities adjacent to the Ports are in the top 96th percentage of air toxics cancer risk. Other studies launched in 2020 will evaluate emissions produced using alternative diesel blends in off-road HD engines, assess emissions impact of hydrogen-natural gas blends on near-zero emission HD NG engines as well as evaluating emissions produced using higher blend ethanol in LD gasoline vehicles.

Emissions Control Technologies

This broad category refers to technologies that could be deployed on existing mobile sources, aircraft, locomotives, marine vessels, farm and construction equipment, cargo handling equipment, industrial equipment, and utility and lawn-and-garden equipment. The in-use fleet comprises most emissions, especially older vehicles and non-road sources, which are typically uncontrolled and unregulated, or controlled to a much lesser extent than on-road vehicles. The authority to develop and implement regulations for retrofit on-road and off-road mobile sources lies primarily with U.S. EPA and CARB. Both agencies are currently planning research efforts for off-road mobile sources.

Low emission and clean fuel technologies that appear promising for on-road mobile sources should be effective at reducing emissions for off-road applications. For example, immediate benefits are possible from particulate traps and SCR technologies that have been developed for on-road diesel applications although retrofits are often hampered by physical size and visibility constraints. Clean fuels such as NG, propane, hydrogen and hydrogen-natural gas mixtures may also provide an effective option to reduce emissions from some off-road applications, even though alternative fuel engine offerings are limited in this space, but retrofits such as dual-fuel conversions are possible and need to be demonstrated. Reformulated gasoline, ethanol and alternative diesel fuels, such as biodiesel and gas-to-liquid (GTL), also show promise when used in conjunction with advanced emissions controls and new engine technologies. Emissions assessments are important in such projects as one technology to reduce one contaminant can increase another.

Technology Assessment and Transfer / Outreach

Since the value of the Clean Fuels Program depends on the deployment and adoption of the demonstrated technologies, technology assessment and transfer efforts are an essential part of the Clean Fuels Program. This core area encompasses assessment of advanced technologies, including retaining outside technical assistance as needed, efforts to expedite implementation of low emission and clean fuels technologies, and coordination of these activities with other organizations, including networking opportunities seeking outside funding. Assembly Bill (AB) 617⁶, which requires reduced exposure to communities most impacted by air pollution, required TAO to carry out additional outreach in CY 2022 to AB 617 communities regarding available zero and near-zero emission technologies as well as the incentives to accelerate those cleaner technologies into their communities. TAO staff also provide input as part of working groups, such as the San Pedro Bay Ports Technology Advancement Program, Metro I-710 South Corridor Task Force, Electric Power Research Institute (EPRI) eTRUC technical advisory committee, CALSTART EnergIIZE Funding Advisory Committee, 21st Century Truck Partnership Charging and Infrastructure Work Group, LA 28 Olympic and Paralympic Games Sustainability Working Group, and Los Angeles Cleantech Incubator projects. Technology transfer efforts also include support for various clean fuel technology incentive programs (i.e., AB 617 CAPP, Carl Moyer Program, Proposition 1B-Goods Movement, etc.). Furthermore, general and, when appropriate, targeted outreach is an effective part of any program. Thus, the other spectrum of this core technology is information dissemination to educate and promote awareness of the public and end users. TAO staffed information booths to answer questions from the general public and provided speakers to participate on panels on zero and near-zero emission technologies at events, such as the 2022 ACT Conference and Expo, UCR 2022 Portable Emission Measurement Systems Conference, 31st Coordinating Research Council, Inc. Real World Emissions Workshop, California Hydrogen Leadership Summit, 15th Annual VerdeXchange Conference, Driving Mobility 9, AltCar Expo and Conference and International Colloquium on Environmentally Preferred Advanced Generation (ICEPAG) 2022. While South Coast AQMD's Legislative, Public Affairs & Media Office oversees and carries out such education and awareness efforts on behalf of the entire agency, TAO cosponsors and occasionally hosts various technology-related events to complement their efforts (see page 38 for a description of the technology assessment and transfer contracts executed in CY 2022 as well as a listing of the 10 conferences, workshops and events funded in CY 2022. Throughout the year, staff also participates in various programmatic outreach for the various incentive programs implemented by TAO, including the AB 617 CAPP, Carl Moyer, Proposition 1B-Goods Movement, Volkswagen Mitigation, Replace Your Ride, U.S. EPA funded Commercial Electric Lawn and Garden Incentive and Exchange, residential lawn mower and residential EV charger rebate programs.

⁶ https://ww2.arb.ca.gov/our-work/programs/community-air-protection-program/about

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CLEAN FUELS PROGRAM

Barriers, Scope and Impact

Overcoming Barriers

Commercialization and implementation of advanced technologies come with a variety of challenges and barriers. A combination of real-world demonstrations, education, outreach and regulatory impetus and incentives is necessary to bring new, clean technologies to market. To reap the maximum emissions benefits from any technology, widespread deployment and user acceptance must occur. The product manufacturers must overcome technical and market barriers to ensure a competitive and sustainable business. Barriers include project-specific issues as well as general technology concerns.

Technology Implementation Barriers

- Viable commercialization path
- Technology price/performance parity with convention technology
- Consumer acceptance
- Fuel availability/convenience issues
- Certification, safety and regulatory barriers
- Quantifying emissions benefits
- Sustainability of market and technology
- Other barriers include reduced or shrinking research budgets, infrastructure and energy uncertainties and risks, sensitivity to multi-media environmental impacts and the need to find balance between environmental needs and economic constraints. South Coast AQMD seeks to address these barriers by establishing relationships through unique public-private partnerships with key stakeholders; e.g., industry, end-users and other government agencies with a stake in developing clean technologies. Partnerships that involve all key stakeholders are essential to address these challenges in bringing advanced technologies from development to commercialization.

Each of these stakeholders and partners contributes more than just funding. Industry can contribute technology production expertise as well as the experience required for compatibility with process operations. Academic and research institutes bring current technology knowledge and testing proficiency. Governmental and regulatory agencies can provide guidance in identifying sources with the greatest potential for emissions reductions, assistance in permitting and compliance issues, coordinating of infrastructure needs, facilitation of standards and outreach. There is considerable synergy in developing technologies that address multiple goals of public and private agencies regarding environment, energy and transportation.

Scope and Benefits of the Clean Fuels Program

Since the time needed to overcome barriers can be long and the costs high, manufacturers and end-users find it challenging to undertake the risks in developing advanced technologies prior to commercialization.

- Project-Specific Issues
- Identifying committed demonstration sites
- Overall project cost and cost-share using public monies
- Securing charging or fuel infrastructure
- Identifying and resolving real and perceived safety issues
- Quantifying actual emissions benefits
- Viability of technology providers

The Clean Fuels Program accelerates commercialization of these technologies by co-funding research, development, demonstration and deployment projects to share the risk of emerging technologies with technology developers and eventual users.

Figure 7 below provides a conceptual design of the wide scope of the Clean Fuels Program. As mentioned in the Core Technologies section, various stages of technology projects are funded not only to provide a portfolio of emissions technologies but to achieve emission reductions in the near-term and long-term horizon. The Clean Fuels Program funds projects in the Technology Readiness Level ranging between 3-8.



Figure 7: Stages of Clean Fuels Program Projects

Due to the nature of these advanced technology RD^3 projects, benefits are difficult to quantify since their full emissions reduction potential may not be realized until sometime in the future, or not at all if displaced by superior technologies. Nevertheless, a good indication of the impacts and benefits of the Clean Fuels Program overall are provided by this selective list of sponsored projects that have resulted in commercialized products or helped to accelerate advanced technologies.

Near-zero NOx Engine Development and Demonstrations for HD Vehicles

- CWI: low-NOx natural gas ISN- G 8.9L and 12L engines (0.2 & 0.02 g/bhp-hr);
- Southwest Research Institute (SwRI) project to develop a near-zero NOx HD diesel engine;
- Kenworth CNG Hybrid Electric Drayage Truck project;
- DOE ZECT II project Kenworth developed one fuel cell truck & one CNG hybrid truck;
- CARB GGRF project Kenworth developed advanced CNG hybrid truck by improving ZECT II CNG hybrid; and
- US Hybrid NZE Plug-In Hybrid demonstration with DOE/NREL/CEC.

≻Hydrogen Fuel Cell Development and Demonstration Projects

- Kenworth Fuel Cell Range Extended Electric Drayage Truck project;
- SunLine Transit Agency Advanced Fuel Cell Bus projects;
- UPS demonstration of fuel cell delivery trucks;
- Kenworth, TransPower, US Hybrid, Cummins developed and demonstrated 6 fuel cell drayage trucks under ZECT II project; and
- Hyundai's Class 8 fuel cell truck under development (Hyundai Exient)

Electric and Hybrid Vehicle Development and Demonstration Projects

- Innovation Fleet Daimler Class 6 and 8 BETs with Penske and NFI;
- Daimler Zero Emission BET Delivery Truck Project Daimler Class 6 and 8 BETs;
- Volvo LIGHTS Volvo Class 8 BET deployment with TEC Fontana, Dependable Highway Express (DHE), NFI, and 11 additional fleets;
- Volvo Switch-On Volvo Class 8 BET deployment with eight fleets;

- JETSI: Daimler and Volvo Class 8 BET large scale deployment with NFI and Schneider;
- TransPower/US Hybrid HD BETs and yard hostlers; and
- CARB GGRF ZEDT: 44 Class 8 BET, CNG hybrid, and diesel hybrid electric truck demonstration including 25 BYD BETs, 12 Peterbilt/Meritor/TransPower BETs, 2 Kenworth CNG hybrid electric, 2 Volvo diesel hybrid electric and 2 Volvo BETs;

► Aftertreatment Technologies for HD Vehicles

- Johnson Matthey and Engelhard trap demonstrations on buses and construction equipment;
- Johnson Matthey SCRT and SCCRT NOx and PM reduction control devices on heavy-duty on-road trucks; and
- SwRI development of aftertreatment for HD diesel engines

South Coast AQMD played a leading or major role in the development of these technologies, but their benefits could not have been achieved without all stakeholders (i.e., manufacturer, end-users and government) working collectively to overcome the technology, market and project-specific barriers encountered at every stage of the RD³ process.

Strategy and Impact

In addition to the feedback and input detailed in Program Review, South Coast AQMD actively seeks additional partners for its program through participation in various working groups, committees and task forces. This participation has resulted in coordination of the Clean Fuels Program with state and federal government organizations, including CARB, CEC, U.S. EPA and DOE/DOT and several national laboratories. Coordination also includes the AB 2766 Discretionary Fund Program administered by the Mobile Source Air Pollution Reduction Review Committee (MSRC), various local air districts including but not limited to Bay Area AQMD, Sacramento Metropolitan AQMD, San Diego Air Pollution Control District (APCD) and San Joaquin Valley Air Pollution Control District (SJVAPCD), as well as the National Association of Fleet Administrators (NAFA), major local transit districts, local gas and electric utilities, national laboratories, San Pedro Bay Ports and several universities with research facilities, including but not limited to Universities of California Berkeley, Davis, Irvine, Los Angeles and Riverside, and West Virginia University. The list of organizations specified in H&SC Section 40448.5.1(a)(2).

In addition, South Coast AQMD holds periodic meetings with several organizations specifically to review and coordinate program and project plans. For example, South Coast AQMD staff meets with CARB staff to review research and development plans, discuss project areas of mutual interest, avoid duplicative efforts and identify potential opportunities for cost-sharing. Periodic meetings are also held with industry-oriented research and development organizations, including but not limited to Hydrogen Fuel Cell Partnership, California Stationary Fuel Cell Collaborative, EPRI, Veloz, Los Angeles Cleantech Incubator Regional Transportation Partnership, and West Coast Collaborative. The coordination efforts with these various stakeholders have resulted in several cosponsored projects.

Descriptions of key contracts executed in CY 2022 are provided in the next section of this report. It is noteworthy that most projects are cosponsored by various funding organizations and include active OEM involvement. Such partnerships are essential to address commercialization barriers and expedite implementation of advanced technologies. Table 2 below lists major funding agency partners and manufacturers actively involved in South Coast AQMD projects for this reporting period. It is important to note that, although not listed, there are many other technology developers, small manufacturers and project partners who make important contributions critical to the success of the Clean Fuels Program. These partners are identified in the more detailed 2022 Project Summaries by Core Technologies contained within this report, as well as Table 7 which lists federal, state and local funding awarded to South Coast AQMD in CY 2022 for RD³ projects (which will likely result in executed project contracts in 2023).

Research Funding Organizations	Major Manufacturers/Technology Providers
California Air Resources Board	Daimler Trucks North America LLC
California Energy Commission	Volvo Technology of America LLC
Department of Energy	SunLine Transit Agency
National Renewable Energy Laboratory	Local Entities & Utilities
U.S. Environmental Protection Agency	Mobile Source Reduction Committee
Fleet Providers	Southern California Edison Company
NFI Interactive Logistics Inc	Southern California Gas Company
Schneider National Inc	Ports of Los Angeles & Long Beach

 Table 2: South Coast AQMD Major Funding Partners in CY 2022

The following two subsections broadly address South Coast AQMD's impact and benefits by describing specific accomplishments including commercial or near-commercial products supported by the Clean Fuels Program in CY 2022. Such examples are provided in the following sections on TAO Research, Development and Demonstration projects and Technology Deployment and Commercialization efforts.

Research, Development and Demonstration

Important examples of the impact of South Coast AQMD research and development coordination efforts in 2022 include: (a) Joint Electric Truck Scaling Initiative: Deploy 100 Electric Trucks at Scale; and (b) Develop and Demonstrate Hydrogen Fuel Cell Medium-Duty Buses.

• Joint Electric Truck Scaling Initiative: Deploy 100 Electric Trucks at Scale

The JETSI Pilot Project received \$27 million in CARB and CEC funding in April 2021 to deploy 50 Class 8 Daimler and Volvo BETs at two fleets, NFI and Schneider, located in disadvantaged communities in Ontario and South El Monte. South Coast AQMD led a regional collaborative with the MSRC, SCE, POLB, and Port of Los Angeles (POLA), which collectively are providing \$21.4 million in funding. Fleets NFI and Schneider are providing \$25.4 million in match share.

JETSI will significantly advance penetration of Class 8 BETs through at-scale manufacturing production by Daimler and Volvo. Both fleets will deploy HD charging infrastructure. NFI will also deploy distributed energy resource (DER) technologies including solar and battery energy storage, as well as build a BET maintenance shop at its site. The 100 BETs will operate almost solely through disadvantaged communities, including several designated under the AB 617 CAPP.



Figure 8: JETSI Truck Routes - NFI Drayage Routes Shown in Dark Blue and Schneider Short Regional Haul Routes Shown in Orange

NFI will operate a mix of 50 Daimler and Volvo Class 8 BETs in drayage operations. NFI will also deploy thirty-eight 350 kW DC fast chargers with SAE standard CCS1 connectors, 1 MW solar, and 5 MWh battery energy storage. This deployment will result in 2.45 tons of weighted criteria pollutant reductions and 440 metric tons of GHG reductions.

Daimler and Volvo truck and infrastructure specifications are shown in Table 3. There will be some variation in Daimler and Volvo BET configurations as fleets take advantage of technology advancements to better serve their needs in later model year trucks.

OEM	Battery Pack	Infrastructure	Charging Time	Range
	(kWh)		(hours)	(miles)
Daimler	438	350 kW DC	2 hours	220
		(80% charging at 240 kW)		
Volvo	375	350 kW DC	1 hours	180
	565	(80% charging at 250 kW)	1.5 hours	275

Table 3:	NFI	Truck	and	Infrastructu	ure	Specifications
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Schneider will operate 50 Daimler Class 8 BETs in short regional haul operations. Schneider will also deploy sixteen 350 kW DC fast chargers with standardized CCS1 connectors. This deployment will result in 2.55 tons of weighted criteria emission reductions and 3,984 metric tons of GHG reductions. Daimler truck and infrastructure specifications for Schneider are similar to NFI and shown in Table 2. Daimler and Volvo trucks to be deployed at NFI and Schneider are shown in Figure 9.

			^	
OEM	Battery Pack	Infrastructure	Charging Time	Range
	(kWh)		(hours)	(miles)
Daimler	438	350 kW DC	1.5 hours	220
		(80% charging)		



Figure 9: JETSI Trucks at NFI and Schneider – (left to right) Volvo VNR Electric truck to be deployed at NFI in Ontario, and Daimler eCascadia truck deployed at Schneider in South El Monte

Ricardo, CALSTART, and EPRI will collaborate on data collection and analysis for the BETs, infrastructure and DER. Ricardo will perform data logging on a subset of baseline diesel trucks as well as deployed BETs for a 12 – 24 month data collection period, as well as conduct surveys, fleet/driver interviews, analyze data, and provide quarterly and final reports on data collection. CALSTART will focus on charger pricing analysis and fleet case studies including startup and final fleet deployment activities. EPRI will focus on charger performance and utilization analysis, development of a fleet reliability uptime dashboard, and analysis of grid impacts. The fleet reliability uptime dashboard will create a project database from real time BET and charger data to perform automated queries to make determinations and identify issues affecting operations, alert fleet managers, perform remote diagnoses or dispatch service calls to maintain an ideal 90% or higher charger uptime. In addition, University of California Riverside Center for Environmental Research and Technology will analyze data form the first 10 BETs at each fleet to evaluate energy savings potential from energy efficient routing software for BETs.

Los Angeles Cleantech Incubator (LACI) and Gladstein, Neandross and Associates (GNA) will partner on developed a ZEV workforce plan required by CEC which includes performance metrics and collection/ analysis of data on workforce training and job creation and impacts. The ZEV workforce plan will document training efforts by project partners including NFI, Schneider, Daimler, Volvo, Rio Hondo College, and San Bernardino Valley College. LACI will also convene incubator stakeholder roundtable meetings to encourage further dissemination of technologies for JETSI.

Coalition for Clean Air will conduct project stakeholder meetings and community outreach with environmental organizations, community-based organizations, and local government leaders, as well as targeted outreach to stakeholders in disadvantaged communities.

JETSI will result in 5 weighted tons of criteria pollutant emission reductions each year, 5.5 million diesel gallon equivalent of diesel fuel displaced over the eight-year project, 8,200 metric tons of GHG reductions, creation of 239 long-term jobs, and \$16.8 million in regional economic activity resulting from site construction. This is in addition to the benefits of learning how to address challenges in large scale deployments, increasing coordination between agencies to deploy BETs and charging infrastructure, and designing incentive programs to enable fleets to transition to BETs earlier than required by the CARB Advanced Clean Fleets regulation by addressing the additional cost for BETs and infrastructure over

conventional fuel trucks.

• Develop and Demonstrate Hydrogen Fuel Cell Medium-Duty Buses

As CARB continues to adopt zero emission mandates such as the Innovative Clean Transit (ICT), Zero-Emission Airport Shuttle and Advanced Clean Trucks regulations, there is growing demand for longer range and fast fueling options that meet fleet needs for more vigorous duty-cycles. Ford medium-duty vehicles have significant market share in multiple applications, including local and regional goods movement, municipal fleets, utilities, and transit, shuttle and school bus operations.

A-1 Alternative Fuel Systems (A-1) and its consortium members have formed a public-private technology development program to introduce to California two new zero emission Class 4 medium- duty hydrogen fuel cell paratransit platforms that will provide a minimum 175-250 mile range per fill: a low floor (kneeling) Ford F-53 and a standard floor Ford E-450. A-1 has demonstrated their commercialization strategy as well as aftermarket service and warranty capability from their two decades of alternative fuels industry experience. This project will leverage A-1 and the project team's core capabilities to co-develop and bring to market long-range, fast filling medium-duty zero emission platforms that are not yet commercially available.

The Ford medium-duty vehicle platform plays an important role in California's economy. Ford's innovative design and business model allows fleets to order a factory-built Ford chassis consisting of a cab and chassis from which a wide variety of vehicles can be assembled via Ford's Qualified Vehicle Modifier (QVM) partnerships. Examples of vehicles include: small school buses, airport shuttle vans/buses, delivery trucks, work trucks for water, refuse, utility, aerial, flat bed, dump, and service applications.



Figure 10: Medium-Duty Bus Applications including School Bus and Airport Shuttle Buses

Project team member responsibilities are broken down into seven tasks. US Hybrid will be responsible for hydrogen fuel cell development and chassis electrification development, A-1 and Luxfer Gas Cylinders will be responsible for hydrogen fuel tank system development. Hometown Manufacturing and Turtle Top Bus will be in charge of shuttle bus body development. A-1 will also be leading the work on integration of fuel cell technology, chassis electrification, fuel tank system, and shuttle bus body, as well as CARB and Altoona bus certifications.

SunLine Transit (SunLine), a public transit agency serving the Coachella Valley, has agreed to participate as the demonstration partner for the project. Sunline is at the forefront of zero emission bus technology and has demonstrated fuel cell and battery electric buses in their fleet since 2000, after replacing its entire fleet from diesel to CNG buses in 1994. Their current fleet includes 16 fuel cell electric buses (FCEB) and four battery electric buses (BEB). SunLine's existing FCEB fueling and BEB charging infrastructure was designed to enable future growth of their fleet. In late 2019, Sunline began operating an electrolyzer capable

of producing 900 kg hydrogen/day, fueling 32 buses daily based on average hydrogen fuel consumption of FCEBs operating on SunLine's routes. SunLine intends to continue to deploy both FCEBs and BEBs as their fleet transitions to 100% zero-emission by 2035. SunLine released their Zero Emission Bus Rollout Plan and will transition their paratransit fleet to 100% zero emission by 2032 and their fixed route fleet to 100% zero emission by 2035, five years ahead of ICT regulatory requirements. SunLine has offered to contribute to the project by supplying hydrogen fuel needed to operate the E-450 and/or F53 demonstration buses for a minimum of 1 year demonstration period.

According to data from Ford and industry sources, annual demand for "gaseous fuel prepped" Ford medium-duty engines nationwide exceeds 6,000 buses, with at least 1,200 buses shipped to California for upfit to gaseous fuels. As fuel cell technologies continue to be deployed in larger numbers, there should be an easier transition to zero emission buses for existing fleets currently running on propane and NG. There should also be more high mileage fleets investigating zero emission bus options to serve high mileage routes.

The project is co-funded by South Coast AQMD from the Clean Fuels Fund and SoCalGas as well as inkind contribution from project partners. The total project cost is \$2.1 million.

CLEAN FUELS PROGRAM

2022 Funding & Financial Summary

The Clean Fuels Program supports clean fuels and technologies that appear to offer the most promise in reducing emissions, promoting energy diversity, and in the long-term, providing cost-effective alternatives to current technologies. To address the wide variety of pollution sources in the Basin and the need for reductions now and in the future, using revenue from a \$1 motor vehicle registration fee (see Program Funding on page 7), South Coast AQMD seeks to fund a wide variety of projects to establish a diversified technology portfolio to proliferate choices with the potential for different commercial maturity timing. Given the evolving nature of technology and changing market conditions, such a representation is only a "snapshot-in-time," as reflected by the projects approved by the South Coast AQMD Board.

As projects are approved by the South Coast AQMD Governing Board and executed into contracts during the year, finances may change to reflect updated information provided during the contract negotiation process. As such, the following represents the status of the Clean Fuels Fund as of December 31, 2022.

Funding Commitments by Core Technologies

South Coast AQMD continued its successful leveraging of public funds with outside investment to support the development of advanced clean air technologies. During the period from January 1 through December 31, 2022, a total of 26 contracts/agreements, projects or studies that support clean fuels were executed or amended (adding dollars), as shown in Table 5. The major technology areas summarized are listed in order of funding priority. The distribution of funds based on technology area is shown graphically in Figure 11. This wide array of technology support represents South Coast AQMD's commitment to researching, developing, demonstrating and deploying potential near-term and longer-term technology solutions.

The project commitments that were contracted or purchased for the 2022 reporting period are shown below with the total projected project costs:

•	South Coast AQMD Clean Fuels Fund Contribution	\$7,425,646
•	Total Cost of Clean Fuels Projects	\$74,152,921

Traditionally, every year, the South Coast AQMD Governing Board approves funds to be transferred to the General Fund Budget for Clean Fuels administration. However, starting with FY 2017, fund transfer from Clean Fuels Fund to the General Fund was handled through the annual budget process. When the Board approved South Coast AQMD's FY 2022-23 Budget on May 6, 2022, it included \$1 million from Clean Fuels Fund recognized in TAO's budget for technical assistance, workshops, conferences, co-sponsorships and outreach activities, as well as postage, supplies and miscellaneous costs. Only the funds committed by December 31, 2022, are included within this report. Any portion of the Clean Fuels Fund not spent by the end of Fiscal Year 2022-23 ending June 30, 2023, will be returned to the Clean Fuels Fund.

Partially included within the South Coast AQMD contribution are supplemental sponsorship revenues from various organizations that support these technology advancement projects. Supplemental revenue for pass-through contracts executed in 2022 totaling approximately \$304,000 is listed in Table 6.

For Clean Fuels executed and amended contracts, projects and studies in 2022, the average South Coast AQMD contribution was leveraged with nearly \$10 of outside investment. The typical historical leverage amount is \$4 for every \$1 of the South Coast AQMD Clean Fuels Fund, but from 2016 to 2022 there were several significant contracts in funding and impact that should make tangible progress toward developing and commercializing clean transportation technologies.

During 2022, distribution of funds for South Coast AQMD executed contracts, purchases and contract amendments with additional funding for the Clean Fuels Program totaling approximately \$7.4 million are shown in the figure below.

Additionally, South Coast AQMD continued to seek funding opportunities and was awarded an additional \$3.3 million in CY 2022 for RD³ projects as listed in Table 7. As of January 1, 2023, there were 74 open Clean Fuels Fund contracts. Appendix B lists these contracts by core technology.



Figure 11: Distribution of Funds for Executed Clean Fuels Projects CY 2022 (\$7.4M)

Review of Audit Findings

State law requires an annual financial audit after the closing of each South Coast AQMD fiscal year. The financial audit is performed by an independent Certified Public Accountant selected through a competitive bid process. For the fiscal year which ended June 30, 2022, the firm of BCA Watson Rice, LLP, conducted the financial audit. As a result of this financial audit, an Annual Comprehensive Financial Report (ACFR) was issued. There were no adverse internal control weaknesses regarding South Coast AQMD financial statements, which include the Clean Fuels Program revenue and expenditures. BCA Watson Rice, LLP, gave South Coast AQMD an "unmodified opinion," the highest obtainable. Notably, South Coast AQMD has achieved this rating on all prior annual financial audits.

Project Funding Detail by Core Technologies

The 26 new and continuing contracts/agreements, projects and studies that received South Coast AQMD funding in CY 2022 are summarized in Table 5 (beginning on the next page), together with funding authorized by South Coast AQMD and project partners.

Contract	Contractor	Project Title	Start Term	End Term	South Coast AQMD \$	Project Total \$			
Electric /	Electric / Hybrid Technologies and Infrastructure								
19278	Volvo Group North America LLC	Low Impact Green Heavy Transport Solutions (LIGHTS)- Develop and Demonstrate Zero Emission Heavy-Duty Trucks, Freight Handling Equipment, EV Infrastructure and Renewable Energy	04/17/19	09/30/22	0	1,044,854			
22036	University of California Riverside	Energy-Efficient Routing for Electric Trucks	09/06/22	04/30/25	99,500	99,500			
22120	Los Angeles Cleantech Incubator	Conduct Stakeholder Outreach and ZEV Workforce Plan	03/24/22	03/31/25	95,000	155,000			
22177	Daimler Trucks North America LLC	Deploy Class 8 Battery Electric Trucks and Charging Infrastructure	06/16/22	04/30/25	447,638	27,073,593			
22247	NFI Interactive Logistics LLC	Deploy Class 8 Battery Electric Trucks, Charging Infrastructure and Distributed Energy Resource Technologies	12/15/22	4/30/25	4,547,126	35,078,329			
Engine S	ystems / Technologi	es							
18194	CALSTART	Develop and Demonstrate Near-Zero Emission Opposed Piston Engine	05/30/18	11/30/23	1,413,000	17,413,000			
Fuel / Em	ission Studies								
21083	University of California Riverside	Assess Emissions Impacts of Hydrogen-Natural Gas Fuel Blend on Natural Gas Engines	01/22/22	01/21/23	229,021	583,021			
22131	Fresno Council of Governments	Conduct California Inland Port Feasibility Study Phase Two	03/24/22	12/23/22	37,500	250,000			
Hydroger	Hydrogen / Mobile Fuel Cell Technologies and Infrastructure								
15150	Air Products and Chemicals Inc	Install/Upgrade Eight Hydrogen Fueling Stations throughout SCAG	10/10/14	04/09/23	(237,500)	(237,500)			
20033	Port of Long Beach	Sustainable Terminals Accelerating Regional Transportation (START) Phase I	06/04/21	04/30/24	0	2,049,701			
22082	Frontier Energy Inc	High Flow Bus Fueling Protocol Development	03/30/22	08/29/23	25,000	572,500			

Table 5: Contracts Executed or Amended (w/\$) between January 1 & December 31, 2022 • • • • •

Table 5: Contracts Executed o	r Amended (w/\$) between .	January 1 & Decembe	r 31, 2022 (cont'd)
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Contract	Contractor	Project Title	Start Term	End Term	South Coast AQMD \$	Project Total \$
22084	A-1 Alternative Fuel Systems	Develop and Demonstrate Hydrogen Fuel Cell Medium- Duty Buses	01/19/22	04/18/24	531,166	2,086,608
23071	Frontier Energy Inc	Participate in California Fuel Cell Partnership for Calendar Year 2022	01/01/22	12/31/22	40,000	1,200,000

Stationary Clean Fuels Technologies

22262	University of California Irvine	Study of Fuel Cell Microgrids for Backup Power and Transit	06/03/22	06/02/24	370,000	510,000
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Technology Assessment and Transfer / Outreach

19078	Green Paradigm Consulting, Inc.	Technical Assistance with Alternative Fuels, Biofuels, Emissions Testing & Zero- Emission Transportation Technology	09/07/18	09/30/24	0	14,000
22273	Green Paradigm Consulting, Inc.	Technical Assistance with Alternative Fuels, EVs, Charging & Infrastructure and Renewable Energy	04/22/22	04/02/24	200,000	200,000
22274	Gladstein, Neandross & Associates LLC	Technical Assistance with Alternative Fuels & Fueling Infrastructure, Emissions Analysis & On-Road Sources	05/05/22	04/02/24	300,000	300,000
Various	Various	Cosponsor 10 Conferences, Workshops & Events plus 3 Memberships	01/01/22	12/31/22	137,630	1,651,680
Direct Pay	Various	Advanced Technology Program Expenses	01/01/22	12/31/22	107,135	107,135
						\$74,152,921

Table 6: Supplemental Grants/Revenue Received into the Clean Fuels Fund (31) in CY 2022

Revenue Agreement #	Revenue Source	Project Title	Contractor	SCAQMD Contract #	Award Total \$
21070	Southern California Gas Company	Assess Emission Impacts of Hydrogen-Natural Gas Fuel Blend on Natural Gas Engines	University of California, Riverside	21083	304,000
Table 6 lists revenue <u>awarded</u> to South Coast AQMD and received into the Clean Fuels Fund (31) <u>only</u> if the South Coast AQMD pass-through contract was executed during the reporting CY (2022).					

Award (*) Award **Awarding Entity** Total/ or Board Purpose Contractors or Program Fund Date US EPA \$2,349,995 05/06/22 Electrification Of Cargo Handling Equipment Various Fund 17 **DERA** Grant \$220,000 California Air Zero-Emission Drayage Truck Gladstein, Neandross & 09/02/22 Fund 67 **Resources Board** and Infrastructure Pilot Project Associates LLC San Bernardino County, US EPA \$500,000 09/02/22 Deployment of Zero Emission Mobile Clinics Arrowhead Regional Fund 17 CATI Grant Medical Center US EPA \$219,938 11/04/22 Electrification Of Cargo Handling Equipment Various Fund 17 **DERA** Grant Table 7 provides a comprehensive summary of revenue awarded to South Coast AQMD during the reporting CY (2022) for TAO's RDD&D efforts which falls under the umbrella of the Clean Fuels Program. \$3,289,933 regardless of whether the revenue will be received into the Clean Fuels Program Fund (31) or the South

Coast AQMD pass-through contract has been executed.

Table 7: Summary of Federal, State and Local Funding Awarded or Recognized in CY 2022

Project Summaries by Core Technologies

The following summaries describe the contracts, projects and studies executed, or amended with additional dollars, in CY 2022. They are listed in the order found in Table 5 by category and contract number. As required by H&SC Section 40448.5.1(d), the following project summaries provide the project title; contractors and, if known at the time of writing, key subcontractors or project partners; South Coast AQMD cost-share, cosponsors and their respective contributions; contract term; and a description of the project.

Electric / Hybrid Technologies and Infrastructure

• 19278: Low Impact Green Heavy Transport Solutions (LIGHTS) - Develop and Demonstrate Zero Emissions Heavy-Duty Trucks, Freight Handling Equipment, EV Infrastructure and Renewable Energy

Contractor: Volvo Group North	South Coast AQMD Cost-Share	\$	0
America			
	Cosponsors:		
	CARB	1,044,	854
	(pass-through funds received into		
	Fund 67)		
Term: 04/17/19 – 09/30/22	Total Cost:	\$ 1,044,	854

Volvo Group North America and South Coast AQMD secured a CARB ZANZEFF grant for the Volvo LIGHTS project to demonstrate 25 Class 8 battery electric trucks at two freight handling facilities, DHE in Ontario and NFI Industries in Chino. The Volvo LIGHTS project also includes the demonstration of 29 battery electric forklifts, yard tractors and support EVs; 58 Level 2 and DC fast chargers; and production of 1.8 million MWh annually of solar. This contract amendment is for deployment of 5 additional Class 8 battery electric trucks utilizing CARB funds.

• 22036: Energy-Efficient Routing for Electric Trucks

Contractor: University of California Riverside	South Coast AQMD Cost-Share	\$ 99,500
Term: 09/06/22 – 04/30/25	Total Cost:	\$ 99,500

The work under this Contract is part of the Zero-Emission Drayage Truck and Infrastructure Pilot Project, which is primarily funded by CARB and CEC. South Coast AQMD is providing the funding for this Contract as match share under CEC revenue agreement ARV-21-014. University of California, Riverside, College of Engineering, Center for Environmental Research and Technology (UCR/CE-CERT) will determine energy savings potential from energy-efficient routing for the first 10 BETs at each fleet. Performance specifications of recent electric truck models have improved significantly. However, electric trucks still have shorter driving range and require longer refueling (charging) time than conventional diesel trucks, which can significantly impact how fleets utilize electric trucks. Therefore, any technologies that can improve energy efficiency of electric trucks will help minimize the impact on fleet operations. For example, an increase in the energy efficiency of electric trucks will directly translate to an extended range, which allows the trucks to cover a larger service area. An increase in the energy efficiency of electric trucks will also mean a shorter charging time, which will increase truck utilization and revenue. As energy consumption of an electric truck can vary greatly depending on cargo weight, traffic, road grade, weather,

driver, etc., it is possible to determine a travel route that is most energy efficient. The objective of this project is to determine energy savings potential of energy-efficient routing for electric trucks based on their real-world truck operation data.

Contractor: Los Angeles Cleantech	South Coast AOMD Cost-Share	\$	95.000
La sub stan		Ť)
Incubator			
	Cosponsors		
	Cosponsors.		
	CEC		60.000
			00,000
	(pass-through funds received into		
	<i>Fund</i> 67)		
	1 или 07)		
Term: $3/24/22 - 3/31/25$	Total Cost:	\$	155,000
			,

• 22120: Conduct Stakeholder Outreach and ZEV Workforce Plan

Los Angeles Cleantech Incubator (LACI) will host workshops with industry stakeholders, including environmental and public health groups, technology startups, OEMs, service providers, fleets and other regional stakeholders to identify technology, policy, funding and barriers to innovation for scaling battery electric truck adoption for drayage and regional haul applications. This will assist LACI in partnership with GNA in developing a ZEV Workforce Data Collection Plan, draft and final ZEV Workforce Plan, and provide a workforce analysis to include in the California Joint Electric Truck Scaling Initiative (JETSI) final report.

Contractor: Daimler Truck North America LLC	South Coast AQMD Cost-Share	\$	447,638
	Cosponsors		
	CARB (pass-through funds received into Fund 67)		7,241,144
	CEC (pass-through funds received into Fund 67)		1,729,811
	POLA (pass-through funds received into Fund 67)		1,500,000
	MSRC		5,000,000
	Schneider		8,655,000
	SCE		2,500,000
Term: 06/16/22 – 04/30/25	Total Cost:	\$ 2	27,073,593

• 22177: Deploy Class 8 Battery Electric Trucks and Charging Infrastructure

The work under this Contract is part of the Zero-Emission Drayage Truck and Infrastructure Pilot Project, which is primarily funded by CARB and CEC. CARB will fund the deployment of 100 commercial Class 8 BETs, while CEC will fund other effort including work under this Contract. DTNA will partner with Schneider National Carriers, Inc. and to deploy the 50 Class 8 BETs, and 16 350 kW DC fast chargers at the Schneider site in South El Monte. DTNA will coordinate other aspects of the California JETSI project

including work force training, develop energy management system, as well as support other subcontractors of the JETSI project.

• 22247: Deploy Class 8 Battery Electric Trucks, Charging Infrastructure and Distributed Energy Resource Technologies

Contractor: NFI Interactive Logistics LLC	South Coast AQMD Cost-Share	\$ 4,547,126
	Cosponsors:	
	CARB	7,241,144
	(pass-through funds received into	
	Fund 67)	
	CEC	6,819,859
	(pass-through funds received into	
	Fund 67)	
	POLB	1,500,000
	(pass-through funds received into	
	Fund 67)	
	MSRC	3,000,000
	SCE	2,500,000
	NFI	9,470,200
Term: 12/15/22 – 04/30/25	Total Cost:	\$ 35,078,329

The work under this Contract is part of the Zero-Emission Drayage Truck and Infrastructure Pilot Project, which is primarily funded by CARB and CEC. Under this contract, NFI will operate 50 Class 8 BETs trucks in drayage operations. This project will significantly advance market penetration of Class 8 BETs through at-scale manufacturing production. NFI will deploy the following technologies at its fleet in Ontario: up to 50 BETs; up to 34 175 kW or 350 kW DC fast chargers; up to 1 MW solar installation; and up to 5 MWh battery energy storage. BETs under this project shall be commercial vehicles approved for the U.S. market and certified by CARB. DER technologies such as solar and battery energy storage will utilize energy management systems to optimize vehicle charging by balancing requirements of trucks, facility, and the grid. SCE's Charge Ready Transport (CRT) program has committed to fund EVSE and installation services towards make-ready infrastructure at NFI. Infrastructure installed will be UL certified and meet Open Charge Point Protocol and Open Automated Demand Response requirements. It is anticipated that the NFI site will result in 2.45 tons of weighted criteria pollutant reductions for 50 BETs and 440 metric tons of GHG reductions.

Engine Systems / Technologies

• 18194: Develop and Demonstrate Near-Zero Emissions Opposed Piston Engine Contractor:

Contractor: CALSTART Inc	South Coast AQMD Cost-Share	\$ 1,413,000
	Cosponsors:	
	CARB (pass-through funds received into Fund 67)	7,690,000

	Achates Power Inc	6,850,000
Term: 05/30/18 – 11/30/23	Total Cost:	\$ 17,413,000

In 2018, South Coast AQMD entered into a contract with CALSTART to develop and demonstrate emission opposed piston (OP) engine technology in Class 8 heavy-duty, line-haul trucks that meet a 0.02 g/bhp-hr NOx target, with concurrent reductions in C02 emissions in the amount of \$1 million. CARB awarded CALSTART a grant in the amount of \$7 million under CARB 's Low Carbon Transportation GHG Reduction Fund Investments towards this project. Other funding was provided by Achates Power, Inc. in the amount of \$6.55 million and San Joaquin Valley Air Pollution Control District in the amount of \$1 million. In 2022, CARB reallocated previously recognized unused funds of \$618,070 from the Zero Emission Drayage Truck Project awarded to South Coast AQMD for additional emissions testing on the opposed piston engine. South Coast AQMD committed \$496,430 and Achates committed an additional \$300,000 towards the additional emissions testing. Under this contract, total funding of \$1,114,500 was added for the additional work.

Fuel / Emissions Studies

• 21083: Assess Emissions Impacts of Hydrogen-Natural Gas Fuel Blend on Natural Gas Engines

Contractor: University of California Riverside	South Coast AQMD Cost-Share	\$ 229,021
	Cosponsors	
	SoCalGas (pass-through funds received into Fund 31)	304,000
	Cummins Inc	50,000
Term: 01/22/22 – 01/21/23	Total Cost:	\$ 583,021

Past studies by South Coast AQMD and others have demonstrated that the addition of hydrogen in compressed natural gas (HCNG) could potentially lower emissions with optimal engine calibration and HCNG blend ratio. Recent low carbon and renewable fuel initiatives have renewed interest in further decarbonization of NG, providing a source of lower carbon content fuel for the transportation sector. However, the recent rapid commercialization of NZE NOx NG engines have warranted additional investigation of the effects of HCNG blends on both criteria and GHG emissions for recently certified NZE NG engines. The University of California, Riverside (UCR)/CE-CERT is partnering with SoCalGas and CWI to evaluate the impact of different HCNG blends on emissions and performance of the Cummins L9N NZE NG engine. UCR/CE-CERT will design and build an HCNG blending apparatus as part of the study and vary hydrogen content from zero to five percent by volume. The proposed first phase study will be focused on the emissions impacts of HCNG blends compared to the baseline on regulated engine test duty cycles. CWI will provide the test engine and aftertreatment systems, as well as engineering and data analysis support including oil sample analysis. Depending on the outcome of the first phase study, staff may choose to seek Board approval to fund a second phase 500-hour durability study to assess the deterioration effects of the HCNG fuel.

• 22131: Conduct California Inland Port Feasibility Study Phase Two

Contractor: Fresno Council of	South Coast AQMD Cost-Share	\$ 37,500
Governments		
	Cosponsors	
	POLA, POLB, SJVAPCD, Sacramento AQMD, Sacramento County	212,500
Term: 03/24/22 – 12/31/22	Total Cost:	\$ 250,000

An Inland Port along freight transportation corridors from the San Pedro Bay Ports to the San Joaquin Valley would help establish an efficient and competitive logistics system in California. Currently, nearly all containers transported between the POLA and POLB through San Joaquin Valley are moved by heavyduty diesel trucks. By shifting a majority of the cargo truck traffic off of the highway and roadway system onto a rail system, an inland port system has the potential to reduce air pollution associated with heavyduty trucking in the South Coast Air Basin and surrounding regions. In early 2019, the first phase of the California Inland Port Feasibility Study was initiated through a joint effort funded by SJVAPCD, POLA, POLB, and several San Joaquin Valley Cities and counties. Phase one found the container on-truck methods currently being used to transport goods between San Joaquin Valley consumption and production centers is highly inefficient, resulting in increased costs and air pollution from increased truck trips. The phase one study showed there is potential for a strong business case to utilize intermodal rail service which would yield substantial transportation cost savings as well as significant environmental benefits for the surrounding regions over use of heavy-duty trucks. South Coast AQMD issued this Contract with Fresno Council of Governments to conduct phase two of the study. Key objectives include developing market readiness and acceptance, estimating costs, developing a partnership with one or both Class One railroads, reviewing the economic competitiveness impact to the region, and understanding the environmental process to move forward. The project is also planning a future phase and considering federal funding.

Hydrogen / Mobile Fuel Cell Technologies and Infrastructure

• 15150: Install/Upgrade Eight Hydrogen Fueling Stations

Contractor: Air Products and Chemicals Inc	South Coast AQMD Cost-Share	\$ (237,500)
Term: 10/10/2014-04/09/2023	Total Cost:	\$ (237,500)

Air Products was originally awarded funding for \$1 million from South Coast AQMD to help cost-share this project with the California Energy Commission (CEC; PON-09-608) and offset higher than-anticipated initial equipment costs and investment for the production and distribution of hydrogen. Other funding was provided by CEC in the amount of \$8,484,871 and by Air Products in the amount of \$3,826,386 towards this \$13,073,757 project. The hydrogen fueling stations are new (or upgraded), publicly accessible, next-generation (35 MPa and 70 MPa) located throughout Southern California, including the construction and upgrade of the existing station at South Coast AQMD headquarters in Diamond Bar. Six light-duty stations were built and operated under this contract. The West LA station was operated for three years as required, but the property is being redeveloped, the lease ended, and the equipment was removed. Air Products continues to operate the Diamond Bar, UC Irvine, Santa Monica, Beverly Blvd., and Lawndale stations. The Santa Clarita and Rancho Palos Verdes stations were removed from the statement work of this contract due to several operational issues. As such, CEC descoped these stations from the CEC Grant Agreement,

and \$237,500 (\$118,750 per station) of Clean Fuels Program funds were de-obligated. Total Clean Fuels Program funds towards this project are \$762,500.

20033: Sustainable Terminals Accelerating Regional Transportation (START) Phase I

Contractor: Port of Long Beach	South Coast AQMD Cost-Share	\$ 0
Term: 6/4/21 – 4/30/24	Total Cost:	\$ 2,049,701

In June 2021, South Coast AQMD executed a contract with POLB for the POLB START project develop and demonstrate 102 zero and near-zero emission vehicles, vessels, cargo handling equipment, and charging infrastructure. In January 2022, CARB provided a two year no cost time extension to complete work for this project due to supply chain disruptions from the pandemic. There were also minor changes in partner match share as follows: CARB \$50,000,000; POLB \$7,285,200; SCE \$3,000,000; Port of Stockton \$2,000,000; Port of Oakland \$1,250,000; Other Partners \$33,873,114 cash and \$7,105,451 in-kind; and South Coast AQMD \$500,000. Total project costs increased by \$2,049,701 for a total of \$105,013,765.

• 22082: High Flow Bus Fueling Protocol Development

Contractor: Frontier Energy Inc	South Coast AQMD Cost-Share	\$ 25,000
	Cosponsors:	
	U.S. DOE	422,000
	SoCalGas	80,000
	Shell	20,000
	Sunline Transit Agency	25,500
Term: 03/30/22 – 03/30/24	Total Cost:	\$ 572,500

The High Flow Bus Fueling Protocol Development project was awarded to Frontier Energy and project partners as a result of a competitive US DOE H2@Scale Cooperative Research and Development Agreement (CRADA) call. Frontier Energy, with the support of SoCalGas, Shell, South Coast AQMD, the Gas Technology Institute, and SunLine Transit, is partnering with NREL to develop a 35 MPa high flow hydrogen vehicle fueling protocol constructed from the existing J2601 mass compensated (MC) Formula approach. The project's goal is to develop, characterize, and deliver the necessary data for standards development organizations to implement the strategy for the target fueling applications. This Contract is co-funded separately with South Coast AQMD Clean Fuels Program funds, in coordination with the U.S. DOE CRADA.

• 22084: Develop and Demonstrate Hydrogen Fuel Cell Medium-Duty Buses

Contractor: A-1 Alternative Fuel Systems	South Coast AQMD Cost-Share	\$ 531,166
	Cosponsors	
	SoCalGas, A-1, Ford, Turtle Top Bus, US Hybrid, Luxfer Gas Cylinders, Hometown Manufacturing	1,555,442

Term: 01/19/22 – 04/18/24	Total Cost:	\$ 2,086,608

As CARB continues to adopt zero emission mandates such as the Innovative Clean Transit (ICT), Zero-Emission Airport Shuttle and Advanced Clean Trucks regulations, there is growing demand for longer range and fast fueling options that meet fleets needs for more vigorous duty-cycles. Ford Motor Company (Ford) medium-duty vehicles have significant market share in multiple applications, including local and regional goods movement, municipal fleets, utilities, and a variety of transit, shuttle and school bus operations. A-1 Alternative Fuel Systems and consortium partners will develop two new zero emission hydrogen fuel cell powered Ford platforms for medium-duty commercial trucks and buses. This project will leverage A-1 consortium partner's core capability to co-develop and bring to market long-range, fast filling mediumduty zero emission platforms that are currently not commercially available. A-1 and its consortium partners Ford, US Hybrid Corporation (US Hybrid), Turtle Top Bus (TT), Hometown Manufacturing, Inc (Hometown) and Luxfer Gas Cylinders (Luxfer) shall develop, demonstrate, and commercialize two hydrogen fuel cell Class 4 medium-duty buses on Ford platforms that are capable of 175-300 miles of range.

Contractor: Frontier Energy Inc	South Coast AQMD Cost-Share		6 40,000
	Cosponsors:		
	7 automakers, 3 public agencies,		1,160,000
	35 Full & Associate Members		
Term: 01/01/22 – 12/31/22	Total Cost:	\$	1,200,000

• 23071: Participate in California Fuel Cell Partnership for Calendar Year 2022

In April 1999, the California Fuel Cell Partnership (CaFCP) was formed with eight members; South Coast AQMD joined and has participated since 2000. The CaFCP and its members are demonstrating and deploying fuel cell passenger cars and transit buses with associated hydrogen fueling infrastructure in California. Since the CaFCP is a voluntary collaboration, each participant contracts with Frontier Energy Inc for their portion of the CaFCP's administration. In 2022, South Coast AQMD contributed \$40,000 for Executive membership. CaFCP transitioned to H2FCP in 2022 to focus on expanding the fuel cell vehicle technologies and hydrogen infrastructure on a national level. The main focus of this organization will still be California.

Stationary Clean Fuels Technologies

• 22262: Study of Fuel Cell Microgrids for Backup Power and Transit

Contractor: University of California Irvine	South Coast AQMD Cost-Share	\$ 370,000
	Cosponsors:	
	UCI Anteater Express	70,000
	POLB	40,000
	U.S. DOE	30,000
Term: 06/03/22 – 06/02/24	Total Cost:	\$ 510,000

The deployment of hydrogen infrastructure is gaining more demand to support increasing fuel cell vehicles and secure the resiliency and reliability of the electricity system. A microgrid is comprised of not only loads, but also the generation of power, and least one point of connection to the grid, and the capability to island from the grid in the event of a grid outage. As an increasing important and desired attribute, the islanding capability brings both enhanced reliability and resiliency to the community served and, rather than diesel backup generators powering critical loads, the microgrid can serve all the loads (not just the critical loads) with clean sources of power such as solar panels, batteries, and fuel cells. In the proposed project, two targets for emission mitigation are backup generators with the seamless islanding afforded by microgrids powered by fuel cells, and the charging and fueling of battery and fuel cell electric buses at fleet microgrid hubs. This project will study: replacing backup generators through microgrid deployment; and zero-emission battery and fuel cell electric bus microgrid hubs.

Technology Assessment and Transfer / Outreach

Contractor: Green Paradigm Consulting Inc	South Coast AQMD Cost-Share	\$ 0
	Cosponsors:	
	CARB (pass-through funds received into Fund 67)	14,000
Term: 09/07/18 – 09/30/24	Total Cost:	\$ 14,000

19078: Technical Assistance with Alternative Fuels, EVs, Charging and Infrastructure, and Renewable Energy

The South Coast AQMD relies on expert input, consultation and support to manage various efforts conducted under the Clean Fuels Program and TAO's many incentive programs. Green Paradigm Consulting, Inc., (GPCI) is providing technical assistance with alternative fuels, renewable energy and electric vehicles as well as outreach activities to promote, assess, expedite and deploy the development and demonstration of advanced, low and zero emissions mobile and stationary technologies. This contract amendment is for technical and administrative support to enable the range of activities involved in implementing the Clean Fuels Program which includes assistance in implementing complementary programs such as CARB's GGRF ZEDT project and ZANZEFF Volvo LIGHTS project as well as others. This assistance consists of executing contracts, processing invoices, disbursement requests, quarterly progress reports, final reports, and audit recordkeeping. The Volvo LIGHTS project started in February 2019 and ended in September 2022.

• 22273: Technical Assistance with Alternative Fuels, EVs, Charging and Infrastructure, and Renewable Energy

Contractor: Green Paradigm Consulting Inc	South Coast AQMD Cost-Share	\$ 200,000
Term: 04/22/22 – 04/03/24	Total Cost:	\$ 200,000

The South Coast AQMD relies on expert input, consultation and support to manage various efforts conducted under the Clean Fuels Program and TAO's many incentive programs. GPCI is providing technical expertise and program implementation support in alternative fuels, alternative fuel vehicles and

charging/fueling infrastructure. GPCI has provided expertise on alternative fuel technologies since the late 1990s. This includes evaluation of zero and near-zero emission technologies for LD, MD and HDVs for on- and off-road applications and infrastructure; evaluation of renewable technologies including photovoltaic and battery storage; support for advanced technology mobile source implementation; and program implementation support on Clean Fuels and grant funded programs.

• 22274: Technical Assistance with Alternative Fuels and Fueling Infrastructure, Emissions Analysis and On-Road Sources

Contractor: Gladstein, Neandross & Associates LLC	South Coast AQMD Cost-Share	\$ 300,000
Term: 05/05/22 – 04/02/24	Total Cost:	\$ 300,000

This contract leverages staff resources with specialized outside expertise. GNA has previously assisted South Coast AQMD with implementing a wide-array of incentive programs to deploy lower-emitting HDVs and advanced transportation technologies. Under this contract, GNA will provide technical expertise across a broad spectrum of emission reduction technologies, including alternative and renewable fuels and fueling infrastructure, emissions analysis and heavy-duty on-road sources on an-as-needed basis.

• Various: Cosponsor 10 Conferences, Workshops and Events plus 3 Memberships

Contractor: Various	South Coast AQMD Cost-Share		137,630
	Cosponsors:		
	Various		1,514,050
Term: $01/01/22 - 12/31/22$	Total Cost:	\$	1,651,680

The South Coast AQMD regularly participates in and hosts or cosponsors conferences, workshops and miscellaneous events. In CY 2022, South Coast AQMD provided funding for 10 conferences, workshops and events and 3 memberships in key stakeholder organizations, as follows: Clean Fuels Advisory Group Retreat in February and September 2022; the PEMS Conference in March 2022; the 31st Real World Emissions Workshop in March 2022; CE-CERT's 30th Anniversary Event in April 2022; the ACT Conference and Expo in May 2022; the California Hydrogen Leadership Summit in June 2022; the 15th Annual VerdeXchange Conference in June 2022; the Driving Mobility 9 Symposium in June 2022; the AltCar Expo & Conference in October 2022; and the International Colloquium on Environmentally Preferred Advanced Generation (ICEPAG) in December 2022. Additionally, for 2022, three memberships were renewed for participation in Veloz, a nonprofit organization comprised of high-powered, diverse board members uniquely qualified to accelerate the shift to electric vehicles through public-private collaboration, public engagement and policy education innovation; CALSTART, a nonprofit organization working nationally and internationally with businesses and governments to develop clean, efficient transportation solutions; and the California Natural Gas Vehicle Partnership (CNGVP), an alliance of air quality, transportation and energy agencies, vehicle and engine manufacturers, fuel providers, transit and refuse hauler associations, and other stakeholders interested in increasing and strengthening the deployment of low-emission natural gas vehicles throughout California.

• Direct Pay: Advanced Technology Program Expenses

Contractor: Various	South Coast AQMD Cost-Share	\$ 107,135
Term: $01/01/22 - 12/31/22$	Total Cost:	\$ 107,135

The South Coast AQMD advanced technology program showcases new clean-fuel technologies to public and private organizations so that potential purchasers may familiarize themselves with available low-emission technologies and to push the development of even cleaner technologies. This direct pay covers cost of annual EV charging fees, the lease of two BEVs for three years; EVSE installation, FC, EVSE and CNG equipment maintenance and various miscellaneous program expenses that were incurred in 2022.

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CLEAN FUELS PROGRAM

Progress and Results in 2022

Key Projects Completed

Given the large number and diversity of emission sources contributing to the air quality problems in the Basin, there is no single technology or "silver bullet" that can solve all the region's problems. Only a portfolio of different technologies can successfully achieve the required emission reductions needed to meet the upcoming 2023 and 2032 air quality standards as well as the state's 2050 climate goals. Therefore, the South Coast AQMD continues to support a wide range of advanced technologies, addressing not only the diversity of emission sources, but also the time frame to commercialization of these technologies. Projects cofunded by the South Coast AQMD's Clean Fuels Program include emission reduction demonstrations for both mobile and stationary sources, although legislative requirements limit the use of available Clean Fuels funds primarily to on-road mobile sources. The projects funded not only expedite the development, demonstration and commercialization of zero and near-zero emission technologies and fuels, but also demonstrate the technical viability to technology providers, end-users and policymakers.

In the early years, the mobile source projects funded by the Clean Fuels Program targeted low emissions technology developments in automobiles, transit buses, medium- and heavy-duty trucks and off-road applications. Over the last several years, the focus has largely shifted to zero emission technologies for medium- and heavy-duty trucks, especially those in the goods movement and freight handling industry.

Table 15 provides a list of 57 projects and contracts completed in 2022. Summaries of the completed technical projects are included in Appendix C. Selected projects completed in 2022 which represent a range of key technologies from near-term to long-term are highlighted below: (a) Battery Electric Excavator and Wheel Loader Development and Demonstration Project; (b) Zero Emission Truck Innovation Fleet Project; (c) Zero Emission Drayage Truck Project; (d) Volvo Low Impact Green Heavy Transport Solutions (LIGHTS); and (e) 200 Vehicle In-Use Emissions Study.

• Battery Electric Excavator and Wheel Loader Development and Demonstration Project

The South Coast AQMD 2022 AQMP identified the need for an additional 83 percent in NOx emission reductions from the 2018 level and 67 percent in NOx reductions beyond already adopted regulations and programs to meet the 2015 8-hour ozone standard by 2037. This level of required NOx reductions cannot come from only on-road vehicles. The AQMP proposes economy-wide transition to zero emission technologies where cost-effective and feasible, and low NOx technologies in other applications. Current and future state and federal efforts in developing regulations for on- and off-road vehicles and equipment are expected to significantly reduce NOx emissions, but are insufficient to achieve the 2023, 2031, and 2037 ozone attainment deadlines. Furthermore, technology development for zero emission off-road equipment inventory will exceed heavy-duty diesel trucks by 2037 and contributes 41% of total NOx emissions in the 2018 emissions inventory and grows to 58% in the 2037 emission inventory. Off-road equipment (23 tons/day) is the third highest contributor of NOx in 2037. Since NOx emissions also lead to the formation of PM2.5, the NOx reductions needed to meet the ozone standards will also lead to attainment of the NAAQS for PM2.5.

The purpose of this project was to accelerate deployment of zero emission technologies for offroad mobile equipment and reduce harmful diesel emissions, petroleum consumption, and greenhouse gases within the South Coast Air Basin. This was to be accomplished by developing battery electric compact а wheeled loader and battery electric compact tracked excavator and deploying them in the South Coast Air Basin for application testing and feedback with local construction contractors. During this project, a



Figure 12: L25 and ECR25

battery electric compact wheeled loader (L25) in the 1.2yd³ bucket class was demonstrated along with a battery electric compact tracked excavator (ECR25) in the 2-3 ton class (both shown above in Figure 1). The L25 utilizes a 48V lithium-ion battery system with 40kWh of energy storage and one 22kW electric induction motor for the driveline system and a 14kW permanent magnet synchronous motor for the hydraulic motors. The L25 can operate for up to six hours of active work per full charge, depending on the environment and tasks performed. This unit can be charged via DC fast charging in two hours and Level 2 AC charging in six hours and Level 1 AC charging in 24 hours. Other mechanical specifications for the L25 are the same as or better than the diesel equivalent model being replaced. The ECR25 utilizes a 48V

lithium-ion battery system with 20kWh of energy storage and one 14.7kW permanent magnet synchronous motor for the hydraulic system. The ECR25 can operate for up to six hours of active work per full charge, depending on the environment and tasks performed. This unit can be charged via DC fast charging in approximately one hour, Level 2 AC charging in approximately six hours and Level 1 AC charging in approximately 12 hours. The other mechanical specifications for the ECR25 are the same as or better than the diesel equivalent model being replaced.

		ECR25 Drevel	ECR25 Electric
III' a.	Max, digging depth	94, 1 in	9R. 1.in.
	Maa, math	100, 1 m	108, 145
	Breakout force	4.533 tof	3.0020 rist
-	Operating weight	fi,480 lbs	8,102 be
	1.25 Dareel	L25 Electric	a section
itendard bucket capacity	1.2 yd ^p	1.2 yd*	
ork payload 80%	4,409 lbs	4,409 8ts	VOED
Breakout Kiroe	8,318 luf	12,252 Inf	C.C.C.
penning weight	10,647 ftm	11.023 dos	

Figure 13: Diesel vs Electric Machine Specifications

The project started in September 2019 and testing commenced in September 2020 with the ECR25. Testing on the L25 followed in December 2020 and was successfully completed in August 2021. A press conference in September 2021 at the Mildred E. Mathias Botanical Garden at University of California Los Angeles (UCLA) discussed results and lessons learned. The project continued through September 2022 and the final project reporting will be submitted in early 2023.



The L25 and ECR25 were tested in a wide variety of applications during this project by three main customers and their crews - Baltic Sands, Casper Company, and Caltrans. The applications ranged from residential house construction, clearing remote trails, utility access repair and demolition. construction. and Environmental conditions during testing ranged from moderate to high temperatures, dust, rain, and even inside buildings.

Figure 14: L25 and ECR25 Tree Planting Ceremony at UCLA

The two machines accumulated approximately 400 operating hours during testing. Hours recorded as part of testing are different from traditional construction equipment measurement of engine hours because engine hours increase whether the machine is working or idling. Volvo calculated engine hours on this equipment so that approximately 40% of the engine hours are attributed to idling. The 400 hours of testing are only for direct work since the machine is essentially in a sleep state when it is on but not working.

Testing feedback was overwhelmingly positive, with customers impressed with the performance of the equipment. There was a small adjustment period when a new piece of equipment was introduced to a crew where they needed to learn how to optimize their usage. The first few days generally resulted in lower runtimes than predicted but after some minor adjustments to how they worked, the crews could significantly increase their uptime.

The L25 and ECR25 were both tested under various charging scenarios for this project. The primary methods of charging were Level 1 and Level 2 AC charging. Level 1 charging worked as expected but due to the lower amount of power transferred during this process, customers would not choose to use this method if there were alternative charging options. Level 2 charging also worked as expected and provided the expected 50% reduction in charging time. The downside during testing was that the onboard charging network was not configured to take advantage of all available power provided by 240V infrastructure. In addition, portable and non-grid connected solutions were tested through a mobile battery bank and solar powered charger. The solar charger worked well, especially in remote locations where grid access was not possible. Customers were very excited about the mobile battery bank, but some technical limitations



Figure 15: L25 Being Charged by Mobile Battery Bank



Figure 16: L25 Charging on Solar Charger

reduced its effectiveness. The battery bank was large and required a dedicated trailer for transportation so there was a need for an additional truck or trip. The battery bank also required a lengthy recharge time. There is a benefit and interest in this type of solution, if a cost-effective battery bank can be provided for opportunity charging between jobs or shifts and it can easily transported without additional equipment.

The positive impacts of using battery electric equipment such as noise and vibration reductions were significant benefits that all customers commented on during testing. The ECR25 had a measured 9dBA drop in sound pressure around the machine compared to an equivalent diesel machine. This was verified through empirical testing measurements and informal operator feedback. Direct feedback indicated that operators no longer felt fatigued at the end of their shift. With diesel equipment, they were constantly exposed to vibration and noise throughout the day, but electric equipment significantly reduced those exposures by not having an internal combustion engine inducing vibration into the operator and significantly lowering noise pollution. The operators no longer had to yell over the engine of the machine to the surrounding crew.

General maintenance costs of the equipment have dropped significantly. There are still hydraulic filters, but there are no longer engine air filters, oil filters, or oil changes required. The only general maintenance required on the equipment is standard lubrication for moving mechanical joints. One of the operators even commented that the lubrication needs were decreased because the equipment was so quiet they could determine the need for lubrication by hearing the equipment in operation as opposed to providing lubrication on a time based schedule, which commonly led to an excess of grease being applied.

Total project cost was \$3.15 million, with \$2 million funded by a U.S. EPA Targeted Airshed grant. Volvo Construction Equipment (CE) invested an additional \$1.155 million in match share.

The L25 and ECR25 are both commercially available in North America, as well as Europe and other select countries around the world. The L25 is a versatile machine that can be used in a range of applications from material transfer and loading to lifting, digging, and transporting. The ECR25 can be equipped with various attachments such as different buckets for specific digging and trenching applications or tools such as breakers.

Project learnings have continued to strengthen the Volvo viewpoint that battery electric machines are an excellent fit for reducing NOx emissions in the compact construction equipment sector while also providing positive health impacts to the operators, crews and communities in which this equipment operates. Feedback from the crews who have used this equipment is used in continued refinement of these products and in the planning and development of future products. While the work completed as part of this project clearly demonstrated that this equipment works as well or better than diesel equivalents, there are still some applications where heavy-duty cycles require increased runtime. Recharge time and access to charging infrastructure could pose a barrier to entry for some customers. As a result, Volvo will continue to investigate ways to enhance the runtime of this equipment, optimize on-board charging to efficiently use available power where they operate, and explore alternate methods of charging. Since testing conducted for this project, enhancements have been made to the L25 to decrease the AC charging time by 50%. The L25 is now capable of Level 2 charging in six hours. Volvo intends to continue evolving its product portfolio with additional compact construction equipment models as well pursue larger equipment of various types. One example of this commitment has been the public introduction of a 22-ton electric excavator, the EC230.

In May 2022, Volvo participated in the annual Advanced Clean Transportation (ACT) Expo, which is North America's largest event dedicated to fleet sustainability. Volvo announced the expansion of its battery

electric compact equipment offerings. The announcement introduced the L20 Electric compact wheel loader, and EC18 and ECR18 Electric compactor excavators, bringing the Volvo CE electric lineup to an industry-leading five pieces of equipment. In addition, Volvo also announced that the 20-ton EC230 Electric excavator, which is not yet commercially available, will be coming to North America for future demonstration projects. "Off-road equipment is the next frontier in electric vehicles, and Volvo CE is proud to lead the way in the construction industry's sustainability journey," said Stephen Roy, president, Region North America at Volvo CE. "Fleets need cleaner solutions to meet growing regulations and societal demand, and now we have five electric compact models for our customers to choose from."



Figure 17: Expanded Volvo Zero Emission Equipment Line Up

• Zero Emission Truck Innovation Fleet Project

Along with co-funding from U.S. EPA, POLA, and POLB, South Coast AQMD supported development and deployment of 20 Daimler (Freightliner) battery electric trucks (BETs) and fast charging infrastructure. The Innovation Fleet Project was the single largest investment that South Coast AQMD has made in the development of Class 8 BETs and infrastructure at that time. It allowed DTNA, the parent company of the Freightliner Truck brand, to scale a pilot prototype battery electric truck concept to full commercialization. The intention and larger vision for this deployment was to gain knowledge and testing with customers in real world applications of BET technology. The project was initiated in early 2019 and completed in December 2022. This project spun a series of follow up BET and infrastructure projects with additional demonstration partners.

The main objective is to identify a range of applications where the transportation industry sector is the best fit for heavy-duty battery electric technologies and identify the locations where it is most needed to reduce emissions associated with diesel truck use. The project aimed to capture a variety of adoption burdens, duty cycles, and operational schedules to provide a comprehensive knowledge base of BET charging and operation. Penske Trucking Leasing (Penske) and NFI were selected as the fleet partners for the deployment and demonstration of these BETs. Through NFI's Port drayage activity and Penske's rental, leasing, and logistics operations, a variety of heavy-duty BET applications were demonstrated in the South Coast region. Penske was able to lease the BETs to various fleets including UPS, Costco, and Iron Mountain to gain additional real-world experience in a wide variety of operations.

Fifteen Class 8 eCascadia and five Class 6 eM2 BETs were deployed in this project. The eCascadia (see Figure 18) deployed in this project had the following main specifications. These are first generation prototypes meant for use as a proof of concept. The final series production specifications are significantly improved from the prototypes.

Range	160 miles	Battery	410 kWh
Charging Time	160 min (80% soc)	Max Charge Power	150 kW
Charging Type	CCS Type 1	Power	500 kW / 240 kW
		(peak/continuous)	
Top Speed	65 mph / 105 kmph	Cab Type	Day Cab
Curb Weight	23,500 lbs. / 10,660 kg	GVWR	80,000 lbs.
Startability	18% grade	Gradeability	2% grade at 50 mph





1. Battery, 2. E-Axle, 3. Power Distribution Unit, 4. Inverter, 5. Vehicle Control Unit, 6. Brake Resistor

Figure 18: Exterior Look of Class 8 eCascadia Truck Specifications and Main Components

The eM2 (see Figure 19) had the following main specifications:

Range	50-100 miles	Battery	220 kWh – 330 kWh
Charging Type	CCS Type 1	Power (peak)	440 kW Allison / 180 kW
			Meritor
Top Speed	65 mph	GVWR	26,000 lbs.
Curb Weight	~ 17,500 lbs.	Gradeability	20% at 25 mph at GVWR
Startability	25% grade at GVWR		

Ten eCascadia and five eM2 BETs were demonstrated by multiple leasing customers of Penske for local pick-up and delivery as well as first/last mile services. These duty cycles generally have lower daily mileage compared with long-haul and typically return to an established depot to be domiciled overnight. Five eCascadia BETs were demonstrated by NFI. They were operated out of its inland warehouse facility for drayage activities. A total of over half a million miles were traveled among the 20 BETs, with emission reductions of 0.92 tons of NOx, 0.07 tons of PM2.5, and 912 metric tons of GHG emissions.0.92 tons for NOx, 0.07 tons for PM2.5, and 912 metric tons of GHG reductions.



Figure 19: Exterior Look of Class 6 eM2 Truck and the Main Components

The operation activities among the 20 BETs are summarized in Table 8 below. Trucks typically operated 6 to 9 hours a day with a daily charging time of 3 to 4 hours. eCascadia BETs traveled 100 to 150 miles per day on average with an average energy consumption of approximately 2 kWh/mile. eM2 BETs traveled 85 miles per day with an average energy consumption of 1.4 kWh/mile.

Fleet	Vehicle	Total Miles	Miles/Day			kWh/Mile			Driving Hrs/Day			Charging Hrs/Day		
			Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max
Penske	eCas	228,857	104	16	196	2.1	0.9	3.7	5.5	0.8	15.3	3.5	0.2	8.9
Penske	eM2	55,702	85	11	135	1.4	1.0	2.0	8.9	1.0	12.5	2.7	2.3	2.8
NFI	eCas	236,836	151	78	246	2.0	1.2	3.5	7.6	2.7	11.6	3.9	1.0	9.0

 Table 8: Telematics Truck Operation Data (Oct 2019 - Jun 2021)

Sixteen chargers (mostly 150 kW DC fast chargers) and one battery energy storage system (BESS) across seven sites were deployed to charge the 20 BETs (see Figure 3 for examples). Data for the Penske fleets at its six sites reflected that the chargers had 62% to 100% uptime during the demonstration period. The majority of charging took place during off-peak hours, which helped with cost savings.



Figure 20: Examples of BET Chargers

Fleets surveyed during the demonstration BETs showed support for BET adoption with feedback for improvement in some areas. According to the survey responses, the BETs provided exceptional driver comfort due to the elimination of engine noise and vibration inside the cab. Power and torque availability allowed smoother operation during high traffic conditions. Additionally, the BETs provided rig stability and outperformed diesel powertrains in acceleration, power, and ease of driving.

On the other hand, BET uptime was not always satisfactory. Both eCascadia and eM2 BETs experienced eAxle failure, requiring repairs. Charging sessions were sometimes unsuccessful or interrupted due to charger interoperability issues. Problems originated at the charger hardware, network service, and vehicle software level. Fixing chargers was always time consuming and involved hundreds of tests. At the time of the demonstration, the charging network was still in its infancy for medium- and heavy-duty high-power applications. More advanced features, such as automated fleet scheduling, load management, reporting, and data analysis were not fully functional for the project.

The Innovation Fleet project proved that BETs are competitive for short-haul use cases along with the benefits of emissions reductions. The project indicates that significant coordination is needed among charger hardware manufacturers, network service providers, and vehicle hardware team. A charger validation process is critical for future BET deployments. A protocol should be established to specify coordination, responsibilities, and duties among the hardware and software providers to ensure uptime of BETs and chargers. While COVID-19 caused numerous delays on parts, permits, and software, supply chain issues and overwhelming demand is expected to continue as more OEMs deploy BET offerings. The industry has raised concerns that the strong power and torque of battery-electric powertrains combined with the greater total vehicle weight of a battery-electric tractor will tax today's standard tires beyond the current standard. While not assessed quantitatively in the project, tire durability may be worthy of future study.

The Innovation Fleet project to deploy 20 BETs in the goods movement and logistic sectors has been a critical step for future deployments and further market penetration. Technology improvements to increase
mileage and lower costs will support a wider variety of use cases for BETs. Issues identified in the project are informative for the industry and fleets.

• Zero Emission Drayage Truck Project

The California Zero Emission Drayage Truck (ZEDT) Demonstration project was funded by a CARB grant from the Greenhouse Gas Reduction Fund, South Coast AQMD Clean Fuels Fund, and match share from OEMs, including BYD, Kenworth, Peterbilt/Meritor/TransPower, and Volvo. The GGRF ZEDT project is part of California Climate Investments (CCI), a statewide initiative that puts billions of Cap-and-Trade dollars to work reducing greenhouse gas emissions, strengthening the economy, and improving public health and the environment – particularly in disadvantaged communities.

The GGRF ZEDT project deployed 44 pre-commercial Class 8 battery electric, CNG, and diesel hybrid electric drayage trucks, including 25 BYD battery electric trucks, 12 Peterbilt/ Meritor/TransPower battery electric trucks, two Kenworth CNG series hybrid trucks, three Volvo diesel parallel plug-in hybrid trucks, and two Volvo battery electric trucks, along with supporting infrastructure. These trucks were operated in revenue service at the Ports of Los Angeles, Long Beach, San Diego, and Oakland traveling the state of California, including the areas under South Coast AQMD, Bay Area AQMD, SJVAPCD, and San Diego APCD jurisdictions.

The GGRF ZEDT project was funded to demonstrate the feasibility of multiple zero and near-zero emission technology pathways for Class 8 drayage trucks. These technologies included zero emission battery electric trucks as well as near-zero emission CNG hybrid electric and diesel hybrid electric trucks. At the time that the GGRF ZEDT project was funded in 2016, it was not known when battery electric trucks would become CARB certified commercial trucks and whether there would continue to be a need for near-zero technology alternatives such as CNG and diesel hybrid electric trucks as interim technologies. The intent of this project was to demonstrate feasibility of multiple truck technologies to enable lessons learned and more choices for fleet adoption to transition to cleaner truck technologies to meet GHG and criteria pollutant emission reduction goals.

BYD demonstrated and deployed two phases of the BYD Class 8 Model 8TT battery electric trucks. The 8TT is an over-the-road tractor which was still in design phase at the beginning of the project, built upon prototypes and experience from manufacturing Class 2 - 5 buses and municipal trucks. Phase 1 trucks included a 207 kWh battery. Phase 2 trucks had a larger battery of 435 kWh. The use of higher power DC fast charging reduced charging times while enabling higher vehicle range. BYD truck and infrastructure specifications are shown in Table 9.

Phases	Battery (kWh)	Infrastructure	Charging Time (hours)	Range (miles)
Phase 1	207	80 kW AC	3 hours	100
Phase 2	435	40 kW AC	11 hours	125
		120 kW DC	3.5 hours	

 Table 9: BYD Truck and Infrastructure Specifications

Peterbilt/Meritor/TransPower demonstrated and deployed two phases of Class 8 Model 579 battery electric trucks. Phase 1 trucks had three battery sizes ranging from 264 kWh – 352 kWh. Phase 2 trucks had a 396

kWh battery. Phase 2 trucks used higher power DC fast charging to have a longer vehicle range without increasing charging time. Peterbilt/Meritor/TransPower truck and infrastructure specifications are shown in Table 10.

Phases	Battery (kWh)	Infrastructure	Charging	Range
			Time (hours)	(miles)
Phase 1	264	70 kW AC	3 – 4 hours	110
	308	70 kW AC		130
	352	70 kW AC		150
Phase 2	396	180 kW DC CCS1	3.5 hours	130

Table 10: Peterbilt/Meritor/TransPower	Truck and Infrastructure Specifications
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Kenworth demonstrated and deployed two Class 8 CNG hybrid electric truck tractors. This was intended to determine technical and economic feasibility of replacing mechanical systems used on diesel engine technology for Class 8 truck tractors with an engine and generator set fueled by NG. The truck also has a large high voltage battery bank for zero emission operations and to supplement engine output to the electric drive system. Kenworth truck specifications are shown in Table 11 below.

Item	Specification	Comments		
GVWR	>33,000 lbs.	GVWR for Class 8 trucks		
GCWR	80,000 lbs. max	61,000 lbs average		
Engine type/Rating	Stock Cummins L9N engine/320 hp	Un-modified production engine		
Engine fuel	CNG			
Fuel tank capacity	150–200 US DGE	Agility Fuel Tank Assembly		
Hybrid motor rating	300 kW	Fully integrated electric motor-		
Transmission Type	Automated manual	transmission and inverter assembly		
Power assist Steering	Electric over hydraulic	Custom		
Tire specs	Smart Way Certified			
Acceleration	Equal to or better than conventional v	vehicle		
Interior noise	Per FMCSA Part 393.94			
Exterior noise	Comply with federal, state & local noise ordinances (FMCSA Part 325.			
Fuel economy	20% or greater			

Table 11: Kenworth Truck Specifications

Based on simulation models and data from customer routes in southern California near the Ports of Los Angeles and Long Beach, the model predicted the performance of various hybrid and battery configurations and components to assist in truck design. A series hybrid electric vehicle was designed around the Kenworth T680 day cab, with the trucks modified, assembled and tested. Sourcing components for the truck proved to be more challenging than anticipated due to supply chain issues during the pandemic. The hybrid genset with large capacity high voltage batteries was shown to be technically feasible in these applications but not reliable enough for mass production. Continued development of the genset hybrid vehicle design would need to focus on improving reliability, reducing complexity, and lowering the truck cost. Selected

performance metrics for the Kenworth CNG hybrid electric truck based on their T680 day cab platform are shown in Table 12.

Parameter	Expected Performance
Max battery charge	~100 kwh
Max torque	2000 Nm total (1475 ft-lb)
Range	150 miles
Top Speed	62 mph
Grade ability	6.5% Grade at 20 mph
	5.0% grade at 30 mph
EV mode (electric only) Range	30-40 miles or 1 hour of operation
	depending on duty cycle and trailer load
Operating temperatures	16F (-9C) to 135F (57C)

Table 12: Kenworth Truck Performance Metrics

*All performance parameters tested with a vehicle GVWR of 65,000 lbs.

Volvo developed and refined a plug-in hybrid EV (PHEV) drivetrain and tested an emission aftertreatment system in the form of a mini-burner which was to maintain the catalyst temperature to improve hybrid emissions performance. The first PHEV truck was from a prior U.S. DOE funded project and used as an engineering mule by Volvo during the first half of the project. The second PHEV truck with the same technologies as the first one was deployed and completed revenue service in 2017. For the third PHEV truck, real world testing on three prescribed test routes including extended stop and go activities was used while CO2, NOx, CO and total hydrocarbon emissions were quantified using portable emission measurement system (PEMS). The third PHEV truck had the mini-burner and EcoDrive technology and was tested at Volvo's engineering campuses before the mini-burner aftertreatment system was tested extensively at West Virginia University (WVU) Center for Alternative Fuels Engines and Emissions (CAFEE) using a combination of chassis dynamometer and local road cycles. Emissions data was collected using typical CAFEE equipment and methods and compared with baseline tests performed on the first PHEV to quantify NOx and GHG emission reductions. Four different routes were used to evaluate operation of the third PHEV with two combined weight configurations for the truck and trailer at 31,900 lbs and 64,300 lbs. After the third PHEV was transported to California, WVU CAFEE also tested the truck using their Transportable Emissions Measurement System (TEMS) on three different drayage routes between the San Pedro Bay Ports and Inland Empire warehouses and railyards. The third PHEV was then tested at University of California Riverside to confirm performance and robustness of the connected intelligent transportation system (C-ITS) EcoDrive technology while operating on connected freight corridors before the five month deployment at Intermodal Bridge Transport (IBT) ended in 2021.

In late 2021, Volvo deployed two Class 8 VNR Electric trucks at Producers Dairy in Fresno, located in an AB 617 disadvantaged community. Producers Dairy has a fleet of over 80 tractor trucks and does short and long-range deliveries throughout the state; it also deployed two 150 kW DC fast chargers in Fresno.

Battery	Infrastructure	Charging Time	Range
(kWh)		(hours)	(miles)
375	150 kW DC	2.5 hours	150

Table 13: Volvo Truck and Infrastructure Specifications

Battery electric, CNG hybrid electric, and diesel hybrid electric trucks from the four OEMs are shown in Figure 21.





Top to bottom, left to right: BYD Phase 1 8TT in service at GSC Logistics in Oakland; Peterbilt/ Meritor/TransPower Model 579 in service at Biagi Brothers in Napa; Kenworth CNG hybrid truck at TTSI in Compton; Volvo diesel plug-in hybrid truck at IBT in Wilmington; and Volvo VNR Electric truck at Producers Dairy in Fresno, CA.

Figure 21: ZEDT Trucks Deployed at Various Fleets

OEMs installed different types of infrastructure to support their trucks. BYD deployed their proprietary 80 kW AC and 40 kW AC chargers with a GB/T connector (standardized connector used in China) in both phases. AC Chargers for Phase 2 trucks had lower power than Phase 1 trucks since BYD changed the charging platform to meet the demands and trends of the medium- and heavy-duty truck market. BYD later switched to 150 kW DC fast charging with an SAE standard CCS1 connector at the request of fleets with BETs from multiple OEMs who wanted their trucks to have the ability to utilize the same charger/connector. Peterbilt/Meritor/TransPower utilized 70 kW AC charging using proprietary marine grade connectors but switched to DC fast charging to increase range without increasing charging time. Shifts from proprietary to

standardized connectors and from AC to DC fast charging reflected fleets' preferences for increased vehicle range, less charging time, and ability for trucks to utilize any charger at their site.

For the Kenworth CNG hybrid electric trucks, TTSI was able to take advantage of a nearby CNG public fueling station hosted by Clean Energy for fueling as needed. The Volvo diesel plug-in hybrid truck also utilized existing diesel fueling infrastructure. The two Volvo battery electric trucks at Producers Dairy in Fresno had two 150 kW DC fast chargers installed since there were no other fast chargers in Fresno.



Figure 22: Charging and Fueling Infrastructure for ZEDT Trucks

Detailed operational data, including vehicle performance data, were obtained using HEM data loggers which were stored, collected, and analyzed by Ricardo. Data were collected from June 2019 to October 2021 by Ricardo. Mileage data for the 44 Class 8 trucks are shown in Table 14.

OEM	Battery	CNG Hybrid	Diesel Hybrid
	Electric	Electric	Electric
BYD	329,429		
Peterbilt	137,565		
Kenworth		8,240	
Volvo			23,091
TOTAL	466,994	8,240	23,091

Table 14: Truck Mileage

Since the ZEDT project started in 2016, Class 8 battery electric trucks have become CARB certified and commercialized from the OEMs, including BYD, Peterbilt, Volvo, Kenworth, and Daimler. The ZEDT project enabled four OEMs to work towards developing, demonstrating and deploying Class 8 trucks on multiple fuel platforms, at a time when the future zero and near-zero emission pathways for these trucks were not certain. While CNG trucks ended up using engines capable of ultralow emissions such as 0.02 g/bhp-hr and diesel hybrid electric trucks capable of operating in zero emission mode for a limited range did not follow a commercial pathway, deploying these trucks enabled the four OEMs to garner valuable lessons learned and an opportunity to work with 22 fleets in deploying trucks at different stages of development.

Ricardo conducted surveys and interviews with project participants near the end of the project on the truck and infrastructure deployment process and lessons learned. Eighteen of the 22 fleets in the project indicated

they would consider the addition of advanced technology drayage trucks in their fleets subject to the following key improvements:

- Total cost of ownership must be competitive with conventional drayage trucks
- Increased vehicle range so that trucks could be assigned to all routes operated by drayage companies
- Reliability similar to conventional drayage trucks which typically do not exceed 10% downtime
- Service and maintenance and parts availability comparable to conventional trucks with fleets preferring to perform most maintenance at their in-house facilities

Fleets also suggested that advanced technology trucks should be 1:1 replacement for conventional diesel drayage trucks and that the following should be in place:

- Ensure vehicle certifications are in place prior to deployment
- Minimum vehicle range of 150 miles. Some fleets suggested that 200 miles or as much as 350 miles would be the minimum vehicle range, since limited range meant that trucks could only be assigned to up to 50% of existing routes.
- Reduced charging time to 90 minutes or less to allow charging at the end of longer routes
- Capital costs similar to conventional diesel trucks
- Assistance in obtaining full coverage for vehicle insurance for advanced technology trucks
- Tractor weights similar to conventional diesel trucks
- Tractor safety improvements including warning sounds when underway, adjustable side view mirrors inside the cab, and better acceleration at highway speeds
- Standardization of charging hardware
- Viable options to reduce electricity costs while allowing opportunity charging
- Reliable vehicles and good technical support
- Better coordination between fleets, OEMs, and utilities to better understand vehicle and infrastructure technologies to reduce costs, maintenance and repair options, safety requirements and vehicle features
- Improved training programs for fleet operators, managers, drivers, maintenance technicians and first responders

Near-zero truck technologies such as the Kenworth CNG hybrid electric and Volvo diesel hybrid electric trucks were successfully demonstrated at two fleets, TTSI and IBT, and were able to be utilized for drayage service. However, both technologies are not ones which Kenworth and Volvo plan to further develop and commercialize.

Kenworth used the chassis from a previous project for field demonstration and encountered issues with obtaining components during the pandemic due to supply chain issues. This resulted in a delay in the deployment of their two trucks. The other challenge is that by the time the ZEDT project was completed in April 2022, the regulatory climate at CARB had transitioned to become more supportive of zero emission technologies and residents in disadvantaged communities began to increasingly demand deployment of zero emission trucks in their communities. Fuel cell technologies using hydrogen fuel became more technically feasible and are being demonstrated, with a future pathway towards commercialization as another viable zero emission truck technology. CARB regulations such as the Advanced Clean Trucks and upcoming Advanced Clean Fleets regulations have increasingly stringent requirements for OEMs to produce zero emission trucks and for fleets to deploy 100% zero emission trucks by 2035.

Volvo intended for the ZEDT project to accelerate deployment of zero and near-zero emission truck technologies. For its diesel hybrid electric truck, Volvo implemented geo-fencing, driver information,

hybrid controls featured and advanced aftertreatment temperature management through a post-turbo miniburner. These combined technologies targeted very levels NOx emissions levels when in operated in nearzero emission operational modes. The mini-burner reduced NOx emissions across all test routes and combined vehicle test weights by 50% -90% compared to traditional diesel only operation. However, when the hybrid operation was combined with use of the mini-burner, there were reduced NOx emissions for light-load and cold-start conditions but these were increased for higher load and warm operation as additional thermal management challenges were introduced by hybrid operation and affected the conversion efficiency of the mini-burner. Through rigorous simulation modeling, EcoDrive was shown to help the vehicle consume 6% - 18% les energy when traveling on arterial freight corridors with connected intersections and to reduce tailpipe NOx emission by 3% - 5% based on modeling results from conventional trucks. However, the impact of EcoDrive was minimal with PHEV trucks which already had lower NOx emissions. Additional research would be needed to characterize the level of energy savings and emission reductions that EcoDrive could provide under a variety of settings.

Battery electric trucks were able to prove themselves from a commercial standpoint and are currently the main commercially available and certified zero emission truck technology. BYD and Peterbilt/Meritor/TransPower have deployed commercial versions of their Class 8 battery electric trucks from the development and demonstration work in the ZEDT project. Between Phase 1 and Phase 2 versions of their trucks, they increased battery size and switched to DC fast charging with CCS1 connectors to keep the charging time about the same for the larger batteries. Towards the end of the project, Volvo deployed two Class 8 battery electric trucks which they had developed and demonstrated on another CARB funded GGRF project Volvo LIGHTS. This project resulted in the commercialization and certification of Volvo's battery electric truck in December 2020. The Volvo battery electric truck has roughly an equivalent battery size and vehicle range as the Phase 2 BYD and Peterbilt/Meritor/TransPower trucks and were among the first Class 8 battery electric trucks deployed in Fresno.

• Volvo Low Impact Green Heavy Transport Solutions (LIGHTS)

The Volvo LIGHTS project was a unique collaboration between Volvo, South Coast AQMD, and 12 other organizations that each contributed critical expertise, capital, and commitment to achieve the goal of successful widescale deployment of commercial battery electric trucks. Prior to commercialization of the battery electric trucks, two Southern California fleets - NFI and DHE piloted Volvo Class 8 VNR Electric demonstration trucks in their daily routes and provided real-world feedback to Volvo. TEC Equipment Fontana, Volvo Trucks' largest West Coast dealership, was trained and equipped to provide local maintenance and technical support on repairs for the demonstration trucks and provided access to high-power 150 kW DC fast chargers prior to installation of their own charging infrastructure.

The project ran from February 2019 to September 2022. In 2020, Volvo deployed its first pilot VNR Electric trucks to fleets in the South Coast Air Basin. The first demonstration trucks were delivered to TEC Equipment in Fontana for local parts distribution, as well as NFI and DHE for freight transport throughout the region. Starting in 2021, TEC Equipment also provided the opportunity for local fleets with different types of revenue service — including Albertsons, Penske Truck Leasing, Medline, SAIA, Quality Custom Distribution (QCD), 10 Roads Express, and SCE — to lease Volvo VNR Electric trucks to gain hands-on experience and determine where battery electric trucks might best fit their routes. With supplemental funding through a U.S. EPA Clean Air Technology Initiative Grant, 30 battery electric trucks were deployed through the Volvo LIGHTS project. Fourteen fleets utilized Volvo VNR Electric trucks in commercial operation during the Volvo LIGHTS project, hauling freight 80-150 miles per day.



Figure 23: Locations of fleets with VNR Electric Trucks in SB 535 and AB 617 Communities

Shell Recharge Solutions (formerly Greenlots) supported DHE, NFI, and TEC Equipment with installation of private chargers for the battery electric trucks, yard tractors, forklifts, and light-duty vehicles. Level 2 chargers for light-duty vehicles, AC chargers for the forklifts, 50 kW DC fast chargers for the yard tractors, and 150 kW DC fast chargers for the trucks were on the SKY networking software, which integrated with Volvo's truck telematics, to balance the needs of the trucks and cargo handling equipment, facility, and utility grid. The Ports of Los Angeles and Long Beach also provided infrastructure planning support to facilitate early adoption of battery electric trucks for Port drayage service, while SCE analyzed the grid impacts of charging.



Figure 24: Three Volvo VNR Trucks Charging at DHE in Ontario

As part of the Volvo LIGHTS project, DHE and NFI installed 1.5 MW of rooftop and canopy solar at its facilities. Annually, solar at both sites will generate 1.86 GWh of renewable electricity. Solar at DHE is

more than enough to power its facility; Volvo VNR Electric, yard tractor, and forklift fleet; and Level 2 light-duty vehicle chargers. DHE's investment in onsite solar panels, energy storage, and battery electric vehicles and equipment enables DHE to save more than \$100,000 annually on fuel and energy costs.

Volvo LIGHTS project partner, University of California, Riverside – Bourns College of Engineering Center for Environmental Research & Technology (UCR CE-CERT) used project data to develop algorithms to improve battery electric truck routing and reduce impacts on local communities. Early simulations evaluated the performance of the Volvo VNR Electric using a heavy-duty chassis dynamometer and performed an environmental life cycle assessment (LCA) of its well-to-wheel impact. Results showed that the Volvo VNR Electric saves 65% in total energy, 81% in fossil energy, and provides an emissions benefit of more than 80% reduction in GHG emissions and criteria pollutants/toxics compared to baseline vehicles evaluated in this study.

Battery electric trucks have highly specialized components, such as battery systems, advanced power management software and computing systems, regenerative braking systems, and high-voltage electrical systems, requiring development and implementation of appropriate training modules for the safety of service technicians. Rio Hondo College and San Bernardino Valley College both launched heavy-duty battery electric truck technician training and first/second responder safety programs, which offered a blend of in-person hands-on and online coursework. Volvo provided the colleges with battery electric drivetrains and components from the Volvo VNR Electric, enabling the students to have valuable hands-on learning opportunities. More than 45 students completed these training programs at the two colleges in 2021 and 2022.

Yard tractors and forklifts typically only operate within the proximity of a warehouse facility, thereby impacting the local air quality in the vicinity of the warehouses. During their lifetime, it is estimated that each battery electric forklift and yard tractor is equivalent to removing 30 and 100 gasoline-powered cars from roads for a year, respectively. Battery electric forklifts and yard tractors at DHE and NFI were widely accepted by the equipment operators. Among the many benefits they noted, equipment operators appreciated the quieter, smoother operations. In addition, battery electric forklifts and yard tractors demonstrated lower operating costs and maintenance costs relative to diesel and propane equipment (76% -100% in lower fueling costs and 50-64% in lower maintenance costs).



Figure 25: DHE Replaced 100% of Forklifts at its Ontario Facility with Battery Electric Forklifts

Over the course of the project, the Volvo LIGHTS project won five awards. These included the following: Breathe Southern California 2020 Innovation Award, CALSTART 2020 Blue Sky Award, 2021 Climate Leadership Award – Innovative Partnership, South Coast AQMD's 32nd Annual Clean Air Award for Innovative Clean Air Technology, and Southern California Association of Governments 2022 Sustainability Award for Outstanding Achievement in Sustainability. This is the highest honor category in the program and recognizes projects that best exemplify the core principles of sustainability.

In January 2022, Volvo announced production of an enhanced VNR Electric model, including new vehicle configurations, with an operating range of up to 275 miles, and ability to achieve an 80% charge in 90 minutes for the six-battery truck configuration and 60 minutes for the four-battery truck configuration.

Over the three-year project, the Volvo LIGHTS partners designed and implemented a blueprint for the complete ecosystem needed to successfully deploy commercial battery electric freight trucks. While the Volvo LIGHTS project took place entirely in the South Coast Air Basin, lessons learned from the project can be replicated in any region to support fleets with the transition to zero emission electromobility solutions.

• 200 Vehicle In-Use Emissions Study

On-road HDVs, primarily consisting of freight trucks, transit buses, school buses and refuse trucks, are major sources of criteria pollutant and GHG emissions in the State of California and in the South Coast Air Basin. The South Coast Air Basin is one of only two air basins in the U.S. categorized as being in "extreme nonattainment" of national ambient air quality standards for ozone. Mobile sources including HDVs emit more than 80 percent of the inventory for NOx, which is the primary precursor of ozone. Rapid NOx reduction from HDVs is therefore a critical step towards achieving health-based ozone standards. Over the last 30 years, major progress has been made to reduce HDV emissions of NOx, as well as PM. This has resulted in improved ambient air quality in the South Coast Air Basin and throughout California. In particular, new emission standards for on-road HDVs that took effect in 2007 and 2010, respectively, led to widespread implementation of vehicles equipped with diesel particle filters (DPFs) to control PM emissions, and SCR to control NOx emissions. Moreover, alternative fueled engines certifying to the 0.02 g/bhp-hr have been deployed in the South Coast Air Basin. Even-more-stringent emissions standards will apply to new and in-use heavy-duty diesel engines starting in 2024 and 2027.

To improve understanding of this phenomenon and expand the knowledge base of how in-use HDVs emit in real-world use, CEC, CARB, South Coast AQMD, and SoCalGas cosponsored this 200 Heavy-Duty Vehicle In-Use Emissions Testing Program (Program). Two academic institutions, University of California at Riverside (UCR) and West Virginia University (WVU), were chosen to conduct all testing and analysis under the Program. Collectively, these cosponsors and the two universities designed and implemented one of the world's largest emissions testing programs for HDVs.

The Program's goal was to collect robust and empirical information that better characterizes and helps understand the real-world vehicle activity data, emissions, and fuel usage profiles of HDVs powered by common diesel engine types and technologies, as well as advanced/alternative fuel technologies. The Program aimed to assess emissions reduction efficacy of HDV technologies (engines, drivetrains, fuels and aftertreatment systems) under commonly encountered driving and operational conditions in the South Coast Air Basin. Additionally, vehicle emission measurements collected under this Program provide important new data to improve air quality planning.

The Program was conducted using a phased approach designed to initially collect vehicle operating data across a large pool of test HDVs using portable instruments. This enabled emissions measurements and other types of testing using more reliable and accurate laboratory-grade instruments across a smaller subset of test HDVs. Specifically, the HDV testing was conducted in the following four sequential phases:

- 1) On-road data gathering with Portable Activity Measurement Systems (PAMS) ~227
- 2) On-road emissions testing with Portable Emissions Measurement Systems (PEMS) ~100
- 3) In laboratory (stationary) emissions testing with a chassis dynamometer ~55
- 4) On-road emissions testing with mobile emissions laboratory trailer ~ 10

To comparatively assess emissions from different HDV fuel-technology types while being operated over representative driving cycles, data collected during PAMS testing was used to develop test cycles needed for phase 3 (HDV chassis dynamometer testing) and phase 4 (real-world HDV testing using mobile emissions laboratories on the roads of Southern California).

PAMS data collected by the two university teams represent real-world activity characteristics of the 217 tested HDVs. First, the PAMS activity data collected for each vocation were directly compared to the corresponding existing vocational chassis dynamometer test cycles for various statistical parameters. After initial cycle comparisons, summary cycle statistics such as average speeds, idle periods, average load/power were compared. Differences were observed between known standard test cycles and PAMS data for three HDV vocations: school buses, goods movement trucks, and delivery trucks. To test these HDV types under more representative conditions, new chassis dynamometer test cycles specific to these three categories were developed using a Markov-Chain Drive Cycle Generation Tool developed by WVU.

Using the vehicle test matrix from the PAMS test phase, a subset of 100 HDVs were selected for PEMS testing based on availability, vehicle type, and consideration for the later test phases. The PEMS results are considered "daily" averaged emissions where the HDV was put into revenue service as intended, regardless of the duty cycle. The analysis for Not-to-Exceed (NTE) emissions compliance, based on the provisions in Title 40 Code of Federal Regulations (CFR) Part 1065. was performed. However, the percent activity within the NTE zone was relatively limited. In general, PEMS testing incorporated a diverse set of HDVs, fleet operators, and operating conditions/duty-cycles. The PEMS results showed high variability in NOx emission levels between vocations and technology categories. For example, for all HDVs excluding non-SCR equipped diesel vehicles, daily averaged NOx emissions ranged from 0.009 to 3.616 g/bhp-hr. Furthermore, as can be seen in Figure 1 below, the observed spread varied by vocation with transit bus categories having the lowest variability and delivery trucks the highest. The same variability was observed within each technology category. The high variance observed in the data was expected, given that the emissions were measured with PEMS and averaged over the entire test day, regardless of the vocation and the duty cycle.



Figure 26: Brake-Specific PEMS NOx Daily Averaged Emission Rates; Source: UCR and WVU

CARB staff also analyzed PEMS data for the NG vehicles (29 0.2g NG and 17 0.02g NG vehicles) to inform updates to the NG emission rate assumptions in Emission Factors (EMFAC) 2021. Prior to this study, EMFAC only modeled NG emissions from refuse trucks and transit buses due to the lack of NG data for other truck categories. This provided a more accurate picture of emissions from NG trucks and buses operating in California.

A total of 52 unique HDVs were tested by the two universities on a chassis dynamometer under the Urban Dynamometer Driving Schedule (UDDS) and their respective vocational cycles. As shown in Figure 27, UDDS cycle-averaged results were similar across different HDV categories. This is a markedly different result than the "daily" averages presented in the PEMS section. The UDDS cycle, although not identical, closely resembles the Federal Test Procedure (FTP) certification test cycle, over which an HDV engine's emissions certification value is derived. Therefore, these UDDS data provide good comparison points to understand the NOx emissions in this context. The 0.02g NG transit bus, 0.2g NG school bus, three fuel types of refuse haulers (0.2g diesel, 0.2g renewable diesel (RD), and 0.2g NG), three fuel types of delivery trucks (0.2g diesel, 0.2g RD, and 0.2g NG), and two fuel types of goods movement trucks (0.2g diesel and 0.2g RD) had NOx emission rates higher than the respective certification standards while the remaining categories were at or below their respective levels.



Figure 27: Cycle Average Chassis Dyno NOx Emission Rates under UDDS; Source: UCR and WVU

For vocations with well-established diesel baselines, such as delivery and goods movement categories, the NG HDVs showed significantly lower NOx emissions. The reductions were 26 to 78 percent lower for 0.2g NG HDVs and 97 to 99 percent lower for 0.02g NG HDVs relative to the diesel baselines.

A systemic error of elevated NOx emissions during idle was observed for the 0.02g NG transit bus category in the chassis dynamometer testing. Further analysis found that similar issues also impacted other 0.2g NG and 0.02g NG HDVs. The root cause is related to measurement and reported in detail in the final report. The affected data is removed from the overall data and lessons learned were documented in the final report. Overall, approximately 25 percent of NG HDVs in this study (during both PEMS and Chassis testing) were impacted by this systemic issue.

A total of 10 HDVs were tested on the roads of Southern California. The HDVs in this phase were exclusively Class 8 goods movement trucks capable of legally towing the specially designed mobile emissions lab weighing about 62,000 to 65,000 lbs. Tests were done on four different routes representing typical goods movement driving routes in Southern California. Compared to the emissions data presented

in PEMS and chassis dynamometer testing, NOx and fuel economy were averaged over the entire-test route. Distance- and work-specific NOx emission results are summarized in Figure 28 below.





In contrast to the larger variability during PEMS and chassis testing, route-averaged NOx emissions trends and lower variability of the on-road testing were largely expected. In part, this can be attributed to the smaller data sample as well as the single vocation. Furthermore, fixed routes reduce duty-cycle variability which has a significant impact on the daily-averaged NOx emissions in the PEMS testing. Lastly, the mobile reference lab offers better instrumentation compared to PEMS and provided a fixed curb weight throughout the route.

The Program observed many incidents where HDVs emitted NOx (and other key air pollutants) at higherthan-designed levels during real-world operation. The two test teams classified the likely causes for these HDV NOx emission "outliers" into three distinct categories: 1) Systemic, 2) Rare/Random, or 3) Duty Cycle Related. More details are documented in the final report.

All four co-sponsoring agencies have already conducted knowledge transfer activity for the Program. Specifically:

- CEC leveraged activity data from this study to support development of the Medium- & Heavy-Duty Electric Vehicle Load, Operations, and Deployment Tool (HEVI-LOAD). The inaugural Assembly Bill 2127 Electric Vehicle Charging Infrastructure Assessment report included results from HEVI-LOAD to help characterize load profiles and charging infrastructure needs for on-road medium- and heavy-duty electric vehicles.
- South Coast AQMD is using study data as a key input for its latest 2022 AQMP, which is the regional blueprint for achieving air quality standards in the South Coast Air Basin.
- CARB has published literature highlighting this Program and has incorporated study data into its latest EMFAC2021 model. In parallel, CARB has initiated efforts to further test and study in-use NG HDVs using 0.02g certified engines.
- SoCalGas has conducted various follow up activities, including participating in a maintenance cost study jointly funded by SoCalGas, U.S. Department of Energy, and South Coast AQMD.

The two universities continue to engage in activities to transfer knowledge gained through the Program. As one key example, UCR presented a summary of Program results at the Coordinating Research Council's 32nd annual "Real World Emissions Workshop" (San Diego, March 2022). Additionally, UCR and WVU team members have disseminated Program results through various other key venues that are specifically focused on reducing in-use mobile source emissions and development of emissions factors.

This study builds on these past efforts by investigating in-use emission levels of these NG HDVs in the context of the 0.02 g/bhp-hr NOx certification standard, legacy 0.2 NG HDVs, multiple HDV vocations, and other fuel types. By identifying technology impacts and shortfalls potentially causing higher than expected in-use emissions, as well as areas of exceptional in-use emissions performance, the project is informing further technology development and research opportunities to maximize emission reduction benefits from deploying 0.02 NG HDVs.

Additionally, the comprehensive dataset (and models leveraging the data) can help policymakers better understand real world emissions from California's in-use fleet (approximately one million medium- and heavy-duty vehicles). Decision makers can leverage the study results to determine the best pathways forward for meeting transportation decarbonization and air quality goals. For the on-road fleet, most of those reductions will need to come from HDVs, including newly manufactured units and those already in use. To prepare these new control measures, it is critical that the agency's planners, modelers and rule-development staff have a strong, accurate, up-to-date characterization of NOx emissions from the in-use HDV fleet operated in real-world conditions.

Contract	Contractor	Project Title	Date
Electric / I	Hybrid Electric Technologies a	nd Infrastructure	
16081	Broadband Telcom Power Inc	Provide EV Hardware and Control System at SCAQMD Headquarters Including Installation Support, Warranty and Networking	Apr 2022
17225	Volvo Technology of America LLC	Development and Demonstration of up to 2 Class 8 Battery Electric Drayage Trucks	Apr 2022
17244	Kenworth Truck Company	Development & Demonstration of four Class 8 CNG Hybrid Electric Drayage Trucks	Jun 2022
18277	Velocity Vehicle Group DBA Los Angeles Truck Centers LLC	Southern California Advanced Sustainable Freight Demonstration	Mar 2022
19182†	Los Angeles County	Disburse Donated Mercedes-Benz USA, LLC. Electric Vehicle Chargers	Jan 2022
19183†	Southern California Public Power Authority (SCPPA)	Disburse Donated Mercedes-Benz USA, LLC. Electric Vehicle Chargers	Jan 2022
19190	Daimler Trucks North America LLC	Zero Emission Trucks and EV Infrastructure Project	Jun 2022
19202†	City of Compton	Disburse Donated Mercedes-Benz USA, LLC. Electric Vehicle Chargers	Apr 2022
19250†	Baldemar Caraveo	Disburse Donated Mercedes-Benz USA, LLC. Electric Vehicle Chargers	Apr 2022
19251†	Gary Brotz	Disburse Donated Mercedes-Benz USA, LLC. Electric Vehicle Chargers	Mar 2022
19252†	Hui Min Li Chang	Disburse Donated Mercedes-Benz USA, LLC. Electric Vehicle Chargers	Mar 2022
19253†	Jennifer Chin	Disburse Donated Mercedes-Benz USA, LLC. Electric Vehicle Chargers	Apr 2022
19254†	Liping Huang	Disburse Donated Mercedes-Benz USA, LLC. Electric Vehicle Chargers	Apr 2022
19255†	Ramona Manning	Disburse Donated Mercedes-Benz USA, LLC. Electric Vehicle Chargers	Apr 2022
19256†	Tony Chu	Disburse Donated Mercedes-Benz USA, LLC. Electric Vehicle Chargers	Apr 2022
19278	Volvo Group North America, LLC	Low Impact Green Heavy Transport Solutions (LIGHTS) -Develop and Demonstrate Zero Emissions Heavy-Duty Trucks, Freight Handling Equipment, EV Infrastructure and Renewable Energy	Sept 2022
19279†	Douglas Harold Boehm	Disburse Donated Mercedes-Benz USA, LLC. Electric Vehicle Chargers	Mar 2022
19280†	Emile I. Guirguis	Disburse Donated Mercedes-Benz USA, LLC. Electric Vehicle Chargers	Apr 2022
19281†	Helen Chi	Disburse Donated Mercedes-Benz USA, LLC. Electric Vehicle Chargers	Mar 2022

Table 15: Project	Completed	between January	1&	December	31,	2022
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Contract	Contractor	Project Title	Date
Electric / I	Hybrid Electric Technologies a	nd Infrastructure (cont'd)	
19282†	Hosneara Ahmed	Disburse Donated Mercedes-Benz USA, LLC. Electric Vehicle Chargers	Apr 2022
19283†	Hsuan Hu	Disburse Donated Mercedes-Benz USA, LLC. Electric Vehicle Chargers	Mar 2022
19284†	Jyi Sy Chiu	Disburse Donated Mercedes-Benz USA, LLC. Electric Vehicle Chargers	Apr 2022
19285†	Mercedes Manning	Disburse Donated Mercedes-Benz USA, LLC. Electric Vehicle Chargers	Apr 2022
19286†	Monica Sii	Disburse Donated Mercedes-Benz USA, LLC. Electric Vehicle Chargers	Apr 2022
19287†	Quei-Wen P Yen	Disburse Donated Mercedes-Benz USA, LLC. Electric Vehicle Chargers	Mar 2022
19288†	Rae Marie Johnson	Disburse Donated Mercedes-Benz USA, LLC. Electric Vehicle Chargers	Apr 2022
19289†	Yilong Yang	Disburse Donated Mercedes-Benz USA, LLC. Electric Vehicle Chargers	Apr 2022
19295†	Ivan Garcia	Disburse Donated Mercedes-Benz USA, LLC. Electric Vehicle Chargers	Apr 2022
19296†	Jamei Kun	Disburse Donated Mercedes-Benz USA, LLC. Electric Vehicle Chargers	Apr 2022
19297†	Laizheng Wei	Disburse Donated Mercedes-Benz USA, LLC. Electric Vehicle Chargers	Apr 2022
19438†	Puente Hills Hyundai LLC	Lease Two 2019 Hyundai Kona Evs for Three Years	Jun 2022
20054†	Puente Hills Hyundai LLC	Lease One 2019 Hyundai Kona EV for Three Years	Aug 2022
20124	Volvo Technology of America LLC	Develop & Demonstrate Battery-Electric Excavator & Wheel Loader	Sept 2022
20125	Roush Cleantech LLC	Develop and Demonstrate Battery Electric Medium-Duty Truck	Mar 2022
20129†	San Bernardino County	Disburse Donated Mercedes-Benz USA, LLC. Electric Vehicle Chargers	Feb 2022
Engine Sy	stems / Technologies		
20158	University of California Riverside	OnBoard Nox and PM Measurement Method	Dec 2022
Fuel / Emi	ssion Studies		
17276	University of California Riverside	Development of ECO-ITS Strategies for Cargo Containers	Jan 2022

Table 15:	Projects	Completed	between J	January 1	& 1	December	31, 2022	(cont'd)
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Contract	Contractor	Project Title	Date					
Fuel / Emis	Fuel / Emission Studies (cont'd)							
17286	University of California Riverside	In-Use Emissions Testing and Fuel Usage Profile of On-Road Heavy-Duty Vehicles	Mar 2022					
22131	Fresno Council of Governments	Conduct California Inland Port Feasibility Study Phase Two	Dec 2022					
Hydrogen	/ Mobile Fuel Cell Technologies	and Infrastructure						
17059	CALSTART Inc	Develop and Demonstrate Fuel Cell Extended Range Powertrain for Parcel Delivery Trucks	May 2022					
18150†	California Department of Food and Agriculture, Division of Measurement Standards	Conduct Hydrogen Station Site Evaluations for Hydrogen Station Equipment Performance	Feb 2022					
19248†	Tustin Hyundai	Three Year Lease of 2019 Fuel Cell Hyundai Nexo	Mar 2022					
20169†	Port of Los Angeles	Develop and Demonstrate Near-Zero and Zero Emissions Vehicles and Equipment at the Ports	Nov 2022					
23071	Frontier Energy Inc	Participate in California Fuel Cell Partnership (CaFCP) for Calendar Year 2022	Dec 2022					
Fueling In	frastructure and Deployment (N	G / RNG)						
21099†	CR & R INC	Renewable Natural Gas Production and Vehicle Demonstration Project	Sept 2022					
Technolog	y Assessment and Transfer / O	utreach						
16262	University of California Davis	Support Sustainable Transportation Energy Pathways (STEPs) 2015-2018 Program	Jan 2022					
17097†	Gladstein, Neandross & Associates LLC	Technical Assistance with Alt Fuels and Fueling Infrastructure, Emissions Analysis and On-Road Sources	Jun 2022					
22032†	Southern California Chinese- American Environmental Protection Association	Cosponsor the 2021 Southern California Chinese- American Environmental Protection Association 30- Year Anniversary and Annual Convention	May 2022					
22128†	University of California Riverside	Cosponsor the 2022 Portable Emissions Measurement Systems Conference	Aug 2022					
22134†	Coordinating Research Council Inc	Cosponsor the 31st CRC Real World Emissions Workshop	Jun 2022					
22282†	University of California Riverside	Cosponsor CE-CERT's 30th Anniversary	Sept 2022					
22286†	Gladstein, Neandross & Associates LLC	Cosponsor ACT Expo 2022	May 2022					
22288†	Gladstein, Neandross & Associates LLC	Cosponsor 2022 California Hydrogen Leadership Summit	Jun 2022					
22373†	Community Partners for the VerdeXchange Institute Project	Cosponsor 15th Annual VerdeXchange Conference	Oct 2022					
22388†	Sustain SoCal	Cosponsor 2022 Driving Mobility 9	Jul 2022					

Table 15: Projects Completed between January 1 & December 31, 2022 (cont'd)

Contract	Contractor	Project Title	Date
	Technology Assessment and Transfer / Outreach (cont'd)		
23092†	Platia Productions	Cosponsor the 2022 AltCar Expo and Conference	Nov 2022

Table 15: Projects Completed between January 1 & December 31, 2022 (cont'd)

[†]Two-page summary reports (as provided in Appendix C) are not required for level-of-effort technical assistance contracts, leases or cosponsorships; or it was unavailable at time of printing this report.

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CLEAN FUELS PROGRAM

2023 Plan Update

In 1988, SB 2297 (Rosenthal) was signed into law (Chapter 1546) establishing South Coast AQMD's Clean Fuels Program and reaffirming the existence of the TAO to administer the Clean Fuels Program. The funding source for the Clean Fuels Program is a \$1 motor vehicle registration surcharge that was originally approved for a limited five-year period, but legislation eventually extended both the Program and surcharge indefinitely. The Clean Fuels Program has evolved over the years but continues to fund a broad array of technologies spanning near- and long-term implementation. Similarly, planning will remain an ongoing activity for the Clean Fuels Program, which must remain flexible to address evolving technologies as well capitalize on the latest progress in technologies, research areas and data.

Every year, South Coast AQMD re-evaluates the Clean Fuels Program to develop a Plan Update based on reassessment of clean fuel technologies and direction of the South Coast AQMD Board. This Plan Update for CY 2023 targets several projects to achieve near-term emission reductions needed for the South Coast to meet health-based NAAQS.

Overall Strategy

The overall strategy of TAO's Clean Fuels Program is based on emission reduction technology needs identified through the AQMP process and South Coast AQMD Board directives to protect the health of the approximately 18 million residents (nearly half the population of California) in the Basin. The 2022 AQMP, which was released in May 2022 and adopted in December 2022 by the South Coast AQMD Board, is the long-term regional "blueprint" that relies on fair-share emission reductions from all jurisdictional levels (e.g., federal, state and local). The 2022 AQMP is composed of stationary and mobile source emission reductions from traditional regulatory control measures, incentive-based programs, projected co-benefits from climate change programs, mobile source strategies and reductions from federally regulated sources (e.g., aircraft, locomotives and ocean-going vessels). CARB's Proposed 2022 State SIP Strategy included a revised mobile source strategy required for the Basin to meet the 2015 8-hour ozone standard of 70 ppb by 2037. The Proposed 2022 State SIP Strategy for both mobile and stationary sources require rapid deployment of zero emission technologies to achieve air quality targets.

The emission reductions and control measures in the 2022 AQMP rely on commercial adoption of a mix of currently available technologies as well as the expedited development and commercialization of clean fuel mobile and stationary advanced technologies in the Basin to achieve air quality standards. The 2022 AQMP identifies that 83 percent NOx emission reductions from the 2018 level and 67 percent additional reductions in 2037 beyond already adopted regulations and programs are necessary to meet the 2015 8-hour ozone standard by 2037. The majority of NOx reductions must come from mobile sources, including both on- and off-road sources. Notably, South Coast AQMD is currently only one of two regions in the nation designated as an extreme nonattainment area of the 2015 8-hour ozone NAAQS (the other region is California's San Joaquin Valley).

The 2022 AQMP shows the need for economy-wide transition to zero emission technologies where feasible, and low NOx emission technologies in other applications.

Current state efforts in developing regulations for on- and off-road vehicles and stationary equipment are expected to significantly reduce NOx emissions, but additional measures are needed to achieve the 2023, 2031, and 2037 ozone attainment deadlines. To support fleet turnover the Clean Fuels Program continues to emphasize commercialization and deployment of HD low NOx engines with alternative fuel sources and

large scale deployment of zero emission HD trucks like the Joint Electric Truck Scaling Initiative (JETSI) Pilot Project.¹

While zero emission technologies, battery and fuel cell electric vehicles are making progress or becoming commercialized, the number of zero emission trucks needed to be deployed in time to meet the 2031 and 2037 ozone standards will be difficult to achieve. To enable widespread deployments of battery electric trucks and achieve the needed decline in prices from scale production, several challenges need to be addressed. These challenges include providing an easier process for fleets and independent owner operators to purchase battery electric trucks and not have to worry about difficulties with installing charging infrastructure, charging dwell times, and ability to match duty cycles with diesel trucks. Projects such as the JETSI 100 BET deployment and EPRI Electric Truck Research and Utilization Center (eTRUC) project to development and demonstrate large battery electric truck deployment with higher powered chargers. These projects will implement two 500 kW and up to 1 MW charging sites and will focus on addressing the complexity of integrating 50 battery electric trucks.

Within the South Coast Basin, large fleets are starting to purchase BETs with near term delivery dates. Several fleets have trucks being delivered in 2023 but unfortunately the installation of infrastructure lags the delivery of the trucks. This difficulty of adding infrastructure to charge BETs is often a hindrance that many fleets have chosen not to tackle and simply have reverted to purchasing new diesel trucks. The infrastructure challenge is something that public truck charging stations alongside technology solutions will help mitigate the frustrations with purchasing BETs. Unfortunately in the South Coast Air Basin the infrastructure for public truck charging does not exist but many companies have efforts in place to install infrastructure. The best design and business practices for installing public infrastructure will be something that South Coast AQMD staff will closely monitor.

Diesel truck emissions are the largest NOx emission category in the South Coast Air Basin. While CARB has the proposed Advanced Clean Fleets regulation and existing truck regulations there is a need to tackle interstate truck emissions. On June 3, 2016, South Coast AQMD petitioned U.S. EPA to initiate rulemaking for a lower national NOx standard for on-road HD engines to achieve additional mobile source emission reductions. The national NOx standard for on-road HD vehicles is estimated to result in 70 to 90 percent NOx emission reductions from this source category in 14 to 25 years, respectively. CARB estimates that 60 percent of total on-road HD vehicle miles traveled in the Basin are from vehicles purchased outside of California, which points to the need for a more stringent federal as well as state standard for on-road HD vehicles.

U.S. EPA has acknowledged the need for additional NOx reductions through a harmonized and comprehensive national NOx reduction program for HD on-highway engines and vehicles. On November 13, 2018, U.S. EPA announced the Cleaner Truck Initiative, and on January 6, 2020, they issued an Advance Notice of Proposed Rule to reduce NOx emissions from on-road HD trucks. After some delay, in March 2022, U.S. EPA issued the Notice of Proposed Rule Making (NPRM) and finalized the rule in December 2022. Numerous organizations, including South Coast AQMD, submitted comments to U.S. EPA urging the adoption of the most stringent rule as fast as feasible. South Coast AQMD comments suggested that U.S. EPA should align with the already adopted CARB Omnibus regulation. The CARB regulation imposes two-phase NOx standards starting in model year 2024 with the ultimate standard of 0.02 g/bhp-hr in 2027, 90% below today's NOx standard, while the U.S. EPA proposal considers three NOx options of 0.05, 0.035 and 0.02 g/bhp-hr in 2027. Despite these efforts, the implementation and effectiveness of U.S. EPA and CARB regulations are unable to help South Coast AQMD meet its 2023 federal ozone attainment deadline

¹ The project, known as Joint Electric Truck Scaling Initiative, or JETSI, will be one the largest commercial deployment of battery-electric trucks in North America to date, helping to significantly increase the number of zero-emission HD trucks available for goods movement while achieving necessary emission reductions. This is the first battery-electric truck project jointly financed by CARB and the CEC, and the largest investment of its kind.

of 80ppb ozone. Given that the Basin must attain the 70-ppb ozone NAAQS by 2037, a new on-road HD engine NOx emission standard is critical given the time needed for OEMs to develop and produce compliant vehicles, and for national fleet turnover to occur.

Figure 29 shows the difference in NOx reductions in the Basin from on-road HD trucks under three scenarios: baseline (no change in the NOx standard) in blue, a 0.02 g/bhp-hr NOx standard adopted only in California in yellow, and lastly, a federal 0.02 g/bhp-hr NOx standard in orange. Although a single 0.02 g/bhp-hr standard no longer reflects the current adopted and proposed options of NOx standards, Figure 29 is still relevant because it shows the significant contribution by federally regulated trucks to the Basin NOx inventory as well as the relatively long turnover time from when the regulation is first adopted. (e.g. 10 years for 50% NOx reduction and 20 years for 80% NOx reduction). These two facts support the urgency for the Basin to have a more stringent nationwide NOx regulation as soon as feasible.



Figure 29: NOx Reduction Comparison: No New Regulations vs Low NOx Standard in California only vs National Standard

South Coast AQMD completed MATES V in August 2021 to update the emissions inventory of toxic air contaminants, as well as modeling to characterize risks, including measurements and analysis of ultrafine particle concentrations typically emitted or subsequently formed from vehicle exhaust. Findings from the MATES V report showed that air toxics cancer risk based on modeling data has decreased by over 50% since MATES IV, with an average multi-pathway air toxics cancer risk at 454-in-a-million. The highest risk locations are at LAX, the Ports, and along goods movement and transportation corridors. Diesel PM continues to be the major contributor accounting for over 60% of the overall air toxics cancer risk. For the first time, chronic non-cancer risk was estimated with a chronic hazard index of 5.9 across the 10 stations in the MATES V study. U.S. EPA approved the use of the CARB EMFAC 2017 model for on-road vehicles for use in the State Implementation Plan and transportation conformity analyses, which assesses emissions from on-road vehicles including cars, trucks and buses. The off-road model, which assesses emissions from off-road equipment such as yard tractors, top handlers, and rubber tire gantry cranes, is being replaced by category-specific methods and inventory models developed for specific regulatory support projects.

A key strategy of the Clean Fuels Program, which allows significant leveraging of Clean Fuels funding (historically \$4 to every \$1 of Clean Fuels funds), is its public-private partnerships with private industry, technology developers, academic institutions, research institutions and government agencies. Since 1988, the Clean Fuels Program provided more than \$250 million toward projects nearing \$1.6 billion. Leveraging of the Clean Fuels Fund is based on actual executed contracts and total project costs from the prior year's Clean Fuels Annual Report and Plan Update. In 1998, South Coast AQMD's Carl Moyer Program was launched. The two programs produce a unique synergy, with the Carl Moyer Program (and other subsequent incentive programs) providing the necessary funding to push market penetration of commercial technologies partially developed and demonstrated by the Clean Fuels Program. This synergy enables South Coast AQMD to act as a leader in technology development and commercialization efforts targeting reduction of criteria pollutants. Since the Carl Moyer Program began, South Coast AQMD has begun implemented other incentive programs (i.e., Volkswagen Mitigation, Proposition 1B-Goods Movement, and Community Air Protection Program), with cumulative funding of over \$200 million in 2022. There is \$15.6 million in Year 3 AB 617 Community Air Protection Program (CAPP) incentive funding reserved for zero emission trucks in the East Los Angeles/Boyle Heights/West Commerce, Southeast Los Angeles, San Bernardino/Muscoy, and Wilmington/Carson/West Long Beach AB 617 communities, all of which identified zero emission trucks as a funding priority in their CERPs. The 2022 AQMP also included control measures to develop an indirect source regulation for the San Pedro Ports and strengthen fleet rules to take advantage of incentives to further accelerate emission reductions.

Despite several current California incentive programs to deploy cleaner technologies and offset the higher procurement costs of cleaner technologies, significant additional resources and technology development is needed to achieve the NAAQS for this region. There are several emerging key technologies that are discussed in detail later that will provide NOx and GHG co-benefits while requiring less vehicle purchase incentives.

As technologies move towards commercialization, such as HD fuel cell trucks, the Clean Fuels Program has partnered with large OEMs, such as Daimler and Volvo to deploy these vehicles. These OEM partnerships allow the Clean Fuels Program to leverage their research, design, engineering, manufacturing, sales and service, and financial resources to move advanced technologies from the laboratories to the field and into customers' hands. The OEMs have the resources to develop advanced technology vehicles such as battery electric and fuel cell powertrains, manufacture in large quantities, and utilize their distribution networks to support sales across the state.

Figure 30 outlines a developmental progression for technology demonstration and deployment projects funded by the Clean Fuels Program and the relationship incentive programs administered by TAO play in that progression. The Clean Fuels Program funds various stages of technology projects, typically ranging from Technology Readiness Levels 3-8, to provide a portfolio of technology choices and achieve near-term and long-term emission reduction benefits.



Figure 30: Stages of Clean Fuels Program Funding

Many technologies that address the Basin's needed NOx reductions align with the state's GHG reduction efforts. U.S. EPA (2022)² noted that the transportation sector contributed 36 percent of overall GHG emissions. Due to these co-benefits, South Coast AQMD has been successful in partnering with the state and public/private partnerships to leverage its Clean Fuels funding extensively.

Program and Funding Scope

This Draft 2023 Plan Update includes projects to research, develop, demonstrate and advance deployment a variety of technologies, from near-term to long-term, that are intended to address the following challenges:

- 1) implementation of new and changing federal requirements, such as the more stringent federal 8-hour ozone standard of 70 ppb promulgated by U.S. EPA in late 2015;
- 2) implementation of new technology measures including accelerated development of technologies nearing commercialization and deployment of commercially ready technologies; and
- 3) continued development of near-term cost-effective approaches and long-term technology development.

The overall scope of projects in the Draft 2023 Plan Update remains sufficiently flexible to address new technologies and control measures identified in the 2022 AQMP, dynamically evolving technologies, and new research and data. The latter includes findings from MATES V and revised emission inventories from EMFAC 2017.

Within the core technology areas defined later in this section, project objectives range from near term to long term. The Clean Fuels Program concentrates on supporting development, demonstration and technology commercialization and deployment efforts rather than fundamental research. The nature and typical time-to-product for Clean Fuels Program projects are described below, from near term to long term.

- *Deployment* or technology *commercialization* efforts focus on increasing utilization of clean technologies in conventional applications, promising immediate and growing emission reduction benefits. These are expected to result in commercially available products as early as 2022, including obtaining required certifications from CARB and EPA. It is often difficult to transition users to non-traditional technologies or fuels due to higher incremental costs or required changes to user behavior, even if these technologies or fuels offer significant benefits. In addition to the government's role to reduce risk by funding technology development and testing, it is also necessary to offset incremental costs through incentives to accelerate the use of cleaner technologies. The increased use of these clean fuel technologies also depends on efforts to increase stakeholder confidence that these technologies are viable and cost-effective in the long term.
- Several technologies ready to begin field *demonstration* in 2023 are expected to result in commercially available products in the 2024-2027 timeframe, and technologies being demonstrated generally are in the process of being verified or certified by CARB and EPA. Field demonstrations provide a controlled environment for manufacturers to gain real-world experience and address end-user issues that arise prior to the commercial introduction of technologies. Field demonstrations provide real-world evidence of performance to allay any concerns by early adopters as well as preliminary emissions reduction potential.
- Finally, successful technology *development* projects are expected to begin as early as late 2023 with durations of two or more years. Additionally, field demonstrations to gain long term verification of performance may also be needed prior to commercialization. Certification and

² U.S. Greenhouse Gas Emissions and Sinks 1990-2020. 2022. <u>https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions</u>

commercialization would be expected to follow. Projects may involve the development of emerging technologies that are considered long-term and higher risk, but with significant emission reductions potential. Commercial introduction of such long-term technologies would not be expected until 2028 or later.

Core Technologies

The following technologies have been identified as having the greatest potential to enable the emission reductions needed to achieve the NAAQS and thus form the core of the Clean Fuels Program.

The goal is to fund viable projects in all categories. However, not all project categories will be funded in 2023 due to funding limitations, and the focus will remain on control measures identified in the 2022 AQMP, with consideration for availability of suitable projects. The project categories identified below are appropriate within the context of the current air quality challenges and opportunities for technology advancement.

Within these areas, there is significant opportunity for South Coast AQMD to leverage its funds with other funding partners to expedite the demonstration and deployment of clean technologies in the Basin. A concerted effort is continually made to form public private partnerships to maximize leveraging of Clean Fuels funds.

Several of the core technologies discussed below are synergistic. For example, a HD vehicle such as a transit bus or drayage truck, may utilize a hybrid electric drive train with a fuel cell operating on hydrogen fuel or an internal combustion engine (ICE) operating on an alternative fuel as a range extender. Elements of the core hybrid electric system may overlap. Similarly, a hydrogen powered engine may utilize a natural gas HD vehicle that also combusts gaseous fuel and requires a compressed tank storage system; elements of the similar combustion and fuel storage may overlap.

Priorities may shift during the year in keeping with the diverse and flexible technology portfolio approach or to leverage opportunities such as cost-sharing by the state or federal government or other entities. Priorities may also shift to address specific technology issues which affect residents within the South Coast AQMD's jurisdiction. For example, AB 617, signed by the Governor in 2017, implements actions and provides incentive funding for priorities designated in CERPs by six AB 617 communities within the South Coast region, and additional flexibility will be needed to develop new strategies and technologies for those disadvantaged communities.

The following ten core technology areas are listed by current South Coast AQMD priorities based on the goals for 2023.

Hydrogen / Mobile Fuel Cell Technologies

South Coast AQMD supports hydrogen fuel cell technologies as one option in the technology portfolio; the agency is dedicated to assisting federal and state government programs to deploy LD, medium, and HD fuel cell electric vehicles (FCV).

Calendar Years 2015-2019 were a critical timeframe for the introduction of LD hydrogen FCVs. In 2014, Hyundai introduced the Tucson FCV for lease. In 2015, Toyota commercialized the Mirai, the first FCV available to consumers for purchase. In December 2016, Honda started commercial lease of its 2017 Honda Clarity FCV. The 2019 Hyundai Nexo was the second FCV offered for sale and lease in California. In the past, Clean Fuels funding has gone towards leases for LD FCVs as part of its technology outreach efforts for conferences and events in disadvantaged communities.

Fuel cells can play a role in MD and HD applications where battery recharge time and vehicle range, although improving, is insufficient to meet fleet operational requirements. The California Fuel Cell Partnership's (CaFCP's) 2030 Vision³ released in July 2018 provides a broader framework for the earlier *MD and HD Fuel Cell Electric Truck Action Plan* completed in October 2016, which focused on Class 4 parcel delivery trucks and Class 8 drayage trucks with infrastructure development and established metrics for measuring progress. The CaFCP's *HD Vision* released in July 2021 describes 70,000 fuel cell electric trucks supported by 200 HD hydrogen stations operating in California and beyond.

Another player in the HD fuel cell truck space is Cummins (CWI) who recently purchased Hydrogenics and Efficient Drivetrains, Inc. (EDI) to develop fuel cell power trains. CWI is currently working on the ZECT 2 and a CEC/South Coast AQMD project to develop and demonstrate fuel cell drayage trucks with next generation fuel cell module - easy to package system design and other innovative integration strategies. In 2022, Volvo and Daimler also announced a joint venture to develop fuel cell powered trucks. South Coast AQMD has created many alliances with large OEMs and will continue to fund projects with these OEMs over the next year to develop HD fuel cell trucks. In June 2021, South Coast AQMD recognized \$500k from U.S. EPA to demonstrate two Hyundai Class 8 fuel cell trucks with a range of up to 500 miles for regional and long-haul operations.

The CaFCP *Fuel Cell Electric Bus Road Map* released in September 2019 supports implementation of CARB's Innovative Clean Transit and Zero Emission Airport Shuttle regulations. As part of the \$46 million Fuel Cell Electric Bus Commercialization Consortium project, for which the Clean Fuels Fund contributed \$1 million, Center for Transportation and the Environment (CTE), in partnership with New Flyer, Trillium, and OCTA, wrapped up its deployment of ten 40-foot New Flyer XHE40 fuel cell transit buses and installed a liquid storage hydrogen station capable of fueling up to 50 fuel cell transit buses at OCTA in February 2021. This project also deployed 10 fuel cell transit buses and a hydrogen station upgrade at Alameda-Contra Costa Transit District (AC Transit). The ten fuel cell buses at OCTA accumulated almost 300,000 miles of revenue service during the demonstration with an overall uptime of 67%.

SunLine Transit Agency (SunLine) received a U.S. EPA Targeted Airshed grant in June 2020 to deploy five fuel cell transit buses, in addition to their existing fleet of 26 fuel cell and four battery electric transit buses as well as a recently upgraded 900 kg/day hydrogen station capable of supporting up to 30 fuel cell transit buses. SunLine has accepted and commissioned one of the buses into its fleet. In August 2021, the Clean Fuels Program committed \$531,166 to a \$2 million project to develop and demonstrate two MD fuel cell transit buses at SunLine. Additional outlets for hydrogen fueling infrastructure for these buses will also be developed.

In March 2021, Frontier Energy was awarded \$25,000 to perform a high-flow bus fueling protocol development project as a part of the DOE H2@Scale program with partners including SoCalGas, Shell, and NREL. NREL was also awarded \$25,000 for California HD Infrastructure Research, and UC Davis was awarded \$50,000 for California Hydrogen Systems Analysis. These projects aim to fill in the gaps between LD and HD hydrogen fueling infrastructure to encourage the expansion of hydrogen fueling infrastructure as more state and federal policies are developed or passed. In addition, as more fuel cell MHDVs are commercialized, this research becomes more pivotal to ensuring sufficient hydrogen fueling stations are available.

The Draft 2023 Plan Update identifies key opportunities while clearly leading the way for pre-commercial demonstrations of OEM FCVs. Future projects may include the following:

³ CaFCP's *The California Fuel Cell Revolution, A Vision For Advancing Economic, Social, and Environmental Priorities* (Vision 2030), September 4, 2018.

- development and demonstration of cross-cutting fuel cell applications (e.g. scalable and costeffective fuel cell powertrain components);
- development and demonstration of fuel cells in off-road, locomotive and commercial harbor craft applications such as port cargo handling equipment, switcher locomotives and tugs;
- demonstration of FCVs in controlled fleet applications in the Air Basin;
- coordination with FCV OEMs to develop an understanding of their progress in overcoming barriers to economically competitive FCVs and develop realistic scenarios for large scale introduction;
- development and implementation of strategies with government and industry to build increasing scale and renewable content in the hydrogen market including certification and testing of hydrogen as a commercial fuel to create a business case for investments as well as critical assessments of market risks to guide and protect these investments; and
- repurposing fuel cells and hydrogen tanks for other secondary energy production and storage uses, as well as reusing fuel cells and hydrogen tanks, and approaches to recycle catalysts and other metals.

Electric / Hybrid Technologies

To meet the NAAQS, a primary focus continues to be on zero and near-zero emission technologies. A key strategy to achieve these goals is wide-scale transportation electrification. South Coast AQMD supports projects to address concerns regarding cost, battery life, all-electric range, and OEM commitment. Integrated transportation systems can encourage further emission reductions by matching EVs to typical consumer and fleet duty cycles and demands including drayage, short regional haul, and last mile delivery. Class 8 battery electric trucks from Daimler and Volvo are now CARB and U.S. EPA certified, commercially available, and eligible for incentives from Hybrid and Zero Emission Truck and Bus Voucher Incentive Project (HVIP), Carl Moyer, Prop 1B, VW Settlement, Voucher Incentive Program, and CAPP funds.

Development and deployment of zero emission goods movement and freight handling technologies remains one of the top priorities for the South Coast AQMD to support balanced and sustainable growth at the San Pedro Bay Ports as well as freight/logistics facilities throughout the Basin. The South Coast AQMD continues to work with our regional partners, including the San Pedro Bay Ports, Southern California Association of Governments (SCAG) and Los Angeles County Metropolitan Transportation Authority (Metro) to demonstrate and deploy technologies that are technically feasible, cost-effective with the assistance of incentives and/or grant funding, and beneficial to all stakeholders. Specific technologies include zero emission trucks/freight handling equipment (battery and/or fuel cell), or plug-in hybrid powertrains, locomotives with hydrogen fuel cells, hybrid and battery electric technologies, and linear synchronous motors for locomotives and trucks. Additionally, the California Sustainable Freight Action Plan outlines a blueprint to transition the state's freight system to an environmentally cleaner, more efficient and economical system, including a call for a zero and near-zero emission vehicle pilot project in Southern California. The City of Los Angeles Zero Emission 2028 Roadmap 2.0 in preparation for the 2028 Olympics corroborates this effort, calling for an additional 25% each in GHG and criteria pollutant reductions. The San Pedro Bay Ports Clean Air Action Plan Update (2022) calls for zero emissions cargo handling equipment by 2030 and zero emission drayage trucks by 2035, respectively.

HD hybrid vehicles have historically been optimized for fuel economy, new generation hybrid powertrains that use a systems approach for co-optimizing both criteria emissions and fuel economy could provide another technology pathway to meet the air quality goals of the Basin. These hybrid systems in both plugin and non-plug-in configurations, focus on electrifying key engine subsystems and energy recovery to provide engine assistance during transient operations. Furthermore, the availability of additional electrical power such as 48-volt systems could allow for electric aftertreatment heaters for better transient control through thermo-management and therefore better NOx control at a reduced cost compared to traditional aftertreatment systems. South Coast AQMD views these next generation hybrid powertrains as capable of being deployed without the need for incentives, by providing fuel economy benefits which could provide another potential cost-effective pathway for near term NOx emission reductions. Furthermore, CARB's Advanced Clean Trucks (passed June 2020) and Advanced Clean Fleets (Board consideration October 2022) regulations allow sales of plug-in hybrid vehicles capable of zero-emission operation as a compliance pathway for meeting the manufacturer and fleet zero emission vehicle mandate.

New, ongoing, and recently completed zero emission battery electric technology projects include: 1) Joint Electric Truck Scaling Initiative (JETSI) Pilot Project with deployment of 100 Daimler and Volvo Class 8 battery electric trucks for drayage and regional haul at NFI and Schneider funded by \$16 million from CARB, \$11 million from CEC, \$8 million from Mobile Source Air Pollution Reduction Review Committee (MSRC), \$5.5 million from the Clean Fuels Fund, \$5 million from SCE, and \$3 million from the San Pedro Bay Ports; 2) Switch-On Project with deployment of 70 Volvo Class 8 battery electric drayage/freight trucks at eight fleets funded with \$20 million from the U.S .EPA Targeted Airshed grant; 3) deployment of two additional Class 8 battery electric drayage trucks as part of the CARB Volvo LIGHTS project through a \$500,000 U.S. EPA Clean Air Technology Initiative grant; 4) deployment of two Volvo Class 8 battery electric trucks at Producers Dairy in Fresno as part of the CARB Greenhouse Gas Reduction Fund Zero Emission Drayage Truck Project; 5) Daimler Customer Experience project to demonstrate eight Class 6 and 8 battery electric trucks and fast charging infrastructure funded with \$1 million by the Clean Fuels Fund; and 6) commercial deployment of 35 Daimler Class 6 and Class 8 battery electric trucks funded by \$4 million from the U.S. EPA Targeted Airshed grant.

Opportunities to develop and demonstrate technologies that could enable expedited widespread use of precommercial and commercial battery electric and hybrid-electric vehicles in the Basin include the following:

- demonstration of battery electric and fuel cell electric technologies for cargo handling and container transport operations, e.g., HD battery electric or plug-in electric drayage trucks with all electric range;
- large scale deployments of commercial battery electric vehicles (i.e. 50 or more vehicles) to prove feasibility and development of fleet tools to assist in successful operation for drayage and short regional haul operations;
- demonstration of MD battery electric and fuel cell electric vehicles in package delivery or last mile operations, e.g., battery electric walk-in vans with fuel cell or plug-in hybrid range extender;
- development and demonstration of battery and fuel cell electric off-road equipment; e.g. battery electric off-road construction equipment, yard tractors, or top-handler with wireless charger;
- development and demonstration of hybrid and plug-in hybrid vehicle technology;
- development of hybrid vehicles and technologies for off-road equipment;
- demonstration of niche application battery and fuel cell electric MD and HD vehicles, including school and transit buses and refuse trucks with short-distance fixed service routes;
- demonstration of integrated programs that make best use of electric drive vehicles through interconnectivity between fleets of shared electric vehicles and mass transit, and rideshare services that cater to multiple users and residents in disadvantaged communities;
- development of eco-friendly intelligent transportation system (ITS), geofencing, and Eco-Drive strategies to maximize emission reductions and energy consumption by operating in zero emission mode when driving in disadvantaged communities; demonstrations that encourage electric drive

vehicle deployment in autonomous applications; optimized load-balancing strategies and improved characterization of in-duty drayage cycles and modeling/simulations for cargo freight and market analysis for zero emission HD trucks;

- development of higher density battery technologies for use in HD vehicles;
- repurposing EV batteries for other or second life energy storage uses, as well as reusing battery packs and approaches to recycle lithium, cobalt and other metals; and
- development of a methodology to increase capability to accept fast-charging and resultant life cycle and demonstration of effects of fast-charging on battery life and vehicle performance.

Zero Emission Infrastructure

Significant demonstration and commercialization efforts for zero emission infrastructure are funded by the Clean Fuels Program as well as other local, state and federal programs. Zero emission infrastructure has become an increasing focus of the Clean Fuels Program in order to support large scale demonstration and deployment of hydrogen fuel cell and battery electric vehicles and equipment. This category is being presented separately from Hydrogen/Fuel Cell and Electric/Hybrid Technologies for the first time in the Draft 2023 Plan Update.

Hydrogen Infrastructure

With lead times on retail level hydrogen fueling stations requiring 18-36 months for permitting, construction and commissioning, plans for future stations need to be implemented. While coordination with the California Division of Measurement Standards (DMS) to establish standardized measurements for hydrogen fueling started in 2014, additional efforts to offer hydrogen for sale in higher volumes are still needed specifically with upcoming ZE vehicle and infrastructure policy deadlines on a national and state level. Moreover, CARB's Low Carbon Fuel Standard (LCFS) regulation provides incentives for producing and dispensing the low carbon intensity (CI) hydrogen for FCVs, enabling station operators to remain solvent and cover part of their operational cost and consequently reducing the dollar per kilogram cost of hydrogen for consumers. Lastly, a deliberate and coordinated effort is necessary to ensure that hydrogen supply, and fueling reliability matching those of existing gasoline and diesel fueling stations. The current network of hydrogen fueling stations to support the current number of LD FCVs on the road and future MHD FCVs is insufficient, and supply of hydrogen and additional hydrogen production, specifically the carbon-neutral hydrogen, continue to be challenges that need to be addressed.

In 2019, the Clean Fuels Program awarded \$1.2 million to Equilon (Shell) as part of the H2Freight project for a new 1,000 kg/day HD hydrogen fueling station using hydrogen produced by a new tri-generation fuel cell on POLB property leased by Toyota. The station was commissioned in 2021 and continues its soft open operation with ongoing data collection and analysis. As part of the \$83 million Shore-to-Store project led by the POLA, for which the Clean Fuels Program committed \$1 million, Toyota and Kenworth deployed 10 Class 8 fuel cell trucks and Equilon (Shell) built two large capacity hydrogen fueling stations in Wilmington and Ontario. Kenworth leveraged the development on the fuel cell truck demonstrated in South Coast AQMD's ZECT 2 project and integrated Toyota's fuel cells into the Kenworth trucks. These fuel cell trucks are deployed at fleets including UPS, Total Transportation Services, Southern Counties Express, and Toyota Logistics Services at the Ports of Los Angeles and Port Hueneme, as well as other fleets in Riverside County. Most of the fuel cell trucks completed the demonstration phase. Also, the Ontario and Wilmington stations are commissioned and NREL continues to collect and analyze the data.

New, ongoing, and recently completed hydrogen infrastructure projects include: 1) POLA Shore to Store project with deployment of two 400 kg/day hydrogen fueling stations in Wilmington and Ontario for HD

fuel cell trucks and 2) retrofit of existing hydrogen infrastructure stations to accommodate HD fuel cell trucks by First Element to demonstration Hyundai Class 8 fuel cell trucks.

Electric Charging Infrastructure

The challenges of installing charging infrastructure include costs, permitting, UL certification of equipment, utility interconnection requirements and the ability of utilities to upgrade power to specific fleet sites, all of which need to be better understood and streamlined.

Continued technology advancements in LD infrastructure have facilitated development of corresponding codes and standards for MD and HD infrastructure including UL certification of the CCS2 connector for the Volvo LIGHTS battery electric truck demonstration project. Additionally, SCE's Charge Ready Transport Program and Los Angeles Department of Water and Power's (LADWP) Commercial EV Charging Station Rebate Program includes funding for MD and HD vehicles and infrastructure.

LD EV charging infrastructure is commercially available and MD and HD charging infrastructure is becoming commercially available. The CCS1 connector continues to be the standard connector for MD and HD charging up to 350 kW direct current (DC). Charging Interface Initiative (CharIN) released a Megawatt Charging System (MCS) connector in June 2022 for Class 6 -8 EVs designed for a maximum current of 3,000 A at up to 1,250V for charging up to 3.75 MW DC. Currently there are no MD or HD EVs capable of accepting charging above 350 kW DC. There is also an agreed upon SAE J3068 connector standard for single-phase and three-phase AC charging. Challenges and costs of installing MD and HD charging infrastructure increase exponentially compared to LD infrastructure. Each year there are more commercially available options for MD and HD charging infrastructure.

South Coast AQMD is seeking DOE funding to lead a regional collaborative to create a MD/HD charging and hydrogen fueling infrastructure plan for the South Coast Air Basin. This will supplement SCAG's existing effort to create a six county regional MD/HD charging and hydrogen fueling infrastructure plan as part of a CEC eTRUC project to develop and demonstrate high power DC fast charging for HD battery electric trucks. A detailed plan for the San Pedro Bay Ports and the I-710 corridor will be created using advanced modeling and additional data sources. In a related effort, Metro has committed \$50 million of its funding to deploy charging for HD battery electric trucks between the San Pedro Bay Ports and along the I-710 south corridor.

New, ongoing, and recently completed electric charging infrastructure projects include: 1) Joint Electric Truck Scaling Initiative (JETSI) Pilot Project with installation of 350 kW DC fast chargers to support 100 Daimler and Volvo Class 8 battery electric trucks at NFI and Schneider; 2) Switch-On Project with installation of multiple DC fast chargers to support 70 Volvo Class 8 battery electric drayage/freight trucks at eight fleets; and 3) deployment of two 150 kW DC fast chargers at Producers Dairy in Fresno as part of the CARB Greenhouse Gas Reduction Fund Zero Emission Drayage Truck Project.

The Draft 2023 Plan Update identifies key opportunities while clearly leading the way for demonstration and deployment of hydrogen fueling and charging infrastructure. Future projects may include the following:

- continued development and demonstration of distributed hydrogen production and fueling stations from multiple providers, including energy stations with electricity and renewable hydrogen coproduction and higher pressure (10,000 psi) hydrogen dispensing and scalable/higher throughput;
- development of additional sources of hydrogen production and local generation of hydrogen for fueling stations far from local production sources to better meet demand of FCVs;
- development of carbon-natural (or low carbon intensity) hydrogen production, distribution, and infrastructure network through a partnership with regional hydrogen hub projects;

- large scale deployments of commercial large fleet and public charging infrastructure to meet needs for owner operators/small fleets/large fleets for various segments (drayage, last mile delivery, short regional haul);
- development of fleet tools to assist in successful operation for drayage, last mile delivery, and short regional haul operations;
- demonstration and installation of infrastructure to support battery electric and fuel cell electric LD, MD and HD fleets, and ways to reduce cost and incentivize incremental costs over conventionally fueled vehicles, meet fleet operational needs, improve reliability, and integrate with battery energy storage, renewable energy and energy management strategies (e.g., vehicle-to-grid or vehicle-tobuilding functionality, demand response, load management);
- creation of MD/HD charging and hydrogen fueling regional infrastructure planning efforts; and
- deployment of infrastructure corresponding to codes and standards specific to LD, MD and HD vehicles, including standardized connectors, fuel quality, communication protocols, and open standards and demand response protocols for EV chargers to communicate across charging networks.

Engine Systems/Technologies

To achieve the emission reductions required for the Basin, ICEs used in the HD sector will require widespread implementation of zero emission technologies as outlined in CARB's 2020 Mobile Source Strategy. The path to 100% zero emission trucking sector will take time and the CARB HD On-Road "Omnibus" Low NOx regulation and EPA's proposed Cleaner Trucks Initiative (CTI) shows the need for ultra-low NOx ICE engines.

In 2016, CWI achieved a new ultra-low NOx threshold by commercializing the first on-road HD engine to be certified to CARB's optional low NOx standard of 0.02g NOx/bhp-hr. The 8.9 liter (8.9L) ISL-G natural gas engine demonstrated that an ICE could achieve NOx exhaust emission levels 90 percent cleaner than the existing federal standard. Powering these vehicles with low Carbon Intensity renewable fuels or biomethane, to help address GHG objectives, became a game changer for the HD transportation sector. The 8.9L engine works well in refuse and other vocational trucks as well as transit and school buses.

In 2017, CWI, with South Coast AQMD and other project partners, achieved certification of the 12L natural gas engine. The 12L engine in Class 8 drayage trucks and 60-foot articulated transit buses expanded the scope of this near-zero technology. Both CARB and U.S. EPA certified the 12L engine at 0.02 g/bhp-hr for NOx. New for 2020, CWI certified its 6.7L natural gas engine to 0.02 g/bhp-hr NOx for the first time, further ensuring the viability of near-zero engine options for all market segments.

Although no near-zero emission diesel technology is commercially available today, development and demonstration efforts have proven low NOx diesel technology is viable. South Coast AQMD has been working closely with CARB, U.S. EPA and others on defining low NOx diesel technology pathways via several projects, including the Ultra-Low Emissions Diesel Engine Program at Southwest Research Institute (SwRI), opposed piston engine development with Achates Power Inc., and Thermal Management using Cylinder Deactivation (CDA) with West Virginia University.

More recently, CWI announced a hydrogen powered ICE with near –zero NOx capabilities ready for implementation in the 2027 timeframe. As a result, the Draft 2023 Plan Update includes on-road truck demonstrations using hydrogen as a fuel for internal combustion. These demonstration efforts are considered key milestones in driving up the TRL level toward full commercialization as a bridge and complementary technology toward zero emission technology, especially for high horsepower and long-haul applications where zero emission technologies and supporting infrastructure will take longer to become commercially available.

The Draft 2023 Plan Update continues to incorporate pursuit of cleaner engines and hybrid powertrains for the HD sector but is starting to transition to large scale pre-commercial demonstration and deployment efforts as current near-zero NOx ICE technologies are becoming readily available. Future projects will continue to support the development, demonstration and emissions verification/certification of engines and powertrains that can achieve needed near-term emission reductions. At the same time, aggressive GHG emission reduction targets set forth by both CARB and U.S. EPA have invigorated interest in revisiting low- and zero carbon alternative fuels for those high power/torque applications. While the GHG benefit is relatively easy to assess by fuel source, it is also important to understand the criteria emissions impact under real-world conditions and over its useful lifetime to ensure reduction of both criteria and GHGs are fully realized.

The Draft 2023 Plan Update includes potential projects that the South Coast AQMD might participate with federal, state, and other private companies towards these efforts. Specifically, these projects are expected to target the following:

- development of ultra-low emissions and improved higher efficiency gaseous and liquid fuel powered engines for HD vehicles and high horsepower applications projects that move these technologies to a higher technology readiness level and commercialization;
- development and demonstration of gaseous and liquid fuel powered engines to support hybrid and plug-in hybrid vehicle technology;
- development and demonstration of alternative fuel engines for on- and off-road applications;
- development and demonstration of engine systems that employ advanced engine design features, CDA, improved exhaust or recirculation systems, and aftertreatment devices; and
- further development of robust aftertreatment systems which can maintain certified emissions levels under a wide variety of duty-cycles and throughout the vehicle's useful life.

EPA's recent proposal to create a new national low NOx standard for on-highway HD engines starting in 2027 will further motivate manufacturers to develop lower-NOx emitting technologies expected to result in greater NOx emission reductions than a "California only" low NOx standard for on-road HD engines. Low- and zero carbon alternative fuels for new low emitting engines will continue to emerge as timelines for GHG reductions approach.

RNG Infrastructure (RNG and Renewable Fuels)

Significant demonstration and commercialization efforts funded by the Clean Fuels Program as well as other local, state and federal agencies are underway to: 1) support the upgrade and buildup of public and private infrastructure projects, 2) expand the network of public-access and fleet fueling stations based on the population of existing and anticipated vehicles, 3) put in place infrastructure that will ultimately be needed to accommodate transportation fuels with very low gaseous and GHG emissions, and 4) support local production of clean, low carbon intensity, renewable transportation fuels.

Hydrogen fueling stations continue to be positioned to support both public and private fleet applications. Funding has been applied to provide fueling at key points for all classes of vehicles, with an emphasis on HD vehicle users travelling on major goods movement corridors, including local ports, and along I-15 and The Greater Interstate Clean Transportation Corridor (ICTC) Network. Upgrades and expansions are also needed on RNG stations to refurbish or increase capacity for some of the stations installed five or more years ago as well as standardize fueling station design, especially to ensure growth of alternative fuels throughout the Basin and beyond. There is also a continuing and growing interest for complete transition to renewable fuels, particularly natural gas delivered through existing natural gas pipelines. Future funding will be needed to support local production and use of renewable natural gas and electricity to produce green

hydrogen for light and HD vehicles. The growing interest in low carbon, renewable transportation fuels that also power ultra-low to zero emission vehicles will expand the scope of this category to provide support of local production and distribution of such fuels and help accelerate fleet turnover. SB 350 (De León) further established a target to double the energy efficiency in electricity and renewable natural gas end uses by 2030.

Projects expected to be developed and co-funded for infrastructure development are:

- development and demonstration of low carbon intensity renewable transportation fuels including renewable natural gas, renewable hydrogen, renewable methanol, and renewable electricity from zero emission sources and from renewable feedstocks, such as biomass and biowaste;
- development and demonstration of advanced, cost-effective methods for manufacturing synthesis gas for conversion to renewable natural gas and renewable (biomass-based) hydrogen;
- enhancement of safety and emission reductions from existing natural gas fueling equipment;
- technology solutions to help with the expansion of fueling infrastructure, fueling stations, and equipment, with an emphasis on renewable energy sources; and
- technology solutions to help with the expansion of infrastructure connected with existing fleets, public transit, and transportation corridors, including demonstration and deployment of closed loop systems for dispensing and storage.

Stationary Clean Fuel Technologies

Although stationary source NOx emissions are small compared to mobile sources in the Basin, there are applications where cleaner fuel technologies or processes can be applied to reduce NOx, VOC and PM emissions. A demonstration project funded in part by the South Coast AQMD at a local sanitation district consisted of retrofitting an existing biogas engine with a digester gas cleanup system and catalytic exhaust emission control. The retrofit system resulted in significant reductions in NOx, VOC and CO emissions. This project demonstrated that cleaner, more robust renewable distributed generation technologies exist that not only improve air quality but enhance power quality and reduce electricity distribution congestion.

SCR has been used as aftertreatment for combustion equipment for NOx reduction. SCR requires the injection of ammonia or urea that is reacted over a catalyst bed to reduce the NOx formation during the combustion process. Challenges arise if ammonia distribution within the flue gas or operating temperature is not optimal resulting in ammonia emissions leaving the SCR in a process referred to as "ammonia slip." The ammonia slip may also lead to the formation of secondary particulate matter in the form of ammonium sulfate and ammonia nitrate. As discussed in engine systems, the use of low and zero carbon fuels could also be used in stationary applications; it is easier to develop optimized engine systems and stationary sources typically operate in steady-state modes.

Additionally, alternative energy storage could be achieved through vehicle-to-grid or vehicle-to-building technologies, as well as power-to-gas that could allow curtailed renewable electricity to be stored as hydrogen fuel. Microgrid demonstration and deployment projects to support large scale deployment of zero emission vehicles and equipment could also be incorporated into new or existing deployment projects to facilitate installation of infrastructure. UCR's Sustainable Integrated Grid Initiative and UCI's Advanced Energy and Power Program, funded in part by the South Coast AQMD, for example, could assist in evaluation of these technologies.

Projects conducted under this category may include:

- development and demonstration of reliable, low emission stationary technologies and fuels (e.g., new innovative low NOx burners and fuel cells);
- exploration of renewables, waste gas and produced gas sources for cleaner stationary technologies;
- evaluation, development and demonstration of advanced control technologies for stationary sources;
- vehicle-to-grid, vehicle-to-building, or other stationary energy demonstration projects to develop sustainable, low emission energy storage alternatives and reduce total cost of ownership (TCO); and
- development and demonstration of microgrids with photovoltaic/fuel cell/battery storage/EV chargers and energy management to support large scale deployment of zero emission vehicles and equipment.

The development, demonstration, deployment and commercialization of advanced stationary clean fuel technologies will support control measures in the 2022 AQMP that reduce emissions of NOx and VOCs from traditional combustion sources by replacement or retrofits with zero and near-zero emission technologies.

Fuel and Emissions Studies

Monitoring of pollutants in the Basin is extremely important, especially when linked to a particular sector of the emissions inventory. This information highlights the need for further emission studies to identify emissions from high polluting sectors resulting from these technologies.

Over the past few years, the South Coast AQMD has funded emission studies to evaluate the impact of tailpipe emissions of biodiesel, renewable diesel, and ethanol fueled vehicles mainly focusing on criteria pollutants and GHG emissions. These studies showed that biofuels, especially biodiesel in some applications and duty cycles, can contribute to higher NOx emissions while reducing other criteria pollutant emissions. South Coast AQMD has participated in several renewable diesel and ethanol-blend gasoline studies led by CARB to approve these renewable fuels in California.

In addition, as the market share for gasoline direct injection (GDI) vehicles has rapidly increased from 4 percent of all vehicle sales in the U.S. to an estimated 60 percent between 2009 and 2016, it is important to understand air quality impacts from these vehicles. South Coast AQMD has funded studies to investigate both physical and chemical composition of tailpipe emissions, focusing on PM from GDI vehicles as well as secondary organic aerosol formation formed by the reaction of gaseous and particulate emissions from natural gas and diesel HD vehicles. The results from these studies suggest the addition of a particulate filter for controlling particulate emissions from GDI vehicles.

In 2017, South Coast AQMD initiated a basin wide in-use real-world emissions study, including fuel usage profile characterization and an assessment of the impacts of current technology and alternative fuels. Preliminary results suggest real-world emissions vary greatly between applications and fuel types; but alternative fueled technologies such as natural gas fueled vehicles, especially ones certified to near-zero emission levels, are significantly lower in emissions compared to diesel baseline. The results of the study also contributed to the new EMFAC 2021 emissions model.

In 2020, CARB adopted the Omnibus regulation to the next lower-level NOx standard, particularly highlighting the need to address the gap between certification values and in-use emissions. The new regulation included a new low-load cycle, new in-use emissions testing metric based on 3-Bin Moving Average Windows (3B-MAW), as well as a new concept to assess NOx across the entire vehicle population via onboard emission sensors. The 3B-MAW will be a game changer for future combustion technologies,

as it addresses the shortfalls of previous in-use testing methods and should address the gap between in-use emissions and the certification standard, an issue commonly seen in the Basin where low-speed, low load operations are more common. It is important to continue conducting real-world emissions studies on existing and new technologies to help stakeholders better understand the impacts of emissions in real time to a specific geographic area, as well as ensuring emissions are low throughout the useful life of the vehicle.

To assess issues with legacy fleets, SB 210 was signed into law in 2019 and directs CARB to develop and implement a new comprehensive HD inspection and maintenance (HD I/M) program to support higher emitter issues due to mal-maintenance/deterioration to ensure trucks maintain their emissions for their intended useful life. The HD I/M program includes an emissions measurement campaign from a large population of a current fleet of trucks which is critical for the success of this program. Mass screening methods such as remote sensing technology, which can be setup near roadsides and on freeway overpasses has gained the spotlight for enabling a new suite of technology for assessing emissions in-use when compared to traditional measurements. In August 2021, CARB staff shared findings and recommendations from the pilot program. CARB suggested that on-board diagnostics (OBD) and Roadside Emissions Monitoring Device (REMD) testing would likely be the best combination of technologies for a future statewide vehicle compliance and enforcement program. Together with Automated License Plate Recognition (ALPR) camera technologies that are able to capture 80% of license plates, this can be another tool to assist in any enforcement efforts. A statewide vehicle compliance program is being phased in with vehicle screening starting in 2023, enforcement of compliance certificate requirements starting in July 2023, and periodic testing and certified devices for OBD submissions in 2024. The newly adopted HD I/M rule should address the concerns of high emitters in the legacy fleets which are expected to remain in service well into the 2030s, further reducing emissions in our region. South Coast AQMD also recognizes HD I/M is one of the few regulations that can provide much needed immediate emission reductions.

In recent years, there has also been an increased interest at the state and federal level in the use of alternative fuels to reduce petroleum oil dependency, GHG emissions and air pollution. To sustain and increase biofuel utilization, it is essential to identify feedstocks that can be processed in a more efficient, cost-effective and sustainable manner. More recently, various low and zero carbon initiatives have stirred up a new round of interest in alternative fuel combinations such as ethanol, hydrogen and other engineered bio/renewable fuels. In 2019, South Coast AQMD, SoCalGas, and UCR/CE-CERT launched a study to assess emission impacts of hydrogen-natural gas blends on near-zero emission natural gas engines. Test results will be available in late 2022. Similar emissions work is being considered to support the use of zero-carbon fuels. Based on higher average summer temperatures over the past few years, there is interest on how higher temperatures impact ozone formation. A project was launched in 2019 to evaluate meteorological factors and trends contributing to recent poor air quality in the Basin. These types of studies may be beneficial to support the CERPs developed under AB 617, as well as other programs targeting benefits to residents in disadvantaged communities.

Some areas of focus include:

- demonstration of remote sensing technologies to target different high emission applications and sources;
- studies to identify health risks associated with ultrafine and ambient particulate matter to characterize toxicity and determine specific combustion sources;
- in-use emission studies using biofuels, including renewable diesel and other alternative fuels;
- in-use emission studies to determine impact of new technologies, in particular new near-zero emission engine technologies and hybrids on local air quality as well as the benefit of telematics on emission reduction strategies;
- lifecycle energy and emissions analyses to evaluate conventional and alternative fuels;
- analysis of fleet composition and its associated impacts on criteria pollutants;
- evaluation of emissions impact of low- and zero-carbon fuels/blends on the latest technology engines; and
- evaluation of impact of higher ambient temperatures on emissions of primary and secondary air pollutants.

Emission Control Technologies

Although engine technology and engine systems research are required to reduce emissions at the combustion source, dual fuel technologies and post-combustion cleanup methods are also needed to address on-road and off-road equipment emissions. Existing diesel emissions can be greatly reduced with introduction of RNG, hydrogen, biofuels, synthetic and low carbon fuels into the engine but also via aftertreatment controls such as close coupled catalysts, advanced SCR and DPF catalysts coupled with electrically heated diesel exhaust fluid (DEF) dosers as well as advanced control strategies using cylinder deactivation, which have proven to lower emissions to near-zero and increase efficiency. Gas to Liquid (GTL) fuels formed from natural gas or other hydrocarbons rather than petroleum feedstock and emulsified diesel, provide low emission fuels for use in diesel engines. As emissions from engines become lower, lubricant contributions to VOC and PM emissions become increasingly important. Recently, particulate matter (PM and PN) emissions from GDI fueled LD vehicles, natural gas fueled MD and HD vehicles have gathered attention due to the lack of particulate filters. While relative PM levels are low and below the applicable standard, concerns on ultra-fine emissions needs to be assessed. South Coast AQMD will continue to fund studies to help mitigate emissions concerns for gasoline and natural gas fueled engines. Onboard emissions sensors have been identified by CARB and other agencies as a reliable method for assessing in-use emissions compliance. At the same time, researchers have proposed to use sensors, coupled with GPS, cellular connection, weather, traffic, and other online air quality models together to enable advanced concepts like Geofencing, Eco-routing, and more. Similar strategy have been presented in CARB's latest 2022 SIP Strategy. The most promising of these technologies will be considered for funding, specifically:

- evaluation and demonstration of new emerging liquid fuels, including alternative and renewable diesel and other GTL fuels;
- development and demonstration of renewable-diesel engines and advanced aftertreatment technologies for mobile applications (including heated dosing technologies, close coupled catalysts, electronically heated catalysts and other advanced selective catalytic reduction systems) as well as non-thermal regen technology;
- development and demonstration of low-VOC and PM lubricants for diesel and natural gas engines;
- develop, evaluate, and demonstrate onboard sensor-based emissions monitoring methodology; and
- develop, evaluate, and demonstrate cloud-based emissions and energy management system.

Health Impacts Studies

Assessment of potential health risks linked to exposure to pollution is extremely important. Studies indicate that ultrafine particulate matter (PM) can produce irreversible damage to children's lungs, which highlights the need for further studies to identify health effects resulting from these technologies.

Previous studies of ambient levels of toxic air contaminants, such as the MATES studies, have found that diesel exhaust is the major contributor to health risk from air toxics. South Coast AQMD completed

MATES V in August 2021 to update the emissions inventory of toxic air contaminants, as well as modeling to characterize risks, including measurements and analysis of ultrafine particle concentrations typically emitted or subsequently formed from vehicle exhaust. Findings from the MATES V report showed that air toxics cancer risk based on modeling data has decreased over 50% since MATES IV, with average multipathway air toxics cancer risk at 454-in-a-million. The highest risk locations are at LAX and the Ports along goods movement and transportation corridors. Diesel PM continues to be the major contributor accounting for over 60% of the overall air toxics cancer risk. For the first time, chronic non-cancer risk was estimated with a chronic hazard index of 5.9 across the 10 stations in the MATES V study.

Furthermore, despite recent advancements in toxicological research related to air pollution, the relationship between particle chemical composition and health effects is still not completely understood, especially for biofuels, natural gas and other alternative fuels. In 2015, South Coast AQMD funded chamber studies as part of the 200 Vehicle Study to further investigate the toxicological potential of emissions from MD and HD vehicles, such as ultrafine particles and vapor phase substances, and to determine whether substances such as volatile or semi-volatile organic compounds are being emitted in lower mass emissions that could pose harmful health effects, the results are due to be finalized by end of 2022.

Technology Transfer and Outreach

Since the Clean Fuels Program depends on the deployment and adoption of demonstrated technologies, technology transfer and outreach efforts are essential to its success. This core area encompasses assessment of advanced technologies, including retaining outside technical assistance to expedite implementation of low emission and clean fuel technologies, coordinating activities with other organizations and educating end users of these technologies. Technology transfer efforts include supporting various incentive programs that encourage the purchase of cleaner technologies, cosponsoring technologies to various audiences, workshops, and other events, and disseminating information on advanced technologies to various audiences (i.e., residents in AB 617 or disadvantaged communities, local governments, funding agencies, technical audiences). South Coast AQMD's AB 617⁴ program is designed to reduce emissions in communities regarding available zero and near-zero emission technologies and incentives to accelerate the adoption of cleaner technologies. Incentivizing deployment of zero emission HD trucks has been included in the CERPs and an RFP for zero emission HD truck incentive funding will be released in 2022 for these AB 617 communities.

Target Allocations to Core Technology Areas

Figure 31 presents the potential allocation of available funding, based on South Coast AQMD projected program costs of \$19.8 million for all potential projects. The actual project expenditures for 2023 will be less than the total South Coast AQMD projected program costs since not all projects will materialize. Target allocations are based on balancing technology priorities, technical challenges and opportunities discussed previously, and near term versus long term benefits with the constraints on available South Coast AQMD funding. Although the Clean Fuels Program must consider cost effectiveness of emission reductions as one of several factors in determining which technologies to fund the Legislature allows for flexibility in prioritizing technologies with a higher cost effectiveness if it is deemed necessary for South Coast AQMD to meet its NAAQS. The 2022 AQMP specifically calls for accelerated deployment of zero emission technologies wherever feasible to achieve the 2015 8-hour ozone standard and the associated CARB 2020 Mobile Source Strategy shows the need for rapid implementation of zero-emission transportation. Specific contract awards throughout 2023 will be based on this proposed allocation, quality of proposals received, and evaluation of projects against standardized criteria and ultimately South Coast AQMD Board approval.

⁴ <u>http://www.aqmd.gov/nav/about/initiatives/environmental-justice/ab617-134</u>



Figure 31: Projected Cost Distribution for Potential South Coast AQMD Projects in 2023 (\$19.8M)

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CLEAN FUELS PROGRAM

Program Plan Update for 2023

This section presents the Clean Fuels Program Plan Update for 2023. The proposed projects are organized by program areas and described in further detail, consistent with the South Coast AQMD budget, priorities and the best available information on the state-of-the-technology. Although not required, this Plan also includes proposed projects that may also be funded by revenue sources other than the Clean Fuels Program, through state and federal grants for clean fuel technologies, incentive programs such as AB 617 Community Air Protection Program (CAPP) funding, Volkswagen Mitigation and Carl Moyer, and VOC and NOx mitigation.

Table 16 summarizes potential projects for 2023 as well as the distribution of South Coast AQMD costs in some areas as compared to 2022. The funding allocation continues the focus on development and demonstration of zero and near-zero emission technologies including infrastructure to support vehicles and off-road equipment. For the 2023 Draft Plan Update, there is a continuing focus on zero emission technologies including funding for hydrogen/fuel cell technologies, electric/hybrid technologies, and zero emission infrastructure. Zero emission infrastructure was formerly included within hydrogen/fuel cell and electric/hybrid technologies, but given its increasing importance it is now being presented as a separate category. There are significant decreases in funding for RNG infrastructure and engine systems/ technologies as near-zero engine development has been significantly reduced as funding is increasingly shifted to zero emission technologies and infrastructure for future planned projects in 2023, including:

- HD zero emission battery electric and fuel cell trucks;
- HD zero emission infrastructure development, demonstration, deployment and planning;
- Onboard sensor development for emissions monitoring and improved efficiency;
- Microgrid demonstrations to support zero emission infrastructure;
- Battery and fuel cell electric transit and school bus fleet charging/fueling infrastructure;
- HD diesel truck replacements with zero emission trucks; and
- Fuel and emissions studies, such as conducting airborne measurements and analysis of NOx emissions and assessing emission impacts of hydrogen-natural gas fuel blends on near-zero emission HD natural gas engines.

As in prior years, funding allocations again align well with the South Coast AQMD's FY 2022-23 Goals and Priority Objectives, which includes supporting development of cleaner advanced technologies. Overall, the Clean Fuels Program is designed to ensure a broad portfolio of technologies, complement state and federal efforts, and maximize opportunities to leverage technologies in a synergistic manner.

Each of the proposed projects described in this Plan, once fully developed, will be presented to the South Coast AQMD Governing Board for approval prior to contract initiation. This Plan Update reflects the maturity of the proposed technology and identifies contractors to implement projects, participating host sites and fleets, and securing sufficient cost-sharing to complete projects, and other necessary factors. Recommendations to the South Coast AQMD Governing Board will include descriptions of technologies to be demonstrated or deployed, their applications, proposed scope of work, and capabilities of selected contractor(s) and project teams, in addition to the expected costs and project benefits as required by H&SC 40448.5.1.(a)(1). Based on communications with all organizations specified in H&SC 40448.5.1.(a)(2) and review of their programs, projects proposed in this Plan do not appear to duplicate any past or present projects.

Funding Summary of Potential Projects

The remainder of this section contains the following information for each of the potential projects summarized in Table 16.

Proposed Project: Descriptive title and a designation for future reference.

Expected South Coast AQMD Cost: Estimated proposed South Coast AQMD cost-share as required by H&SC 40448.5.1.(a)(1).

Expected Total Cost: Estimated total project cost including South Coast AQMD cost-share and cost-share of outside organizations expected to be required to complete the proposed project. This is an indication of how much South Coast AQMD public funds are leveraged through its cooperative efforts.

Description of Technology and Application: Brief summary of proposed technology to be developed and demonstrated, including expected vehicles, equipment, fuels, or processes that could benefit.

Potential Air Quality Benefits: Brief discussion of expected benefits of proposed project, including expected contribution towards meeting the goals of the 2022 AQMP, as required by H&SC 40448.5.1.(a)(1). In general, the most important benefits of any technology research, development and demonstration program are not necessarily realized in the near-term. Demonstration projects are generally intended to be proof-of-concept for an advanced technology in a real-world application. While emission benefits, for example, will be achieved from the demonstration, true benefits will be seen over a longer term, as a successfully demonstrated technology is eventually commercialized and implemented on a wide scale.

	Expected	Expected
Proposed Project	SCAQMD	Total Cost
	Cost \$	\$

Table 16: Summary of Potential Projects for 2023

Hydrogen/Mobile Fuel Cell Technologies

Develop and Demonstrate Hydrogen Research to Support Innovative Technology Solutions for Fueling Fuel Cell Vehicles	50,000	800,000
Develop and Demonstrate MD and HD Fuel Cell Vehicles	4,000,000	15,000,000
Subtot	al \$4,050,000	\$15,800,000

Electric/Hybrid Technologies

Develop and Demonstrate MD and HD On-Road and Off-Road Battery Electric and Hybrid Vehicles and Equipment	3,400,000	26,800,000
Demonstrate Alternative Energy Storage	300,000	1,000,000
Demonstrate Light-Duty Battery Electric Vehicles and Plug-In Hybrid Vehicles	160,000	160,000
Subtotal	\$3,860,000	\$27,960,000

Zero Emission Infrastructure

Develop and Demonstrate Hydrogen Production and Fueling Stations	2,000,000	6,500,000
Develop and Demonstrate Electric Charging Infrastructure	4,500,000	47,361,774
Subtotal	\$6,500,000	\$53,861,774

Engine Systems/Technologies

Develop and Demonstrate Advanced Gaseous- and Liquid-Fueled MD and HD Engines & Vehicle Technologies to Achieve Ultra-Low Emissions	500,000	2,000,000
Develop and Demonstrate Alternative Fuel and Clean Conventional Fueled Light-Duty Vehicles	0	0
Develop and Demonstrate Low Emission Locomotive Technologies and After Treatment Systems	176,300	1,000,000
Subtotal	\$676,300	\$3,000,000

RNG Infrastructure (Renewable Natural Gas and Renewable Fuels)

Demonstrate Near-Zero Emission Hybrid and Hydrogen ICE Vehicles in Various Applications	0	0
Develop, Maintain and Expand Renewable Fuel Infrastructure	200,000	2,100,000
Demonstrate Renewable Transportation Fuel Manufacturing and Distribution Technologies	0	0
Subtotal	\$200,000	\$2,100,000

Stationary Clean Fuel Technologies

Develop and Demonstrate Microgrids with Photovoltaic/Fuel Cell/Battery Storage/EV Chargers and Energy Management	1,000,000	4,000,000
Develop and Demonstrate Zero or Near-Zero Emission Energy Generation Alternatives	200,000	1,000,000
Subtotal	\$1,200,000	\$5,000,000

Table 10. Summary of 1 Stential 110 Jects 101 2025 (Cont u)		
Proposed Project	Expected SCAQMD Cost \$	Expected Total Cost \$

Table 16: Summary of Potential Projects for 2023 (cont'd)

Fuel and Emissions Studies

Conduct In-Use Emission Studies for Advanced Technology Vehicle Demonstrations	500,000	2,000,000
Conduct Emission Studies on Biofuels, Alternative Fuels and Other Related Environmental Impacts	400,000	1,500,000
Identify and Demonstrate In-Use Fleet Emission Reduction Technologies and Opportunities	400,000	1,500,000
Subtotal	\$1,300,000	\$5,000,000

Emission Control Technologies

Develop and Demonstrate Advanced Aftertreatment Technologies On-Highway	250,000	1,000,000
Develop Methodology and Evaluate and Demonstrate Onboard Sensors for On-Road HD Vehicles	250,000	1,000,000
Demonstrate On-Road Technologies in Off-Road and Retrofit Applications	176,300	800,000
Subtotal	\$676,300	\$2,800,000

Health Impacts Studies

Evaluate Ultrafine Particle Health Effects	88,150	1,000,000
Conduct Monitoring to Assess Environmental Impacts	132,225	500,000
Assess Sources and Health Impacts of Particulate Matter	132,225	300,000
Subtotal	\$352,600	\$1,800,000

Technology Transfer and Outreach

Assess and Support Advanced Technologies and Disseminate Information	600,000	1,000,000
Support Implementation of Various Clean Fuels Incentive Programs	350,000	400,000
Subtotal	950,000	\$1,400,000
TOTALS FOR POTENTIAL PROJECTS	\$19,765,200	\$118,721,774

Technical Summaries of Potential Projects

Hydrogen / Mobile Fuel Cell Technologies

Proposed Project: Develop and Demonstrate Hydrogen Research to Support Innovative Technology Solutions for Fueling Fuel Cell Vehicles

Expected South Coast AQMD Cost:	\$50,000		
Expected Total Cost:	\$800,000		

Description of Technology and Application:

California regulations require automakers to place increasing numbers of ZEVs into service every year. By 2050, CARB projects that 87% of LD vehicles on the road will be zero emission battery and FCVs.

Many stakeholders are working on hydrogen and fuel cell products, markets, requirements, mandates and policies. California has been leading the way for hydrogen infrastructure and FCV deployment. This leadership has advanced a hydrogen network that is not duplicated anywhere in the U.S. and is unique in the world for its focus on providing a retail fueling experience. In addition, the advancements have identified many lessons learned for hydrogen infrastructure development, deployment and operation. Other interested states and countries are using California's experience as a model case, making success in California paramount to enabling market acceleration and uptake in the U.S. U.S. leadership for hydrogen technologies is rooted in California, a location for implementing many DOE H2@Scale pathways, such as reducing curtailment and stranded resources, reducing petroleum use and emissions, and developing and creating jobs. The technical research capability of the national laboratories can be used to assist California in decisions and evaluations, as well as to verify solutions to problems impacting the industry. Because these challenges cannot be addressed by one agency or one laboratory, in 2018, a hydrogen research consortium was organized to combine and collaborate. Moreover, in 2022 California announced its intention to develop a renewable hydrogen hub as a part of the DOE announcement for an \$8B funding opportunity to establish up to ten regional hydrogen hubs to build self-sustaining hydrogen economies of producers and infrastructure in the nation. The Governor's Office of Business and Economic Development (GO-Biz) established Alliance for Renewable Clean Hydrogen Energy Systems (ARCHES) to unite critical public and private stakeholders to build the framework for a California renewable, clean hydrogen hub as such additional hydrogen research studies and projects are foreseen in 2023.

The California Hydrogen Infrastructure Research Consortium focuses on top research needs and priorities to address near-term problems to support California's continued leadership in innovative hydrogen technology solutions needed for fueling FCVs. These tasks also provide significant contributions to the DOE H2@Scale Initiative. For instance, advances in fueling methods and components can support the development of supply chains and deployments. Tasks completed include data collection from operational stations, component failure fix verification (i.e., nozzle freeze lock), reporting about new fueling methods for MD and HD applications and HD tasks to develop HD reference station design, model HD station capacity with high flowrates and provide near-real-time verification of fuel quality with on-site hydrogen contaminant detectors (HCDs) for use at both LD and HD stations. The tasks are supported by leading researchers at NREL and coordinating national labs and managed in detail (e.g., schedule, budget, roles, milestones, tasks, reporting requirements) in a hydrogen research consortium project management plan. The UC Davis Institute of Transportation study on hydrogen systems analysis in 2021 is intended to evaluate the current hydrogen polices and their impact on a carbon neutral transportation by 2050 with data analysis and modeling support of the current hydrogen resources.

These efforts are complemented by projects undertaken and supported by the HFCP and its members over the last few years such as the *H2 Fuel Cell Electric Trucks, A Vision for Freight Movement in California* – *and Beyond* document released in July 2021 establishing a vision for 70,000 Class 8 FC trucks supported by 200 hydrogen fueling stations by 2035, including barriers that need to be overcome, CARB's Advanced Clean Truck Regulation adopted in June 2020, and anticipated adoption of the Advanced Clean Fleets Regulation in 2022.

This project area would enable co-funding support for additional or follow on mutually agreed technical tasks with the California Hydrogen Infrastructure Research Consortium members, the HFCP, UC Davis as well as other collaborative efforts that may be undertaken to advance hydrogen infrastructure technologies including the upcoming hydrogen hubs efforts.

Potential Air Quality Benefits:

The 2022 AQMP identifies the use of alternative fuels and zero emission transportation technologies as necessary to lower NOx and VOC emissions to meet federal air quality standards. One of the major advantages of FCVs is the fact that they use hydrogen, a fuel that can be domestically produced from a variety of resources such as natural gas (including biogas), electricity (stationary turbine technology, solar or wind), and biomass. The technology and means to produce hydrogen fuel to support FCVs are available but require optimization to achieve broad market scale. The deployment of large numbers of FCVs, which is one strategy to attain air quality goals, requires a well-planned and robust hydrogen fueling infrastructure network. These South Coast AQMD projects, with significant additional funding from other governmental and private entities, will work towards providing the necessary hydrogen production and fueling infrastructure network for our region.

Proposed Project: Develop and Demonstrate MD and HD Fuel Cell Vehicles

Expected South Coast AQMD Cost:	\$4,000,000		
Expected Total Cost:	\$15,000,000		

Description of Technology and Application:

This proposed project would support evaluation, including demonstrating promising fuel cell technologies for applications using direct hydrogen with proton exchange membrane (PEM) fuel cell technology. Battery dominant fuel cell hybrids are another potential technology to reduce costs and potentially enhance the performance of FCVs.

The California *ZEV Action Plan* specifies actions to help deploy an increasing number of ZEVs, including MD and HD ZEVs. CARB's Advanced Clean Truck and Fleet and Innovative Clean Transit Bus Regulations will also increase deployment of MD and HD FCVs. Fleets are useful demonstration sites because economies of scale exist in central fueling, training skilled personnel to operate and maintain FCVs, monitoring and collecting data on vehicle performance, and OEM technical and customer support. In some cases, MD and HD FCVs could leverage the growing network of hydrogen stations and provide an early base load of fuel consumption until the number of LD FCVs grows. These vehicles could include hybrid-electric vehicles powered by fuel cells and equipped with batteries capable of being charged from the grid and even supplying power to the grid.

In 2012, the DOE awarded South Coast AQMD funds to demonstrate Zero Emission Container Transport (ZECT) technologies. In 2015, the DOE awarded South Coast AQMD additional funds to develop and demonstrate additional fuel cell truck platforms and vehicles under ZECT II. Both ZECT I and ZECT II enabled the largest strides in Technology Readiness Level (TRL) of hybrid, battery electric and fuel cell HD trucks on the overall vehicle design and architecture. Especially, the fuel cell drayage truck's TRL prior to this project was at a strong Level 4 with several proof-of-concept vehicles constructed and it has advanced the TRL to a Level 7 with ZECT II. The Clean Fuels Program cost-shared the demonstration of transit buses at OCTA which was completed in September 2021. In 2020, the U.S. EPA Targeted Airshed Grant Program awarded South Coast AQMD five fuel cell transit buses to be deployed at SunLine Transit which was also cost-shared by the Clean Fuels Program.

This category may include projects in the following applications:

On-Road:	Off-Road:
Transit Buses	Vehicle Auxiliary Power Units
Shuttle Buses	 Construction Equipment
• MD & HD Trucks	 Lawn and Garden Equipment
	Cargo Handling Equipment

Potential Air Quality Benefits:

The 2022 AQMP identifies the need to implement ZEVs. South Coast AQMD adopted fleet regulations require public and some private fleets within the Basin to acquire alternatively fueled vehicles when making new purchases. CARB is revising the Advanced Clean Fleets for adoption in 2022 to impose 100% zero emission vehicle fleet targets for last mile delivery, drayage and public fleets in 2035. In the future, such vehicles could be powered by zero emission fuel cells operating on hydrogen fuel. The proposed projects have the potential to accelerate the commercial viability of FCVs. Expected immediate benefits include the establishment of zero and near-zero emission proof-of-concept vehicles in numerous applications. Over the longer term, the proposed projects could help foster wide-scale implementation of FCVs in the Basin. The

proposed projects could also lead to significant fuel economy improvements, manufacturing innovations and the creation of high-tech jobs in Southern California, besides realizing the air quality benefits projected in the AQMP as well as GHG reductions. Currently, the range of the trucks in the ZECT II project have a targeted range of 150 miles. Future projects would include extending the range of the FCVs up to 400 miles and demonstrate improvements in reliability and durability of powertrain systems and hydrogen storage systems. For fuel cell transit buses, projects are being proposed that reduce the cost of the fuel cell bus to less than \$1 million through advanced technologies for the fuel cell stack, higher density and lower cost batteries, and increased production volumes.

Electric / Hybrid Technologies

Proposed Project: Develop and Demonstrate MD and HD On-Road and Off-Road Battery Electric and Hybrid Vehicles and Equipment

\$3,400,000

Expected Total Cost: \$26,800,000

Description of Technology and Application:

The significance of transportation in overall carbon emissions is increasing as energy utilities move toward cleaner and more sustainable ways to generate electricity. U.S. EPA (2022)⁵ estimated that transportation was responsible for 27 percent of the nation's carbon emissions, while the electricity sector emissions accounted for 25 percent.

The South Coast AQMD has long been a leader in promoting early demonstrations of next generation LD vehicle propulsion technologies (and fuels). However, given the commercial availability of LD EVs, priorities have shifted. South Coast AQMD will continue to evaluate market offerings and proposed technologies in LD vehicles to determine if any future support is required.

Meanwhile, MD and HD vehicles make up 5⁶ percent of vehicles in the U.S. and drive 11⁷ percent of all vehicle miles traveled each year yet are responsible for more than 25⁸ percent of all the fuel burned annually. Moreover, the 2022 AQMP identified MD and HD vehicles as the largest source of NOx emissions in the Basin. Electric and hybrid technologies have gained momentum in the LD sector with commercial offerings by most of the automobile manufacturers. Unfortunately, significant emission reductions are needed for MD and HD vehicles and off-road equipment, exacerbated by low turnover of these vehicles by fleets and high incremental costs for battery electric vehicles and equipment compared to conventional-fueled vehicles and equipment.

The South Coast AQMD has investigated the use of electric and hybrid technologies to achieve similar performance as conventional-fueled counterparts while achieving emission reductions and improved fuel economy. Multiple natural gas and diesel hybrid vehicles have been developed and demonstrated under the DOE funded Zero Emissions Cargo Transport (ZECT), CARB Greenhouse Gas Reduction Fund (GGRF) and NREL's Natural Gas Vehicle Consortium. These hybrid trucks all share plug-in capability and ability to operate in zero emission mode, and some leveraging advanced concepts such as geofencing and EcoDrive to maximize emission reductions in disadvantaged communities. CARB's Advanced Clean Trucks (ACT) and Advanced Clean Fleets (ACF) regulations further provided additional compliance flexibility for plug-in hybrids. Vehicle based hybrid systems continue to progress for additional emission reductions and efficiency improvements. Engine powertrain based hybrid systems began to emerge since the introduction of optional hybrid powertrain test procedures.

Vehicle categories to be considered for potential or future demonstration and deployment projects include drayage/freight/regional haul trucks, utility trucks, last mile delivery vans, shuttle buses, transit buses, waste haulers, construction equipment, cranes and other off-road equipment such as yard tractors, forklifts, top

⁵ U.S. Greenhouse Gas Emissions and Sinks 1990-2020. 2022. <u>https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions</u>

⁶ <u>https://www.bts.gov/content/number-us-aircraft-vehicles-vessels-and-other-conveyances</u>

⁷ <u>https://www.bts.gov/content/us-vehicle-miles</u>

⁸ https://www.bts.gov/content/fuel-consumption-mode-transportation

handlers, and RTG cranes. Innovations that may be considered for demonstration and deployment include advancements in the auxiliary power unit, either ICE or other heat engine; and battery-dominant plug-in hybrid systems utilizing off-peak charging, with advanced battery technologies including alternative chemistries, design, and management systems. Alternative fuels are preferred in these projects, e.g., natural gas, especially from renewable sources, LPG, hydrogen, gas-to-liquid (GTL) and hydrogen-natural gas blends, but conventional fuels such as gasoline, renewable diesel, or even modified biodiesel may be considered if emission benefits can be demonstrated as equivalent or superior to alternative fuels. Both new designs and retrofit technologies and related charging infrastructure will be considered.

Both on-road vehicles and off-road equipment are transitioning increasingly towards zero emission technologies. Off-road equipment includes cargo handling equipment as well as construction equipment. The Volvo LIGHTS project included certification of Volvo's Class 8 battery electric truck, and the demonstration of a zero-emission freight handling system including 30 Class 8 battery electric trucks, 29 battery electric yard tractors and forklifts, 56 chargers and solar/energy storage at fleets DHE and NFI. Volvo Construction Equipment just recently finished demonstrating a small battery electric compact excavator and wheel loader in California that was commercially released in late 2021. Several other manufacturers have released battery electric and hybrid equipment, and more are becoming commercially available. CARB has introduced the Clean Off-Road Equipment Voucher Incentive Project (CORE) which have been seeing great success in deploying zero-emission cargo handling equipment and switch locomotives. The most recent round of funding in 2022 included off-road construction equipment. Since the applications are more diverse in this sector, continued development and incentives are needed to accelerate progress in this sector, especially for large mobile off-road equipment where infrastructure solutions are more difficult.

This project category will develop and demonstrate:

- various electric vehicles and equipment;
- anticipated costs for electric vehicles and equipment;
- customer interest and preferences for these alternatives;
- integration of technologies into prototype vehicles and fleets;
- battery electric and hybrid-electric MD and HD vehicles (e.g., drayage/freight/regional haul trucks, utility trucks, delivery vans, shuttle buses, transit buses, waste haulers);
- development and demonstration of battery electric off-road equipment, (e.g., battery electric offroad cargo handling such as yard tractors, forklifts and top-handlers, and construction equipment;
- development and demonstration of hybrid and plug-in hybrid vehicle technology; and

Potential Air Quality Benefits:

The 2022 AQMP identifies zero or near-zero emission vehicles as a key attainment strategy. Plug-in hybrid electric technologies have the potential to achieve near-zero emission while retaining the range capabilities of conventional-fueled vehicles, a key factor expected to enhance broader consumer acceptance. Given the variety of EV systems under development, it is critical to determine actual emission reductions and performance metrics compared to conventional-fueled vehicles. Successful demonstration of optimized prototypes would promise to enhance the deployment of zero and near-zero emission technologies.

Expected benefits include the establishment of criteria for emission evaluations, performance requirements, and customer acceptability of the technology. This will help both regulatory agencies and OEMs to expedite introduction of zero and near-zero emission vehicles in the Basin, which is a high priority of the 2022 AQMP.

Proposed Project: Demonstrate Alternative Energy Storage

Expected South Coast AQMD Cost:	\$300,000		
Expected Total Cost:	\$1,000,000		

Description of Technology and Application:

The South Coast AQMD has been involved in the development and demonstration of energy storage systems for electric and hybrid-electric vehicles, mainly lithium ion chemistry battery packs. Over the past few years, new technologies, especially lithium-ion batteries have shown robust performance. Other technology manufacturers have also developed energy storage devices including beyond lithium-ion batteries, flywheels, hydraulic systems and ultracapacitors. Energy storage systems optimized to combine the advantages of ultracapacitors and high-energy but low-power advanced batteries could yield benefits. Beyond lithium-ion batteries (e.g., lithium-sulfur, lithium-oxygen, sodium-ion, flow, and solid-state batteries) also have opportunities to achieve higher energy density, longer cycle life, and lower cost.

This project category is to apply these advanced storage technologies in vehicle platforms to identify best fit applications, demonstrate their viability (reliability, maintenance and durability), gauge market preparedness, evaluate costs relative to current lithium-ion batteries and provide a pathway to commercialization. The use of alternative energy storage and generation (i.e. solar) could also be in combination with a large scale deployment of 50 or more battery electric trucks and charging infrastructure at a single fleet location for energy storage optimization for grid reliability and offset electricity demand charges.

The long-term objective of this project is to decrease fuel consumption and resulting emissions without any changes in performance compared to conventional-fueled vehicles. This effort will support several projects for development and demonstration of battery electric and hybrid electric vehicles using advanced energy storage strategies and conventional or alternative fuels. The overall net emissions and fuel consumption of these types of vehicles are expected to be much lower than traditional engine systems. Both new and retrofit technologies will be considered.

Additionally, this project will also assess potential for second life uses of electric vehicle batteries for storage as well as the longer term more cost-effective recycling approaches currently in a nascent "pilot" stage, especially for metals such as lithium and cobalt.

Potential Air Quality Benefits:

Certification of battery electric and hybrid electric vehicles and engines and their integration into the Basin's transportation sector is a high priority under the 2022 AQMP. This project is expected to further efforts to develop alternative energy storage technologies that could be implemented in MD and HD trucks, buses, off-road equipment, and other applications. Benefits will include proof of concept for new technologies, diversification of transportation fuels and lower emissions of criteria, toxic pollutants and greenhouse gases.

Proposed Project: Demonstrate Light-Duty Battery Electric Vehicles and Plug-In Hybrid Vehicles

Expected South Coast AQMD Cost:	\$160,000		
Expected Total Cost:	\$160,000		

Description of Technology and Application:

This proposed project would support the demonstration of limited production and early commercial LD BEVs and PHEVs using advanced technology, mainly through showcasing this technology. Recent designs of LD BEVs and PHEVs provide increased electric range, improved efficiency and recharge times, and other advanced safety, energy, autonomous and performance features in new platforms and applications that can accelerate EV adoption.

South Coast AQMD has included BEVs and PHEVs as part of its demonstration fleet since the development of early conversion vehicles. South Coast AQMD installed 92 Level 2 EV charging ports in 2017 and a DC fast charger with CHAdeMO and CCS1 connectors in 2018 to support public and workplace charging as a means of education outreach regarding BEV and PHEV technology. Thirty networked Level 2 fleet chargers were added through the Southern California Edison Charge Ready Fleet program in 2020, which will help South Coast AQMD acquire 8,500 GVW and over ZEVs like LD trucks and vans to comply with the upcoming CARB Advanced Clean Fleet regulation.

LD BEVs and PHEVs are available from most established OEMs and several new OEMs. Current legislation extends solo carpool lane access only for MY 2019 and later vehicles, with all Clean Air Vehicle decals expiring between 2023 - 2025, unless legislation is adopted to continue.

Potential Air Quality Benefits:

The 2022 AQMP identifies the need to implement LD EVs. South Coast AQMD adopted fleet regulations require public and some private fleets within the Basin to acquire alternatively fueled vehicles when making new purchases. In the future, such vehicles could be powered by BEVs. The proposed projects have the potential to accelerate commercial viability of BEVs and PHEVs. Expected immediate benefits include the deployment of ZEVs in South Coast AQMD's demonstration fleet. Over the longer term, the proposed projects could also lead to significant fuel economy improvements, manufacturing innovations and the creation of high-tech jobs in Southern California, besides realizing the air quality benefits projected in the 2022 AQMP.

Zero Emission Infrastructure

Proposed Project: Develop and Demonstrate Hydrogen Production and Fueling Stations

Expected South Coast AQMD Cost:	\$2,000,000		
Expected Total Cost:	\$6,500,000		

Description of Technology and Application:

Alternative fuels, such as hydrogen and the use of advanced technologies, such as FCVs, are necessary to meet future clean air standards. A key element in the widespread acceptance and resulting increased use of alternative fuel vehicles is the development of a reliable and robust infrastructure to support the fueling of vehicles, cost-effective production and distribution and clean utilization of these new fuels.

A challenge to the entry and acceptance of direct-hydrogen FCVs is the limited number and scale of hydrogen fueling and production sites. This project would support the development and demonstration of hydrogen fueling technologies with a focus on MD/HD fueling infrastructure. Proposed projects would address:

Fleet and Commercial Fueling Stations: Further expansion of the hydrogen fueling network based on retail models, providing renewable generation, adoption of standardized measurements for hydrogen fueling, other strategic fueling locations, dispensing pressures that support zero emission vehicle deployment and compatibility with existing CNG stations may be considered.

Energy Stations: Multiple-use energy stations that can produce hydrogen for FCVs or stationary power generation are considered an enabling technology and potentially cost-competitive with large-scale reforming. System efficiency, emissions, hydrogen throughput, hydrogen purity and system economics will be monitored to optimize strategies for hydrogen fueling infrastructure deployment and to produce power and hydrogen from renewable feedstocks (e.g., biomass, digester gas) and store hydrogen in larger scale.

Innovative Fueling Appliances: Home or small scale fueling/charging is an attractive advancement for alternative clean fuels for potential applications. This project would evaluate an innovative hydrogen refueler for cost, compactness, performance, durability, emission characteristics, ease of assembly and disassembly, maintenance and operations. Other issues such as setbacks, building permits, building code compliance and UL ratings for safety would also be evaluated.

• CARB projections for on-road FCVs counts are now 30,800 in 2024 and 61,000 in 2027 in California⁹ and the majority of these do not include MD and HD vehicles deployed in the Basin. To meet demand, the number of hydrogen fueling infrastructures needs to be significantly increased and become more reliable in terms of uptime and supply. South Coast AQMD will seek additional funding from CEC and CARB to construct and operate hydrogen fueling stations and take advantage of funding opportunities that may arise soon with the California hydrogen hub application and others such as anticipated adoption of the Advanced Clean Fleets Regulation.

Potential Air Quality Benefits:

The 2022 AQMP identifies the use of alternative clean fuels in mobile sources as a key attainment strategy. Pursuant to AQMP goals, the South Coast AQMD has several fleet rules in effect that require public and

⁹ California Air Resources Board. 2021 Annual Evaluation of Fuel Cell Vehicle Deployment & Hydrogen Fuel Station Network Development (AB 8 Report). September 2021.

certain private fleets to purchase clean-burning alternative-fueled vehicles when adding or replacing vehicles to their vehicle fleets. The Warehouse Indirect Source Rule (ISR) also requires certain warehouse owners and operators to comply with the rule by operating clean fuel vehicle technologies. FCVs constitute some of the cleanest alternative-fuel vehicles today. Since hydrogen is a key fuel for FCVs, this project would address some of the barriers faced by hydrogen as a fuel with the focus on MD/HD infrastructure and thus assist in accelerating its acceptance and ultimate commercialization. In addition to supporting the immediate deployment of the demonstration fleet, expanding the hydrogen fuel infrastructure should contribute to the market acceptance of fuel cell technologies in the long run, leading to substantial reductions in NOx, VOC, CO, PM and toxic compound emissions from vehicles.

Proposed Project: Develop and Demonstrate Electric Charging Infrastructure

Expected South Coast AQMD Cost:	\$4,500,000		
Expected Total Cost:	\$47.361.774		

Description of Technology and Application:

There is a critical need to address gaps in EV charging infrastructure availability. Thirty nine percent of the 2,826,923¹⁰ EVs sold in the U.S. since 2010 were in California, and of those sales in California, almost half (46 percent) of CVRP¹¹ rebates issued as of April 2021 were for vehicles in the South Coast AQMD. In addition, the California *ZEV Action Plan*, which was updated in 2018, calls for 5 million ZEVs and supporting infrastructure by 2030.

There are separate challenges associated with infrastructure for LD EVs vs. MD and HD EVs, which are on opposite ends of the commercialization spectrum. LD EVs and charging infrastructure have long been commercially available with an SAE J1772 connector standard for Level 1 and Level 2 charging. Availability of public fast charging and workplace charging continues to increase and is needed particularly for residents in multi-unit dwellings without easy access to home charging. Availability and costs to deploy infrastructure are the main challenges for LD EVs.

MD and HD EVs are becoming more commercially available, with Daimler and Volvo obtaining CARB certification of their Class 6 and/or 8 battery electric trucks in 2020. Standards for charging infrastructure to support MD and HD EVs has generally been with the CCS1 connector in North America. Although Volvo and ABB obtained UL certification of the CCS2 connector in 2020, which is a connector standard predominantly used in Europe and other parts of the world, the CCS1 connector continues to be the standard connector for charging up to 350 kW DC. A Megawatt Charging System connector is under development by the Charging Interface Initiative (CharIN) for Class 6 -8 EVs for charging up to 4.5 MW DC, although there are no EVs which are currently capable of accepting charging above 350 kW DC. There is also an agreed upon SAE J3068 connector standard for single-phase and three-phase AC charging. The challenges and costs of installing MD and HD charging infrastructure are exponentially increased compared to LD infrastructure. Each year there are more commercially available options for MD and HD on-road EVs and off-road equipment, charging infrastructure to HD EVs, equipment, and infrastructure. As the deployment of MD and HD EVs and off-road equipment has increased, there is an increasing reliance on the use of standardized charging connectors that are UL or Nationally Recognized Testing Laboratory (NRTL) certified charging infrastructure, as opposed to proprietary charging infrastructure and connectors which can only be used with EVs and equipment manufactured by that OEM or equipment manufacturer. Further, for off-road mobile applications where a fixed charging solution is not feasible, innovative solutions must be explored and demonstrated.

The South Coast AQMD is actively pursuing development of intelligent transportation systems, such as Volvo's EcoDrive 2.0 software platform being utilized for the GGRF Zero Emission Drayage Truck (ZEDT) and Volvo LIGHTS projects, to improve traffic efficiency of battery electric and fuel cell electric drayage/freight trucks. This system provides truck drivers real-time vehicle operation feedback based on changing traffic and road conditions where trucks can dynamically change their speed to better flow through intersections. EcoDrive also uses geofencing capabilities to operate in zero emissions mode while traveling through disadvantaged communities. A truck eco-routing system can provide the eco-friendliest travel route based on truck engine/emission control characteristics, loaded weight, road grade and real-time traffic

¹⁰ <u>https://www.veloz.org/ev-market-report/</u>. Q2 2022 data uploaded on 8/23/22.

¹¹ <u>https://cleanvehiclerebate.org/eng/rebate-statistics</u>

conditions. Integrated programs can interconnect fleets of electric drive vehicles with mass transit via webbased reservation systems that allow multiple users. These integrated programs can match the features of EVs (zero emissions, zero start-up emissions, short range) to typical consumer demands for mobility in a way that significantly reduces emissions of pollutants and greenhouse gases. As part of the demonstration of the Volvo diesel plug-in hybrid electric truck for the ZEDT project, this truck will be demonstrated in California for six months starting in November 2020 and data will be collected on the performance of EcoDrive 2.0 through the connector vehicle corridor in Carson that was set up as part of the CEC funded Eco FRATIS¹² freight transportation connected truck project.

This project category is one of South Coast AQMD's continued efforts to:

- deploy a network of DC fast charging infrastructure (350kW or more) and rapidly expand the existing network of public EV charging stations including energy storage systems;
- deploy DC fast charging infrastructure (500 kW or more) in conjunction with energy storage and/or solar to support large scale deployments of 50 or more battery electric trucks at a single fleet location;
- charging infrastructure and innovative systems (i.e. solar or battery swap) to support MD and HD vehicle and off-road equipment demonstration and deployment projects;
- regional planning for MD/HD charging;
- Develop MD/HD charging infrastructure solutions that provide easier installation through reduced grid reliance and increased resiliency;
- support investigation of fast charging impacts on battery life;
- develop intelligent transportation system strategies for cargo containers; and
- develop freight load-balancing strategies as well as to conduct market analysis for zero emission HD trucks in goods movement.

Potential Air Quality Benefits:

The 2022 AQMP identifies zero emission vehicles as a key attainment strategy. MD/HD infrastructure is currently a limiting factor to deploying battery electric trucks for many fleets. This proposed project category will reduce PM pollution along major roadways through the expansion of the public EV charging infrastructure network by allowing drivers to shift away from conventional-fueled vehicles to battery and fuel cell EVs. In addition, this project will assist in achieving improved fuel economy and lower tailpipe emissions, further helping the region to achieve NAAQS and protect public health. Expected benefits include the establishment of criteria for emission evaluations, performance requirements and customer acceptability of the technology. This will help both regulatory agencies and OEMs to expedite introduction of ZEVs in the Basin, which is a high priority of the 2022 AQMP.

¹² https://www.aapa-ports.org/files/PDFs/ITS%20POLA%204.24.2019.pdf

Engine Systems / Technologies

Proposed Project: Develop and Demonstrate Advanced Gaseous- and Liquid-Fueled MD and HD Engines and Vehicles Technologies to Achieve Ultra-Low Emissions

Expected South Coast AQMD Cost:	\$500,000		

Expected Total Cost: \$2,000,000

Description of Technology and Application:

The objective of this proposed project would be to support development and certification of nearcommercial prototype low emission MD and HD gaseous- and liquid-fueled engine technologies, as well as integration and demonstration of these technologies in on-road vehicles. The NOx emissions target for this project area is 0.02 g/bhp-hr or lower and the PM emissions target is below 0.01 g/bhp-hr. The recent development of low-NOx diesel or natural gas engine hybrid/plug-in hybrid powertrain has also shown the potential for achieving lower NOx as a combined system. To achieve these targets, an effective emissions control strategy must employ advanced fuel system and engine design features such as CDA, aggressive engine calibration and improved thermal management, improved exhaust gas recirculation (EGR) systems, and aftertreatment devices that are optimized using a system approach. This effort is expected to result in several projects, including:

- development and demonstration of advanced engines in MD and HD vehicles and high horsepower (HP) applications;
- development of durable and reliable retrofit technologies to significantly reduce NOx emissions;
- field demonstrations of advanced technologies in various fleets operating with different classes of vehicles;
- development and demonstration of CNG, propane and diesel hybrid powertrain technology; and
- development and demonstration of optimized engine systems for use with low- and zero carbon alternative fuels such as hydrogen

Anticipated fuels for these projects include but are not limited to alternative fuels (fossil fuel-based and renewable natural gas, propane, hydrogen blends, ethanol, electric and hybrid), conventional and alternative diesel fuels, ultra-low sulfur diesel, renewable diesel, dimethyl ether and gas-to-liquid fuels. There has been significantly more interest as well as a mandate requiring the use of renewable fuels across all sectors due to CARB's Low Carbon Fuel Standard (LCFS). Projects listed under Fuel/Emissions Studies will assess the emissions impact of renewable fuels on past and future optimized combustion technologies. Several key diesel engine development projects that have demonstrated the ability to achieve 0.02 g/bhp-hr NOx under laboratory conditions are near the on-road truck demonstration stage. Truck integration and packaging are another critical step towards commercialization. Prototype trucks are typically placed in revenue service to collect real-world performance data as well as end user feedback for production engines. Furthermore, with the new in-use and low-load emissions requirements within the CARB Omnibus and the U.S. EPA CTI regulations, we expect these new generation of low-emission engines to comply with the low emissions standard for their full useful life.

The use of alternative fuel in HD trucking applications has been demonstrated in certain local fleets within the Basin. These vehicles typically require 200-400 HP engines. Higher HP alternative fuel engines for long-haul applications are beginning to be introduced. However, vehicle range, lack or limited accessible public infrastructure, lack of experience with alternative fuel engine technologies, limited selection of appropriate alternative fuel engine products, and high initial cost have made it difficult for more fleets to

adopt and deploy larger quantity of alternative fuel vehicles. For example, in recent years, several large trucking fleets have expressed interest in using alternative fuels but requires higher horsepower engines that able to fulfill the full range of needs. However, at this time the choice of engines over 400 HP or more was not available. Continued development of cleaner dedicated alternative gaseous- or diesel-fueled engines over 400 HP with low NOx emissions, would increase availability to end-users and provide additional emission reductions for long-haul applications. The applications that require high power/torque levels such as long haul are also the applications where zero emission technologies and supporting infrastructures will take longer to become commercially available. South Coast has been supporting effort for developing high power natural gas engines that address that gap.

Moreover, as incentive funding shifts away as clean combustion technologies reach full commercial readiness, development of cost-effective technologies that do not rely on incentives are key to drive additional market penetration and emissions reduction. South Coast AQMD has investigated the emergence of cost-effective hybrid and plug-in hybrid powertrain technologies to achieve targeted lower-NOx emission standard while with improved fuel economy. Cost-effective hybrid technologies that offer reasonable payback period could potentially offer a faster commercialization pathway for reducing both NOx and GHG in the near term by strategically utilizing the existing ICEs and electric components together to assists engine operation and maintain aftertreatment temperature and efficiency. Manufacturers of Emission Controls Association's (MECA) 2019 low NOx white paper analysis shows that these newly integrated hybrid powertrains could potentially achieve the CARB 2024-2026 NOx standard of 0.05 g/bhp-hr while maintaining reasonable costs and offering a feasible pathway to 0.02 g/bhp-hr. Due to the slow fleet turn over, the legacy 2010+ diesel fleet will remain in service well into the 2030s and beyond, especially for the high powered applications. Thus, continued development of cost-effective low emission engine technologies is key to reduce the impact of legacy fleets in our region.

Potential Air Quality Benefits:

This project is intended to expedite the commercialization of near-zero emission gaseous- and liquid-fueled MD and HD engine technology both in the Basin and in intrastate operation. The emissions reduction benefits of replacing one 4.0 g/bhp-hr HD engine with a 0.02 g/bhp-hr engine in a vehicle that consumes 10,000 gallons of fuel per year is about 1,400 lb/yr of NOx. MD and HD engines between 6L to 12L using natural gas and propane achieving NOx emissions of 0.02 g/bhp-hr have been certified and commercialized, with larger displacement and advanced technology (e.g., opposed piston) engines still undergoing development. Further, renewable or blended alternative fuels can also reduce HD engine particulate emissions by over 90 percent compared to current diesel technology. The key to future engine system project success are emissions, cost-effectiveness and availability of future incentives. This project is expected to lead to increased availability of low emission alternative fuel HD engines. Fleets can use the engines and vehicles emerging from this project to comply with South Coast AQMD fleet regulations and towards compliance of the 2022 AQMP control measures as well as future CARB and U.S. EPA low NOx regulations.

Proposed Project: Develop and Demonstrate Alternative Fuel and Clean Conventional Fueled Light-Duty Vehicles

Expected South Coast AQMD Cost:	\$0
Expected Total Cost:	\$ 0

Description of Technology and Application:

Although new conventionally fueled vehicles are much cleaner than their predecessors, not all match the lowest emissions standards often achieved by alternative fuel vehicles. This project would assist in the development, demonstration and certification of both alternative-fueled and conventional-fueled vehicles to meet the strictest emissions requirements by the state, e.g., SULEV for light-duty vehicles. The candidate fuels include CNG, LPG, ethanol, GTL, renewable diesel and hydrogen, and other novel technologies including electric hybrids. The potential vehicle projects may include:

- certification of CNG light-duty sedans and pickup trucks used in fleet services;
- assessment of "clean diesel" vehicles, including hybrids and their ability to attain SULEV standards;
- assessment of other clean technologies; and
- other fuel and technology combinations may also be considered under this category.

Potential Air Quality Benefits:

The 2022 AQMP identifies the use of alternative clean fuels in mobile sources as a key attainment strategy. Pursuant to AQMP goals, South Coast AQMD has in effect several fleet rules that require public and certain private fleets to purchase clean-burning alternative-fueled vehicles when adding or replacing vehicles to their vehicle fleets. This project is expected to lead to increased availability of low emission alternative-and conventional-fueled vehicles for fleets as well as consumer purchase.

Proposed Project:	Develop and D	Demonstrate	Low	Emission	Locomotive	Technologies	and	After
	Treatment Syste	ems						

Expected South Coast AQMD Cost:	\$176,300
Expected Total Cost:	\$1,000,000

Description of Technology and Application:

This project aims to support the development and demonstration of gaseous and liquid-fueled locomotive engines. With the upcoming revision of locomotive regulations and the plan to establish Tier 5 or cleaner locomotive emission standards, railroads are exploring the possibility of transitioning from diesel to cleaner fuels or installing aftertreatments to the existing locomotives. The railroad is also considering alternative fuels for its potential economic benefit as compared with diesel fuel. The requirements of locomotive engines as primary generators of electricity to power the locomotive poses serious challenges. From an operational standpoint, there is a significant difference between natural gas and diesel energy density, a fuel tender would need to provide sufficient fuel for an acceptable range. Locomotives operate at a specific duty cycle different than conventional on-road engines. The engines often run at low speed and have extended periods of idle time. The durability requirements also surpass other forms of transportation.

Large displacement gaseous fueled engines are still in early stages of commercialization in the U.S., especially in the marine sector. The development of engines and systems to fill this need is currently ongoing in the locomotive sector. Engine emissions are expected to be below the current 0.2g/bhp-hr NOx standard. Adaptation of alternative fueled locomotives in coordination with required infrastructure improvements by leading manufacturers in the industry, shows great potential for further research and cost savings with fewer maintenance costs and better reliability. Depending on the type of combustion strategy, aftertreatments are likely needed to achieve Tier 4 or cleaner emission standards. Urea-based selective catalytic reduction (SCR) or exhaust gas recirculation (EGR) can be used to reduce NOx emissions and methane slip. Similar low and zero carbon fueled engines could migrate as a retrofit option.

Potential Air Quality Benefits:

The 2022 AQMP identifies the use of low emissions technologies for locomotives where zero emission technologies are not yet commercially available. This project is expected to reduce emissions of around 97 tons per year of NOx per locomotive. The reduction of PM and GHG emissions also show great potential mitigation in environmental justice communities.

RNG Infrastructure (Renewable Natural Gas and Renewable Fuels)

Proposed Project: Demonstrate Near-Zero Emission Hybrid and Hydrogen ICE Vehicles in Various Applications

Expected South Coast AQMD Cost:	\$0
Expected Total Cost:	\$0

Description of Technology and Application:

Natural gas vehicles (NGVs) have been very successful in reducing emissions in the Basin due to the deployment by fleet owners and operators of HD vehicles utilizing this fuel. Currently, an increasing number of on-road HD natural gas engines are being certified to CARB's optional low-NOx standards which are significantly lower in NOx emissions than the current on-road HD standard. This technology category seeks to support the expansion of OEMs producing engines or systems certified to the lowest optional NOx standard or near-zero emission and useable in a wide variety of MD and HD applications, including Class 6 vehicles such as school buses and in passenger and goods delivery vans, Class 7 vehicles such as transit buses, waste haulers, street sweepers, sewer-vector trucks, dump trucks, concrete mixers, commercial box trucks, Class 8 tractors used in goods movement and drayage operations, and off-road equipment such as construction vehicles and yard hostlers. This category can also include advancing engine technologies to improve engine efficiencies that will help attract HD vehicle consumers to NGVs. Under Engine Systems, South Coast AQMD supports efforts for development of high-powered NGVs to support long-haul applications. Increasing natural gas engine availability for the full range of applications would increase NGV deployment in long-haul applications where diesel engines have been the only feasible option.

Potential Air Quality Benefits:

NGVs have inherently lower engine criteria pollutant emissions relative to conventionally fueled vehicles, especially older diesel-powered vehicles. Recently, on-road HD engines have been certified to near-zero emission levels that are 90% lower in NOx than the current on-road HDV standard. California's On-Road Truck and Bus Regulation requires all on-road HDVs to meet the current standard by January 1, 2023. The deployment of near-zero emission vehicles would significantly further emission reductions relative to the state's current regulatory requirements. Incentivizing the development and demonstration of near-zero emission NGVs in private and public fleets, goods movement applications, and transit buses will help reduce local emissions and emissions exposure to nearby residents. NGVs can also have lower GHG emissions and increase energy diversity, help address national energy security objectives, and reduce biomass waste produced from such feedstocks. Deployment of additional NGVs is consistent with the 2022 AQMP goal to reduce criteria pollutants. When fueled by RNG, it supports California's objectives of reducing GHGs and carbon intensity of the state's transportation fuel supply, as well as the federal government's objective of increasing domestically produced alternative transportation fuels.

Proposed Project: Develop, Maintain & Expand Renewable Fuel Infrastructure

Expected South Coast AQMD Cost:	\$200,000		
Expected Total Cost:	\$2,100.000		

Description of Technology and Application:

This project supports the development, maintenance and expansion of natural gas fueling infrastructure in strategic locations throughout the Basin, including the Ports, and advancing technologies and station design to improve fueling and fueling efficiencies of HD NGVs. This category supports broader deployment of near-zero emission HD vehicles and implementation of South Coast AQMD's fleet rules. In addition, as natural gas fueling infrastructure begins to age or has been placed in demanding usage, components will deteriorate. This project offers facilities the opportunity to replace worn-out equipment or to upgrade existing fueling and/or garage and maintenance equipment to provide increased fueling capacity to public agencies, private fleets and school districts.

Potential Air Quality Benefits:

The 2022 AQMP identifies the use of alternative clean fuels in mobile sources as a key attainment strategy. HD NGVs have significantly lower emissions than their diesel counterparts and represent one of the cleanest ICE-powered vehicles available today. The project has the potential to significantly reduce the installation and operating costs of NGV fueling infrastructure and improve vehicle fueling times through improved fueling system designs and high-flow nozzles. New or improved NGV infrastructure helps facilitate near-zero emission NGVs in private and public fleets. It is expected that the lower fuel cost of natural gas relative to diesel and added financial incentives of RNG under the state's Low Carbon Fuel Standard (LCFS) program attract fleets and consumers to this technology. Increased exposure and fleet and consumer acceptance of NGVs will lead to significant and direct reductions in NOx, VOC, CO, PM and toxic compound mobile source emissions. Such increased penetration of NGVs will provide direct emission reductions of NOx, VOC, CO, PM and air toxic compounds throughout the Basin.

Proposed Project: Demonstrate Renewable Transportation Fuel Manufacturing and Distribution Technologies

Expected South Coast AQMD Cost:	\$0
Expected Total Cost:	\$0

Description of Technology and Application:

The transportation sector represents a significant source of criteria pollution in the Basin. Clean, alternative fuel-powered transportation is a necessary component for this region to meet NAAQS. Alternative fuels produced from renewable sources such as waste biomass help further efforts associated with landfill and waste diversion, GHG reduction, energy diversity and petroleum dependency. Locally produced renewable fuels further reduce concerns associated with out-of-state production and transmission of fuel and help support the local economy. Renewable fuels recognized as a transportation fuel under the state's LCFS program and the federal government's Renewable Fuel Standard program can provide financial incentives, including reduced fuel price and operational costs, which act as incentives to purchase and deploy alternative or renewable energy powered vehicles.

This project category will consider development and demonstration of technologies for the production and use of renewable transportation fuels such as RNG, renewable diesel (RD), and renewable hydrogen (RH). These renewable fuels can be converted from various waste biomass feed stocks, including municipal solid wastes, green waste, and biosolids produced at wastewater treatment facilities generated from anaerobic digestion, gasification, and pyrolysis.

The main objectives of this project are to investigate, develop and demonstrate:

- commercially viable methods for converting renewable feed stocks into CNG, LNG, hydrogen or diesel (e.g., production from biomass);
- economic small-scale natural gas liquefaction technologies;
- utilization of various gaseous feed stocks locally available;
- commercialize incentives for fleets to site, install and use RNG refueling facilities; and
- pipeline interconnection in the local gas grid to supply users.

Potential Air Quality Benefits:

The 2022 AQMP relies on a significant increase in the penetration of zero and near-zero emission vehicles in the Basin to attain the NAAQS by 2037. This project would help develop renewable transportation fuel production and distribution facilities to improve local production and use of renewable fuels to help reduce transportation costs and losses as well as reduce total operating costs of zero and near-zero emission vehicles to be competitive with comparable diesel fueled vehicles. Such advances in production and use are expected to lead to greater infrastructure development. Additionally, this project could support the state's goal of redirecting biomass waste for local fuel production and reduce GHGs associated with these waste biomass feedstocks.

Stationary Clean Fuel Technologies

Proposed Project: Develop and Demonstrate Microgrids with Photovoltaic/Fuel Cell/Battery Storage/EV Chargers and Energy Management

Expected South Coast AQMD Cost:	\$1,000,000

Expected Total Cost: \$4,000,000

Description of Technology and Application:

CARB has proposed the Advanced Clean Truck Regulation which is part of a holistic approach to accelerate a large-scale transition of zero emission MD and HD vehicles from Class 2B to Class 8. 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 2030. By 2030, zero emission truck/chassis sales would need to be 50% of Class 4–8 straight trucks sales and 15% of all other truck sales.

The commercialization of zero emission HD trucks is currently under way with two of the largest manufacturers offering commercial products in California. Both Daimler and Volvo obtained CARB certification of their Class 6 and/or 8 battery electric trucks in 2020, with these trucks eligible for HVIP and other incentives and commercially available for sale. South Coast AQMD also received \$16M in CARB and \$11M in CEC funding, as well as \$34M in co-funding from project partners for the deployment of 100 Daimler and Volvo Class 8 battery electric trucks, solar, and energy storage for the JETSI Pilot Project for drayage and regional haul applications. Ever larger deployments of zero emission trucks will be needed for the technology to have an impact on air quality.

Large deployments of zero emission Class 8 battery electric trucks (BETs) each carrying 300+ kWh of battery-stored energy or fuel cell trucks (FCTs) carrying 30-50 kg of hydrogen will require costly infrastructure that creates a barrier for some fleets to adopt zero emission technologies. Many fleet operators lease their facilities making the capital expenditure of EV or hydrogen infrastructure impossible to recoup in a short period of time. In order to comply with existing and upcoming regulatory requirements, fleets are having to navigate challenges in installing and maintaining charging and/or fueling infrastructure. Microgrids can be instrumental in meeting the challenge of providing large amounts of energy cost-effectively for EV charging or hydrogen generation to support zero emission vehicle charging and fueling. Additionally, if the microgrid equipment is owned by a third party and energy is sold to the fleet through a power purchase agreement, the financial challenge of large capital investment can be avoided by the fleets.

A microgrid is a group of interconnected loads and distributed energy resources within clearly defined electrical boundaries that acts as a single controllable entity with respect to the grid. A microgrid can connect and disconnect from the grid to enable it to operate in both grid-connected and island-mode. Microgrids can work synergistically with the utility grid to provide power for zero emission vehicle fueling by managing when energy from the grid is used–during off-peak hours when it is the least expensive. Then during peak demand periods, the microgrid would use energy from battery storage or onsite generation. Most technologies that make up microgrids include photovoltaic, fuel cells, battery storage, along with hardware and software for the energy management system (EMS). When grid service is interrupted, the microgrid can disconnect from and continue to operate as an energy island independent from the grid. Having assurance of an uninterrupted power source is an important consideration for fleets. If the microgrid is connected to the fleet's logistics and telematics systems, additional benefits in terms of infrastructure cost and battery life for BETs can be realized. If the EMS is fed information on the route a truck is planning to travel, it can charge the vehicle with enough energy for the trip so the truck will operate within the desired 20-80% state of charge (SOC) of the battery having the least amount of impact to battery life. Additionally,

if the EMS is connected to the logistics system, it can plan charging schedules with 150 kW or lower power chargers which will have less impact on battery life than 350+ kW chargers and lower charging costs.

Electricity demand of electric and fuel cell HD trucks is substantial. For a 100-vehicle fleet of BETs with 300 kWh batteries, 30 MW hours/day of electricity would be required to charge these BETs. For a 100-vehicle fleet of FCTs the hydrogen requirement is 2,000 kg/day. Microgrids can provide energy for EV and hydrogen infrastructure to enable large zero emission vehicle deployments and make charging and fueling economical and reliable. Staff has demonstrated several microgrid projects with University of California Irvine and has toured the microgrid at University of California San Diego. Currently, several pilot projects are being discussed with microgrid developers and fleets that involve various configurations of microgrid technologies and different business models. Proposed projects would include development and demonstration of microgrids utilizing various types of renewable and zero emitting onsite generation (fuel cell tri-generation, power to gas, photovoltaic, wind), energy storage, connectivity to logistics systems, vehicle-to-grid and vehicle-to-building technologies. Projects that demonstrate different business models will be considered, such as projects involving a separate entity owning some or all the microgrid equipment and engaging in a power purchase agreement to provide energy to fleets transitioning to zero emission trucks. Proposed projects would partner with truck OEMs and their major customers, such as large- and medium-sized fleets looking at microgrid solutions for their operations in the Basin.

Potential Air Quality Benefits:

Microgrids can provide grid resilience and potentially support large deployments of zero emission MD and HD trucks that are necessary to meet the AQMP target of 83 percent NOx emission reductions from the 2018 level and 67 percent additional reductions in 2037 beyond already adopted regulations and programs by 2037. Both renewable and zero emitting power generation technologies that make up a microgrid can provide a well-to-wheel zero emission pathway for transporting goods. Projects could potentially reduce a significant class of NOx and CO emissions in excess of the assumptions in the 2022 AQMP and further enhance South Coast AQMD's ability to enforce full-time compliance.

Proposed Project: Develop and Demonstrate Zero or Near-Zero Emission Energy Generation Alternatives

Expected South Coast AQMD Cost:	\$200,000		
Expected Total Cost:	\$1,000,000		

Description of Technology and Application:

The objective of this project is to support development and demonstration of clean energy, renewable alternatives in stationary applications. The technologies to be considered include thermal, photovoltaic and other solar energy technologies; wind energy systems; energy storage potentially including vehicle to grid or vehicle to building functionalities for alternative energy storage; biomass conversion; and other renewable energy and recycling technologies. Innovative solar technologies, such as solar thermal air conditioning and photovoltaic-integrated roof shingles, are of particular interest. Also, in the agricultural sections of the Basin, wind technologies could potentially be applied to drive large electric motor-driven pumps to replace highly polluting diesel pumps. Besides renewable technologies, electrolyzer technology could be used to generate hydrogen as a clean fuel. Hydrogen, when used in ICEs, can potentially reduce tail-pipe emissions of NOx, while in fuel cells emissions are reduced to zero.

This project is expected to result in pilot-scale production demonstrations, scale-up process design and cost analysis, overall environmental impact analysis and projections for ultimate clean fuel costs and availability. This project is expected to result in several projects addressing technological advancements in these technologies that may improve performance and efficiency, potentially reduce capital and operating costs, enhance the quality of natural gas generated from renewable sources for injection into natural gas pipelines, improve reliability and identify markets that could expedite implementation of successful technologies.

Potential Air Quality Benefits:

The 2022 AQMP identifies that the development and implementation of non-polluting power generation could gain maximum air quality benefits. Polluting fossil fuel-fired electric power generation needs to be replaced with clean, renewable energy resources or other advanced zero emission technologies, such as hydrogen fuel cells, particularly in a distributed generation context to help provide grid resiliency as the transportation sector becomes more reliant on electricity.

This project is expected to accelerate implementation of advanced zero emission energy sources. Expected benefits include directly reducing emissions by displacement of fossil generation; proof-of-concept and potential viability for zero emission power generation systems; increased exposure and user acceptance of the new technology; reduced fossil fuel usage; and potential for increased use, once successfully demonstrated, with resulting emission benefits, through expedited implementation. These technologies would also have a substantial influence in reducing GHG emissions.

Fuel and Emissions Studies

Proposed Project: Conduct In-Use Emission Studies for Advanced Technology Vehicle Demonstrations

Expected South Coast AQMD Cost:	\$500,000
Expected Total Cost:	\$2,000,000

Description of Technology and Application:

Hybrid electric, hybrid hydraulic, plug-in electric hybrid and battery-electric and fuel cell electric vehicles will all play a role in the future of transportation. Each of these transportation technologies has attributes that could provide unique benefits to different transportation sectors. Identifying optimal placement of each transportation technology will provide the co-benefits of maximizing environmental benefit and return on investment.

South Coast AQMD has been supporting rapid deployment of near-zero emission natural gas technologies since the first HD engine became commercially available in 2015. As more near-zero emission natural gas, propane and other alternative fuel technologies penetrate different segments, in-use assessment of real-world benefit is needed especially as CARB and U.S. EPA have introduced a new in-use testing metric.

The CARB EMFAC 2017 model that the 2022 AQMP is based on uses emissions data from in-use emissions studies for calculating emission factors for HD trucks rather than certification data which has a relatively limited data set for alternative fuel vehicles. For the recently released EMFAC 2021, more complete natural gas engine modules have been included for the first time with emissions data gathered from the currently funded South Coast AQMD in-use emissions characterization effort. CARB and U.S. EPA low-NOx regulations focus on addressing the gap of in-use and certification values by introducing a new methodology that includes emissions from all operations. While staff expects the in-use emissions from new engines to perform closer to certification values, there is still a significant population of the MY 2010+ legacy fleet expected to remain in service well into the 2030s. There is always a need to better assess real world truck emissions, fuel economy, and activity from engines, hybrid powertrain and zero emission technologies for continued technology improvements and verification of emission reductions.

Environmental benefits for each technology class are duty-cycle and application specific. Identifying attributes of a specific application or drive cycle that would take best advantage of a specific transportation technology would speed adoption and make optimal use of financial resources in the demonstration and deployment of a technology. Adoption rates would be accelerated since intelligent deployment of a certain technology would ensure that a high percentage of demonstration vehicles showed positive results, which would spur adoption of this technology in similar applications, as opposed to negative results derailing further development of a certain technology.

This project would review and potentially coordinate application specific drive cycles for specific applications. Potential emission reductions and fossil fuel displacement for each technology in a specific application would be quantified on a full-cycle basis. This information could be used to develop a theoretical database of potential environmental benefits of different transportation technologies when deployed in specific applications. This duty-cycle requirement, often based on traditional vehicles, is used for planning purposes for building MD and HD public fueling stations. Furthermore, some of the standardized test cycles, like the chassis dyno-based cycle, can be used to evaluate efficiency of zero-emissions vehicles and direct comparisons with diesel and natural gas vehicles.

Another project would be characterization of intermediate volatility organic compound (IVOC) emissions, which is critical in assessing ozone and secondary organic aerosol (SOA) precursor production rates. Diesel

vehicle exhaust and unburned diesel fuel are major sources and contribute to formation of urban ozone and SOA, which is an important component of PM2.5. NGVs are also a concern due to lack of particulate filters, however the actual impact based on current and projected vehicle populations needs to be further studied.

While early developments in autonomous and vehicle-to-vehicle controls are focused on LD vehicles, early application of this technology to HD, drayage and container transport technologies is more likely. Impacts on efficiency and emissions could be substantial. A project to examine this technology to assess its effect on goods movement and emissions associated with goods movement could be beneficial at this time.

Potential Air Quality Benefits:

Development of an emissions reduction database for various application specific transportation technologies would assist in targeted deployment of new transportation technologies. This database coupled with application specific vehicle miles traveled and population data would assist in intelligently deploying advanced technology vehicles to attain the maximum environmental benefit. These two data streams would allow vehicle technologies to be matched to an application that is best suited to the specific technology, as well as selecting applications that are substantial enough to provide significant environmental benefits. Demonstration of a quantifiable reduction in operating cost through intelligent deployment of vehicles will also accelerate commercial adoption of various technologies. Accelerated adoption of lower emitting vehicles will further assist goals in the 2022 AQMP.

Proposed	Project:	Conduct	Emission	Studies	on	Biofuels,	Alternative	Fuels	and	Other	Related
		Environm	iental Impa	icts							

Expected South Coast AQMD Cost:	\$400,000
Expected Total Cost:	\$1,500,000

Description of Technology and Application:

The use of renewable fuels such as biofuels can be an important strategy to reduce petroleum dependency, air pollution and greenhouse gas emissions and help with California's aggressive GHG reduction goals. Biofuels are receiving increased attention due to national support and state activities resulting from SB 32, AB 1007 and the Low-Carbon Fuel Standard. With an anticipated increase in renewable fuel use, it is the objective of this project to further analyze these fuels to better understand their benefits and impacts not only on GHGs but also air pollution and associated health effects.

In various diesel engine studies, replacement of petroleum diesel fuel with renewable fuel has demonstrated reduced PM, CO and air toxics emissions. Renewable fuel also has the potential to reduce GHG emissions if made from renewable feedstocks such as soy and canola. However, certain blends of biodiesel can increase NOx emissions for some engines and duty cycles, which exacerbates ozone and PM2.5 challenges faced in the Basin. In addition, despite recent advancements in toxicological research in the air pollution field, the relationship between biodiesel particle composition and associated health effects is still not completely understood.

Ethanol is another biofuel that is gaining increased national media and state regulatory attention. CARB's reformulated gasoline regulation increases ethanol content to 10% as a means to increase the amount of renewable fuels in the state. As in the case of biodiesel, ethanol has demonstrated in various emission studies to reduce PM, CO and toxic emissions. However, the relationship between particle composition and associated health effects from the combustion of ethanol is not well understood either. In 2019, U.S. EPA approved 15% ethanol (E15) blends for year-round use and CARB, along with South Coast AQMD and other agencies, launched an emissions study of E15 to assess the emissions impact of the current fleet of California light duty vehicles. South Coast AQMD also has been monitoring efforts in using ethanol as a primary fuel for MD and HD applications in optimized engine systems that allows both criteria and GHG reductions which could be another pathway for reducing emissions due to abundance of ethanol from the light duty sector.

CARB recently proposed a regulation on commercialization of alternative diesel fuels, including biodiesel and renewable diesel, while noting that biodiesel in older HD vehicles can increase NOx. The need for emerging alternative diesel fuels for HD trucks and transit buses is also being studied. Researchers have proposed evaluating the emissions impact of RNG and other natural gas blends such as renewable hydrogen or pure hydrogen.

To address these concerns on potential health effects associated with biofuels, namely biodiesel and ethanol blends, this project will investigate physical and chemical composition and associated health effects of tailpipe PM emissions from LD to HD vehicles burning biofuels to ensure public health is not adversely impacted by broader use of these fuels. This project also supports future studies to identify mitigation measures to reduce NOx emissions from biofuels. Additionally, a study of well-to-wheel emissions from for the extraction and use of shale gas might be considered.

The Power-to-Gas concept has renewed interest in hydrogen-fossil fuel blends, and its emissions impact on the latest ICE technologies needs to be reassessed. Hydrogen fueled ICEs were studied heavily in the early 2000s and results have shown significant possible criteria emission reductions with optimized engine

calibration. Since then, ICE technologies have been fitted with advanced aftertreatment technologies to allow engines to be certified to today's lower NOx standards. Therefore, emissions impact assessment is needed on the latest ICE technologies.

In an effort to evaluate contribution of meteorological factors to high ozone and PM2.5 episodes occurring in the Basin, mainly as a result of higher summer temperatures and increased air stagnation following droughts, a comprehensive study is necessary to evaluate trends of meteorological factors that may adversely impact air quality in the Basin. The study will assist in better understanding potential impact of recent weather trends on criteria pollutant emissions and developing more effective strategies for improving air quality in the future.

Potential Air Quality Benefits:

If renewable diesel, biodiesel and biodiesel blends can be demonstrated to reduce air pollutant emissions with the ability to mitigate NOx impacts, this technology will become a viable strategy in meeting air pollutant standards as well as the goals of SB 32 and the Low-Carbon Fuel Standard. The use of biodiesel is an important effort for a sustainable energy future. Emission studies are critical to understanding emission benefits and any tradeoffs (NOx impacts) that may result from using this alternative fuel. With reliable information on the emissions from using biodiesel and biodiesel blends, this can ensure the use of biodiesel without creating additional NOx emissions. Additionally, understanding meteorological factors on criteria pollutant emissions may help identify mitigation strategies, possibly through targeted advanced transportation deployment.

Proposed Project:	Identify and Demonstrate	In-Use Fleet Emission	Reduction Technologies and
	Opportunities		

Expected South Coast AQMD Cost:	\$400,000
Expected Total Cost:	\$1,500,000

Description of Technology and Application:

New technologies, such as alternative fueled HD engines, are extremely effective at reducing emissions because they are designed to meet the most stringent emissions standards while maintaining vehicle performance. In addition, many new vehicles are now equipped with telematics enabling motorists to obtain transportation information such as road conditions to avoid excessive idling and track information about vehicle maintenance needs, repair history, tire pressure and fuel economy. Telematics have been shown to reduce emissions from new vehicles through various vehicle usage optimization strategies. Unfortunately, many in-use fleets lack telematic systems, particularly HD engines in trucks, buses, construction equipment, locomotives, commercial harbor craft and cargo handling equipment, and have fairly long working lifetimes (up to 20 years due to remanufacturing in some cases). Even LD vehicles routinely have lifetimes exceeding 200,000 miles and 10 years. The in-use fleet, especially the oldest vehicles, are responsible for the majority of emissions. In the last few years, real-time emissions and fuel economy data reporting along with telematics has been demonstrated with large fleets as fleet management tools to identify high emitters and increase operational efficiency. Similar efforts have already been proposed by CARB as part of the HD I/M regulation. Moreover, the same telematic systems are being installed on zero emission trucks where fleet and charging management are important. Cloud based fleet management concepts are being proposed by researchers to maximize range and air quality benefits of zero emission trucks.

This project category is to investigate near-term emission control technologies that can be cost-effectively applied to reduce emissions from the in-use fleet. The first part of the project is to identify and conduct proof-of-concept demonstrations of feasible candidate technologies, such as:

- remote sensing for HD vehicles including license plate recognition systems;
- annual testing for high mileage vehicles (>100,000 miles);
- replace or upgrade emission control systems at 100,000-mile intervals;
- on-board emission diagnostics with remote notification;
- low-cost test equipment for monitoring and identifying high emitters;
- test cycle development for different class vehicles (e.g. four-wheel drive SUVs);
- electrical auxiliary power unit replacements;
- development, deployment and demonstration of smart vehicle telematic systems;
- fleet and charger management concepts; and
- low cost NOx sensor development.

Potential Air Quality Benefits:

Many of the technologies identified can be applied to LD and HD vehicles to identify and subsequently remedy high-emitting vehicles in the current fleet inventory. Estimates suggest that 5 percent of existing fleets account for up to 80 percent of the emissions. Identification of higher emitting vehicles would assist with demand-side strategies, where higher emitting vehicles have correspondingly higher registration charges. Identification and replacement of high-emitting vehicles has been identified in the Community

Emission Reduction Plans (CERPs) from multiple AB 617 communities as a high priority for residents living in these communities, particularly as HD trucks frequently travel on residential streets to bypass traffic on freeways surrounding these disadvantaged communities.
Emission Control Technologies

Proposed Project: Develop and Demonstrate Advanced Aftertreatment Technologies for On-Highway

Expected South Coast AQMD Cost:	\$250,000
Expected Total Cost:	\$1,000,000

Description of Technology and Application:

There are several aftertreatment technologies which have shown substantial emission reductions in diesel engines. These technologies include zoned catalyst soot filters, early light -off catalysts, dual SCR systems, pre-NOx absorbers, and ammonia slip catalysts. Additional heating technologies enabled by availability of a 48 volt battery system or plug-in hybrid system can be used to keep desired catalyst temperatures using heated dosing and heated catalysts which are part of the complete aftertreatment system design for near-zero emission NOx engines. This project category is to develop and demonstrate these aftertreatment technologies alone or in tandem with an alternative fuel to produce the lowest possible PM, ultrafine PM, nanoparticles, NOx, CO, carbonyl and hydrocarbon emissions in retrofit and new applications. With increasing focus on zero and near-zero emission goods movement technologies, this category should examine idle reduction concepts and technologies that can be employed at Ports and airports. The proposed Clean Truck Initiative by U.S. EPA as well as the adopted CARB Omnibus Regulation will require aftertreatment systems to maintain certification levels to a much longer useful life via new in-use testing performance metrics. Technology durability and in-use performance will need to be further studied.

Possible projects include advancing technologies for on-road truck demonstrations beyond lab based testing, retrofit applications such as HD line-haul and other large displacement diesel engines, street sweepers, and waste haulers. Applications for off-road may include construction equipment, yard hostlers, gantry cranes, locomotives, commercial harbor craft, ground support equipment and other similar industrial applications. Potential fuels to be considered in tandem are low-sulfur diesel, emulsified diesel, biodiesel, gas-to-liquids, hydrogen and natural gas. This project category will also explore performance, economic feasibility, viability (reliability, maintainability and durability) and ease-of-use to ensure a pathway to commercialization.

Potential Air Quality Benefits:

Transfer of mature emission control technologies, such as DPFs and oxidation catalysts, to the off-road sector is a potentially low-risk endeavor that can have immediate emission reductions. Further development and demonstration of other technologies, such as early light –off SCR and heated dosing, could also have NOx reductions of up to 90%.

Proposed Project: Develop Methodology and Evaluate and Demonstrate Onboard Sensors for On-Road HD Vehicles

Expected South Coast AQMD Cost:	\$250,000
Expected Total Cost:	\$1,000,000

Description of Technology and Application:

New HD on-road vehicles represent one of the largest categories in the NOx emissions inventory in the Basin. The 2022 AQMP identifies that 83 percent NOx emission reductions from the 2018 level and 67 percent additional reductions beyond already adopted regulations and programs are necessary to meet the 2015 8-hour ozone standard by 2037. Previous in-use emission studies, including studies funded by the South Coast AQMD, have shown significantly higher NOx emissions from on-road HD vehicles than the certification limit under certain in-use operations, such as low power duty cycles. In CARB's adopted HD On-Road "Omnibus" Low NOx regulation, in addition to the lower certification values, there is a low load test cycle and revisions to the not-to-exceed compliance tests. NOx sensor data reporting is also introduced where the vehicle computer is required to store a past period of emissions data to ensure real-world emission reductions are realized over various duty cycles, especially those low power duty cycles in urban areas. An alternative proposed new methodology is to continuously measure real-time emissions from trucks with onboard sensors. Both industry, government and regulators are looking to use sensors to better monitor emissions compliance and leverage the real-time data from sensors to enable advances concepts such as geofencing. CARB's newly adopted HD I/M rules addresses in-use emissions from the older legacy fleets and also has onboard sensors as one of the emission testing methods.

This project category is to investigate near term and long-term benefits from onboard sensors to understand in-use emissions better and reduce emissions from the advanced management concept. The first part of the project is to identify and conduct proof-of-concept demonstrations of feasible candidate technologies, such as:

- laboratory evaluation/verification of new and baseline sensors;
- development and evaluation of next generation sensors;
- development of algorithms to extract sensor information into mass-based metric;
- demonstrate feasibility to monitor emissions compliance using sensors;
- identify low cost option for cost and benefit analysis;
- demonstrate sensors on natural gas and other mobile sources such as LD, off-highway and commercial harbor craft; and
- development, deployment and demonstration of smart energy/emissions management systems.

Potential Air Quality Benefits:

The proposed research projects will assist the trucking industry to monitor emissions, using sensors as one of the design platform options and identify freight routes which result in lower emissions. Reduction of NOx and PM emissions from mobile sources is imperative for the Basin to achieve NAAQS and protect public health.

Proposed Project: Demonstrate On-Road Technologies in Off-Road and Retrofit Applications

Expected South Coast AQMD Cost:	\$176,300
Expected Total Cost:	\$800,000

Description of Technology and Application:

On-road HD engines have demonstrated progress in meeting increasingly stringent federal and state requirements. New HD engines have progressed from 2 g/bhp-hr NOx in 2004 to 0.2 g/bhp-hr NOx in 2010, which is an order of magnitude decrease in just six years. Off-road engines, however, have considerably higher emissions limits depending on engine size. For example, Tier 3 standards for HD engines require only 3 g/bhp-hr NOx. There are apparent opportunities to implement cleaner on-road technologies in off-road applications. There is also an opportunity to replace existing engines in both on-road and off-road applications with the cleanest available technology. Current regulations don't usually require repowering (engine replacement) or remanufacturing to meet cleaner emission standards as engines are retired. Unfortunately, this does not take advantage of recently developed clean technologies.

Exhaust gas cleanup strategies, such as EGR, SCR, DPF, electrostatic precipitators, baghouses and scrubbers, have been used successfully for many years on stationary sources. The exhaust from the combustion source is routed to the cleaning technology, which typically requires a large footprint for implementation. This large footprint has made installation of such technologies on some mobile sources prohibitive. However, in cases where the mobile source is required to idle for long periods of time, it may be more effective to route emissions from the mobile source to a stationary device to clean the exhaust stream.

Projects in this category will include utilizing proven clean technologies in novel applications, such as:

- demonstrating certified LNG and CNG on-road engines as well as other clean alternative fuels in off-road applications including yard hostlers, locomotives, commercial harbor craft, gantry cranes, waste haulers and construction equipment;
- implementing lower emission engines requirement in repower applications for both on-road and off-road applications; and
- applying stationary best available control technologies, such as EGR, SCR, scrubbers, DPF, baghouses and electrostatic precipitators, to appropriate on- and off-road applications, such as idling locomotives, commercial harbor craft at dock and HD line-haul trucks at weigh stations.

Potential Air Quality Benefits:

Transfer of mature emission control technologies, such as certified engines and SCR, to the off-road and retrofit sectors offers high potential for immediate emission reductions. Further development and demonstration of these technologies will assist in regulatory efforts which could require such technologies and retrofits.

Health Impacts Studies

Proposed Project: Evaluate Ultrafine Particle Health Effects

Expected South Coast AQMD Cost:	\$88,150
Expected Total Cost:	\$1,000,000

Description of Technology and Application:

Reducing diesel exhaust from vehicles has become a high priority in the Basin since CARB identified the particulate phase of diesel exhaust as a surrogate for all toxic air contaminants emitted from diesel exhaust. Additionally, health studies indicate that ultrafine particulate matter (UPM) may be more toxic on a permass basis than other fractions. Several control technologies have been introduced and others are under development. Recent studies have shown that control technologies applied to mobile sources have been effective in reducing the mass of particulates emitted. However, there is also evidence that UPM on and near roadways has increased, even while the mass of particulates has decreased. To have a better understanding of changes in ultrafine particulate emissions from the application of new technologies and health effects of these emissions, an evaluation and comparison of UPM and potential impacts on community exposure, particularly in disadvantaged communities, is needed.

In this project, measurements and chemical composition of UPM will be done, as well as studies conducted from HD vehicles to measure, evaluate and compare UPM, PAH and other relevant toxic emissions from different types of fuels such as gasoline, CNG, low-sulfur diesel, biofuels and others. This project needs to be closely coordinated with development of technologies for alternative fuels, aftertreatment technologies, and new engine development to determine health benefits of such technologies.

Furthermore, gasoline direct injection (GDI) vehicles are known for higher efficiency and power output but the PM emissions profile is not well understood especially on secondary organic aerosol (SOA) formation potential. As manufacturers introduce more GDI models in the market to meet new fuel economy standards, it is important to understand SOA potential from these vehicles as it could further impact ambient PM concentration in our region. In 2015 a project with UCR CE-CERT to investigate the physical and chemical composition of aerosols from GDI vehicles using a mobile environmental chamber was designed and constructed to characterize secondary emissions. Based on initial results indicating an increase in particle numbers, follow-up in-use studies to assess PM emissions including with and without particle filters will be beneficial. Similar studies should also be conducted on natural gas MD and HD vehicles to understand potential emissions impacts are being considered.

Potential Air Quality Benefits:

The 2022 AQMP for the Basin relies on significant penetration of low emission vehicles to attain federal clean air standards. Reduction of PM emissions from combustion of diesel and other fuels is a major priority in achieving these standards. This project would help to better understand the nature and number of UPM generated by different types of fuels and advanced control technologies as well as provide information on potential health effects of UPM. Such an understanding is important to assess the emission reduction potentials and health benefits of these technologies. In turn, this will have a direct effect on the policy and regulatory actions for commercial implementation of alternative fuel vehicles in the Basin.

Proposed Project: Conduct Monitoring to Assess Environmental Impacts

Expected South Coast AQMD Cost:	\$132,225
Expected Total Cost:	\$500,000

Description of Technology and Application:

Facilities, buildings, structures, or highways which attract mobile sources of pollution are considered "indirect" sources. Ambient and saturation air monitoring near sources such as ports, airports, rail yards, freight/logistics distribution centers and freeways is important to identify emissions exposure to surrounding communities and provide data to assess health impacts. This could include the study of indirect sources such as warehouses which are impacted by South Coast AQMD's Indirect Source Regulations. This project category would identify areas of interest and conduct ambient air monitoring, emissions monitoring, analyze data and assess potential health impacts from mobile sources. These projects would need to be at least one year in duration in order to properly assess air quality impacts in surrounding communities.

Potential Air Quality Benefits:

The proposed project will assist in evaluation of adverse public health impacts associated with mobile sources. The information will be useful in (a) determining whether indirect sources have a relatively higher impact on residents living in close proximity, particularly in disadvantaged communities; and (b) providing guidance to develop some area-specific control strategies in the future should it be necessary.

Proposed Project: Assess Sources and Health Impacts of Particulate Matter

Expected South Coast AQMD Cost:	\$132,225
Expected Total Cost:	\$300,000

Description of Technology and Application:

Previous studies of ambient levels of toxic air contaminants, such as the MATES studies, have found that diesel exhaust is the major contributor to health risk from air toxics. Analyses of diesel particulate matter (DPM) in ambient samples have been based on measurements of elemental carbon. While the bulk of particulate elemental carbon in the Basin is thought to be from combustion of diesel fuels, it is not a unique tracer for diesel exhaust.

The MATES III study collected particulate samples at ten locations in the Basin. Analysis of particulate bound organic compounds was utilized as tracers to estimate levels of ambient DPM as well as estimate levels of PM from other major sources. Other major sources that were taken into consideration include automobile exhaust, meat charbroiling, road dust, wood smoke and fuel oil combustion. Analyzing for organic compounds and metals in conjunction with elemental carbon upon collected particulate samples was used to determine contributing sources.

MATES IV, completed in 2015, included an air monitoring program and updated emissions inventory of toxic air contaminants. MATES IV also measured UPM concentrations and black carbon at monitoring sites as well as near sources such as airports, freeways, rail yards, busy intersections and freight/logistics warehouse operations.

South Coast AQMD completed MATES V in August 2021 to update the emissions inventory of toxic air contaminants, as well as modeling to characterize risks, including measurements and analysis of ultrafine particle concentrations typically emitted or subsequently formed from vehicle exhaust. Findings from the MATES V report showed that air toxics cancer risk based on modeling data has decreased by about 50% since MATES IV, with average multi-pathway air toxics cancer risk at 454-in-a-million. The highest risk locations are at LAX and the Ports along goods movement and transportation corridors. Diesel PM continues to be the major contributor accounting for over 60% of the overall air toxics cancer risk. For the first time, chronic non-cancer risk was estimated with a chronic hazard index of 5.9 across the 10 stations in the MATES V study.

This project category would include other related factors, such as toxicity assessment based on age, source (HD, LD engines) and composition (semi-volatile or non-volatile fractions) to better understand health effects and potential community exposure, particularly in disadvantaged communities. Additionally, early identification of new health issues could be of considerable value and could be undertaken in this project category.

Potential Air Quality Benefits:

Results of this work will provide a more robust, scientifically sound estimate of ambient levels of DPM as well as levels of PM from other significant combustion sources, including gasoline and diesel generated VOCs. This will allow a better estimation of potential exposure and health effects from toxic air contaminants from diesel exhaust in the Basin. This information in turn can be used to determine health benefits of promoting clean fuel technologies.

Technology Transfer and Outreach

Proposed Project: Assess and Support Advanced Technologies and Disseminate Information

Expected South Coast AQMD Cost:	\$600,000
Expected Total Cost:	\$1.000.000

Description of Project:

This project supports assessment of clean fuels and advanced technologies, progress towards commercialization and dissemination of information on demonstrated technologies. The objective of this project is to expedite transfer of technology developed from Technology Advancement Office projects to the public domain, industry, regulatory agencies and the scientific community. This project is a fundamental element in South Coast AQMD's outreach efforts by coordinating activities with other organizations to expedite implementation of advanced engines and clean fuels technologies.

This project may include the following:

- technical review and assessment of technologies, projects and proposals;
- support for alternative and zero emission charging and fueling infrastructure;
- advanced technology curriculum development, mentoring and outreach to local schools;
- emission studies and assessments of near-zero and zero emission alternatives;
- preparation of reports, presentations at conferences, improving public relations and public communications of successful clean technology demonstration projects;
- participation in and coordination of workshops and various meetings;
- support for training programs related to fleet operation, maintenance and fueling of alternative fuel vehicles and equipment;
- publication of technical papers as well as reports and bulletins; and
- dissemination of information, including websites development and updates.

These objectives will be achieved by consulting with industry, scientific, health, medical and regulatory experts and co-sponsoring related conferences and organizations, resulting in multiple contracts. In addition, an ongoing outreach campaign will be conducted to encourage decision-makers to voluntarily switch to alternatively fueled vehicles and train operators to purchase, operate and maintain these vehicles/equipment and associated infrastructure.

Potential Air Quality Benefits:

As the Clean Fuels Program transitions increasingly to zero emission vehicle, equipment and infrastructure technologies, there will continue to be challenges in assisting fleets and others to successfully make this transition. The benefits of highlighting challenges, lessons learned, and success stories in the use of zero emission and near-zero emission vehicles, equipment and infrastructure can expedite acceptance and commercialization of these technologies. The emission reduction benefits will contribute to the goals of the 2022 AQMP.

Proposed Project: Support Implementation of Various Clean Fuels Incentive Programs

Expected South Coast AQMD Cost:	\$350,000
Expected Total Cost:	\$400,000

Description of Project:

This project supports implementation of incentive programs, including state and federal grant programs, Carl Moyer, Prop 1B, VW, VIP, CAPP, lower emission school bus, Replace Your Ride, and South Coast AQMD residential EV charger rebate program. Implementation support includes application review, funds allocation, equipment owner reports collection, documentation to CARB, verification of vehicle operation, and other support as needed. Information dissemination is critical to successfully implementing coordinated and comprehensive incentive programs. Outreach will be directed to vehicle OEMs, dealers, individuals and fleets.

Potential Air Quality Benefits:

South Coast AQMD will provide matching funds to implement several key incentive programs to reduce emissions in the Basin. The benefit of highlighting zero emission vehicle, equipment and infrastructure incentives is to expedite acceptance and commercialization of advanced technologies. Future emission reduction benefits will contribute to the goals of the 2022 AQMP. Carl Moyer, Prop 1B, VW, VIP, CAPP, and lower emission school bus incentive programs can reduce large amounts of NOx and PM emissions, and toxic air contaminants in the Basin.

Appendix A

South Coast AQMD Advisory Groups

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Technology Advancement Advisory Group¹

Dr. Aaron Katzenstein, Chair	South Coast AQMD
Don Anair	Union of Concerned Scientists
Chris Cannon	Port of Los Angeles
Dr. Bill Robertson	California Air Resources Board
Dr. Michael Kleinman	University of California Irvine
Yuri Freedman	Southern California Gas Company
George Payba	Los Angeles Department of Water and Power
Phil Heirigs	Western States Petroleum Association
Vic La Rosa	Total Transportation Solutions Inc.
*Elizabeth John	California Energy Commission
David Pettit	Natural Resources Defense Council
Dr. Sunita Satyapal	Department of Energy
Heather Tomley	Port of Long Beach
*Rosalie Barinas	Southern California Edison

*Newly appointed member

¹ Members as of February 17, 2023

SB 98 Clean Fuels Advisory Group²

Dr. Aaron Katzenstein, Chair	.South Coast AQMD
Keith Brandis	. Volvo Group
Dr. John Budroe	California Environmental Protection Agency, Office of Environmental Health Hazard Assessment
Dr. John Wall	Independent Consultant in Combustion Technology
*Marcus Alexander	Electric Power Research Institute
Dr. Mridul Gautam	.West Virginia University, Adjunct Professor, & University of Nevada-Reno
Dr. Wayne Miller	University of California, Riverside, College of Engineering, Center for Environmental Research and Technology
Dr. Petros Ioannou	University of Southern California Director of the Center for Advanced Transportation Technologies
Dr. Scott Samuelsen	.University of California, Irvine, Combustion Laboratory/National Fuel Cell Research Center
*David Park	.Hydrogen Fuel Cell Partnership
Dr. Andreas Truckenbrodt	Independent Consultant in Fuel Cell Technologies
Ken Kelly	National Renewable Energy Laboratory
Dwight Robinson	.Mortimer & Wallace, Inc.

*Newly appointed member

² Members as of March 3, 2023

Appendix B

Open Clean Fuels Contracts as of January 1, 2023

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Contract	Contractor	Project Title	Start Term	End Term	South Coast AQMD \$	Project Total \$
Electric / Hybrid Electric Technologies and Infrastructure						
14184	Clean Fuel Connection, Inc.	DC Fast Charging Network Provider	04/04/14	06/30/23	390,000	1,210,000
17105	BYD Motors Inc	Development and Demonstration of up to 25 Class 8 Battery Electric Drayage Trucks	04/14/17	10/13/23	794,436	9,450,400
17207	Peterbilt Motors	Development and Demonstration of up to 12 Class 8 Battery Electric Drayage Trucks	04/07/17	10/06/23	2,342,436	11,082,340
18129	Electric Power Research Institute	Versatile Plug-In Auxilary Power System Demonstration	06/28/18	04/30/23	125,000	273,000
18232	Hyster-Yale Group Inc	Electric Top-Pick Development, Integration & Demonstration	09/14/18	06/30/23	367,801	3,678,008
18287	Evgo Services LLC	Charging Station and Premises Agreement for Installation of One DCFC at SCAQMD Headquarters	06/27/18	06/26/28	0	0
19166	Phoenix Cars LLC dba Phoenix Motorcars	Battery Electric Shuttle Bus Replacement Project	01/31/19	07/31/23	0	7,311,456
20097	Zeco Systems, Inc. DBA Greenlots	Operate, Maintain and Network the EV Chargers	02/14/20	02/13/23	155,664	155,664
20168	OMNITRANS	Disburse donated Mercedes-Benz USA, LLC Electric Vehicle Chargers	02/28/20	02/27/23	0	0
20296	Daimler Trucks North America LLC	Deploy Zero Emission Electric Delivery Trucks	05/27/21	12/31/24	0	12,310,000
21077	Daimler Trucks North America LLC	Develop and Demonstrate up to 8 Heavy-Duty Battery Electric Trucks and Transportable Fast-Charging	03/11/21	03/31/23	1,000,000	6,742,000
21153	Volvo Group North America, LLC	Switch-On: Develop and Deploy Seventy Heavy-Duty Battery Electric Vehicles	06/10/21	09/30/24	2,000,000	31,540,000
22036	University of California Riverside	Energy-Efficient Routing for Electric Trucks	09/06/22	04/30/25	99,500	99,500
22120	Los Angeles Cleantech Incubator	Conduct Stakeholder Outreach and ZEV Workforce Plan	03/24/22	03/31/25	95,000	155,000
22177	Daimler Trucks North America LLC	Deploy Class 8 Battery Electric Trucks and Charging Infrastructure	06/16/22	04/30/25	447,638	27,073,593
22247	NFI Interactive Logistics LLC	Deploy Class 8 Battery Electric Trucks, Charging Infrastructure and Distributed Energy Resource Technologies	12/15/22	04/30/25	4,547,126	35,078,329
Engine Sy	stems and Technol	ogies				
17353	Odyne Systems, LLC	Develop and Demo Medium-Heavy Duty (Class 5-7) Plug-In Hybrid Electric Vehicles for Work Truck Applications	06/09/17	03/31/23	900,000	6,955,281

Contract	Contractor	Project Title	Start Term	End Term	South Coast AQMD \$	Project Total \$
Engine Systems and Technologies (cont'd)						
18194	CALSTART	Develop and Demonstrate Near- Zero Emission Opposed Piston Engine	05/30/18	11/30/23	2,114,500	17,413,000
19439	Cummins, Inc.	Natural Gas Engine and Vehicles Research and Development - Natural Gas Specific Combustion Design	08/30/19	08/29/23	250,000	10,996,626
20092	Southwest Research Institute	Natural Gas Engine and Vehicles Research and Development - Pent-Roof Medium Duty Natural Gas Engine	10/14/20	04/13/24	475,000	6,000,000
20199	Agility Fuel Solutions LLC	Develop a Near-Zero Natural Gas and Propane Conversion System for On-Road Medium-Duty Vehicles	07/01/21	03/31/23	453,500	1,834,000
20316	US Hybrid	Natural Gas Engine & Vehicles Research & Development - Plug-In Hybrid CNG Drayage Truck (PHET)	06/02/20	06/02/24	500,000	2,853,006
Fuel / Emi	ssion Studies					
21083	University of California Riverside	Assess Emissions Impacts of Hydrogen-Natural Gas fuel Blend on Natural Gas Engines	01/22/22	01/21/23	229,021	583,021
21103	University of California Riverside	Perform Investigation Study of E15 Gasoline Fuel Effects	03/09/21	03/08/23	200,000	1,300,000
21169	West Virginia University Research Corp	Evaluation of Vehicle Maintenance Costs Between NG and Diesel Fueled On-Road Heavy-Duty Vehicles	09/29/21	03/28/24	100,000	250,000
Fueling Inf	frastructure and Dep	oloyment (NG / RNG)				
18336	ABC Unified School District	FY2017-18 Alternative Fuel School Bus Replacement Program (3 CNG Buses)	10/05/18	11/30/34	117,900	676,500
18337	Alta Loma School District	FY 2017-18 Alternative Fuel School Bus Replacement Program (2 CNG Buses)	10/05/18	11/30/34	78,600	423,000
18344	Bellflower Unified School District	FY 2017-18 Alternative Fuel School Bus Replacement Program (1 CNG Bus)	09/07/18	11/30/34	39,300	225,500
18346	Chaffey Joint Union High School District	FY 2017-18 Alternative Fuel School Bus Replacement Program (6 CNG Buses)	10/05/18	11/30/34	235,800	1,269,000
18348	Cypress School District	FY 2017-18 Alternative Fuel School Bus Replacement Program (1 CNG Bus)	09/07/18	11/30/34	39,300	211,500
18349	Downey Unified School District	FY 2017-18 alternative Fuel School Bus Replacement Program (4 CNG Buses)	09/14/18	11/30/36	157,200	902,000
18350	Fountain Valley School District	FY2017-18 Alternative Fuel School Bus Replacement Program (1 CNG Bus)	09/07/18	11/30/34	39,300	211,500

Contract	Contractor	Project Title	Start Term	End Term	South Coast AQMD \$	Project Total \$
Fueling Infrastructure and Deployment (NG / RNG) (cont'd)						
18351	Fullerton Joint Union High School District	FY2017-18 Alternative Fuel School Bus Replacement Program (4 CNG Buses)	10/05/18	11/30/34	157,200	846,000
18354	Hemet Unified School District	FY2017-18 Alternative Fuel School Bus Replacement Program (5 CNG Buses)	10/05/18	11/30/34	196,500	1,127,500
18355	Huntington Beach Union High School District	FY2017-18 Alternative Fuel School Bus Replacement Program (15 CNG Buses)	10/05/18	11/30/34	589,500	3,382,500
18363	Orange Unified School District	FY 2017-18 Alternative Fuel School Bus Replacement Program (1 CNG Bus)	09/14/18	11/30/34	39,300	225,500
18364	Placentia-Yorba Linda Unified School District	FY2017-18 Alternative Fuel School Bus Replacement Program (6 CNG Buses)	10/05/18	11/30/34	235,800	1,353,000
18365	Pupil Transportation Cooperative	FY 2017-18 Alternative Fuel School Bus Replacement Program (5 CNG Buses)	10/05/18	11/30/34	196,500	1,127,500
18367	Rialto Unified School District	FY 2017-18 Alternative Fuel School Bus Replacement Program (13 CNG Buses)	10/05/18	11/30/34	510,900	2,931,500
18368	Rim Of The World Unified School District	FY2017-18 Alternative Fuel School Bus Replacement Program (3 CNG Buses)	10/05/18	11/30/34	117,900	676,500
18369	Rowland Unified School District	FY 2017-18 Alternative Fuel School Bus Replacement Program (3 CNG Buses & 1 Propane Bus)	11/02/18	11/30/34	117,900	770,000
18370	San Jacinto Unified School District	FY 2017-18 Alternative Fuel School Bus Replacement Program (2 CNG Buses)	09/14/18	11/30/34	78,600	451,000
18374	Upland Unified School District	FY 2017-18 Alternative Fuel School Bus Replacement Program (4 CNG Buses)	10/12/18	11/30/34	157,200	902,000
20178	Whittier Union High School District	FY 2017-18 Alternative Fuel School Bus Replacement Program	02/21/20	11/30/34	196,500	1,052,500
21140	Inland Kenworth (US) Inc	SCAQMD Approved Participating Dealership in TRUCK TRADE DOWN PROGRAM	01/07/21	12/31/23	0	0
21142	TEC of California, Inc.	SCAQMD Approved Participating Dealership in TRUCK TRADE DOWN PROGRAM	04/15/21	12/31/23	0	0
Hydrogen	and Mobile Fuel Ce	II Technologies and Infrastructure				
15150	Air Products and Chemicals, Inc.	Install/Upgrade Eight H2 Fueling Stations throughout SCAG (including SCAQMD's HQs H2 station)	10/10/14	04/09/23	762,500	17,097,939
15366	Engineering, Procurement & Construction, LLC.	Operate and Maitain Publicly Accessible Hydrogen Fueling Station at SCAQMD's Diamond Bar HQs	10/10/14	04/09/22	0	0
15611	Ontario CNG Station, Inc.	Installation of Ontario Renewable Hydrogen Fueling Station	07/10/15	07/09/22	200,000	2,510,000

Contract	Contractor	Project Title	Start Term	End Term	South Coast AQMD \$	Project Total \$
Hydrogen	and Mobile Fuel Ce	II Technologies and Infrastructure (conťd)			
16025	Center for Transportation and the Environment	Develop & Demonstrate Fuel Cell Hybrid Electric Medium-Duty Trucks	02/05/16	11/30/23	980,000	7,014,050
19313	Equilon Enterprises LLC DBA Shell Oil Products	Construct & Operate Renewable Hydrogen Refueling Station	06/30/20	04/01/23	1,200,000	12,000,000
20033	Port of Long Beach	Sustainable Terminals Accelerating Regional Transportation (START) Phase I	06/04/21	04/30/24	500,000	105,013,765
20038	University of California Irvine	Expansion of the UCI Hydrogen Refueling Station	10/18/19	02/17/27	400,000	1,800,000
20244	Cummins Electrified Power NA Inc	Demonstrate Fuel Cell Range- Extended Drayage Trucks	12/16/19	06/30/23	582,305	4,985,665
21313	Sunline Transit Agency	Deployment of 5 Zero-Emission Fuel Cell Transit Buses	08/27/21	09/30/25	204,921	6,761,125
21386	National Renewable Energy Laboratory	CA Hydrogen Heavy-Duty Infrastructure Research Consortium H2@Scale Initiative	09/03/21	09/02/23	25,000	1,171,000
22082	Frontier Energy Inc	High Flow Bus Fueling Protocol Development	03/3022	08/29/23	25,000	572,500
22084	A-1 Alternative Fuel Systems	Develop and Demonstrate Hydrogen Fuel Cell Medium-Duty Buses	01/19/22	04/18/24	531,166	2,086,608
Stationary	Sources - Clean Fu	iels				
21266	University of California Irvine	Develop Model for Connected Network of Microgrids	08/17/21	02/16/24	290,000	370,000
22262	University of California Irvine	Study of Fuel Cell Microgrids for Backup Power and Transit	06/03/22	06/02/24	370,000	510,000
Technolog	y Assessments and	Transfer / Outreach				
08210	Sawyer Associates	Technical Assistance on Mobile Source Control Measures and Future Consultation on TAO Activities	02/22/08	02/28/24	50,000	50,000
09252	JWM Consulting Service	Technical Assistance with Review and Assessment of Advanced Technologies, Heavy-Duty Engines and Conventional and Alternative Fuels	12/20/08	06/30/24	30,000	30,000
12376	University of California Riverside	Technical Assistance with Alternative Fuels, Biofuels, Emissions Testing, and Zero- Emission Transportation Technology	06/01/14	05/31/24	300,000	300,000
15380	ICF Resources LLC	Technical Assistance with Goods Movement, Alternative Fuels and Zero-Emission Transportation Technologies	12/12/14	12/11/24	30,000	30,000

Contract	Contractor	Project Title	Start Term	End Term	South Coast AQMD \$	Project Total \$
Technolog	y Assessments and	l Transfer / Outreach (cont'd)				
19078	Green Paradigm Consulting Inc	Technical Assistance with Alternative Fuels, Evs, Charging & Infrastructure and Renewable Energy	09/07/18	09/30/24	200,000	871,236
19227	Gladstein, Neandross & Associates LLC	Technical Assistance with Alternative Fuels & Fueling Infrastructure, Emissions Analysis & On-Road Sources	02/01/19	01/31/23	300,000	300,000
19302	Jerald Cole	Technical Assistance with Hydrogen Infrastructure and Related Projects	04/24/19	04/23/23	50,0000	50,000
20085	CALSTART Inc	Technical Assistance for Development & Demonstration of Infrastructure and Mobile Source Applications	11/08/19	11/07/23	250,000	250,000
20265	Eastern Research Group	Technical Assistance with Heavy- Duty Vehicle Emissions Testing, Analyses & Engine Development & Applications	06/17/20	06/30/24	50,000	50,000
21260	Fred Minassian	Technical Assistance with Incentive and Research and Development Programs	04/13/21	10/12/24	75,000	75,000
22096	AEE Solutions LLC	Technical Assistance with Heavy- Duty Vehicle Emission Testing, Test Methods and Analysis of Real-World Activity Data	11/08/21	11/07/23	100,000	100,000
22273	Green Paradigm Consulting Inc	Technical Assistance with Alternative Fuels, Evs, Charging & Infrastructure and Renewable Energy	04/22/22	04/02/24	200,000	200,000
22274	Gladstein, Neandross & Associates LLC	Technical Assistance with Alternative Fuels & Fueling Infrastructure, Emissions Analysis & On-Road Sources	05/05/22	04/02/22	300,000	300,000
23114	University of California Irvine	Cosponsor ICEPAG 2022	12/22/22	03/31/23	8,000	80,000

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Appendix C

Final Reports for 2022

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April 2022

Provide EV Hardware and Control System at South Coast AQMD Headquarters including Installation Support, Warranty and Networking

Contractor

Broadband Telecom Power, Inc.

Cosponsors

South Coast AQMD

Project Officer

Patricia Kwon

Background

In May 2014, the Board approved the release of a Request for Proposal (RFP) to expand and upgrade electric vehicle (EV) charging infrastructure South Coast AQMD at headquarters. At that time, South Coast AQMD had installed 28 Level 2 chargers and one 50 kW DC fast charger for light-duty vehicles. Charging infrastructure was installed in 2011 and 2012 under two grants administered by the U.S. Department of Energy and California Energy Commission to promote light-duty public charging infrastructure to facilitate early adoption of battery electric and plug-in electric vehicles. Initially, the charging infrastructure installed under these grant funded programs was adequate to supply EV charging requirements of South Coast AQMD staff, its vehicle fleet, public, and Board members. However, since the initial installation of this charging infrastructure, national EV sales have increased 600% and it is estimated that 70 electric vehicles are present during business hours.

Project Objective

The large number of EVs requires drivers to closely monitor their vehicle state of charge and rotate vehicles between charging and regular parking spaces. Even with vehicle rotations, many EV drivers have difficulty gaining access to charging during working hours. This has also resulted in visitors not being able to charge their EVs since employees arrive earlier in the day. Installation of additional charging infrastructure and designation of a charging area for visitors will help alleviate this problem. Due to the difference in dwell time at South Coast AQMD between visitors and employees, charging requirements for these types of users are quite different.

RFP #P2014-24 was issued in May 2014 to solicit proposals to expand and upgrade South Coast AQMD charging infrastructure from qualified third-party vendors. South Coast AQMD, with assistance from Electric Power Research Institute (EPRI), reviewed and identified power requirements and infrastructure upgrades needed to support the electric vehicle supply equipment (EVSE) and review any necessary infrastructure upgrades with potential bidders at the mandatory bidders conference/site walk.

The RFP identified four areas in South Coast AQMD's main parking lot for the expansion and upgrade of EVSE to install 92 Level 2 charging ports. In September 2015, the Board approved the selection of Broadband Telecom Power, Inc. (BTC) as the hardware provider for Level 2 charging ports from a total of 14 proposals which were submitted and 36 vendors participating at the mandatory bidders conference/site walk.

Technology Description

New charging infrastructure and networking software would include additional capabilities such as access control, cost recovery, and energy management capabilities. This included the ability to manage power loads to the EVSE to help with demand charges and other energy management needs of the building as well as a five-year maintenance period.

Installation of new charging infrastructure would replace previously installed and outdated Level 2 charging infrastructure, which included multiple hardware vendors and networking software providers. The intent was to provide a single hardware provider and a networking software platform which was fully integrated with the hardware and capable of providing upgraded features to make charging easier for EV drivers.

In the first phase, BTC would replace existing charging infrastructure and provide chargers with access control, cost recovery options, and demand response capability. In the second phase, BTC would provide additional charging infrastructure once the expanded electrical infrastructure was in place, which included the installation of four transformers and seven electrical panels covering the four areas of the parking lot. Included in BTC's scope of work was a five-year warranty with five years of onsite service support, software, power management capabilities, installation support and five years of networking fees. BTC also provided technical assistance to help establish desirable power management schedules to reduce electricity costs during the electrical infrastructure upgrade. Construction documents were prepared by Goss Engineering based on the technical specifications of the BTC hardware, which served as a blueprint for the installation.

Status

The first phase of installation of charging infrastructure was completed on December 31, 2016, including replacement of chargers under the solar carport of the upper parking structure. This was followed by installation of chargers along the perimeter of the upper parking structure, six American with Disabilities Act (ADA) accessible chargers by the employee entrance and to conference room GB and by the front lobby entrance, parking area behind conference room CC8, and front lobby parking area. Installation of 92 charging ports was completed in April 2017.

After the installation was completed and the Greenlots (now Shell Recharge Solutions) networking software for the chargers was commissioned, BTC and Greenlots continued to maintain the chargers for five years.



Level 2 Chargers Under Solar Carport



Level 2 Chargers on Upper Parking Structure

Results

Since April 2017, the 92 charging ports have resulted in 15,000 – 28,000 kWh of electricity per month and 1,500 – 2,600 sessions per month between May 2017 to March 2020. Since March 18, 2020, when the office closed due to the pandemic, kWh of electricity dispensed, and the number of charging sessions decreased significantly. From April 2020 to January 2023, charging averaged about 5,000 kWh per month and about 500 sessions per month.

Benefits

Since April 2017, the 92 charging ports have resulted in 82,926 charging sessions, 898,386 kWh of energy dispensed, 1,759,938 lbs. of greenhouse gas (GHG) reductions, and 89,839 gallons of gasoline saved.



Project Costs

The cost for BTC hardware for the 92 Level 2 charging ports at South Coast AQMD is \$322,425 from the Clean Fuels Fund (31).

Commercialization and Applications

Installation of charging at South Coast AQMD headquarters enabled EV drivers including staff and visitors to utilize charging, at a time when public charging was not widely available. It also tested capabilities of networking software platforms to manage charging at a large site. The hardware and networking software continue to be utilized in commercial applications for public charging for light-, medium-, and heavy-duty vehicles.

April 2022

Development and Demonstration of Up to Three (3) Class 8 Battery Electric Drayage Trucks

Contractor

Volvo Trucks North America

Cosponsors

California Air Resources Board (CARB) San Joaquin Valley Air Pollution Control District (SJVAPCD)

Project Officer

Patricia Kwon

Background

This project started in 2017 in recognition of the need to pursue multiple zero and near-zero emission drayage trucks in goods movement areas around the Port of Los Angeles and the Port of Long Beach.

Project Objective

This project was to continue development of a Class-8 heavy-duty plug-in diesel hybrid electric vehicle (PHEV) drayage truck to demonstrate reductions in fuel consumption, greenhouse gas, and criteria emissions in real world usage patterns. Phase 1 of the project utilized PHEV#1 as the basis for improvements in PHEV#2. Phase 2 of the project further developed the PHEV technology in the form of PHEV#3 and tested additional technologies. Deployment of two Class 8 tractor battery electric trucks (BETs) was added to the project in 2021.

Technology Description

This project included three PHEV Class 8 daycab tractors. Each was a refinement of the prior vehicle, and there were improvements in efficiency and the addition of a connected intelligent transportation system (C-ITS) known as EcoDrive. Software for controlling the electric systems and drivelines was improved across the three trucks, contributing to the BET design deployed in the last phase of the project. The PHEV system had the ability to dynamically create electric mode zones based on operating conditions. A mini-burner emissions aftertreatment system (EATS) was tested for improved hybrid emissions control.

Status

Phase 1 and Phase 2 of the project were completed in April 2022. Completion of the BET deployment at Producers Dairy in Fresno in the San Joaquin Valley Air Pollution Control District (SJVAPCD) was delayed due to supply chain issues and city bureaucracy in obtaining an approved permit to install two 150 kW DC fast chargers. Phase 1 PHEV work was completed in December 2021. Phase 2 BETs were deployed in December 2021 with the plan to utilize a 50 kW DC fast charger until the two 150 kW DC fast chargers were operational at the end of April 2022.



PHEV #1



PHEV #2



PHEV #3



BET

Results

The multiple elements and length of this project preclude a short summary of results. Individual reports on the various project components summarize the many steps and deliverables in the total program. Overall, the study found that the mini burner EATS was effective in reducing emissions but required frequent operation that largely negated the benefits. Each iteration of the PHEV system had better efficiency and performance. PHEV drivetrains were found to be efficient but advances in battery and electric machine technology led to a focus on pure battery electric solutions. The EcoDrive technology showed notable efficiency gains in controlled conditions and benefits in real-life operations. The BET deployment at Producers Dairy in Fresno is expected to be highly successful and lead to further BET adoption.

Benefits

Each stage of the project provided benefits that were taken forward into future projects. The

PHEV software development aided all electrified solutions in managing electric air compressors and battery packs. The C-ITS element led to improved efficiency by providing traffic signal data to the driver and evidence of the cost-effectiveness in reducing emissions. The BET deployment will provide important feedback on the process fleets must go through to transition from diesel to battery electric trucks. The transition to BETs will result in significant emissions reductions, and this project will help define the steps needed.

Project Costs

The project will utilize the budgeted amounts, with an expected overpayment of match funding from Volvo and some other partners. Budgeted amounts were:

Partners	Amount
CARB	\$7,265,055
South Coast AQMD	\$2,341,184
San Joaquin APCD	\$1,000,000
Volvo	\$1,459,698
Total	\$11,065,937

Additional funding was provided by Amply Power, Producers Dairy, West Virginia University and UC Riverside.

Commercialization and Applications

The work under this project provided the initial base for the Volvo Low Impact Green Heavy Transport Solutions (LIGHTS) project, and important learning for the development of the electric VNR production truck that was deployed in the last phase. The refinement of software and BET components under this project were essential. The EcoDrive system showed great potential for future use. The software solutions developed by Amply, GeoTab and Volvo for the Producers Dairy BET deployment will have significant future commercialization potential. The need for fleet management, dispatch, and telematics systems that accommodate BETs is clear but largely unaddressed.

April 2022

Near Zero Emission Drayage Truck Demonstration Project

Contractor

Kenworth Truck Company

Cosponsors

California Air Resources Board (CARB) South Coast Air Quality Management District (South Coast AQMD)

Project Officer

Seungbum Ha

Background

In response to the challenge and goal of reducing emissions in the ports of Los Angeles and Long Beach by CARB and South Coast AQMD, this project was proposed to demonstrate two Class 8 plug-in hybrid electric trucks with zero emission operation capability in revenue drayage service. Kenworth believed that a natural gas series hybrid could be a cost-effective bridge vehicle to the eventual implementation of full electric or zero emission hybrid electric vehicles in drayage applications. Kenworth proposed the development of four natural gas series hybrids to prove this possibility.

Project Objective

The goal of this project was to determine the technical and economic feasibility of replacing mechanical systems used on diesel engine technology for Class 8 truck tractors with an engine and generator set (genset) fueled by natural gas in a hybrid electric vehicle (HEV). The vehicle also had a large high voltage (HV) battery bank for zero emission operations and to supplement engine output to the electric drive system.

Technology Description

The Kenworth T680 hybrid-electric vehicle used the Cummins Westport L9N Near Zero (NZ) emission engine fueled by compressed natural gas (CNG) driving a generator to extend the truck's battery range. The truck used lithium-ion batteries to achieve its zero emissions range and to supplement power from the generator when climbing grades.



Figure 1: Kenworth's Hybrid Electric Vehicle

The system's energy management and control capabilities ensured that energy generated by the engine and regenerative braking system was appropriately applied through the electric motor, resulting in lower fuel consumption.

Status

The project was completed April 15, 2022, and the final report is on file with complete technical details of the project. Unplanned and unpredicted issues were exposed and resolved as they appeared. Technical gaps were identified, design steps were taken to mitigate the risk, and repairs were implemented to maintain operational conditions. During the demonstration, driver, fleet manager, service technicians and first responder feedback were incorporated into the product when possible or were logged in the lessons learned and will be incorporated into future generations of battery electric vehicle (BEV), HEV and fuel cell electric vehicle (FCEV) projects.

Results

Tests comparing the Range Extended Electric truck to a truck using a conventional natural gas powertrain showed a 23 percent improvement in fuel economy and an 18 percent reduction in carbon dioxide (CO2) emissions.

The data suggests that the product designed for this project generated a significant improvement over the previous project results. The independent consultant analysis results were significantly better than the internal results. Kenworth took time to share analysis techniques that reduced the consultant's performance results to something closer to company results.

	Baseline Vehicle	Demonstration Chassis	
Type/Description	CNG Hybrid	CNG Hybrid	
Make	Kenworth	Kenworth	
Model	T680	T680	
Model Year	2017	2019	
VIN	1NKYD29X5JJ176832	1NKYD29X1KR359051	
Engine Displacement	8.9L	8.9L	
Rated Horsepower	320	320	
Valid Registration and DOT	Yes	Yes	
inspections			
License Plate	9F95777 CA	9F95779 CA	
Common Test and Fu	el Economy Run (Seattle	e-Vancouver)	
Fuel Economy (MPGE)	3.28	4.95	
Fuel Economy Improvement (%)		51%	
CO2 & NOx reductions (%)	25%		

 Table 1: Performance Improvement of Kenworth CNG

 Hybrid Truck in GGRF ZEDT Project

Iterative improvements to the hybrid hardware and a restructuring of the relationship between the vehicle state and power management strategies easily yielded a fifty percent improvement in fuel economy. Depending on which calculation tool was used, at a minimum, this equates to a twenty five percent reduction in greenhouse gas (GHG) emissions.

Benefits

Despite the challenges, conversion of drayage fleets to zero-emission propulsion will provide immeasurable benefits to local communities, while significantly reducing GHG emissions. However, making this transition faces two serious challenges. The first challenge is a combination of meeting operational needs and proving technology and the second challenge is readiness. manufacturability and serviceability of a commercially affordable vehicle. Additional testing is recommended to further evaluate the environmental benefits of this truck design. Development of the genset hybrid vehicle design should continue, with a focus on improving reliability, reducing complexity, and lowering cost.

Project Costs

The project budget is shown in Table 2 with match funding from Kenworth.

Partners	Amount
CARB	\$2,575,232
South Coast AQMD	\$2,239,106
Kenworth	\$303,000

\$5,117,338

Table 2: Budget for Kenworth GGRF ZEDT Project

Commercialization and Applications

Total

When hybrid vehicles compete from a cost, weight and performance measure, the market will be completely disrupted. Any deviation from the above will deter the acceptance of commercial electric vehicle products. Today's technical limits suggest that Class 8 heavy duty zero-emission trucks are found to perform best when operating in the Short Haul/ Regional Haul truck categories. These two specific commercial category applications are most likely to first adopt near zero-emission technology, pick-up-and-delivery and regional haul.

However, regulations are such that fossil fuel hybrids do not meet zero emission standards. Therefore, Kenworth has elected to pursue development of battery electric and fuel cell electric Class 5-8 vehicles for all applications. Many of the components tested in this demonstration project will be carried forward albeit modified to resolve issues noted in the lessons learned. Kenworth has Class 7 & 8 vehicles ready for production and sale at the close of this project. Kenworth projects to have fuel cell electrics ready for production before 2030.

Education and training are the next issues that require priority and resolution. Should resource, vehicle and infrastructure growth and development plans not align, this may become a constraint to economic opportunities for resources, facilities, and products.

December 2022

Zero Emission Trucks and EV Infrastructure Project

Contractor

Daimler Trucks North America LLC Penske Truck Leasing Co., L.P. NFI Industries Inc. Gladstein, Neandross & Associates

Cosponsors

South Coast Air Quality Management District (South Coast AQMD) Port of Long Beach (POLB) Port of Los Angeles (POLA) U.S. Environmental Protection Agency (EPA)

Project Officer

Sam Cao

Background

Funding from the South Coast Air Quality Management District (South Coast AQMD) and cosponsors, Daimler Trucks North America (DTNA) helped in the development of petroleum-free zero-emission battery electric trucks. providing immediate NOx and greenhouse gas (GHG) emission reductions that support the South Coast AQMD in achieving its alternative fuel use, petroleum displacement and criteria pollutant reduction goals. This project demonstrated real emission reductions by deploying new zero-emission on-road medium duty- and heavy-duty (M&HD) truck technology with supporting infrastructure that replaced M&HD diesel trucks in real world fleet operations including port drayage and local delivery.

Project Objective

The objective of this project was to deploy twenty (20) M&HD battery electric trucks and supportive infrastructure in the South Coast Air Basin, demonstrating the "bridge phase" of battery electric vehicle (BEV) technology going from the proof-of-concept pilot prototype to a "commercial sales" product that is capable of 150-mile range in order to accelerate the market for M&HD EVs and help achieve California's emission reduction goals. The project was designed to provide critical operational data for both vehicles and infrastructure, informing total cost of ownership (TCO) analysis as well as charging interoperability and availability to enable DTNA to scale up productions for increasing market demand and establish best practices for broader market acceleration across a number of OEMs.

Technology Description

The Class 8 eCascadia and Class 6 eM2 were designed to be integrated into a range of freight duty cycles to obtain varied operational data for drayage, delivery, and logistics operations, supported by a comprehensive network of highpowered 150kW rated charging infrastructure throughout the South Coast Air Basin. The vehicle specification targets for both the eCascadia and the eM2 are detailed in the table below.

	eCascadia	eM2
GVWR	80,000 lbs.	26,000 lbs.
Horsepower	455 hp	220 hp
Axle Configuration	6x4	4x2
Battery Capacity	400-600 kWh	225-300 kWh
Connector Type	CCS-1	CCS-1

Status

The project demonstration was completed on June 18, 2022, with the Draft-Final Report submitted on August 24, 2022. The South Coast AQMD has reviewed the draft report and has provided comments for final submission.

Results

Despite initial production delays associated with global supply chain issues and the COVID-19 pandemic, all project deliverables were achieved, including all major vehicle specification targets for vehicle range, horsepower, and efficiency. Achieving the vehicle design targets were critical for realizing DTNA's objective of gaining a working knowledge of real-world applications of BEV technology and the long-term goal of informing critical technology advancements for the next generations of the eCascadia and the eM2.

The pilot demonstration was overwhelmingly successful, generating key data on vehicle efficiency, charging capabilities and operational costs to inform technology advancement and the business case for MHD zero-emission vehicles. These trucks replaced and operated the same duty cycles as conventional diesel-powered trucks, resulting in direct emissions reductions through a like-for-like replacement, with a product performance and operational cost that is comparable to diesel baseline counterparts. The project deployed advanced energy management strategies, including a battery energy storage system (BESS), collecting data on energy usage, time-of-use (TOU) utility rate structures, and overall costs to inform TCO and ultimate return (ROI) on investment compared to operating/maintaining diesel baseline counterparts. Tables summarizing results related to total vehicle miles traveled (VMT), vehicle efficiency, energy usage and cost are below.

Fleet	Vehicle	Total Miles	Avera Miles/l	ige Day	Average kWh/Mile
NFI	eCas	236,836	15	0.77	2.01
Penske	eCas	228,857	10	4.33	2.05
Penske	eM2	55,702	8	4.81	1.42
	TOTAL	521,395	11	3.30	1.83
	harging Us	age/Cost			
Fleet			Avg. U Rate/k	tility Wh	Total kWh
NFI			\$	0.19	917,837
Penske			\$	0.34	482,994
TOTAL/Weighted Average			\$	0.23	1,400,831

Benefits

Total emission reductions over the 521,000 combined fleet miles traveled during the demonstration period were 0.92 tons of oxides of nitrogen (NOx), 0.07 tons of particulate matter (PM2.5), and 912 metric tons of GHG emissions.

Project Costs

The grant funding for this project was jointly supported by South Coast AQMD, the Port of

Long Beach (POLB), The Port of Los Angeles (POLA). US EPA. DTNA, NFI Industries, and Penske provided the remaining cash and in-kind cost-share for this work.

Project Cost Share		
South Coast AQMD	\$12,670,072	
POLB	\$1,000,000	
POLA	\$1,000,000	
EPA	\$1,000,000	
DTNA & Partners	\$23,495,561	

Contract	Total	Actual Costs
Share	Budget	Incurred
\$15,670,072	\$31,340,144	\$39,165,633

Commercialization and Applications

The success of this project yielded an extraordinarily important outcome. For the first time in North America a traditional heavy-duty truck manufacturer (OEM) will be able to offer a Class 6 and Class 8 fully electric heavy-duty trucks to end use commercial fleet customers. It also provided a critical model for M&HD electric vehicle supply equipment (EVSE) infrastructure deployment to understand challenges and best practices to remove barriers to adoption and accelerate the market for zero-emission technologies.

will The commercial series demonstrate improved range and efficiency by simplifying/consolidating vehicle components, reengineering the battery structure, and developing proprietary control software to improve overall power and enable peak performance. Specific vehicle design innovations include lighter battery packaging and curbweight, increased battery capacity, reduced wheelbase, improved thermal efficiency and aerodynamics, as well as upgraded telematics, weatherization, and diagnostic systems.

This approach to commercialization is key to achieving the increased range, overall performance, and cost-savings to accommodate regional haul routes of up to 220 miles per day, covering a wider array of use cases and making up 70% of freight routes in the United States.

Low Impact Green Heavy Transport Solutions (LIGHTS)-Develop and Demonstrate Zero Emissions Heavy-Duty Trucks, Freight Handling Equipment, EV Infrastructure and Renewable Energy

Contractor

Volvo Group North America

Cosponsors

California Air Resources Board (CARB) South Coast Air Quality Management District (South Coast AQMD)

Project Officer

Patricia Kwon

Background

Volvo Low Impact Heavy Green Transport Solution (LIGHTS) project, a public/private partnership in Southern California, provides early insights and a model for successful fleet adoption of heavy-duty battery electric trucks.



Project Objective

Volvo LIGHTS was launched in 2019 to test critical innovations in vehicle technologies, install charging infrastructure, and establish the groundwork for an electric truck sales and service network. A project team was established to pioneer research and development of heavy-duty battery electric trucks in demanding applications, initiate industrialization to scale, develop the aftersales infrastructure, and install EV charging and energy management at customer sites. A comprehensive project approach was necessary, including coordination with the Ports, local municipalities, and stakeholders in the South Coast Air Basin.

Technology Description

Volvo had previously industrialized zero emission battery electric solutions in Europe for Intercity passenger transit busses and European mediumduty trucks. The LIGHTS project included necessary adaptation to North American duty cycles, U.S. federal and state motor vehicle regulations, 12-volt vehicle requirements, and local customer demands.

Status

Volvo LIGHTS was completed on September 30, 2022. The final report with complete technical details will be posted on the CARB and South Coast AQMD websites.



Volvo Class 8 VNR Electric Trucks from Participating Fleets at Closing Event, Ontario Convention Center, August 23, 2022

Results

Key accomplishments of the Volvo LIGHTS project include:

- 30 battery electric trucks in-service at 13 fleets
- 56 public and private heavy-duty DC fast chargers installed
- 29 pieces battery electric freight handling equipment (yard tractors, forklifts)
- Two community colleges providing new medium- and heavy-duty electric truck technician training curricula
- 45+ graduates from Rio Hondo and San Bernadino Community Colleges (2022)
- Various trucking applications demonstrations included e-commerce, last mile delivery, postal, refrigerated food, drayage, less-than-truckload, medical supplies, and retail stores.

Benefits

The LIGHTS project resulted in annual emission reductions of 3.57 tons of NOx, reactive organic gasses, and particulate matter and 3,020 metric tons of annual greenhouse gas reductions. DHE and NFI installed 1.5 MW of solar with 1.86 million kWh of electricity generated for EV charging and displacement of 207,000 diesel gallons equivalent of fossil fuel annually.

The combined fleet mileage for this project was over 325,000 miles.

Project Costs

Included in the list of Project Partners noted in this chart below are Fleets for NFI and DHE, Southern California Edison (SCE), TEC Equipment, Rio Hondo and San Bernardino Community Colleges, Shell Recharge, the Ports of Los Angeles, and Long Beach, CALSTART, the University of California, Riverside CE-CERT and Reach Out.

Partner	Amount
Volvo	\$32,949,552
Project Partners	\$10,000,000
U.S. EPA	\$500,000
CARB	\$43,233,409
South Coast AQMD	\$4,000,000
TOTAL	\$90,682,961

*Actual total investment by Volvo in the LIGHTS project exceeded required match share.

Commercialization and Applications

Volvo made several major business decisions following the success of the LIGHTS project. Specifically, the industrialization of battery utilizing alreadv electric trucks proven architecture resulted in both the MACK LR Electric refuse truck and the VNR Electric series (VNR42, VNR64, VNR42T, VNR62T and On January 13, 2022, Volvo VNR64T). announced the launch of the New Generation VNR Electric with 85% increased range, faster charging, and more configurations covering additional highway applications.

Battery electric trucks are here, and this project has identified ways to help accelerate their penetration into the marketplace. First and foremost, fleets make decisions on the lifetime costs of buying and operating trucks. Battery electric trucks require more expensive, highpower charging infrastructure than light-duty vehicles, and this requires greater lead time, cost and planning for fleets. Governments and public agencies can help alleviate the risk through financial incentives and policies that require greater coordination and transparency among key stakeholders. Several major truck manufacturers agree that battery electric trucks are central to the industry's future viability. Stakeholders need to work together proactively and adjust their frame of reference to make this paradigm shift a reality. The transition to electric powertrains will be very different from the introduction of emissions control technology in 2004, 2007, or even 2010, when diesel exhaust fluid became part of the fuelling protocol. Change can be difficult, but Volvo LIGHTS is proving that education and communication, through earnest collaboration, will pave the way for electromobility solutions in the commercial trucking sector.

September 2022

Develop and Demonstrate Battery Electric Excavator and Wheel Loader

Contractor

Volvo Technology of America, LLC

Cosponsors

South Coast Air Quality Management District U.S. Environmental Protection Agency

Project Officer

Sam Cao

Background

In 2016 South Coast Air Quality Management District (South Coast AQMD) identified the need for nitrogen oxide (NOx) emissions reductions as the most significant air quality challenge in meeting the upcoming ozone standard deadlines. On-road diesel trucks and off-road mobile equipment are major contributors to NOx emissions in the South Coast Air Basin (Basin). Significant increases in NOx, particulate matter (PM) and greenhouse gas (GHG) emissions from these sources are expected to increase due to demand in goods movement and construction activities. A proven emissions control strategy to reduce NOx and PM emissions and associated public health risks is to accelerate vehicle and equipment replacement with either battery-electric or near-zero emission vehicles and equipment.

Project Objective

This project was to accelerate the deployment of zero emission technologies for off-road mobile equipment and to reduce harmful diesel emissions, petroleum consumption, and greenhouse gases within the Basin. This was to be accomplished by developing a model of battery electric compact wheeled loader and a model of battery electric compact tracked excavator and subsequently deploying them in and around the Basin area for application testing and feedback with local construction contractors.

Technology Description

During this project, a battery electric compact wheeled loader (L25) in the 1.2yd³ bucket class was completed along with a battery electric compact tracked excavator (ECR25) in the 3-ton class. The L25 utilizes

a 48V lithium-ion battery system with 40kWh of energy storage and one 22kW electric induction motor for the driveline system and a 14kW permanent magnet synchronous motor for the hydraulic system. The L25 can operate for up to 6 hours of active work, per full charge depending on the environment and task at hand. This unit was capable of recharging via a DC fast charger in approximately 2 hours, an AC Level 2 charger in approximately 12 hours and an AC Level 1 charger in approximately 24 hours. The ECR25 utilizes a 48V lithium-ion battery system with 20kWh of energy storage and one 14.7kW permanent magnet synchronous motor for the hydraulic system. The ECR25 can operate for up to 6 hours of active work, per full charge depending on the environment and task at hand. This unit can be recharged via a DC fast charger in approximately 1 hour, an AC Level 2 charger in approximately 6 hours and an AC Level 1 charger in approximately 12 hours. The other mechanical specifications for both the L25 and ECR25 are the same as, or better than, their equivalent diesel models.

Status

The project contract was signed in September 2019 and testing commenced in September 2020 when the ECR25 started work. The L25 followed in December 2020 and the testing phase successfully concluded in August 2021. A public press conference was held in September 2021 on the grounds of the Mildred E. Mathias Botanical Garden on the UCLA campus in Los Angeles to discuss the results and learnings from the project. The project contract ran through September 2022 and the final project documentation and reporting is being completed and will be submitted during the early portion of 2023.



Figure 1 – L25 and ECR25 Planting Tree at Press Conference in California

Results

The L25 and ECR25 were tested in a wide variety of applications during this project by three main customers and their crews. The customers were Baltic Sands, Casper Company, and Caltrans. The applications included residential house construction, clearing remote access trails, utility repair, construction, and demolition. The environmental conditions during testing ranged from moderate to high temperatures, dust, rain, and even indoors. The two machines combined, accumulated approximately 400 operating hours over the testing period. The testing feedback was overwhelmingly positive with customers being impressed with the performance of the machines.

The L25 and ECR25 were both tested under various charging scenarios during the project. The primary methods of charging were Level 1 and Level 2 AC charging. The downside during testing was that the onboard chargers were not configured to take advantage of all available power provided by the US 240V infrastructure. In addition, portable and non-grid connected solutions were also tested in the form of a mobile battery bank and a solar powered charging station. The solar charging station worked well, especially in remote locations where grid access was not possible. The customers were very excited about the mobile battery bank, but some technical limitations reduced the effectiveness. The battery bank was large and required a dedicated trailer for transportation so the need for an additional truck or trip was introduced.



Figure 2 – L25 Being charged by Mobile Battery Bank

Benefits

One of the significant benefits expressed by all testing customers was the increase in operator comfort. The positive effect on human factors such as noise and vibration reductions were major improvements where the ECR25 had a measured 9dB drop in sound pressure around the machine, when compared to the equivalent diesel model. The operators no longer had to yell over the engine which reduced employee fatigue.

The total cost of ownership for these electric machines has decreased by not only the savings in diesel fuel but also the significant drop in general maintenance costs. There are still hydraulic oil and filters on the units, but there are no longer engine air and oil filters, or engine oil changes required. The only general maintenance required on these machines is lubrication for moving mechanical joints.

Project Costs

The total project cost was \$3,155,000. The U.S. Environmental Protection Agency's Targeted Air Shed Grant Program provided \$2 million as pass-through revenue to South Coast AQMD for this project. Volvo CE invested \$1,155,000 as in-kind cost share.

Commercialization and Applications

The L25 and ECR25 are both currently commercially available in North America and Europe. The first units delivered to end customers in the US were in December 2022 for the L25 and July 2022 for the ECR25.

The results of this project continue to strengthen the Volvo viewpoint that battery electric machines are an excellent fit for reducing NOx emissions in the compact construction equipment sector while also providing positive health impacts to the operators, crews, and communities in which these machines operate. The feedback from the crews who have used these machines has been and will continue to be used in the continued refinement of these products and in the planning and development of future products. While the work completed as part of this project clearly demonstrated that these machines are equivalent, or better, than the comparable diesel models, there are still some applications where heavy usage requires increased runtime. The time required to recharge and the access to charging infrastructure are also issues that could pose a barrier to entry for some customers. As a result, Volvo has and will continue to investigate ways to enhance the runtime of these machines, optimize on-board charging to make use of the available power more efficiently where they operate, and explore alternate methods of charging. Volvo intends to continue evolving the product portfolio with additional electric compact and midsize construction equipment models as well pursuing larger machines of various types.

March 2022

Develop and Demonstrate Battery Electric Medium-Duty Truck

Contractor

Roush CleanTech, LLC

Cosponsors

Penske Truck Leasing South Coast Air Quality Management District

Project Officer

Seungbum Ha

Background

Roush CleanTech, LLC, (Roush) received support from the South Coast Air Quality Management District (South Coast AQMD) in the amount of \$937,500 to develop a new all-electric platform for medium-duty commercial trucks and school buses. These battery electric vehicles (BEVs) were designed to have a unique powertrain technology for use in Ford F650/750 medium-duty (Class 6-7) commercial vehicles and Class C and D school buses. With support from the South Coast AOMD. Roush was able to complete the technical development, initial prototyping, and in-fleet demonstration of the new powertrain with Penske Truck Leasing (Penske) and other local commercial fleets in Q2 2022.

Project Objective

The project objective was to develop and demonstrate battery electric medium-duty trucks in partnership with Penske and its local fleet partners as well as South Coast AQMD.

Technology Description

While many in the transportation industry focused on heavy-duty long-haul all-electric trucking technologies, Roush believes that the developed battery electric drivetrain fills a significant gap in the zero-emission engine market for heavy-duty fleets operating shorter daily routes with many stop-and-go events. Roush developed a robust future manufacturing strategy that draws upon its decade's old partnership with Ford, engaging partners such as Penske in ongoing evaluation and customer engagement.



Figure 1: ROUSH's Battery-Electric Vehicle Funded by South Coast AQMD, Operated Through Penske Trucking Leasing

Status

The active components of the project were completed in Q2 2022, with administrative wrapup in Q3 2022. The project has a final report on file with complete technical details of the project

The vehicles built through this project were subject to significant vehicle performance testing for design validation, control validation, and computer aided engineering (CAE) correlation to ensure that vehicles met the key performance targets. Vehicle technology effectiveness was assessed by tests including but not limited to vehicle acceleration, level road performance, weight/ center of gravity testing, battery range verification, cabin climate control and accessories, powertrain cooling and heat management, vehicle stability and traction control.

The COVID-19 global pandemic did present Roush with unanticipated challenges to the global and local supply chain, staffing, and manufacturing processes. Fortunately, the Roush team was able to overcome these hurdles without significant impact to the development of the two demonstration units. As a result of the COVID-19 global pandemic, Roush delivered the two demonstration units in Q4 2020 rather than Q2 2020.

Roush demonstrated two units in Penske Truck Leasing's fleet in the South Coast Air Basin from December 2020 through May 2022. The EV demonstration schedule included periods at numerous Penske fleet partners, including Costco, Nestle Waters, Iron Mountain, Bimbo Bakeries, and Nike.

Drivers provided positive feedback about the units, especially noting the vehicles' acceleration, regenerative braking, smooth, stable, and quiet ride, safety merging in traffic, battery range, and ease of charging vs. diesel refueling. Through this feedback, Roush was also able to identify and resolve minor vehicle challenges. These included low voltage battery drain caused from drivers leaving vehicles on when not in use, causing battery drain and subsequent dead batteries.

Results

Over the demonstration period, unit "Penske 1" was driven over 10,200 miles, and unit "Penske 2" was driven over 9,300 miles. Telematics data was collected via the vehicles' onboard data collection systems.

One large barrier to new zero emission vehicle technology coming to market is the financial cost of establishing new manufacturing processes, especially at scale. Roush believes the BEV manufacturing capabilities refined through this project will best serve future vehicle manufacturing partnerships with other technology startups as well as established OEMs. Technology companies are rapidly developing incredibly innovative EV architecture, software, and sensing technology, but commercialization requires integrating those technologies, packaging them into a vehicle, and understanding what's required to validate and certify that vehicle to government standards.

Benefits

Deployment of this technology on real fleet routes operating throughout the South Coast Air Basin led to immediate oxides of nitrogen (NOx), diesel particulate matter, and greenhouse gas tailpipe emission reductions, particularly in densely populated urban centers common for municipal fleet routes. In addition to these immediate public health benefits, the project bolstered the adoption of zero emission technology by improving market competition and providing more BEV options to meet a variety of fleet needs. Participating fleets benefited from a low-risk path for testing BEVs in their real fleet operations, building their capabilities to fully transition to zero emission solutions moving forward. This project will help reduce future vehicle emissions and have an impact beyond the immediate project emissions reductions themselves.

Project Costs

Project costs are as follows:

Project Partner	Total
South Coast AQMD	\$937,500
Roush Cost Share	\$2,062,500
Penske Cost Share	\$200,000
Total Project Cost	\$3,200,000

Commercialization and Applications

This project provided a low-risk path for fleets to gain hands on experience running BEVs in their current fleet operations. The demonstration resulted not only in a learning experience for Roush and the vehicle engineers, but also a transfer of knowledge to world class fleets such as Penske, Costco, Nestle, etc. This type of partnership means that South Coast AQMD funding benefits not only Roush, but also participating fleets who through this project have built their capabilities and interest in adopting BEV technology going forward.

This effort also strengthened collaboration and built networks within the rapidly changing transportation industry. By facilitating open dialogue between vehicle OEMs, leasing fleets, and end user fleets, this project ensured that feedback from drivers and fleet managers are incorporated into engineering best practices. Likewise, fleets gained knowledge on their abilities to successfully transition to new technologies.
South Coast AQMD Contract #20158

December 2022

Onboard NOx and PM Measurement Method

Contractor

University of California, Riverside, College of Engineering, Center for Environmental Research and Technology (UCR-CE-CERT)

Cosponsors

California Air Resources Board (CARB) U.S. Environmental Protection Agency (EPA) Center for Advancing Research in Transportation Emissions, Energy and Health (CARTEEH)

Project Officer

Sam Cao

Background

Heavy-duty vehicles represent one of the most important contributions to the emissions inventory for both nitrogen oxides (NOx) and particulate matter (PM) emissions. While diesel particulate filters (DPFs) and selective catalytic reduction (SCR) aftertreatment systems have provided significant reductions in PM and NOx emissions, respectively, it is important to verify that these systems are operating optimally under the full range of in-use conditions to ensure that air quality standards can be met. The advancement of sensor technology has provided the potential to measure all trucks at all times and validate compliance from the in-use fleet under the conditions where they produce emissions. The importance of this methodology is underscored by CARB's recent Real Emissions Assessment Logging (REAL) amendments to its OBD (Onboard Diagnostic) Regulations.

Project Objective

The goal of this Phase 1 Onboard Sensoring and Reporting (OSAR) project is to develop a lowcost NOx and PM sensor-based emissions measurement system designed for heavy duty engines. This low-cost system was designed to allow for expanded applications going into the future, such as dynamic engine calibration control, in-use policy enforcement, and a data driven exposure model specific to the South Coast Air Basin. A total of 8 OSAR systems were developed under this project. The OSAR units were set up on 9 trucks at two fleets for a period of up to 2 months.

Technology Description

The OSAR system developed for this project included a NOx and PM sensor, a global positioning system (GPS), an engine control module (ECM) logger, and a cellular connection for real-time data reporting. The NOx sensors used for this system was a prototype advanced low temperature capable NOx sensor based on an original equipment manufacturer (OEM) product used for engine control and OBD of SCR systems. The data loggers used for this set up were "EmTrac-6 Onboard Telemetry System Rev. 1" developed by data loggers Emisense Technologies specifically for this program. It is an Advanced RISC [reduced instruction set computer] machine (ARM)-based unit with two controller area networks (CAN) buses, four analog inputs, an onboard K-type thermocouple amplifier, and a global navigation satellite system (GNSS) for location information. The ECM data was logged via OBD or J1939 connection to the OSAR system.

EmTrac-6 Core Telemetry System



Status

This project was successfully completed, and the final report was submitted in December of 2022.

Results

Average NOx emissions for the different test trucks ranged from 0.14 to 1.35 g/bhp-hr. The D1119 vehicle showed the highest average

emissions, which is more than six times higher than the certification limit. D0214 showed the lowest average emissions on a g/bhp-hr basis, which is near the level of the certification standard of 0.2 g/bhp-hr. These differences in average NOx emissions appear to be attributed to differences in duty cycles and not the engine certification. D1119 was generally idling, or its driving patterns indicated slow, stop-heavy motion. The driving patterns for D0214 also showed a significant amount of operation with multitude of stops, but with less idling behavior. The higher in-use NOx results agree with earlier studies that have reported higher in-use NOx emissions from diesel compared to certification trucks levels. particularly under low load operation.



Fig. 1: NOx Emissions for the Different Test Trucks (g/bhp-hr)

Similar trends were seen for the NOx emissions on a g/mile basis. NOx emissions ranged from 0.018 to 11.38 g/mile, with the D1012 showing the highest emissions, and the MEL/MA truck showing the lowest emissions. NOx emissions showed different trends on a g/hour and g/gal basis. NOx emissions ranged from 0.756 to 62.94 g/hour, and 0.013 to 22.71 g/gal. D1119 showed the highest NOx emissions on a g/gal basis, while N1341 showed the highest NOx emissions on g/hour. The MEL/MA truck showed the lowest NOx emissions on both a g/hour and g/gal basis.



Fig. 2: NOx Emissions for the Different Test Trucks (g/mi)

From an activity standpoint, the trucks operated from 4.4 to 10.6 hours per day. The average speed for the different vehicles ranged from 6.2 to 39.7 mph. The average distance for the different vehicles/pieces of equipment ranged from 59.8 to 234.8 miles. The daily fuel consumption for the different vehicles/pieces of equipment ranged from 8.7 to 33.0 gallon/day. In general, the long-haul trucks showed higher average speeds, longer days of operation, higher average distances per day, and higher fuel usage per day, while the box truck showed the lowest values for these metrics.

Benefits

The OSAR systems developed as part of this project show the potential to measure all trucks at all times and validate compliance from the in-use fleet under various emissions producing conditions. The goal of this Phase 1 OSAR project was to develop and demonstrate a low-cost NOx and PM sensor-based emissions measurement designed for heavy duty vehicles. The results show these low cost OBD sensors are capable of determining emissions at and below the 0.2 g/bhp-hr level. The development of these systems provides the potential for enhanced monitoring of heavy-duty vehicle emissions, which could provide benefits to the South Coast AQMD in meeting the 2023 and 2031 ozone standards.

Project Costs

This \$688,587 project was funded as follows:

South Coast AQMD	\$201,087
Engine Manufacturers	\$200,000
Association	
EmiSense Technologies LLC	\$115,000
CARTEEH	\$80,000
CARB / EPA	\$50,000
NGK Spark Plug	\$42,500

Commercialization and Applications

It is expected that this research will help guide industry into a sustainable path of emissions control for their vehicles using the real world as the design platform. The funds provided by the South Coast AQMD will leverage larger dollars from other agencies and industries and will support the development of regulations to focus more on in-use emissions. It is believed this seed funding will spur industry into a solution that includes instrumenting all new heavy-duty trucks with the potential for retrofitting older ones depending on feedback from the agencies. It is believed this effort will be supported by industry and fleet owners, as it benefits everyone with a fair and practical solution for emissions regulations. Eventually, this solution could be integrated into other mobile sources including non-road and light-duty passenger cars.

January 2022

Development of ECO-ITS Strategies for Cargo Containers

Contractor

University of California, Riverside University of Southern California

Cosponsors

National Center for Sustainable Transportation (NCST)

California Energy Commission (CEC) California Air Resources Board (CARB) Los Angeles County Metropolitan Transportation Authority South Coast Air Quality Management District (South Coast AQMD)

Project Officer

Seungbum Ha

Background

In the last few decades, efforts to reduce emissions from heavy-duty diesel trucks (HDDTs) and their health impacts have focused on imposing increasingly stringent emissions standards. This has led to significant advancements in emission control technologies and alternative fuel vehicle technologies. While these technologies are effective at reducing emissions from HDDTs, the turnover of the existing HDDT population to these advanced technologies would require a large amount of investment and time. In the near term, other efforts to reduce emissions of the existing HDDTs and mitigate their impacts on communities are needed. Many studies have shown the promise of transportation intelligent systems (ITS) technologies in reducing the energy consumption and environmental footprint of people and goods movement through various means.

Project Objective

This research is aimed at developing and evaluating eco-friendly ITS strategies for freight vehicles and traffic, with a focus on strategies that are applicable to the transportation systems in the South Coast Air Basin. Four specific strategies were examined in this research, including: 1) connected eco-driving, 2) truck eco-routing, 3) integrated traffic control, and 4) intelligent parking assist.

Technology Description

Connected eco-driving uses signal phase and timing (SPaT) information from the upcoming traffic signal along with the information about the state of the host vehicle and preceding traffic to determine the best course of action for the vehicle to pass through the intersection.



User Interface of Connected Eco-driving Application

Truck eco-routing is aimed at finding the travel route that would minimize vehicle energy consumption and/or emissions for the trip.

Integrated traffic control coordinates the variable speed limit (VSL), ramp metering (RM), and lane change (LC) control strategies to stabilize traffic flow and mitigate traffic congestion around highway bottlenecks.

Intelligent parking assist integrates parking availability information into the planning process for long-haul trucks.

Status

This project was completed in January 2022. The final report is on file with South Coast AQMD.

Results

The results from the performance evaluation of the connected eco-driving application in real world show that driving with the application resulted in less fuel consumption, and less carbon dioxide (CO2) emissions, than driving without it by 6% to 15%.



For the truck eco-routing strategy, based on the results of 456 trips made by 48 trucks in a typical day, it was found that for 52% of the trips the fastest route is already the most fuel-efficient route. For another 23% of the trips, the eco route would take up to one minute (1% to 8%) longer travel time than the fastest route, on average, but would result in 5% to 7% fuel savings. For another 11% of the trips, the eco route would take up to 3.5 minutes (12% to 17%) longer travel time, on average, but would result in 7% to 8% fuel savings.

For the integrated traffic control strategy, both macroscopic and microscopic simulation results demonstrate that the proposed control scheme can stabilize the density of the highway section at the desired density, and, as a result, improve the discharging flow rate by 33%, compared to the case of no control action.

For the intelligent parking assist strategy, simulation results illustrate that schedules calculated without accounting for parking availability are often infeasible. Although parking constraints increased trip duration in some scenarios, these scenarios also showed lower feasibility rates when ignoring parking information. Also, computational experiments showed that parking conditions could significantly affect the route choice, illustrating the importance of accounting for parking availability information early in the planning process. Furthermore, when parking availability is limited, the performance gap (in terms of trip duration) between battery electric trucks and diesel trucks is greatly reduced in scenarios with 50 kW chargers, and further reduced when 100 kW chargers are considered.

Benefits

The connected eco-driving application was proven to provide significant reductions in fuel consumption and CO2 emission for HDDT traveling on signalized corridors. If adopted widely, it has a potential to reduce emission inventory of HDDTs, especially those operating in the drayage application, throughout the South Coast Air Basin. Likewise, there is a potential for the truck eco-routing application to help HDDTs with similar trip patterns to those of the trucks studied in this project in reducing fuel consumption and CO2 emission on about a third of their trips.

The ability to better control traffic flow at highway bottlenecks would also result in reductions in traffic emissions including those from HDDTs. Finally, the provision of parking availability information to long-haul truck drivers could lead to more efficient scheduling and routing of their trips, which reduces unnecessary fuel consumption and emissions.

Project Costs

South Coast AQMD's funding contribution to this project is \$543,000, which was leveraged in other related research projects totaling \$1,647,233.

Commercialization and Applications

The connected eco-driving technology is mature, although its prospect for commercialization depends on the ability to access real-time traffic signal data from public agencies that operate traffic signals. On the other hand, commercial eco- routing applications have already existed for passenger cars. Therefore, it should be possible to commercialize eco-routing applications designed specifically for HDDTs in the near future. Finally, the integrated traffic control strategy and the intelligent parking assist strategy are also ready for deployment by relevant public agencies.

March 2022

In-Use Emissions Testing and Fuel Usage Profiles for On-Road Heavy-Duty Vehicles

Contractor

University of California, Riverside (UCR) West Virginia University (WVU)

Cosponsors

California Energy Commission (CEC) Southern California Gas Company (SoCalGas) California Air Resources Board (CARB) South Coast Air Quality Management District (South Coast AQMD)

Project Officer

Sam Cao

Background

While past studies have shown oxides of nitrogen (NOx) and particulate matter (PM) emissions are reduced from heavy-duty vehicles (HDVs) powered by modern-technology engines, emissions from HDVs still dominate the total basin-wide NOx and PM emissions. Therefore, additional assessment of in-use vehicle emissions remains a critical component for measuring the effectiveness of engine, fuel and aftertreatment technologies and improving emission inventories for air quality modeling and planning as well as developing effective strategies toward achieving the federal ambient air quality standards.

Project Objective

The objective of this project was to conduct in-use emissions testing, characterize fuel usage profiles, develop new or improve existing heavy-duty vehicle drive cycles, and assess the impact of current technology and alternative fuels on fuel consumption and in-use emissions from on-road HDVs with gross Vehicle Weight Rating (GVWR) greater than 14,000 lb. Additionally, the vehicle emission measurements collected under this Program provide important new data to improve air quality planning.

Technology Description

UCR and WVU collectively conducted the exhaust emission tests for over 200 heavy duty trucks with

different technologies recruited in Southern California along with data collection for daily vehicle activities and fuel usage profiles. Specifically, the testing was conducted in the following four sequential phases: 1) On-road operation data gathering with Portable Activity Measurement Systems (PAMS) on 227 vehicles, 2) On-road emissions testing with Portable Emissions Measurement Systems (PEMS) on 100 vehicles, 3) In laboratory (stationary) emissions testing with a chassis dynamometer on 55 vehicles, 4) On-road emissions testing with mobile emissions laboratory trailer on 10 vehicles



Figure 1. UCR On-Road Mobile Laboratories

Status

UCR and WVU has completed the data collection and prepared the final reports summarizing their respective research work. A combined draft final report with complete technical details has been prepared as of August 2022 and currently under agency review, the finalized report will be published on the CEC website.

Results

For the four-phase testing and data collection, there were 227 PAMS tests, 100 PEMS tests, 55 chassis dynamometer tests, and 1 on-road tests with a mobile emissions trailer. The vehicle population covered 5 vocations, including Transit Bus (TB), School Bus (SB), Refuse Hauler (RH), Delivery Truck (DT), and Goods Movement (GM), and a range of conventional and cleaner heavy-duty technologies.

To test these HDV types under more representative conditions, new chassis dynamometer test cycles specific to these three categories were developed using a Markov-Chain Drive Cycle Generation Tool developed by WVU from the PAMS data. Further, such PAMS data were included in CARB's EMFAC2021 development, CEC's Medium- and Heavy-Duty Electric Vehicle Infrastructure Load, Operations and Deployment (HEVI-LOAD) model.

The PEMS testing incorporated a diverse set of HDVs. fleet operators, and operating conditions/duty-cycles. As expected, the PEMS results showed high variability in NOx emission levels between vocations and technology categories. As can be seen in Figure 2, the same high variability was observed within each technology category while all engines were certified to the same emissions standard. The high variance observed in the data was expected; given the emissions were measured with PEMS and were averaged over the entire test day, regardless of the vocation and the duty cycle.

Different than the "daily" averages presented in the PEMS data, the chassis urban dynamometer driving schedule (UDDS) "cycle" averaged results were similar across different vehicle categories. As shown in Figure 3, the UDDS cycle-averaged results were similar across different HDV categories; this is a markedly different result than the "daily" averages presented in the PEMS section. The UDDS cycle, although not identical, closely resembles the Federal Test Procedure (FTP) certification test cycle, over which an HDV engine's emissions certification value is derived. Therefore, these UDDS data provide good comparison points to understand the NOx emissions in this context.



Figure 2. Cycle Averaged Chassis Dyno NOx Emission Rates under UDDS cycle.

A total of 10 HDVs were tested on the roads of Southern California. The HDVs in this phase were exclusively Class 8 goods movement trucks. Compared to the emissions data presented in PEMS and chassis dynamometer testing, the NOx and fuel economy were averaged over the entire-test route. The data trends are as expected due to smaller dataset and single vocation (goods movement). Distance- and work-specific NOx emission results are summarized in Report.

Benefits

This study builds on these past efforts by investigating in-use emission levels of these natural gas (NG) HDVs in the context of the 0.02 g/bhp-hr NOx certification standard, legacy 0.2 NG HDVs, multiple HDV vocations, and other fuel types. By identifying technology impacts and shortfalls potentially causing higher than expected in-use emissions, as well as areas of exceptional in-use emissions performance, the project is informing further technology development and research opportunities to maximize emission reduction benefits from deploying 0.02 NG HDVs.

Additionally, the comprehensive dataset (and the models leveraging the data) can help policymakers better understand real world emissions from California's in-use fleet (approximately one million medium- and heavy-duty vehicles). Decision makers can leverage the study results to determine the best pathways forward for meeting transportation decarbonization and air quality goals. For the on-road fleet, most of those reductions will need to come from HDVs, including newly manufactured units as well as those already in use.

Project Costs

The project cost to WVU and UCR was \$1,625,000 each for a total project cost of \$3,250,000. CEC, SoCalGas, CARB, and South Coast AQMD's costshare for the project was \$2,000,000, \$500,000, \$150,000, and \$600,000, respectively.

Commercialization and Applications

The 200 HDV Testing Program represents an important milestone for CARB, CEC, the South Coast AQMD, SoCalGas and the U.S. EPA. The results from the program are very instrumental in ongoing efforts to shape, improve and implement policies designed to attain ambient air quality standards, mitigate climate change, and displace fossil-derived diesel with low-carbon alternative transportation fuels.

December 2022

Conduct California Inland Port Feasibility Study Phase Two

Contractor

Fresno Council of Governments (Fresno COG) Global Logistics Development Partners (GLD Partners)

Cosponsors

Port of Los Angeles (POLA) Port of Long Beach (POLB) Port of Stockton (POS) San Joaquin Valley Air Pollution Control District (SJVAPCD) South Coast Air Quality Management District (South Coast AQMD) Sacramento Metropolitan Air Quality Management District (SMAQMD) County of Sacramento

Project Officer

Sam Cao

Background

The California Inland Port System Feasibility Study (FS) Phase II is the second of three feasibility study phases for the project. Project development and planning will begin concurrently with the last feasibility study phase. Phase One looked at the core feasibility test, Phase Two looked at the market, costs, and began the business model development, while Phase Three will detail sites, further define the business model, and detail the rail component. The California Inland Port System Project aims to create the largest, cleanest, and most efficient goods movement system in the nation.

Project Objective

The California Inland Port System FS is a transformational project that will have significant positive implications for improving national and statewide supply chain efficiency, while also improving air quality, economic opportunity, and other public policy objectives. In partnership with the State's major seaports, the California Inland Port System FS will be a public-private platform

to transform much of the California logistics system.

Specific objectives include: 1) Significantly reduce vehicle miles travelled, congestion, air pollution, and greenhouse gas emissions by reducing the number of truck trips from the seaports complex in the Los Angeles region to the San Joaquin Valley, the Sacramento region, and the Bay Area. 2) Create tangible new supply chain efficiencies and reduce shipping costs for shippers that manage global supply chains through direct intermodal rail service to/from the San Pedro seaports. 3) Analyze significant private sector investment and new job creation by fundamentally repositioning the economic competitiveness of the San Joaquin Valley Region. 4) Create a more robust and efficient intra-state distribution system with a specific focus on supporting the agriculture sector while spurring new high-value manufacturing and e-commerce investments. 5) Reduce highway road congestion, with a parallel reduction in the requirement for road maintenance: accident-avoidance savings; all reducing cost.

Technology Description

The California Inland Port System will be a multimodal network of integrated clean and highly efficient truck, rail, air, and cargo facilities that will underpin a next-generation ecosystem of goods movement. The system is being built from the ground up around zero-emission cargo handling equipment. Additionally, using customized technology and integration with portsupply chain data, the system will play a strategic role in increasing supply chain competitiveness and will be a major California contribution to solving the national supply chain crisis.

Status

C-21

The project has gained support from a range of interests and is entering a critical period. The overall structure of the project has been formed with identification of key elements, infrastructure, and costs. Due to circumstances, there may be an opportunity to fast-track early portions of the project, so the next six months will be a critical period in the project's development. While public funding is pursued, work will continue for certain business strategy, planning, engineering, and community engagement aspects of the project. Over the next year, it will become clear if the State will agree to fund Fresno COG's budget request for \$60M. This in turn will be important in determining if a corresponding federal funding request may be successful. If State and federal funding were in-place, the foundation would be set to develop the TradePorts with extensive private investment.

Meanwhile, work on Phase Three of the project continues and will soon be underway with U.S. Department of Transportation (U.S. DOT) related to the Regional Infrastructure Accelerator/P3 elements. Phase Three will also begin the environmental analysis process and create advance plans, develop specifications for key infrastructure projects and corresponding project finance and public-private partnership structures. Finally, the project will begin site planning, design, and engineering for the first fast-track project elements and develop a Joint Powers Authority to deliver the first phases of the project.

Results

Phase Two follows the completion of the Core Feasibility Assessment that was competed in the initial phase. This phase was designed to refine the product offer, clarify the likely market, produce infrastructure cost estimates, and define new potential economic development. During this phase of the project, several key objectives were 1) Shipper requirements and accomplished: interest were more clearly defined and clarified , 2) Capital costs for key infrastructure cost estimates were produced, 3) TradePort plans were developed, 4) Competitiveness modelling was performed to demonstrate the extent and type of economic development that would be enabled due to increased logistics connectivity to key supply chain points, 5) Sought and won U.S. DOT Regional Accelerator designation, and 6) Developed a proposal for an initial launch phase for development of the first elements of Truck Mobility Complexes.

During this phase, interactions with a range of additional work was undertaken to communicate and coordinate with ports, railroads, truck manufacturers, and fleet operators. Additional interactions are planned with each as the project proceeds into Phase Three.

Benefits

In terms of the California Inland Port System, strategic public and private investments will directly lead to an economic development system that will generate approximately 100,000 new high-quality and high-wage jobs in a range of manufacturing and logistics sectors, including automotive, agricultural processing and food production, medical products, industrial machinery, and ecommerce. Most of these new jobs will benefit the stat's most disadvantaged region, which is the Central Valley. The private investment in buildings and equipment will produce up to \$30 billion in overall gross investment. Finally, the California Inland Port System would be one of the largest, cleanest, and most efficient logistics and investment systems in the world. It would be the flagship model for the and dramatically nation would support improvements to air quality, climate resiliency, economic development and competitiveness, and the national supply chain system.

Project Costs

Phase Two FS cost \$250,000 to conduct, with South Coast AQMD's contribution being \$37,500, or 15% of the overall cost. Phase One FS cost \$250,000 while Phase Three FS will cost \$468,000. South Coast AQMD is only contributing to Phase Two and the project team does not expect South Coast AQMD to further contribute to any phase. Phase Three and beyond is/will be funded by State and federal funding. Project development is anticipated to cost upwards of \$4 million. Fresno COG has applied for U.S. DOT RAISE Planning grant funds and Governor's budget funds for the remaining portion.

Commercialization and Applications

The project team aims to have the first Truck Mobility Complexes operational by 2025, with full buildout of the system to happen in the years following, subject to various factors.

May 2022

UPS Fuel Cell Extended Range Delivery Truck Demonstration

Contractor

CALSTART Inc

Subcontractor

United Parcel Service (UPS) Unique Electric Solution, LCC (UES) Ballard Power System South Coast Air Quality Management District (South Coast AQMD)

Project Officer

Maryam Hajbabaei

Background

Parcel delivery trucks have a vital role in the modern economy, especially with the onset of the COVID-19 pandemic. Diesel-powered parcel delivery vehicles have become a significant contributor to poor air quality in the South Coast Air Basin. This project aims to demonstrate a fuelcell-powered parcel delivery vehicle for the purpose of removing the harmful emissions the vehicles emit while driving in local communities and to help meet South Coast AQMD emissions reduction goals.

Project Objective

This project aimed to develop and demonstrate a hybrid electric powertrain with a fuel-cell range extender integrated into a UPS delivery truck as a scalable, innovative, cost-effective alternative to diesel-powered parcel delivery vehicles. The project aimed to assess both the technology's performance viability and commercial viability

Technology Description

The Fuel Cell Extended Range Delivery Truck (FCXRDT) is a hybrid-electric fuel cell vehicle on a standard UPS chassis. The vehicle was a retrofitted UPS vehicle with the new technology mounted on it. The drive train consisted of a 120 kW electric motor and a 50kWh Lithium Iron Phosphate battery, with an estimated range of 120

miles. Additionally, a fuel cell range extender was attached, with 10 kg of hydrogen (H2) storage and a power rating of 30 kW. It is one of the first parcel delivery vehicles to be demonstrated with this type of propulsion system. The vehicle operates with zero emissions.

Status

The project was completed in May 2022. Both the final project report and the accompanying commercialization report are available on file. These reports describe the technical details of the project in-depth.

The vehicle's development and assembly began in 2018 and were completed in February 2019. After assembly completion, several delays prevented demonstration from beginning immediately, including difficulty supplying hydrogen, length repair times, and the onset of the COVID-19 pandemic. The vehicle was operated, and data was collected for 11 months from September 2020 to September 2021. The project was successfully completed during this demonstration period.



Results

The vehicle conducted 11 months of on-road performance testing from September 2020 to September 2021. The following table breaks down

the critical vehicle essential key performance and efficiency metrics.

Parameter	Value
Total Days of Operation	143
Average Distance Driven per day (mi)	24.07
Average Fuel Efficiency (mi/kg)	13.80
Average Energy Efficiency (kWh/mi)	0.99
Average Total Efficiency (mi/DGE)	9.07

The vehicle drove a total of 143 days throughout the testing period and averaged 24.07 miles per day. The vehicle proved to be very fuel-efficient, averaging 9.07 miles per diesel gallon equivalents (DGE) throughout the duration of the data collection period. The following table summarizes the total maintenance and service that was required on the FCXRDT throughout the project.

Parameter	Value
Vehicle Service Events	18
Vehicle Break Down Events	8
Total Days Out of Service (Days)	106
Average days out Service per Event	5.89
Maintenance Cost (\$/mi)	0.59

The vehicle had several issues with maintenance and service events throughout the period, being out of service for a total of 106 business days throughout the demonstration period. Maintenance issues, while not extremely expensive (\$0.59 per mile) proved to be reasonably common, costing a large amount of unfortunate downtime.

Benefits

The project showed the vehicle and technology were more than capable of completing the duty cycle of a package delivery vehicle. The FCXDRT was able to meet the anticipated range, charging, and power predictions stated at the project's onset. The vehicle is zero-emission and therefore provides significant reductions over a traditional package delivery vehicle. As this project was slated to demonstrate and test the viability of the fuel-cell range extender technology, these results show that the vehicle technology is viable in on-route, realworld conditions.

Project Costs

The project obtained a total funding/cost share of \$1,574,250.00 from several partners to evaluate the overall truck's performance. The UPS and South Coast AQMD supplied the most substantial sums. All additional funding sources are mentioned in the table below.

Parties Name	Amount
UPS	\$749,500.00
South Coast AQMD	\$589,750.00
UES	\$165,000.00
CALSTART	\$70,000.00
Total	\$1,574,250.00

Commercialization and Applications

This demonstration represents a significant step forward for the fuel cell industry as it able to successfully deploy a fuel cell parcel delivery truck. This demonstration provided many lessons for the industry. Hydrogen fuel cell technology has the ability to function in a variety of settings and can meet the duty cycle of the parcel delivery sector. To successfully deploy fuel cell vehicles, a fleet needs access to a well-established fueling infrastructure network.

While fuel cell technology has improved and become cheaper, there are some additional barriers to commercialization. While these barriers do not necessarily directly relate to the vehicle technology itself, they can deter customers from adopting fuel cell vehicle technology. These considerations include the availability of hydrogen infrastructure, the cost of hydrogen, hydrogen filling speeds, fuel cell technological expertise, maintenance, and the availability of parts and technician training. Nevertheless, as fuel cell technology advances, all of the concerns will be addressed to make fuel cell technology more appealing to fleets. South Coast AQMD Contract #23071

December 2022

Participate in California Fuel Cell Partnership for CY 2022

Contractor

Frontier Energy Inc

Cosponsors

Automakers, energy companies, local, state and federal public agencies, technology companies, universities, transit agencies and others.

Project Officer

Maryam Hajbabaei

Background

Established with eight members in 1999, the California Fuel Cell Partnership (CaFCP) is a collaboration in which private and public entities are independent participants. It is not a joint venture, legal partnership, or unincorporated association. Therefore, each participant contracts with Frontier Energy (previously Bevilacqua-Knight, Inc./BKi) for their portion of CaFCP administration. South Coast AQMD joined the CaFCP in April 2000. The CaFCP currently includes 16 board members, 12 steering team members, and 44 associate members with a focus on furthering commercialization of fuel cell vehicles, fueling infrastructure technologies and renewable and decarbonized hydrogen production to address climate change and emission reduction challenges.

In 2022 CaFCP began transitioning to a national public-private partnership called the Hydrogen Fuel Cell Partnership (H2FCP). The purpose was to expand progress beyond California. California remains the primary geographic objective, serving as a national leader. While the organization has formally launched as a new legal entity and has applied for 501c3 status, the transition is expected to be fully implemented in 2023. Until then, the current relationship with Frontier Energy and approach is in place.

Project Objectives

The goals for 2022 include the following:

• Identify technology challenges and information gaps within the state's hydrogen station network, and work collaboratively with members to advance the market

- Coordinate and collaborate on approaches to achieving an initial 200 light duty hydrogen stations, expanding to a state-wide sustainable infrastructure network of at least 1,000 stations in California. Build support for the FCET Vision, highlighting the need for 200 heavy duty stations to support 70,000 HD fuel cell trucks, to enable heavy duty hydrogen fuel cell truck adoption
- Identify new concepts and approaches to initiate exponential station network growth for light- and heavy-duty applications
- Communicate progress of fuel cell electric vehicles (light and heavy duty) and hydrogen to current and new stakeholder audiences
- Increase awareness and market participation of fuel cell electric trucks and buses, including supporting the deployment of pilot projects
- Coordinate nationally and internationally to share and align approaches

Status

The members of the CaFCP/H2FCP intend to continue their cooperative efforts within California and have plans to expand activities in 2023 to advance the ZEV technology benefits instate and nationally. This contract was completed on schedule.



Technology Description

CaFCP/H2FCP members together or individually are operating fuel cell passenger cars, transit buses, drayage trucks and associated fueling infrastructure in California. Passenger cars include Honda's Clarity, Hyundai's Nexo and Toyota's second generation Mirai. Fuel cell bus operators include AC Transit, Sunline Transit, Orange County Transportation Authority, Golden Empire Transit and UC Irvine Student Transportation with more agencies bringing on buses in the coming year or two, including Foothill Transit, Long Beach Transit, and others. More transit agencies are expected to adopt fuel cell buses over the next 5-10 years as they implement the Innovative Clean Transit regulation. Class 8 fuel cell drayage trucks include a Ballard powered BAE/Kenworth truck, the Cummins fuel cell powered TransPower truck, Hyundai Xcient trucks and Toyota's Portal trucks.

Results

Specific accomplishments include:

- Since 2015, more than 14,000 consumers and fleets have purchased or leased passenger FCEVs
- Transit agencies have 66 fuel cell electric buses in operation and more than 103 on order. Over 2,100 additional fuel cell electric buses anticipated (from recent CARB ACT update)
- 56 plus light-duty retail hydrogen stations in operation in California and 115 in development; 5 bus stations in operation and 3 in development, and 3 truck stations in operation, 1 in development and another 5 funded
- CaFCP/H2FCP staff and members continue to conduct targeted outreach and education throughout California and provide information to non-California requestors
- CaFCP/H2FCP operates and maintains the Station Operational Status System (SOSS) that the 50-plus open retail hydrogen stations use to report status. This data, in turn, feeds realtime information (address, availability, etc.) to FCEV drivers through a CaFCP/H2FCP mobile website and other apps and systems. SOSS data also supports the new ZEV infrastructure credit in the Low Carbon Fuel Standard program
- CaFCP/H2FCP actively engages in medium-& heavy-duty FCEV codes & standards coordination, specifically through sponsoring SAE J2600 (fueling connection) for inclusion of high-flow H35 fueling geometry for fuel cell electric bus (FCEB) fueling and fueling protocol standard development
- Building on the FCET truck vision, CaFCP/H2FCP has initiated development of a national hydrogen mobility strategy. The strategy will develop infrastructure success metrics for heavy- and light-duty vehicles in California (for the ARCHES H2 Hub proposal) and nationally to connect ports, H2 Hubs, and other activities, as well as a public stakeholder engagement strategy

Benefits

Compared to conventional vehicles, fuel cell vehicles offer zero smog-forming emissions, reduced water pollution from oil leaks, higher efficiency and much quieter and smoother operation. When renewable fuels and electricity are used as a source for hydrogen, fuel cell vehicles also encourage greater energy diversity and lower greenhouse gas emissions (CO_2).

By combining efforts, the CaFCP/H2FCP can accelerate and improve the commercialization process for all categories of vehicles: passenger, bus, truck, etc. The members have a shared vision about the potential of fuel cells as a practical solution to many of California's environmental issues and similar issues around the world. The CaFCP/H2FCP provides a unique forum where infrastructure, technical and interface challenges can be identified early, discussed, and potentially resolved through cooperative efforts.

Project Costs

CaFCP/H2FCP's annual operating budget is about \$1.4 million, and includes operating costs, program administration, joint studies and public outreach and education. All members make annual contributions towards the common budget with executive government members making an annual contribution of approximately \$40,000. Some members contribute additional in-kind products and services to accelerate specific project and program activities.

Commercialization and Applications

CaFCP/H2FCP's goals relate to preparing for and supporting market launch through coordinated individual and collective effort. CaFCP/H2FCP members, individually or in groups:

- Prepare for larger-scale manufacturing, which encompasses cost reduction, supply chain and production
- Reduce costs of station equipment, increase supply of renewable hydrogen at lower cost, and develop new retail station approaches
- Support cost reduction through incentives and targeted research, development, and demonstration projects
- Continue research, development, and demonstration of advanced concepts in renewable and other low-carbon hydrogen
- Provide education and outreach to public and community stakeholders on the role of FCEVs and hydrogen in the evolution to electric drive

January 2022

Sustainable Transportation Energy Pathways (STEPS3)

Contractor

University of California, Davis - Institute of Transportation Studies

Cosponsors

7 energy providers, 10 automakers, and 6 government agencies, 2 foundations

Project Officer

Lisa Mirisola

Background

STEPS3 (Sustainable Transportation Energy Pathways 3) is a four-year (2015-2018), multidisciplinary research consortium at the UC Davis Institute of Transportation Studies. Our mission is to generate new insights about the transitions to a sustainable transportation energy future and disseminate that knowledge to decisionmakers in the private sector and governmental agencies so that they can make informed technology, investment, and policy choices.

Project Objective

STEPS3 researchers develop the theory, tools and methods that allow for self-consistent and transparent comparisons of promising alternative energy and vehicle pathways and development of realistic integrative scenarios toward sustainable transportation goals. The STEPS3 program follows previous ITS-Davis consortium-based research programs on Fuel Cell Vehicle Modeling (1998-2002), Hydrogen Pathways (2003-2006), Sustainable Transportation Energy Pathways (STEPS) (2007-2010), and NextSTEPS (2011-2014).

Program areas continue to include, but are not limited to, consumer behavior, infrastructure system analysis, environmental impact, vehicle technology evaluation and integrative scenarios will be compared and analyzed with reference to the four energy pathways (hydrogen, biofuels, electricity, and fossil fuels including natural gas) best suited to the transportation sector.

Over 220 research publications and reports produced by STEPS3 researchers are currently available to the public at https://its.ucdavis.edu/research/publications/.

The STEPS3 program has input from a team of multi-disciplinary researchers and support from energy companies, automotive manufacturers, and government agencies. STEPS3 analyses will include a focus on Southern California as the early market for alternative fueled vehicles, specifically hydrogen fuel cells, plug-in hybrid, and battery electric vehicles.

Technology Description

Four specific STEPS 2015-2018 program goals that have direct relevance to South Coast AQMD are as follows: 1) optimize scenarios for mass transition to alternative fuels and vehicles in California; 2) model evolving relationships between future sources of mobile energy and the existing oil and gas industry; 3) describe current trends and inform policymakers of strategies for Global Urban Sustainable Transport; and 4) continue development of a wide range of models in order to progress research and improve trend recognition.

There are four (4) specified projects associated with this effort.

The first project looks at initiating transitions for 2015-2030, and asks the question, "What is required for early alternative fuel and vehicle transitions to succeed?". The key answers included were that to bring a large number of light-duty electric drive vehicles into the U.S market during a 20-year transition period, from 2015–2035, you might require a considerable investment in additional vehicle purchase incentives and refueling infrastructure, relative to an expected amount spent on all U.S. vehicles and fuels during this period. Also, most of the additional costs are for vehicle purchases; the actual subsidies needed

to spur the market to the target levels may be less than these increments.

The second project looks at the future of fuels and the oil and gas industry and asks the question, "How will changing geopolitical landscapes and disruptive technologies in the oil and gas and clean technology industries impact future business models and the competition of fuels?" The key answers to this question were first, that interest in fuel cell electric vehicle (FCV) technologies is growing in the medium-and heavy-duty (MDHD) transportation sector. Compared to battery electric technologies, FCVs have vehicle several advantages, most noticeably their low maintenance, long range and fast refueling, thus offering a promising option for zero-emission MDHD transportation. Also, costs of producing socalled advanced biofuels-those with the lowest greenhouse gas (GHG) and land use impactshave not decreased in recent years.

The third project asks, "How will a rapidly urbanizing world affect demand for transport and energy? And how can we transition to sustainable transportation in a rapidly urbanizing world with ever-growing need for mobility?"

Key answers to these questions note that three revolutions in urban transportation—vehicle electrification, shared mobility, and automation could reduce traffic congestion, save over \$1 trillion per year, and cut urban travel CO2emissions by over 90% by 2050. Also, fully automated, electric vehicles, without sharing or supporting land use, transit, active mobility and other sustainability pathways, could lead to expensive, highly congested systems.

The fourth project asks the question, "What do improved and cross-compared economic/environmental/transportation/energy models tell us about the future of sustainable transportation?"

The key answers note that in a high ZEV truck sales scenario, STEPS3 choice modeling work suggests that battery electric trucks can eventually compete in most markets, though in long-haul it is fuel cell vehicles that are expected to dominate. Also, across most classes, policy incentives will be needed to reach market share targets, including purchase subsidies. Over time these subsidies can decline as ZEV technologies become more competitive.

Status

The STEPS3 program, including the four projects listed above, was completed on Dec. 31, 2018.

Results

From 2014 to 2018, STEPS3 researchers produced over 220 major publications and journal articles as well as numerous research reports. In addition, the program held 16 symposia, sponsored workshops, and policymaker outreach events. The STEPS website (www.steps.ucdavis.edu) hosts electronic copies of selected publications and other program materials as well as the final report, submitted on January 8, 2020. In addition, a compilation of Summary Papers of STEPS3 research findings can be found at <u>https://stepsplus.ucdavis.edu/steps3summary-papers.</u>

Project Costs

As budgeted, South Coast AQMD contributed \$240,000 toward the STEPS3 program. The STEPS3 program was supported by other industry and government sponsorships and contracts, and the total support was over \$6 million over the length of the STEPS3 program (2015-2018).

Commercialization and Applications

The STEPS3 program and especially the four projects highlighted above, focusing on zero emission vehicles and low carbon fuels, have a direct relevance to South Coast AQMD's priorities in evaluating changes to criteria emission levels and vehicle technology options. In addition, outreach and communication of results from the STEPS3 program will broaden the public knowledge base and help expedite introduction of zero and near-zero emitting vehicles in the South Coast Air Basin.

Appendix D

Technology Status

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Technology Status

For each of the core technologies discussed in this report, numerous factors influence the proposed allocation of funds, ranging from overall Environment & Health Benefits, Technology Maturity and Compatibility, and Cost, summarized in the technology status table.

A separate category for zero emission infrastructure is being created. The Fueling Infrastructure & Deployment for natural gas and renewable fuels is being removed since these technologies are largely commercialized. Within the broad factors above, sub-factors for each type of project may be considered, as summarized below:

Environment and Health Benefits

Criteria Pollutant Emission Reduction potential continues to receive the highest priority for projects that facilitate NOx reduction goals outlined in the 2022 AQMP. Technologies that provide co-benefits of GHG and Petroleum Reduction are also weighted favorably, considering the Clean Fuels Program leverages funds available through several state and federal programs, as well as overall health benefits in reducing exposure to Ozone and PM2.5, especially in disadvantaged communities.

Technology Maturity & Compatibility

Numerous approaches are used to evaluate technology maturity and risk given the potential uncertainty in real world operations. This approach can include numerous weighting factors based on the assessed importance of a particular technology. Key metrics considered include Infrastructure Constructability, which evaluates the potential of fuel or energy for the technology and readiness of associated infrastructure, and Technology Readiness, which includes research and development of the technology and large scale deployments that consider ability for near-term implementation and operational compatibility for end users. These combined factors can provide an assessment for market readiness of the technology.

Cost/Incentives

The long-term costs and performance of advanced technologies are highly uncertain, considering continued development of these technologies is likely to involve unforeseen changes in basic design and materials. Additionally, economic sustainability – or market driven – implementation of these technologies is another key factor for technology research, development, demonstration and deployment projects. To accelerate the demonstration and deployment, especially of pre-commercialization technologies, local, state and federal incentive programs are crucial, but may be underfunded to enable large scale deployments.

Staff has developed an approach to evaluating core technologies, especially some of the specific platforms and technologies discussed in the draft plan and annual report. The technology status evaluation below utilizes experience with implementing the Clean Fuels Program for numerous years, as well as understanding the current development and deployment of the technologies and associated infrastructure, and are based on the following measurement:

● Excellent ● Good ○ Satisfactory ● Poor • Unacceptable

The table below summarizes staff evaluation of the potential projects anticipated in the Plan Update, and technology developers, suppliers and other experts may differ in their approach to ranking these projects. For example, staff ranks Electric/Hybrid Technologies as Excellent or Good for Criteria Pollutant and GHG/Petroleum Reduction, but Satisfactory to Excellent for Technology Readiness, Satisfactory to Excellent for Compatibility, and Satisfactory to Poor for Costs and Incentives to affect large scale deployment. It is further noted that the Clean Fuels Fund's primary focus remains on-road vehicles and fuels, and funds for off-road and stationary sources are limited.

This approach has been reviewed with the Clean Fuels and Technology Advancement Advisory Groups, as well as the Governing Board.

Technologies & Proposed Solutions	Environ	ment &	Health	th Technology Maturity & Compatibility				Cost	
	Emissions Reduction	GHG/Petroleum Reduction	Health Benefits	Infrastructure Constructability	Technology Readiness	Near-Term Implementation/ Duty Cycle Fulfillment Capability	Operations Compatibility	Relative Cost & Economic Sustainability	Incentives Available
Electric/Hybrid Technologies			•						
Plug-In Hybrid Heavy-Duty Trucks with Zero-Emission Range	●	0	•		\bigcirc		٠	Θ	•
Heavy-Duty Zero-Emission Trucks	•	•	•	0	0	•	0	•	•
Medium-Duty Zero-Emission Trucks	•	•	•	•	•	•	•	•	•
Medium- and Heavy-Duty Zero-Emission Buses	•	•	•	•	●	•	0	•	•
Light-Duty Zero-Emission Vehicles	•	•	•	•	•	•	•	0	•
Plug-In Hybrid Light-Duty Vehicles with Zero-Emission Range	•	0	•	•	•		٠	$\overline{\mathbf{\Theta}}$	•
Hydrogen & Fuel Cell Technologies			1	11		11			1
Heavy-Duty Trucks	•	•	•	0	•	0	Θ	•	•
Heavy-Duty Buses	•	•	•	0	•	•	•	•	•
Off-Road – Locomotive/Marine	•	•	•	0	0	$\overline{\mathbf{i}}$	Θ	•	•
Light-Duty Vehicles	•	•	•	0	●	0	0	$\overline{}$	•
Zero Emission Infrastructure									
Light-Duty Electric Charging Infrastructure	-	-	-	•	•		•	٠	•
Medium- and Heavy-Duty Electric Charging Infrastructure	-	-	-	•	•	•	•	<u> </u>	•
Light-Duty Hydrogen Fueling Infrastructure	-	-	-	0	•		•	Θ	•
Medium- and Heavy-Duty Hydrogen Fueling Infrastructure	-	-	-	0	●	•	•	-	•
Infrastructure – Production, Dispensing, Certification	-	-	-	0	0	Θ	-	•	-
Engine Systems		1							
Ultra-Low NOx Medium- and Heavy-Duty Renewable Diesel Vehicles	●	•	0	•	0	•	•	●	•
Renewable Gaseous and Alternative Fuel Ultra-Low NOx Medium- and Heavy-Duty Vehicles	●	•	0	•	•	•	•	●	•
Ultra-Low Emission Off-Road Applications	•	●	\bigcirc	•	\bigcirc	●	•	•	\cap
Stationary Clean Fuel Technologies		1		II		11			0
Low-Emission Stationary & Control Technologies	•	•	•	•	0	0	•	0	Θ
Renewable Fuels for Stationary Technologies	0	٠	•	•	0	0	0	0	-
Vehicle-to-Grid or Vehicle-to-Building/Storage	•	٠	•	0	0	$\overline{}$	0	Θ	•
Emission Control Technologies									
Alternative/Renewable Liquid Fuels	0	•	•	•	•			•	0
Advanced Aftertreatment Technologies	•	0	•	0	0	•		\bigcirc	0
• Excellent • Good	⊖ Satisf	actory	⊖]	Poor	• Una	cceptable			

Appendix E

List of Acronyms

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LIST OF ACRONYMS

3B-MAW-3-bin moving average windows A-1—A-1 Alternative Fuel Systems AB—Assembly Bill AC-absorption chiller ACFR—Annual Comprehensive Financial Report ACT-advanced clean transportation ACT—American Clean Truck regulation ADA—American with Disabilities Act AER-all-electric range AFRC-air/fuel ratio control AFVs-alternative fuel vehicles AGL—Academy of Global Logistics ALPR-automated license plate recognition APCD—Air Pollution Control District AOMD—Air Ouality Management District AQMP-Air Quality Management Plan ARB-Air Resources Board ARM-advanced RISC machine ARRA-American Recovery & Reinvestment Act AWMA-Air & Waste Management Association BACT-best available control technology BATS-blended aftertreatment system BEB-battery electric bus BESS- battery energy storage system BET-battery electric tractor BET—battery electric truck BEV-battery electric vehicle BMEP-brake mean effective pressure BMS—battery management system BSNOx-brake specific NOx BTC-Broadband Telecom Power, Inc. CAE— computer aided engineering CAN—controller area networks CAP-Clean Air Protection CAAP-Clean Air Action Plan CaFCP-California Fuel Cell Partnership CAPP— Community Air Protection Program CARB-California Air Resources Board CATI-Clean Air Technology Initiative CBD-Central Business District (cycle) - a Dyno test cycle for buses CCF—California Clean Fuels CCHP-combined cooling, heat and power CCI-California Climate Investments CCV-closed crankcase ventilation CDA—cylinder deactivation CDFA/DMS-California Department of Food &Agriculture/Division of Measurement Standards CE-construction equipment CEC-California Energy Commission CE-CERT-College of Engineering - Center for Environmental Research and Technology

CEMS—continuous emission monitoring system CERP-Community Emission Reduction Plan CEQA-The California Environmental Quality Act CFD-computational fluid dynamic CFR—Code of Federal Regulations CHBC-California Hydrogen Business Council CHE-cargo handling equipment C-ITS—connected intelligent transportation system CMAQ—community multi-scale air quality CNG-compressed natural gas CNGVP-California Natural Gas Vehicle Partnership CO₂—carbon dioxide CO-carbon monoxide COG-council of governments ComZEV—Commercial Zero-Emission Vehicle CPA—Certified Public Accountant C-PORT—Commercialization of POLB Off-Road Technology CPUC—California Public Utilities Commission CRADA—Cooperative Research and Development Agreement CRDS-cavity ring-down spectroscopy CRT—Charge Ready Program CRT-continuously regenerating technology CSC—city suburban cycle CTE-Center for Transportation and the Environment CTF-Clean Truck Fund CVAG-Coachella Valley Association of Governments CWI-Cummins Westport, Inc. CY-calendar year DAC-disadvantaged community DC-direct connection DC-direct current DCFC-direct connection fast charger DCM-dichloromethane DEF-diesel exhaust fluid DEG-diesel equivalent gallons DER-distributed energy resource DERA-Diesel Emissions Reduction Act DGE-diesel gallon equivalents DF-deterioration factor DHE—Dependable Highway Express DME—dimethyl ether DMS—Division of Measurement Standards DMV-Department of Motor Vehicles DOC-diesel oxidation catalysts DOE—Department of Energy DOT-Department of Transportation DPF-diesel particulate filters D-PMag-dual permanent magnet motor

DPT3-Local Drayage Port Truck (cycle) - where 3=local (whereas 2=near-dock, etc.) DRC-Desert Resource Center DRI-Desert Research Institute DT-delivery truck DTNA-Daimler Trucks North America LLC EATS—emissions aftertreatment system ECM-emission control monitoring ECM-engine control module EDD-electric drayage demonstration EDTA-Electric Drive Transportation Association EERE-Energy Efficiency and Renewable Energy EGR-exhaust gas recirculation EIA-Energy Information Administration EIN—Energy Independence Now EMFAC-Emission FACtors EPRI-Electric Power Research Institute E-rEV-extended-range electric vehicles ESD-emergency shut down ESS-energy storage system EV-electric vehicle EVSE-electric vehicle supply equipment FCEB-fuel cell electric bus FCET—fuel cell electric truck FCEBCC-Fuel Cell Electric Bus Commercialization Consortium FCEV-fuel cell electric vehicle FCTO—Fuel Cell Technologies Office FCV—fuel cell vehicle FCXRDT-fuel cell extended range delivery truck FS—feasibility study FTA-Federal Transit Administration FTP-federal test procedures G2V—grid-to-vehicle g/bhp-hr—grams per brake horsepower per hour GC/MS—gas chromatography/mass spectrometry GCW-gross combination weight GCVW-gross container vehicle weight GDI-gasoline direct injection GGE-gasoline gallon equivalents GGRF-Greenhouse Gas Reduction Relief Fund GH2-green hydrogen GHG-greenhouse gas GM-goods movement GNA-Gladstein, Neandross & Associates, LLC GNSS—global navigation satellite system Go-Biz-Governor's Office of Business and Economic Development GPCI-Green Paradigm Consulting, Inc. GPS—global positioning system GPU—gas processing unit GREET-Greenhouse Gasses, Regulated Emissions and Energy Use in Transportation GTI-Gas Technology Institute

GTL-gas to liquid GVW-gross vehicle weight GVWR-gross vehicle weight rating H2-hydrogen H2NIP-Hydrogen Network Investment Plan H&SC-California Health and Safety Code HCCI-Homogeneous Charge Combustion Ignition HCD-hydrogen contaminant detector HCHO—formaldehyde HCNG-hydrogen-compressed natural gas (blend) HD-heavy duty HDD-heavy-duty diesel HDDT-highway dynamometer driving schedule HD-FTP-Heavy-Duty Federal Test Procedure HD I/M-heavy-duty inspection and maintenance HD-OBD-heavy-duty on-board diagnostics HDV-heavy-duty vehicle HEV-hybrid electric vehicle HEVI-LOAD-heavy-duty electric vehicle infrastructure load, operations and deployment HHDDT-heavy heavy-duty diesel truck schedule HMI-Human Machine Interface HPLC-high-performance liquid chromatography HRSC-heat recovery steam cycle HT—high throughput HTFCs-high-temperature fuel cells HTPH—high throughput pretreatment and enzymatic hydrolysis HV-high voltage HyPPO-Hydrogen Progress, Priorities and **Opportunities** report Hz-Hertz IBT-Intermodal Bridge Transport ICE-internal combustion engine ICEPAG-International Colloquium on Environmentally Preferred Advanced Generation ICEV-internal combustion engine vehicle ICT-Innovative Clean Transit Regulation ICU-inverter-charger unit ICTC-Interstate Clean Transportation Corridor ISX12N—11.9-liter NZE engine ITS-intelligent transportation system IVOC-intermediate volatility organic compound JETSI-Joint Electric Truck Scaling Initiative kg-kilogram kWh-kilowatt-hour L9N-8.9-liter natural gas engine LADOT-City of Los Angeles Dept. of Transportation LADWP-Los Angeles Department of Water and Power LAEDC-Los Angeles Economic Development Corporation

LA Metro-Los Angeles County Metropolitan Transportation Authority LBCT-Long Beach Container Terminal LC—lane change LCA—life cycle assessment LCFS-Low Carbon Fuel Standard LD—light-duty LED-low emission diesel LFP-lithium iron phosphate Li-lithium ion LIGHTS-Low Impact Green Heavy Transport Solutions LIMS-Laboratory Information Management System LLC-low load cycle LLNL—Lawrence Livermore National Laboratory LNG—liquefied natural gas LO-SCR-light-off selective catalytic reduction LPG-liquefied petroleum gas or propane LRUSA-Landi Renzo USA Corporation LSM—linear synchronous motor LSV-low-speed vehicle LUV-local-use vehicle LVP-low vapor pressure M&HD-medium- and heavy-duty MATES-Multiple Air Toxics Exposure Study MC-mass compensated MCE-multi cylinder engine MCFC-molten carbonate fuel cells MD—medium duty MDHD-medium- and heavy-duty MECA-Manufacturers of Emission Controls Association MOA-Memorandum of Agreement MOVES-Motor Vehicle Emission Simulator MPa-MegaPascal MPFI-Multi-Port Fuel Injection MPG-miles per gallon MPGde-miles per gallon diesel equivalent MSRC-Mobile Source Air Pollution Reduction **Review Committee** MSW-municipal solid wastes MY-model year MTA-Metropolitan Transportation Authority (Los Angeles County "Metro") NAAQS-national ambient air quality standards NAFA-National Association of Fleet Administrators NAICS-North American Industry Classification System NFPA-National Fire Protection Association NCP-nonconformance penalty NEV-neighborhood electric vehicles NextSTEPS—Next Sustainable Transportation **Energy Pathways**

NG/NGV-natural gas/natural gas vehicle NGO-non-governmental organization NH3—ammonia Nitro-PAHs-nitrated polycyclic aromatic hydrocarbons NHTSA—Natural Highway Traffic Safety Administration NMC-nickel manganese cobalt NMHC—non-methane hydrocarbon NO-nitrogen monoxide NO2-nitrogen dioxide $NO + NO_2$ —nitrous oxide NOPA-Notice of Proposed Award NOx-oxides of nitrogen NRC—National Research Council NREL—National Renewables Energy Laboratory NRTC—non-road-tested cycle NSPS-new source performance standard NSR-new source review NTE-not-to-exceed NZ-near zero NZE - near zero emission O3—ozone OBD-on-board diagnostics OCS-overhead catenary system OCTA—Orange County Transit Authority OEHHA-Office of Environmental Health Hazard Assessment OEM-original equipment manufacturer One-off-industry term for prototype or concept vehicle OP-opposed piston OSAR—Onboard Sensoring and Reporting PAH—polycyclic aromatic hydrocarbons PAMS—portable activity measurement systems PbA-lead acid PCM—powertrain control module PEMFC—proton exchange membrane fuel cell PEMS—portable emissions measurement system PEV—plug-in electric vehicle PFI—port fuel injection PHET—plug in hybrid electric tractor PHET—plug-in hybrid electric truck PHEV-plug-in hybrid vehicle PM—particulate matter PM—permanent magnet PM2.5—particulate matter ≤ 2.5 microns PM10—particulate matter ≤ 10 microns POH—Port of Hueneme POLA—Port of Los Angeles POLB—Port of Long Beach PON-Program Opportunity Notice POS-point of sale

ppb—parts per billion PSI—Power Solutions International PTR-MS-proton transfer reaction-mass spectrometry QCD-Quality Custom Distribution QVM-qualified vehicle modifiers R&D—research and development RD&D-research, development and demonstration RDD&D (or RD3)-research, development, demonstration and deployment REAL—Real Emissions Assessment Logging REMD-roadside emissions monitoring device RFA—Renewable Fuels Association RFI—Request for Information RFP-Request for Proposal RFS—renewable fuel standards RH-refuse hauler RI—reactive intermediates RISC-reduced instruction set computer RM—ramp metering RMC-ramped modal cycle RMC-SET- ramped modal cycle supplemental emissions test RNG-renewable natural gas ROG-reactive organic gases ROI-return on investment **RPS**—Rail Propulsion Systems RTP/SCS-Regional Transportation Plan/Sustainable **Communities Strategy** S2S—Shore to Store SAE—Society of Automotive Engineers SB-school bus SB-Senate Bill SCAB-South Coast Air Basin or "Basin" SCAG-Southern California Association of Governments SCAQMD-South Coast Air Quality Management District SCFM-standard cubic feet per minute SCE—single cylinder engine SCE—Southern California Edison Company SCE—Southern Counties Express SCR-selective catalytic reduction SCRT-Selective Catalytic Regenerating Technology SCCRT-Selective Catalytic Continuously Regenerating Technology SHR-steam hydrogasification reaction SI-spark ignited SI-EGR-spark-ignited, stoichiometric, cooled exhaust gas recirculation SIP—State Implementation Plan SJVAPCD-San Joaquin Valley Air Pollution Control District

SMR-steam methane reforming SNG—synthetic natural gas SOAs-secondary organic aerosols SOC-state-of-charge SoCalGas-Southern California Gas Company (A Sempra Energy Utility) SOFC-solid oxide fuel cells SPaT-single phase and timing START—Sustainable Terminals Accelerating **Regional Transportation** STEPS3— Sustainable Transportation Energy Pathways 3 SULEV-super ultra-low emission vehicle SUV-sports utility vehicle SwRI-Southwest Research Institute TAC-toxic air contaminants TAO-Technology Advancement Office TAP—(Ports') Technology Advancement Program TB-transit bus TC-total carbon TCO-total cost of ownership TEMS-transportable emissions measurement system THC-total hydrocarbons TLS—Toyota Logistics Services TO-task order tpd-tons per day TRB-Transportation Research Board TRL-technology readiness level TSI—Three Squares, Inc. TOU-time-of-use TT-Turtle Top Bus TTSI-Total Transportation Services, Inc. TWC-three-way catalyst UCI-University of California, Irvine UCLA- University of California, Los Angeles UCR-University of California, Riverside UCR/CE-CERT-UCR/College of Engineering/Center for Environmental Research & Technology UCLA—University of California, Los Angeles UDDS-urban dynamometer driving schedule µg/m³—microgram per cubic meter ULEV-ultra low emission vehicle ULSD-ultra low sulfur diesel UPS—United Postal Service U.S.—United States U.S. EPA-United States Environmental Protection Agency USTS—United States Training Ship V2B—vehicle-to-building V2G-vehicle-to-grid

- V2G/B-vehicle-to-building functionality
- VLS-variable speed limit

VMT—vehicle miles traveled VOC—volatile organic compounds V-PER—vessel performance management package VPP—virtual power plant WAIRE—Warehouse Actions and Investments to Reduce Emissions Program WGS—water gas shift WVU—West Virginia University ZANZEFF—Zero and Near Zero Emission Freight Facilities ZE—zero emission ZEB—zero-emission bus ZECT—Zero Emission Cargo Transport ZEDT—Zero Emission Drayage Truck ZET—zero emission truck ZEV—zero emissions vehicle

Appendix A

South Coast AQMD Advisory Groups

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Technology Advancement Advisory Group¹

Dr. Aaron Katzenstein, Chair	South Coast AQMD
Don Anair	Union of Concerned Scientists
Chris Cannon	Port of Los Angeles
Dr. Bill Robertson	California Air Resources Board
Dr. Michael Kleinman	University of California Irvine
Yuri Freedman	Southern California Gas Company
George Payba	Los Angeles Department of Water and Power
Phil Heirigs	Western States Petroleum Association
Vic La Rosa	Total Transportation Solutions Inc.
*Elizabeth John	California Energy Commission
David Pettit	Natural Resources Defense Council
Dr. Sunita Satyapal	Department of Energy
Heather Tomley	Port of Long Beach
*Rosalie Barinas	Southern California Edison

*Newly appointed member

¹ Members as of February 17, 2023

SB 98 Clean Fuels Advisory Group²

Dr. Aaron Katzenstein, Chair	.South Coast AQMD
Keith Brandis	. Volvo Group
Dr. John Budroe	California Environmental Protection Agency, Office of Environmental Health Hazard Assessment
Dr. John Wall	Independent Consultant in Combustion Technology
*Marcus Alexander	Electric Power Research Institute
Dr. Mridul Gautam	.West Virginia University, Adjunct Professor, & University of Nevada-Reno
Dr. Wayne Miller	University of California, Riverside, College of Engineering, Center for Environmental Research and Technology
Dr. Petros Ioannou	University of Southern California Director of the Center for Advanced Transportation Technologies
Dr. Scott Samuelsen	.University of California, Irvine, Combustion Laboratory/National Fuel Cell Research Center
*David Park	.Hydrogen Fuel Cell Partnership
Dr. Andreas Truckenbrodt	Independent Consultant in Fuel Cell Technologies
Ken Kelly	National Renewable Energy Laboratory
Dwight Robinson	.Mortimer & Wallace, Inc.

*Newly appointed member

² Members as of March 3, 2023

Appendix B

Open Clean Fuels Contracts as of January 1, 2023

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Contract	Contractor	Project Title	Start Term	End Term	South Coast AQMD \$	Project Total \$
Electric / H	Hybrid Electric Tech	nologies and Infrastructure				
14184	Clean Fuel Connection, Inc.	DC Fast Charging Network Provider	04/04/14	06/30/23	390,000	1,210,000
17105	BYD Motors Inc	Development and Demonstration of up to 25 Class 8 Battery Electric Drayage Trucks	04/14/17	10/13/23	794,436	9,450,400
17207	Peterbilt Motors	Development and Demonstration of up to 12 Class 8 Battery Electric Drayage Trucks	04/07/17	10/06/23	2,342,436	11,082,340
18129	Electric Power Research Institute	Versatile Plug-In Auxilary Power System Demonstration	06/28/18	04/30/23	125,000	273,000
18232	Hyster-Yale Group Inc	Electric Top-Pick Development, Integration & Demonstration	09/14/18	06/30/23	367,801	3,678,008
18287	Evgo Services LLC	Charging Station and Premises Agreement for Installation of One DCFC at SCAQMD Headquarters	06/27/18	06/26/28	0	0
19166	Phoenix Cars LLC dba Phoenix Motorcars	Battery Electric Shuttle Bus Replacement Project	01/31/19	07/31/23	0	7,311,456
20097	Zeco Systems, Inc. DBA Greenlots	Operate, Maintain and Network the EV Chargers	02/14/20	02/13/23	155,664	155,664
20168	OMNITRANS	Disburse donated Mercedes-Benz USA, LLC Electric Vehicle Chargers	02/28/20	02/27/23	0	0
20296	Daimler Trucks North America LLC	Deploy Zero Emission Electric Delivery Trucks	05/27/21	12/31/24	0	12,310,000
21077	Daimler Trucks North America LLC	Develop and Demonstrate up to 8 Heavy-Duty Battery Electric Trucks and Transportable Fast-Charging	03/11/21	03/31/23	1,000,000	6,742,000
21153	Volvo Group North America, LLC	Switch-On: Develop and Deploy Seventy Heavy-Duty Battery Electric Vehicles	06/10/21	09/30/24	2,000,000	31,540,000
22036	University of California Riverside	Energy-Efficient Routing for Electric Trucks	09/06/22	04/30/25	99,500	99,500
22120	Los Angeles Cleantech Incubator	Conduct Stakeholder Outreach and ZEV Workforce Plan	03/24/22	03/31/25	95,000	155,000
22177	Daimler Trucks North America LLC	Deploy Class 8 Battery Electric Trucks and Charging Infrastructure	06/16/22	04/30/25	447,638	27,073,593
22247	NFI Interactive Logistics LLC	Deploy Class 8 Battery Electric Trucks, Charging Infrastructure and Distributed Energy Resource Technologies	12/15/22	04/30/25	4,547,126	35,078,329
Engine Sy	stems and Technol	ogies				
17353	Odyne Systems, LLC	Develop and Demo Medium-Heavy Duty (Class 5-7) Plug-In Hybrid Electric Vehicles for Work Truck Applications	06/09/17	03/31/23	900,000	6,955,281

Contract	Contractor	Project Title	Start Term	End Term	South Coast AQMD \$	Project Total \$
Engine Sy	stems and Technol	ogies (cont'd)				
18194	CALSTART	Develop and Demonstrate Near- Zero Emission Opposed Piston Engine	05/30/18	11/30/23	2,114,500	17,413,000
19439	Cummins, Inc.	Natural Gas Engine and Vehicles Research and Development - Natural Gas Specific Combustion Design	08/30/19	08/29/23	250,000	10,996,626
20092	Southwest Research Institute	Natural Gas Engine and Vehicles Research and Development - Pent-Roof Medium Duty Natural Gas Engine	10/14/20	04/13/24	475,000	6,000,000
20199	Agility Fuel Solutions LLC	Develop a Near-Zero Natural Gas and Propane Conversion System for On-Road Medium-Duty Vehicles	07/01/21	03/31/23	453,500	1,834,000
20316	US Hybrid	Natural Gas Engine & Vehicles Research & Development - Plug-In Hybrid CNG Drayage Truck (PHET)	06/02/20	06/02/24	500,000	2,853,006
Fuel / Emi	ssion Studies					
21083	University of California Riverside	Assess Emissions Impacts of Hydrogen-Natural Gas fuel Blend on Natural Gas Engines	01/22/22	01/21/23	229,021	583,021
21103	University of California Riverside	Perform Investigation Study of E15 Gasoline Fuel Effects	03/09/21	03/08/23	200,000	1,300,000
21169	West Virginia University Research Corp	Evaluation of Vehicle Maintenance Costs Between NG and Diesel Fueled On-Road Heavy-Duty Vehicles	09/29/21	03/28/24	100,000	250,000
Fueling Inf	frastructure and Dep	oloyment (NG / RNG)				
18336	ABC Unified School District	FY2017-18 Alternative Fuel School Bus Replacement Program (3 CNG Buses)	10/05/18	11/30/34	117,900	676,500
18337	Alta Loma School District	FY 2017-18 Alternative Fuel School Bus Replacement Program (2 CNG Buses)	10/05/18	11/30/34	78,600	423,000
18344	Bellflower Unified School District	FY 2017-18 Alternative Fuel School Bus Replacement Program (1 CNG Bus)	09/07/18	11/30/34	39,300	225,500
18346	Chaffey Joint Union High School District	FY 2017-18 Alternative Fuel School Bus Replacement Program (6 CNG Buses)	10/05/18	11/30/34	235,800	1,269,000
18348	Cypress School District	FY 2017-18 Alternative Fuel School Bus Replacement Program (1 CNG Bus)	09/07/18	11/30/34	39,300	211,500
18349	Downey Unified School District	FY 2017-18 alternative Fuel School Bus Replacement Program (4 CNG Buses)	09/14/18	11/30/36	157,200	902,000
18350	Fountain Valley School District	FY2017-18 Alternative Fuel School Bus Replacement Program (1 CNG Bus)	09/07/18	11/30/34	39,300	211,500

Contract	Contractor	Project Title	Start Term	End Term	South Coast AQMD \$	Project Total \$
Fueling Int	frastructure and Dep	bloyment (NG / RNG) (cont'd)				
18351	Fullerton Joint Union High School District	FY2017-18 Alternative Fuel School Bus Replacement Program (4 CNG Buses)	10/05/18	11/30/34	157,200	846,000
18354	Hemet Unified School District	FY2017-18 Alternative Fuel School Bus Replacement Program (5 CNG Buses)	10/05/18	11/30/34	196,500	1,127,500
18355	Huntington Beach Union High School District	FY2017-18 Alternative Fuel School Bus Replacement Program (15 CNG Buses)	10/05/18	11/30/34	589,500	3,382,500
18363	Orange Unified School District	FY 2017-18 Alternative Fuel School Bus Replacement Program (1 CNG Bus)	09/14/18	11/30/34	39,300	225,500
18364	Placentia-Yorba Linda Unified School District	FY2017-18 Alternative Fuel School Bus Replacement Program (6 CNG Buses)	10/05/18	11/30/34	235,800	1,353,000
18365	Pupil Transportation Cooperative	FY 2017-18 Alternative Fuel School Bus Replacement Program (5 CNG Buses)	10/05/18	11/30/34	196,500	1,127,500
18367	Rialto Unified School District	FY 2017-18 Alternative Fuel School Bus Replacement Program (13 CNG Buses)	10/05/18	11/30/34	510,900	2,931,500
18368	Rim Of The World Unified School District	FY2017-18 Alternative Fuel School Bus Replacement Program (3 CNG Buses)	10/05/18	11/30/34	117,900	676,500
18369	Rowland Unified School District	FY 2017-18 Alternative Fuel School Bus Replacement Program (3 CNG Buses & 1 Propane Bus)	11/02/18	11/30/34	117,900	770,000
18370	San Jacinto Unified School District	FY 2017-18 Alternative Fuel School Bus Replacement Program (2 CNG Buses)	09/14/18	11/30/34	78,600	451,000
18374	Upland Unified School District	FY 2017-18 Alternative Fuel School Bus Replacement Program (4 CNG Buses)	10/12/18	11/30/34	157,200	902,000
20178	Whittier Union High School District	FY 2017-18 Alternative Fuel School Bus Replacement Program	02/21/20	11/30/34	196,500	1,052,500
21140	Inland Kenworth (US) Inc	SCAQMD Approved Participating Dealership in TRUCK TRADE DOWN PROGRAM	01/07/21	12/31/23	0	0
21142	TEC of California, Inc.	SCAQMD Approved Participating Dealership in TRUCK TRADE DOWN PROGRAM	04/15/21	12/31/23	0	0
Hydrogen	and Mobile Fuel Ce	II Technologies and Infrastructure				
15150	Air Products and Chemicals, Inc.	Install/Upgrade Eight H2 Fueling Stations throughout SCAG (including SCAQMD's HQs H2 station)	10/10/14	04/09/23	762,500	17,097,939
15366	Engineering, Procurement & Construction, LLC.	Operate and Maitain Publicly Accessible Hydrogen Fueling Station at SCAQMD's Diamond Bar HQs	10/10/14	04/09/22	0	0
15611	Ontario CNG Station, Inc.	Installation of Ontario Renewable Hydrogen Fueling Station	07/10/15	07/09/22	200,000	2,510,000

Contract	Contractor	Project Title	Start Term	End Term	South Coast AQMD \$	Project Total \$
Hydrogen	and Mobile Fuel Ce	II Technologies and Infrastructure (conťd)			
16025	Center for Transportation and the Environment	Develop & Demonstrate Fuel Cell Hybrid Electric Medium-Duty Trucks	02/05/16	11/30/23	980,000	7,014,050
19313	Equilon Enterprises LLC DBA Shell Oil Products	Construct & Operate Renewable Hydrogen Refueling Station	06/30/20	04/01/23	1,200,000	12,000,000
20033	Port of Long Beach	Sustainable Terminals Accelerating Regional Transportation (START) Phase I	06/04/21	04/30/24	500,000	105,013,765
20038	University of California Irvine	Expansion of the UCI Hydrogen Refueling Station	10/18/19	02/17/27	400,000	1,800,000
20244	Cummins Electrified Power NA Inc	Demonstrate Fuel Cell Range- Extended Drayage Trucks	12/16/19	06/30/23	582,305	4,985,665
21313	Sunline Transit Agency	Deployment of 5 Zero-Emission Fuel Cell Transit Buses	08/27/21	09/30/25	204,921	6,761,125
21386	National Renewable Energy Laboratory	CA Hydrogen Heavy-Duty Infrastructure Research Consortium H2@Scale Initiative	09/03/21	09/02/23	25,000	1,171,000
22082	Frontier Energy Inc	High Flow Bus Fueling Protocol Development	03/3022	08/29/23	25,000	572,500
22084	A-1 Alternative Fuel Systems	Develop and Demonstrate Hydrogen Fuel Cell Medium-Duty Buses	01/19/22	04/18/24	531,166	2,086,608
Stationary	Sources - Clean Fu	iels				
21266	University of California Irvine	Develop Model for Connected Network of Microgrids	08/17/21	02/16/24	290,000	370,000
22262	University of California Irvine	Study of Fuel Cell Microgrids for Backup Power and Transit	06/03/22	06/02/24	370,000	510,000
Technolog	y Assessments and	Transfer / Outreach				
08210	Sawyer Associates	Technical Assistance on Mobile Source Control Measures and Future Consultation on TAO Activities	02/22/08	02/28/24	50,000	50,000
09252	JWM Consulting Service	Technical Assistance with Review and Assessment of Advanced Technologies, Heavy-Duty Engines and Conventional and Alternative Fuels	12/20/08	06/30/24	30,000	30,000
12376	University of California Riverside	Technical Assistance with Alternative Fuels, Biofuels, Emissions Testing, and Zero- Emission Transportation Technology	06/01/14	05/31/24	300,000	300,000
15380	ICF Resources LLC	Technical Assistance with Goods Movement, Alternative Fuels and Zero-Emission Transportation Technologies	12/12/14	12/11/24	30,000	30,000

Contract	Contractor	Project Title	Start Term	End Term	South Coast AQMD \$	Project Total \$	
Technology Assessments and Transfer / Outreach (cont'd)							
19078	Green Paradigm Consulting Inc	Technical Assistance with Alternative Fuels, Evs, Charging & Infrastructure and Renewable Energy	09/07/18	09/30/24	200,000	871,236	
19227	Gladstein, Neandross & Associates LLC	Technical Assistance with Alternative Fuels & Fueling Infrastructure, Emissions Analysis & On-Road Sources	02/01/19	01/31/23	300,000	300,000	
19302	Jerald Cole	Technical Assistance with Hydrogen Infrastructure and Related Projects	04/24/19	04/23/23	50,0000	50,000	
20085	CALSTART Inc	Technical Assistance for Development & Demonstration of Infrastructure and Mobile Source Applications	11/08/19	11/07/23	250,000	250,000	
20265	Eastern Research Group	Technical Assistance with Heavy- Duty Vehicle Emissions Testing, Analyses & Engine Development & Applications	06/17/20	06/30/24	50,000	50,000	
21260	Fred Minassian	Technical Assistance with Incentive and Research and Development Programs	04/13/21	10/12/24	75,000	75,000	
22096	AEE Solutions LLC	Technical Assistance with Heavy- Duty Vehicle Emission Testing, Test Methods and Analysis of Real-World Activity Data	11/08/21	11/07/23	100,000	100,000	
22273	Green Paradigm Consulting Inc	Technical Assistance with Alternative Fuels, Evs, Charging & Infrastructure and Renewable Energy	04/22/22	04/02/24	200,000	200,000	
22274	Gladstein, Neandross & Associates LLC	Technical Assistance with Alternative Fuels & Fueling Infrastructure, Emissions Analysis & On-Road Sources	05/05/22	04/02/22	300,000	300,000	
23114	University of California Irvine	Cosponsor ICEPAG 2022	12/22/22	03/31/23	8,000	80,000	
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Appendix C

Final Reports for 2022

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April 2022

Provide EV Hardware and Control System at South Coast AQMD Headquarters including Installation Support, Warranty and Networking

Contractor

Broadband Telecom Power, Inc.

Cosponsors

South Coast AQMD

Project Officer

Patricia Kwon

Background

In May 2014, the Board approved the release of a Request for Proposal (RFP) to expand and upgrade electric vehicle (EV) charging infrastructure South Coast AQMD at headquarters. At that time, South Coast AQMD had installed 28 Level 2 chargers and one 50 kW DC fast charger for light-duty vehicles. Charging infrastructure was installed in 2011 and 2012 under two grants administered by the U.S. Department of Energy and California Energy Commission to promote light-duty public charging infrastructure to facilitate early adoption of battery electric and plug-in electric vehicles. Initially, the charging infrastructure installed under these grant funded programs was adequate to supply EV charging requirements of South Coast AOMD staff, its vehicle fleet, public, and Board members. However, since the initial installation of this charging infrastructure, national EV sales have increased 600% and it is estimated that 70 electric vehicles are present during business hours.

Project Objective

The large number of EVs requires drivers to closely monitor their vehicle state of charge and rotate vehicles between charging and regular parking spaces. Even with vehicle rotations, many EV drivers have difficulty gaining access to charging during working hours. This has also resulted in visitors not being able to charge their EVs since employees arrive earlier in the day. Installation of additional charging infrastructure and designation of a charging area for visitors will help alleviate this problem. Due to the difference in dwell time at South Coast AQMD between visitors and employees, charging requirements for these types of users are quite different.

RFP #P2014-24 was issued in May 2014 to solicit proposals to expand and upgrade South Coast AQMD charging infrastructure from qualified third-party vendors. South Coast AQMD, with assistance from Electric Power Research Institute (EPRI), reviewed and identified power requirements and infrastructure upgrades needed to support the electric vehicle supply equipment (EVSE) and review any necessary infrastructure upgrades with potential bidders at the mandatory bidders conference/site walk.

The RFP identified four areas in South Coast AQMD's main parking lot for the expansion and upgrade of EVSE to install 92 Level 2 charging ports. In September 2015, the Board approved the selection of Broadband Telecom Power, Inc. (BTC) as the hardware provider for Level 2 charging ports from a total of 14 proposals which were submitted and 36 vendors participating at the mandatory bidders conference/site walk.

Technology Description

New charging infrastructure and networking software would include additional capabilities such as access control, cost recovery, and energy management capabilities. This included the ability to manage power loads to the EVSE to help with demand charges and other energy management needs of the building as well as a five-year maintenance period.

Installation of new charging infrastructure would replace previously installed and outdated Level 2 charging infrastructure, which included multiple hardware vendors and networking software providers. The intent was to provide a single hardware provider and a networking software platform which was fully integrated with the hardware and capable of providing upgraded features to make charging easier for EV drivers.

In the first phase, BTC would replace existing charging infrastructure and provide chargers with access control, cost recovery options, and demand response capability. In the second phase, BTC would provide additional charging infrastructure once the expanded electrical infrastructure was in place, which included the installation of four transformers and seven electrical panels covering the four areas of the parking lot. Included in BTC's scope of work was a five-year warranty with five years of onsite service support, software, power management capabilities, installation support and five years of networking fees. BTC also provided technical assistance to help establish desirable power management schedules to reduce electricity costs during the electrical infrastructure upgrade. Construction documents were prepared by Goss Engineering based on the technical specifications of the BTC hardware, which served as a blueprint for the installation.

Status

The first phase of installation of charging infrastructure was completed on December 31, 2016, including replacement of chargers under the solar carport of the upper parking structure. This was followed by installation of chargers along the perimeter of the upper parking structure, six American with Disabilities Act (ADA) accessible chargers by the employee entrance and to conference room GB and by the front lobby entrance, parking area behind conference room CC8, and front lobby parking area. Installation of 92 charging ports was completed in April 2017.

After the installation was completed and the Greenlots (now Shell Recharge Solutions) networking software for the chargers was commissioned, BTC and Greenlots continued to maintain the chargers for five years.



Level 2 Chargers Under Solar Carport



Level 2 Chargers on Upper Parking Structure

Results

Since April 2017, the 92 charging ports have resulted in 15,000 – 28,000 kWh of electricity per month and 1,500 – 2,600 sessions per month between May 2017 to March 2020. Since March 18, 2020, when the office closed due to the pandemic, kWh of electricity dispensed, and the number of charging sessions decreased significantly. From April 2020 to January 2023, charging averaged about 5,000 kWh per month and about 500 sessions per month.

Benefits

Since April 2017, the 92 charging ports have resulted in 82,926 charging sessions, 898,386 kWh of energy dispensed, 1,759,938 lbs. of greenhouse gas (GHG) reductions, and 89,839 gallons of gasoline saved.



Project Costs

The cost for BTC hardware for the 92 Level 2 charging ports at South Coast AQMD is \$322,425 from the Clean Fuels Fund (31).

Commercialization and Applications

Installation of charging at South Coast AQMD headquarters enabled EV drivers including staff and visitors to utilize charging, at a time when public charging was not widely available. It also tested capabilities of networking software platforms to manage charging at a large site. The hardware and networking software continue to be utilized in commercial applications for public charging for light-, medium-, and heavy-duty vehicles.

April 2022

Development and Demonstration of Up to Three (3) Class 8 Battery Electric Drayage Trucks

Contractor

Volvo Trucks North America

Cosponsors

California Air Resources Board (CARB) San Joaquin Valley Air Pollution Control District (SJVAPCD)

Project Officer

Patricia Kwon

Background

This project started in 2017 in recognition of the need to pursue multiple zero and near-zero emission drayage trucks in goods movement areas around the Port of Los Angeles and the Port of Long Beach.

Project Objective

This project was to continue development of a Class-8 heavy-duty plug-in diesel hybrid electric vehicle (PHEV) drayage truck to demonstrate reductions in fuel consumption, greenhouse gas, and criteria emissions in real world usage patterns. Phase 1 of the project utilized PHEV#1 as the basis for improvements in PHEV#2. Phase 2 of the project further developed the PHEV technology in the form of PHEV#3 and tested additional technologies. Deployment of two Class 8 tractor battery electric trucks (BETs) was added to the project in 2021.

Technology Description

This project included three PHEV Class 8 daycab tractors. Each was a refinement of the prior vehicle, and there were improvements in efficiency and the addition of a connected intelligent transportation system (C-ITS) known as EcoDrive. Software for controlling the electric systems and drivelines was improved across the three trucks, contributing to the BET design deployed in the last phase of the project. The PHEV system had the ability to dynamically create electric mode zones based on operating conditions. A mini-burner emissions aftertreatment system (EATS) was tested for improved hybrid emissions control.

Status

Phase 1 and Phase 2 of the project were completed in April 2022. Completion of the BET deployment at Producers Dairy in Fresno in the San Joaquin Valley Air Pollution Control District (SJVAPCD) was delayed due to supply chain issues and city bureaucracy in obtaining an approved permit to install two 150 kW DC fast chargers. Phase 1 PHEV work was completed in December 2021. Phase 2 BETs were deployed in December 2021 with the plan to utilize a 50 kW DC fast charger until the two 150 kW DC fast chargers were operational at the end of April 2022.



PHEV #1



PHEV #2



PHEV #3



BET

Results

The multiple elements and length of this project preclude a short summary of results. Individual reports on the various project components summarize the many steps and deliverables in the total program. Overall, the study found that the mini burner EATS was effective in reducing emissions but required frequent operation that largely negated the benefits. Each iteration of the PHEV system had better efficiency and performance. PHEV drivetrains were found to be efficient but advances in battery and electric machine technology led to a focus on pure battery electric solutions. The EcoDrive technology showed notable efficiency gains in controlled conditions and benefits in real-life operations. The BET deployment at Producers Dairy in Fresno is expected to be highly successful and lead to further BET adoption.

Benefits

Each stage of the project provided benefits that were taken forward into future projects. The

PHEV software development aided all electrified solutions in managing electric air compressors and battery packs. The C-ITS element led to improved efficiency by providing traffic signal data to the driver and evidence of the cost-effectiveness in reducing emissions. The BET deployment will provide important feedback on the process fleets must go through to transition from diesel to battery electric trucks. The transition to BETs will result in significant emissions reductions, and this project will help define the steps needed.

Project Costs

The project will utilize the budgeted amounts, with an expected overpayment of match funding from Volvo and some other partners. Budgeted amounts were:

Partners	Amount
CARB	\$7,265,055
South Coast AQMD	\$2,341,184
San Joaquin APCD	\$1,000,000
Volvo	\$1,459,698
Total	\$11,065,937

Additional funding was provided by Amply Power, Producers Dairy, West Virginia University and UC Riverside.

Commercialization and Applications

The work under this project provided the initial base for the Volvo Low Impact Green Heavy Transport Solutions (LIGHTS) project, and important learning for the development of the electric VNR production truck that was deployed in the last phase. The refinement of software and BET components under this project were essential. The EcoDrive system showed great potential for future use. The software solutions developed by Amply, GeoTab and Volvo for the Producers Dairy BET deployment will have significant future commercialization potential. The need for fleet management, dispatch, and telematics systems that accommodate BETs is clear but largely unaddressed.

April 2022

Near Zero Emission Drayage Truck Demonstration Project

Contractor

Kenworth Truck Company

Cosponsors

California Air Resources Board (CARB) South Coast Air Quality Management District (South Coast AQMD)

Project Officer

Seungbum Ha

Background

In response to the challenge and goal of reducing emissions in the ports of Los Angeles and Long Beach by CARB and South Coast AQMD, this project was proposed to demonstrate two Class 8 plug-in hybrid electric trucks with zero emission operation capability in revenue drayage service. Kenworth believed that a natural gas series hybrid could be a cost-effective bridge vehicle to the eventual implementation of full electric or zero emission hybrid electric vehicles in drayage applications. Kenworth proposed the development of four natural gas series hybrids to prove this possibility.

Project Objective

The goal of this project was to determine the technical and economic feasibility of replacing mechanical systems used on diesel engine technology for Class 8 truck tractors with an engine and generator set (genset) fueled by natural gas in a hybrid electric vehicle (HEV). The vehicle also had a large high voltage (HV) battery bank for zero emission operations and to supplement engine output to the electric drive system.

Technology Description

The Kenworth T680 hybrid-electric vehicle used the Cummins Westport L9N Near Zero (NZ) emission engine fueled by compressed natural gas (CNG) driving a generator to extend the truck's battery range. The truck used lithium-ion batteries to achieve its zero emissions range and to supplement power from the generator when climbing grades.



Figure 1: Kenworth's Hybrid Electric Vehicle

The system's energy management and control capabilities ensured that energy generated by the engine and regenerative braking system was appropriately applied through the electric motor, resulting in lower fuel consumption.

Status

The project was completed April 15, 2022, and the final report is on file with complete technical details of the project. Unplanned and unpredicted issues were exposed and resolved as they appeared. Technical gaps were identified, design steps were taken to mitigate the risk, and repairs were implemented to maintain operational conditions. During the demonstration, driver, fleet manager, service technicians and first responder feedback were incorporated into the product when possible or were logged in the lessons learned and will be incorporated into future generations of battery electric vehicle (BEV), HEV and fuel cell electric vehicle (FCEV) projects.

Results

Tests comparing the Range Extended Electric truck to a truck using a conventional natural gas powertrain showed a 23 percent improvement in fuel economy and an 18 percent reduction in carbon dioxide (CO2) emissions.

The data suggests that the product designed for this project generated a significant improvement over the previous project results. The independent consultant analysis results were significantly better than the internal results. Kenworth took time to share analysis techniques that reduced the consultant's performance results to something closer to company results.

	Baseline Vehicle Demonstration C		
Type/Description	CNG Hybrid	CNG Hybrid	
Make	Kenworth	Kenworth	
Model	T680	T680	
Model Year	2017	2019	
VIN	1NKYD29X5JJ176832	1NKYD29X1KR359051	
Engine Displacement	8.9L	8.9L	
Rated Horsepower	320	320	
Valid Registration and DOT	Yes	Yes	
inspections			
License Plate	9F95777 CA	9F95779 CA	
Common Test and Fuel Economy Run (Seattle-Vancouver)			
Fuel Economy (MPGE)	3.28 4.95		
Fuel Economy Improvement (%)	51%		
CO2 & NOx reductions (%)	25%		

 Table 1: Performance Improvement of Kenworth CNG

 Hybrid Truck in GGRF ZEDT Project

Iterative improvements to the hybrid hardware and a restructuring of the relationship between the vehicle state and power management strategies easily yielded a fifty percent improvement in fuel economy. Depending on which calculation tool was used, at a minimum, this equates to a twenty five percent reduction in greenhouse gas (GHG) emissions.

Benefits

Despite the challenges, conversion of drayage fleets to zero-emission propulsion will provide immeasurable benefits to local communities, while significantly reducing GHG emissions. However, making this transition faces two serious challenges. The first challenge is a combination of meeting operational needs and proving technology and the second challenge is readiness. manufacturability and serviceability of a commercially affordable vehicle. Additional testing is recommended to further evaluate the environmental benefits of this truck design. Development of the genset hybrid vehicle design should continue, with a focus on improving reliability, reducing complexity, and lowering cost.

Project Costs

The project budget is shown in Table 2 with match funding from Kenworth.

Partners	Amount
CARB	\$2,575,232
South Coast AQMD	\$2,239,106
Kenworth	\$303,000

\$5,117,338

Table 2: Budget for Kenworth GGRF ZEDT Project

Commercialization and Applications

Total

When hybrid vehicles compete from a cost, weight and performance measure, the market will be completely disrupted. Any deviation from the above will deter the acceptance of commercial electric vehicle products. Today's technical limits suggest that Class 8 heavy duty zero-emission trucks are found to perform best when operating in the Short Haul/ Regional Haul truck categories. These two specific commercial category applications are most likely to first adopt near zero-emission technology, pick-up-and-delivery and regional haul.

However, regulations are such that fossil fuel hybrids do not meet zero emission standards. Therefore, Kenworth has elected to pursue development of battery electric and fuel cell electric Class 5-8 vehicles for all applications. Many of the components tested in this demonstration project will be carried forward albeit modified to resolve issues noted in the lessons learned. Kenworth has Class 7 & 8 vehicles ready for production and sale at the close of this project. Kenworth projects to have fuel cell electrics ready for production before 2030.

Education and training are the next issues that require priority and resolution. Should resource, vehicle and infrastructure growth and development plans not align, this may become a constraint to economic opportunities for resources, facilities, and products.

December 2022

Zero Emission Trucks and EV Infrastructure Project

Contractor

Daimler Trucks North America LLC Penske Truck Leasing Co., L.P. NFI Industries Inc. Gladstein, Neandross & Associates

Cosponsors

South Coast Air Quality Management District (South Coast AQMD) Port of Long Beach (POLB) Port of Los Angeles (POLA) U.S. Environmental Protection Agency (EPA)

Project Officer

Sam Cao

Background

Funding from the South Coast Air Quality Management District (South Coast AQMD) and cosponsors, Daimler Trucks North America (DTNA) helped in the development of petroleum-free zero-emission battery electric trucks. providing immediate NOx and greenhouse gas (GHG) emission reductions that support the South Coast AQMD in achieving its alternative fuel use, petroleum displacement and criteria pollutant reduction goals. This project demonstrated real emission reductions by deploying new zero-emission on-road medium duty- and heavy-duty (M&HD) truck technology with supporting infrastructure that replaced M&HD diesel trucks in real world fleet operations including port drayage and local delivery.

Project Objective

The objective of this project was to deploy twenty (20) M&HD battery electric trucks and supportive infrastructure in the South Coast Air Basin, demonstrating the "bridge phase" of battery electric vehicle (BEV) technology going from the proof-of-concept pilot prototype to a "commercial sales" product that is capable of 150-mile range in order to accelerate the market for M&HD EVs and help achieve California's emission reduction goals. The project was designed to provide critical operational data for both vehicles and infrastructure, informing total cost of ownership (TCO) analysis as well as charging interoperability and availability to enable DTNA to scale up productions for increasing market demand and establish best practices for broader market acceleration across a number of OEMs.

Technology Description

The Class 8 eCascadia and Class 6 eM2 were designed to be integrated into a range of freight duty cycles to obtain varied operational data for drayage, delivery, and logistics operations, supported by a comprehensive network of highpowered 150kW rated charging infrastructure throughout the South Coast Air Basin. The vehicle specification targets for both the eCascadia and the eM2 are detailed in the table below.

	eCascadia	eM2
GVWR	80,000 lbs.	26,000 lbs.
Horsepower	455 hp	220 hp
Axle Configuration	6x4	4x2
Battery Capacity	400-600 kWh	225-300 kWh
Connector Type	CCS-1	CCS-1

Status

The project demonstration was completed on June 18, 2022, with the Draft-Final Report submitted on August 24, 2022. The South Coast AQMD has reviewed the draft report and has provided comments for final submission.

Results

Despite initial production delays associated with global supply chain issues and the COVID-19 pandemic, all project deliverables were achieved, including all major vehicle specification targets for vehicle range, horsepower, and efficiency. Achieving the vehicle design targets were critical for realizing DTNA's objective of gaining a working knowledge of real-world applications of BEV technology and the long-term goal of informing critical technology advancements for the next generations of the eCascadia and the eM2.

The pilot demonstration was overwhelmingly successful, generating key data on vehicle efficiency, charging capabilities and operational costs to inform technology advancement and the business case for MHD zero-emission vehicles. These trucks replaced and operated the same duty cycles as conventional diesel-powered trucks, resulting in direct emissions reductions through a like-for-like replacement, with a product performance and operational cost that is comparable to diesel baseline counterparts. The project deployed advanced energy management strategies, including a battery energy storage system (BESS), collecting data on energy usage, time-of-use (TOU) utility rate structures, and overall costs to inform TCO and ultimate return (ROI) on investment compared to operating/maintaining diesel baseline counterparts. Tables summarizing results related to total vehicle miles traveled (VMT), vehicle efficiency, energy usage and cost are below.

Fleet	Vehicle	Total Miles	Avera Miles/l	ige Day	Average kWh/Mile
NFI	eCas	236,836	15	0.77	2.01
Penske	eCas	228,857	10	4.33	2.05
Penske	eM2	55,702	8	4.81	1.42
	TOTAL	521,395	11	3.30	1.83
Charging Us		age/Cost			
	Fleet		Avg. Utility Tota Rate/kWh kWh		Total kWh
	NFI		\$ 0.19		917,837
Penske		\$	0.34	482,994	
ΤΟΤΑ	L/Weighte	d Average	\$	0.23	1,400,831

Benefits

Total emission reductions over the 521,000 combined fleet miles traveled during the demonstration period were 0.92 tons of oxides of nitrogen (NOx), 0.07 tons of particulate matter (PM2.5), and 912 metric tons of GHG emissions.

Project Costs

The grant funding for this project was jointly supported by South Coast AQMD, the Port of

Long Beach (POLB), The Port of Los Angeles (POLA). US EPA. DTNA, NFI Industries, and Penske provided the remaining cash and in-kind cost-share for this work.

Project Cost Share		
South Coast AQMD \$12,670,07		
POLB	\$1,000,000	
POLA	\$1,000,000	
EPA	\$1,000,000	
DTNA & Partners	\$23,495,561	

Contract	Total	Actual Costs
Share	Budget	Incurred
\$15,670,072	\$31,340,144	\$39,165,633

Commercialization and Applications

The success of this project yielded an extraordinarily important outcome. For the first time in North America a traditional heavy-duty truck manufacturer (OEM) will be able to offer a Class 6 and Class 8 fully electric heavy-duty trucks to end use commercial fleet customers. It also provided a critical model for M&HD electric vehicle supply equipment (EVSE) infrastructure deployment to understand challenges and best practices to remove barriers to adoption and accelerate the market for zero-emission technologies.

will The commercial series demonstrate improved range and efficiency by simplifying/consolidating vehicle components, reengineering the battery structure, and developing proprietary control software to improve overall power and enable peak performance. Specific vehicle design innovations include lighter battery packaging and curbweight, increased battery capacity, reduced wheelbase, improved thermal efficiency and aerodynamics, as well as upgraded telematics, weatherization, and diagnostic systems.

This approach to commercialization is key to achieving the increased range, overall performance, and cost-savings to accommodate regional haul routes of up to 220 miles per day, covering a wider array of use cases and making up 70% of freight routes in the United States.

Low Impact Green Heavy Transport Solutions (LIGHTS)-Develop and Demonstrate Zero Emissions Heavy-Duty Trucks, Freight Handling Equipment, EV Infrastructure and Renewable Energy

Contractor

Volvo Group North America

Cosponsors

California Air Resources Board (CARB) South Coast Air Quality Management District (South Coast AQMD)

Project Officer

Patricia Kwon

Background

Volvo Low Impact Heavy Green Transport Solution (LIGHTS) project, a public/private partnership in Southern California, provides early insights and a model for successful fleet adoption of heavy-duty battery electric trucks.



Project Objective

Volvo LIGHTS was launched in 2019 to test critical innovations in vehicle technologies, install charging infrastructure, and establish the groundwork for an electric truck sales and service network. A project team was established to pioneer research and development of heavy-duty battery electric trucks in demanding applications, initiate industrialization to scale, develop the aftersales infrastructure, and install EV charging and energy management at customer sites. A comprehensive project approach was necessary, including coordination with the Ports, local municipalities, and stakeholders in the South Coast Air Basin.

Technology Description

Volvo had previously industrialized zero emission battery electric solutions in Europe for Intercity passenger transit busses and European mediumduty trucks. The LIGHTS project included necessary adaptation to North American duty cycles, U.S. federal and state motor vehicle regulations, 12-volt vehicle requirements, and local customer demands.

Status

Volvo LIGHTS was completed on September 30, 2022. The final report with complete technical details will be posted on the CARB and South Coast AQMD websites.



Volvo Class 8 VNR Electric Trucks from Participating Fleets at Closing Event, Ontario Convention Center, August 23, 2022

Results

Key accomplishments of the Volvo LIGHTS project include:

- 30 battery electric trucks in-service at 13 fleets
- 56 public and private heavy-duty DC fast chargers installed
- 29 pieces battery electric freight handling equipment (yard tractors, forklifts)
- Two community colleges providing new medium- and heavy-duty electric truck technician training curricula
- 45+ graduates from Rio Hondo and San Bernadino Community Colleges (2022)
- Various trucking applications demonstrations included e-commerce, last mile delivery, postal, refrigerated food, drayage, less-than-truckload, medical supplies, and retail stores.

Benefits

The LIGHTS project resulted in annual emission reductions of 3.57 tons of NOx, reactive organic gasses, and particulate matter and 3,020 metric tons of annual greenhouse gas reductions. DHE and NFI installed 1.5 MW of solar with 1.86 million kWh of electricity generated for EV charging and displacement of 207,000 diesel gallons equivalent of fossil fuel annually.

The combined fleet mileage for this project was over 325,000 miles.

Project Costs

Included in the list of Project Partners noted in this chart below are Fleets for NFI and DHE, Southern California Edison (SCE), TEC Equipment, Rio Hondo and San Bernardino Community Colleges, Shell Recharge, the Ports of Los Angeles, and Long Beach, CALSTART, the University of California, Riverside CE-CERT and Reach Out.

Partner	Amount
Volvo	\$32,949,552
Project Partners	\$10,000,000
U.S. EPA	\$500,000
CARB	\$43,233,409
South Coast AQMD	\$4,000,000
TOTAL	\$90,682,961

*Actual total investment by Volvo in the LIGHTS project exceeded required match share.

Commercialization and Applications

Volvo made several major business decisions following the success of the LIGHTS project. Specifically, the industrialization of battery utilizing alreadv electric trucks proven architecture resulted in both the MACK LR Electric refuse truck and the VNR Electric series (VNR42, VNR64, VNR42T, VNR62T and On January 13, 2022, Volvo VNR64T). announced the launch of the New Generation VNR Electric with 85% increased range, faster charging, and more configurations covering additional highway applications.

Battery electric trucks are here, and this project has identified ways to help accelerate their penetration into the marketplace. First and foremost, fleets make decisions on the lifetime costs of buying and operating trucks. Battery electric trucks require more expensive, highpower charging infrastructure than light-duty vehicles, and this requires greater lead time, cost and planning for fleets. Governments and public agencies can help alleviate the risk through financial incentives and policies that require greater coordination and transparency among key stakeholders. Several major truck manufacturers agree that battery electric trucks are central to the industry's future viability. Stakeholders need to work together proactively and adjust their frame of reference to make this paradigm shift a reality. The transition to electric powertrains will be very different from the introduction of emissions control technology in 2004, 2007, or even 2010, when diesel exhaust fluid became part of the fuelling protocol. Change can be difficult, but Volvo LIGHTS is proving that education and communication, through earnest collaboration, will pave the way for electromobility solutions in the commercial trucking sector.

September 2022

Develop and Demonstrate Battery Electric Excavator and Wheel Loader

Contractor

Volvo Technology of America, LLC

Cosponsors

South Coast Air Quality Management District U.S. Environmental Protection Agency

Project Officer

Sam Cao

Background

In 2016 South Coast Air Quality Management District (South Coast AQMD) identified the need for nitrogen oxide (NOx) emissions reductions as the most significant air quality challenge in meeting the upcoming ozone standard deadlines. On-road diesel trucks and off-road mobile equipment are major contributors to NOx emissions in the South Coast Air Basin (Basin). Significant increases in NOx, particulate matter (PM) and greenhouse gas (GHG) emissions from these sources are expected to increase due to demand in goods movement and construction activities. A proven emissions control strategy to reduce NOx and PM emissions and associated public health risks is to accelerate vehicle and equipment replacement with either battery-electric or near-zero emission vehicles and equipment.

Project Objective

This project was to accelerate the deployment of zero emission technologies for off-road mobile equipment and to reduce harmful diesel emissions, petroleum consumption, and greenhouse gases within the Basin. This was to be accomplished by developing a model of battery electric compact wheeled loader and a model of battery electric compact tracked excavator and subsequently deploying them in and around the Basin area for application testing and feedback with local construction contractors.

Technology Description

During this project, a battery electric compact wheeled loader (L25) in the 1.2yd³ bucket class was completed along with a battery electric compact tracked excavator (ECR25) in the 3-ton class. The L25 utilizes

a 48V lithium-ion battery system with 40kWh of energy storage and one 22kW electric induction motor for the driveline system and a 14kW permanent magnet synchronous motor for the hydraulic system. The L25 can operate for up to 6 hours of active work, per full charge depending on the environment and task at hand. This unit was capable of recharging via a DC fast charger in approximately 2 hours, an AC Level 2 charger in approximately 12 hours and an AC Level 1 charger in approximately 24 hours. The ECR25 utilizes a 48V lithium-ion battery system with 20kWh of energy storage and one 14.7kW permanent magnet synchronous motor for the hydraulic system. The ECR25 can operate for up to 6 hours of active work, per full charge depending on the environment and task at hand. This unit can be recharged via a DC fast charger in approximately 1 hour, an AC Level 2 charger in approximately 6 hours and an AC Level 1 charger in approximately 12 hours. The other mechanical specifications for both the L25 and ECR25 are the same as, or better than, their equivalent diesel models.

Status

The project contract was signed in September 2019 and testing commenced in September 2020 when the ECR25 started work. The L25 followed in December 2020 and the testing phase successfully concluded in August 2021. A public press conference was held in September 2021 on the grounds of the Mildred E. Mathias Botanical Garden on the UCLA campus in Los Angeles to discuss the results and learnings from the project. The project contract ran through September 2022 and the final project documentation and reporting is being completed and will be submitted during the early portion of 2023.



Figure 1 – L25 and ECR25 Planting Tree at Press Conference in California

Results

The L25 and ECR25 were tested in a wide variety of applications during this project by three main customers and their crews. The customers were Baltic Sands, Casper Company, and Caltrans. The applications included residential house construction, clearing remote access trails, utility repair, construction, and demolition. The environmental conditions during testing ranged from moderate to high temperatures, dust, rain, and even indoors. The two machines combined, accumulated approximately 400 operating hours over the testing period. The testing feedback was overwhelmingly positive with customers being impressed with the performance of the machines.

The L25 and ECR25 were both tested under various charging scenarios during the project. The primary methods of charging were Level 1 and Level 2 AC charging. The downside during testing was that the onboard chargers were not configured to take advantage of all available power provided by the US 240V infrastructure. In addition, portable and non-grid connected solutions were also tested in the form of a mobile battery bank and a solar powered charging station. The solar charging station worked well, especially in remote locations where grid access was not possible. The customers were very excited about the mobile battery bank, but some technical limitations reduced the effectiveness. The battery bank was large and required a dedicated trailer for transportation so the need for an additional truck or trip was introduced.



Figure 2 – L25 Being charged by Mobile Battery Bank

Benefits

One of the significant benefits expressed by all testing customers was the increase in operator comfort. The positive effect on human factors such as noise and vibration reductions were major improvements where the ECR25 had a measured 9dB drop in sound pressure around the machine, when compared to the equivalent diesel model. The operators no longer had to yell over the engine which reduced employee fatigue.

The total cost of ownership for these electric machines has decreased by not only the savings in diesel fuel but also the significant drop in general maintenance costs. There are still hydraulic oil and filters on the units, but there are no longer engine air and oil filters, or engine oil changes required. The only general maintenance required on these machines is lubrication for moving mechanical joints.

Project Costs

The total project cost was \$3,155,000. The U.S. Environmental Protection Agency's Targeted Air Shed Grant Program provided \$2 million as pass-through revenue to South Coast AQMD for this project. Volvo CE invested \$1,155,000 as in-kind cost share.

Commercialization and Applications

The L25 and ECR25 are both currently commercially available in North America and Europe. The first units delivered to end customers in the US were in December 2022 for the L25 and July 2022 for the ECR25.

The results of this project continue to strengthen the Volvo viewpoint that battery electric machines are an excellent fit for reducing NOx emissions in the compact construction equipment sector while also providing positive health impacts to the operators, crews, and communities in which these machines operate. The feedback from the crews who have used these machines has been and will continue to be used in the continued refinement of these products and in the planning and development of future products. While the work completed as part of this project clearly demonstrated that these machines are equivalent, or better, than the comparable diesel models, there are still some applications where heavy usage requires increased runtime. The time required to recharge and the access to charging infrastructure are also issues that could pose a barrier to entry for some customers. As a result, Volvo has and will continue to investigate ways to enhance the runtime of these machines, optimize on-board charging to make use of the available power more efficiently where they operate, and explore alternate methods of charging. Volvo intends to continue evolving the product portfolio with additional electric compact and midsize construction equipment models as well pursuing larger machines of various types.

March 2022

Develop and Demonstrate Battery Electric Medium-Duty Truck

Contractor

Roush CleanTech, LLC

Cosponsors

Penske Truck Leasing South Coast Air Quality Management District

Project Officer

Seungbum Ha

Background

Roush CleanTech, LLC, (Roush) received support from the South Coast Air Quality Management District (South Coast AQMD) in the amount of \$937,500 to develop a new all-electric platform for medium-duty commercial trucks and school buses. These battery electric vehicles (BEVs) were designed to have a unique powertrain technology for use in Ford F650/750 medium-duty (Class 6-7) commercial vehicles and Class C and D school buses. With support from the South Coast AOMD. Roush was able to complete the technical development, initial prototyping, and in-fleet demonstration of the new powertrain with Penske Truck Leasing (Penske) and other local commercial fleets in Q2 2022.

Project Objective

The project objective was to develop and demonstrate battery electric medium-duty trucks in partnership with Penske and its local fleet partners as well as South Coast AQMD.

Technology Description

While many in the transportation industry focused on heavy-duty long-haul all-electric trucking technologies, Roush believes that the developed battery electric drivetrain fills a significant gap in the zero-emission engine market for heavy-duty fleets operating shorter daily routes with many stop-and-go events. Roush developed a robust future manufacturing strategy that draws upon its decade's old partnership with Ford, engaging partners such as Penske in ongoing evaluation and customer engagement.



Figure 1: ROUSH's Battery-Electric Vehicle Funded by South Coast AQMD, Operated Through Penske Trucking Leasing

Status

The active components of the project were completed in Q2 2022, with administrative wrapup in Q3 2022. The project has a final report on file with complete technical details of the project

The vehicles built through this project were subject to significant vehicle performance testing for design validation, control validation, and computer aided engineering (CAE) correlation to ensure that vehicles met the key performance targets. Vehicle technology effectiveness was assessed by tests including but not limited to vehicle acceleration, level road performance, weight/ center of gravity testing, battery range verification, cabin climate control and accessories, powertrain cooling and heat management, vehicle stability and traction control.

The COVID-19 global pandemic did present Roush with unanticipated challenges to the global and local supply chain, staffing, and manufacturing processes. Fortunately, the Roush team was able to overcome these hurdles without significant impact to the development of the two demonstration units. As a result of the COVID-19 global pandemic, Roush delivered the two demonstration units in Q4 2020 rather than Q2 2020.

Roush demonstrated two units in Penske Truck Leasing's fleet in the South Coast Air Basin from December 2020 through May 2022. The EV demonstration schedule included periods at numerous Penske fleet partners, including Costco, Nestle Waters, Iron Mountain, Bimbo Bakeries, and Nike.

Drivers provided positive feedback about the units, especially noting the vehicles' acceleration, regenerative braking, smooth, stable, and quiet ride, safety merging in traffic, battery range, and ease of charging vs. diesel refueling. Through this feedback, Roush was also able to identify and resolve minor vehicle challenges. These included low voltage battery drain caused from drivers leaving vehicles on when not in use, causing battery drain and subsequent dead batteries.

Results

Over the demonstration period, unit "Penske 1" was driven over 10,200 miles, and unit "Penske 2" was driven over 9,300 miles. Telematics data was collected via the vehicles' onboard data collection systems.

One large barrier to new zero emission vehicle technology coming to market is the financial cost of establishing new manufacturing processes, especially at scale. Roush believes the BEV manufacturing capabilities refined through this project will best serve future vehicle manufacturing partnerships with other technology startups as well as established OEMs. Technology companies are rapidly developing incredibly innovative EV architecture, software, and sensing technology, but commercialization requires integrating those technologies, packaging them into a vehicle, and understanding what's required to validate and certify that vehicle to government standards.

Benefits

Deployment of this technology on real fleet routes operating throughout the South Coast Air Basin led to immediate oxides of nitrogen (NOx), diesel particulate matter, and greenhouse gas tailpipe emission reductions, particularly in densely populated urban centers common for municipal fleet routes. In addition to these immediate public health benefits, the project bolstered the adoption of zero emission technology by improving market competition and providing more BEV options to meet a variety of fleet needs. Participating fleets benefited from a low-risk path for testing BEVs in their real fleet operations, building their capabilities to fully transition to zero emission solutions moving forward. This project will help reduce future vehicle emissions and have an impact beyond the immediate project emissions reductions themselves.

Project Costs

Project costs are as follows:

Project Partner	Total
South Coast AQMD	\$937,500
Roush Cost Share	\$2,062,500
Penske Cost Share	\$200,000
Total Project Cost	\$3,200,000

Commercialization and Applications

This project provided a low-risk path for fleets to gain hands on experience running BEVs in their current fleet operations. The demonstration resulted not only in a learning experience for Roush and the vehicle engineers, but also a transfer of knowledge to world class fleets such as Penske, Costco, Nestle, etc. This type of partnership means that South Coast AQMD funding benefits not only Roush, but also participating fleets who through this project have built their capabilities and interest in adopting BEV technology going forward.

This effort also strengthened collaboration and built networks within the rapidly changing transportation industry. By facilitating open dialogue between vehicle OEMs, leasing fleets, and end user fleets, this project ensured that feedback from drivers and fleet managers are incorporated into engineering best practices. Likewise, fleets gained knowledge on their abilities to successfully transition to new technologies. South Coast AQMD Contract #20158

December 2022

Onboard NOx and PM Measurement Method

Contractor

University of California, Riverside, College of Engineering, Center for Environmental Research and Technology (UCR-CE-CERT)

Cosponsors

California Air Resources Board (CARB) U.S. Environmental Protection Agency (EPA) Center for Advancing Research in Transportation Emissions, Energy and Health (CARTEEH)

Project Officer

Sam Cao

Background

Heavy-duty vehicles represent one of the most important contributions to the emissions inventory for both nitrogen oxides (NOx) and particulate matter (PM) emissions. While diesel particulate filters (DPFs) and selective catalytic reduction (SCR) aftertreatment systems have provided significant reductions in PM and NOx emissions, respectively, it is important to verify that these systems are operating optimally under the full range of in-use conditions to ensure that air quality standards can be met. The advancement of sensor technology has provided the potential to measure all trucks at all times and validate compliance from the in-use fleet under the conditions where they produce emissions. The importance of this methodology is underscored by CARB's recent Real Emissions Assessment Logging (REAL) amendments to its OBD (Onboard Diagnostic) Regulations.

Project Objective

The goal of this Phase 1 Onboard Sensoring and Reporting (OSAR) project is to develop a lowcost NOx and PM sensor-based emissions measurement system designed for heavy duty engines. This low-cost system was designed to allow for expanded applications going into the future, such as dynamic engine calibration control, in-use policy enforcement, and a data driven exposure model specific to the South Coast Air Basin. A total of 8 OSAR systems were developed under this project. The OSAR units were set up on 9 trucks at two fleets for a period of up to 2 months.

Technology Description

The OSAR system developed for this project included a NOx and PM sensor, a global positioning system (GPS), an engine control module (ECM) logger, and a cellular connection for real-time data reporting. The NOx sensors used for this system was a prototype advanced low temperature capable NOx sensor based on an original equipment manufacturer (OEM) product used for engine control and OBD of SCR systems. The data loggers used for this set up were "EmTrac-6 Onboard Telemetry System Rev. 1" developed by data loggers Emisense Technologies specifically for this program. It is an Advanced RISC [reduced instruction set computer] machine (ARM)-based unit with two controller area networks (CAN) buses, four analog inputs, an onboard K-type thermocouple amplifier, and a global navigation satellite system (GNSS) for location information. The ECM data was logged via OBD or J1939 connection to the OSAR system.

EmTrac-6 Core Telemetry System



Status

This project was successfully completed, and the final report was submitted in December of 2022.

Results

Average NOx emissions for the different test trucks ranged from 0.14 to 1.35 g/bhp-hr. The D1119 vehicle showed the highest average

emissions, which is more than six times higher than the certification limit. D0214 showed the lowest average emissions on a g/bhp-hr basis, which is near the level of the certification standard of 0.2 g/bhp-hr. These differences in average NOx emissions appear to be attributed to differences in duty cycles and not the engine certification. D1119 was generally idling, or its driving patterns indicated slow, stop-heavy motion. The driving patterns for D0214 also showed a significant amount of operation with multitude of stops, but with less idling behavior. The higher in-use NOx results agree with earlier studies that have reported higher in-use NOx emissions from diesel compared to certification trucks levels. particularly under low load operation.



Fig. 1: NOx Emissions for the Different Test Trucks (g/bhp-hr)

Similar trends were seen for the NOx emissions on a g/mile basis. NOx emissions ranged from 0.018 to 11.38 g/mile, with the D1012 showing the highest emissions, and the MEL/MA truck showing the lowest emissions. NOx emissions showed different trends on a g/hour and g/gal basis. NOx emissions ranged from 0.756 to 62.94 g/hour, and 0.013 to 22.71 g/gal. D1119 showed the highest NOx emissions on a g/gal basis, while N1341 showed the highest NOx emissions on g/hour. The MEL/MA truck showed the lowest NOx emissions on both a g/hour and g/gal basis.



Fig. 2: NOx Emissions for the Different Test Trucks (g/mi)

From an activity standpoint, the trucks operated from 4.4 to 10.6 hours per day. The average speed for the different vehicles ranged from 6.2 to 39.7 mph. The average distance for the different vehicles/pieces of equipment ranged from 59.8 to 234.8 miles. The daily fuel consumption for the different vehicles/pieces of equipment ranged from 8.7 to 33.0 gallon/day. In general, the long-haul trucks showed higher average speeds, longer days of operation, higher average distances per day, and higher fuel usage per day, while the box truck showed the lowest values for these metrics.

Benefits

The OSAR systems developed as part of this project show the potential to measure all trucks at all times and validate compliance from the in-use fleet under various emissions producing conditions. The goal of this Phase 1 OSAR project was to develop and demonstrate a low-cost NOx and PM sensor-based emissions measurement designed for heavy duty vehicles. The results show these low cost OBD sensors are capable of determining emissions at and below the 0.2 g/bhp-hr level. The development of these systems provides the potential for enhanced monitoring of heavy-duty vehicle emissions, which could provide benefits to the South Coast AQMD in meeting the 2023 and 2031 ozone standards.

Project Costs

This \$688,587 project was funded as follows:

South Coast AQMD	\$201,087
Engine Manufacturers	\$200,000
Association	
EmiSense Technologies LLC	\$115,000
CARTEEH	\$80,000
CARB / EPA	\$50,000
NGK Spark Plug	\$42,500

Commercialization and Applications

It is expected that this research will help guide industry into a sustainable path of emissions control for their vehicles using the real world as the design platform. The funds provided by the South Coast AQMD will leverage larger dollars from other agencies and industries and will support the development of regulations to focus more on in-use emissions. It is believed this seed funding will spur industry into a solution that includes instrumenting all new heavy-duty trucks with the potential for retrofitting older ones depending on feedback from the agencies. It is believed this effort will be supported by industry and fleet owners, as it benefits everyone with a fair and practical solution for emissions regulations. Eventually, this solution could be integrated into other mobile sources including non-road and light-duty passenger cars.

January 2022

Development of ECO-ITS Strategies for Cargo Containers

Contractor

University of California, Riverside University of Southern California

Cosponsors

National Center for Sustainable Transportation (NCST)

California Energy Commission (CEC) California Air Resources Board (CARB) Los Angeles County Metropolitan Transportation Authority South Coast Air Quality Management District (South Coast AQMD)

Project Officer

Seungbum Ha

Background

In the last few decades, efforts to reduce emissions from heavy-duty diesel trucks (HDDTs) and their health impacts have focused on imposing increasingly stringent emissions standards. This has led to significant advancements in emission control technologies and alternative fuel vehicle technologies. While these technologies are effective at reducing emissions from HDDTs, the turnover of the existing HDDT population to these advanced technologies would require a large amount of investment and time. In the near term, other efforts to reduce emissions of the existing HDDTs and mitigate their impacts on communities are needed. Many studies have shown the promise of transportation intelligent systems (ITS) technologies in reducing the energy consumption and environmental footprint of people and goods movement through various means.

Project Objective

This research is aimed at developing and evaluating eco-friendly ITS strategies for freight vehicles and traffic, with a focus on strategies that are applicable to the transportation systems in the South Coast Air Basin. Four specific strategies were examined in this research, including: 1) connected eco-driving, 2) truck eco-routing, 3) integrated traffic control, and 4) intelligent parking assist.

Technology Description

Connected eco-driving uses signal phase and timing (SPaT) information from the upcoming traffic signal along with the information about the state of the host vehicle and preceding traffic to determine the best course of action for the vehicle to pass through the intersection.



User Interface of Connected Eco-driving Application

Truck eco-routing is aimed at finding the travel route that would minimize vehicle energy consumption and/or emissions for the trip.

Integrated traffic control coordinates the variable speed limit (VSL), ramp metering (RM), and lane change (LC) control strategies to stabilize traffic flow and mitigate traffic congestion around highway bottlenecks.

Intelligent parking assist integrates parking availability information into the planning process for long-haul trucks.

Status

This project was completed in January 2022. The final report is on file with South Coast AQMD.

Results

The results from the performance evaluation of the connected eco-driving application in real world show that driving with the application resulted in less fuel consumption, and less carbon dioxide (CO2) emissions, than driving without it by 6% to 15%.



For the truck eco-routing strategy, based on the results of 456 trips made by 48 trucks in a typical day, it was found that for 52% of the trips the fastest route is already the most fuel-efficient route. For another 23% of the trips, the eco route would take up to one minute (1% to 8%) longer travel time than the fastest route, on average, but would result in 5% to 7% fuel savings. For another 11% of the trips, the eco route would take up to 3.5 minutes (12% to 17%) longer travel time, on average, but would result in 7% to 8% fuel savings.

For the integrated traffic control strategy, both macroscopic and microscopic simulation results demonstrate that the proposed control scheme can stabilize the density of the highway section at the desired density, and, as a result, improve the discharging flow rate by 33%, compared to the case of no control action.

For the intelligent parking assist strategy, simulation results illustrate that schedules calculated without accounting for parking availability are often infeasible. Although parking constraints increased trip duration in some scenarios, these scenarios also showed lower feasibility rates when ignoring parking information. Also, computational experiments showed that parking conditions could significantly affect the route choice, illustrating the importance of accounting for parking availability information early in the planning process. Furthermore, when parking availability is limited, the performance gap (in terms of trip duration) between battery electric trucks and diesel trucks is greatly reduced in scenarios with 50 kW chargers, and further reduced when 100 kW chargers are considered.

Benefits

The connected eco-driving application was proven to provide significant reductions in fuel consumption and CO2 emission for HDDT traveling on signalized corridors. If adopted widely, it has a potential to reduce emission inventory of HDDTs, especially those operating in the drayage application, throughout the South Coast Air Basin. Likewise, there is a potential for the truck eco-routing application to help HDDTs with similar trip patterns to those of the trucks studied in this project in reducing fuel consumption and CO2 emission on about a third of their trips.

The ability to better control traffic flow at highway bottlenecks would also result in reductions in traffic emissions including those from HDDTs. Finally, the provision of parking availability information to long-haul truck drivers could lead to more efficient scheduling and routing of their trips, which reduces unnecessary fuel consumption and emissions.

Project Costs

South Coast AQMD's funding contribution to this project is \$543,000, which was leveraged in other related research projects totaling \$1,647,233.

Commercialization and Applications

The connected eco-driving technology is mature, although its prospect for commercialization depends on the ability to access real-time traffic signal data from public agencies that operate traffic signals. On the other hand, commercial eco- routing applications have already existed for passenger cars. Therefore, it should be possible to commercialize eco-routing applications designed specifically for HDDTs in the near future. Finally, the integrated traffic control strategy and the intelligent parking assist strategy are also ready for deployment by relevant public agencies.

March 2022

In-Use Emissions Testing and Fuel Usage Profiles for On-Road Heavy-Duty Vehicles

Contractor

University of California, Riverside (UCR) West Virginia University (WVU)

Cosponsors

California Energy Commission (CEC) Southern California Gas Company (SoCalGas) California Air Resources Board (CARB) South Coast Air Quality Management District (South Coast AQMD)

Project Officer

Sam Cao

Background

While past studies have shown oxides of nitrogen (NOx) and particulate matter (PM) emissions are reduced from heavy-duty vehicles (HDVs) powered by modern-technology engines, emissions from HDVs still dominate the total basin-wide NOx and PM emissions. Therefore, additional assessment of in-use vehicle emissions remains a critical component for measuring the effectiveness of engine, fuel and aftertreatment technologies and improving emission inventories for air quality modeling and planning as well as developing effective strategies toward achieving the federal ambient air quality standards.

Project Objective

The objective of this project was to conduct in-use emissions testing, characterize fuel usage profiles, develop new or improve existing heavy-duty vehicle drive cycles, and assess the impact of current technology and alternative fuels on fuel consumption and in-use emissions from on-road HDVs with gross Vehicle Weight Rating (GVWR) greater than 14,000 lb. Additionally, the vehicle emission measurements collected under this Program provide important new data to improve air quality planning.

Technology Description

UCR and WVU collectively conducted the exhaust emission tests for over 200 heavy duty trucks with

different technologies recruited in Southern California along with data collection for daily vehicle activities and fuel usage profiles. Specifically, the testing was conducted in the following four sequential phases: 1) On-road operation data gathering with Portable Activity Measurement Systems (PAMS) on 227 vehicles, 2) On-road emissions testing with Portable Emissions Measurement Systems (PEMS) on 100 vehicles, 3) In laboratory (stationary) emissions testing with a chassis dynamometer on 55 vehicles, 4) On-road emissions testing with mobile emissions laboratory trailer on 10 vehicles



Figure 1. UCR On-Road Mobile Laboratories

Status

UCR and WVU has completed the data collection and prepared the final reports summarizing their respective research work. A combined draft final report with complete technical details has been prepared as of August 2022 and currently under agency review, the finalized report will be published on the CEC website.

Results

For the four-phase testing and data collection, there were 227 PAMS tests, 100 PEMS tests, 55 chassis dynamometer tests, and 1 on-road tests with a mobile emissions trailer. The vehicle population covered 5 vocations, including Transit Bus (TB), School Bus (SB), Refuse Hauler (RH), Delivery Truck (DT), and Goods Movement (GM), and a range of conventional and cleaner heavy-duty technologies.

To test these HDV types under more representative conditions, new chassis dynamometer test cycles specific to these three categories were developed using a Markov-Chain Drive Cycle Generation Tool developed by WVU from the PAMS data. Further, such PAMS data were included in CARB's EMFAC2021 development, CEC's Medium- and Heavy-Duty Electric Vehicle Infrastructure Load, Operations and Deployment (HEVI-LOAD) model.

The PEMS testing incorporated a diverse set of HDVs. fleet operators, and operating conditions/duty-cycles. As expected, the PEMS results showed high variability in NOx emission levels between vocations and technology categories. As can be seen in Figure 2, the same high variability was observed within each technology category while all engines were certified to the same emissions standard. The high variance observed in the data was expected; given the emissions were measured with PEMS and were averaged over the entire test day, regardless of the vocation and the duty cycle.

Different than the "daily" averages presented in the PEMS data, the chassis urban dynamometer driving schedule (UDDS) "cycle" averaged results were similar across different vehicle categories. As shown in Figure 3, the UDDS cycle-averaged results were similar across different HDV categories; this is a markedly different result than the "daily" averages presented in the PEMS section. The UDDS cycle, although not identical, closely resembles the Federal Test Procedure (FTP) certification test cycle, over which an HDV engine's emissions certification value is derived. Therefore, these UDDS data provide good comparison points to understand the NOx emissions in this context.



Figure 2. Cycle Averaged Chassis Dyno NOx Emission Rates under UDDS cycle.

A total of 10 HDVs were tested on the roads of Southern California. The HDVs in this phase were exclusively Class 8 goods movement trucks. Compared to the emissions data presented in PEMS and chassis dynamometer testing, the NOx and fuel economy were averaged over the entire-test route. The data trends are as expected due to smaller dataset and single vocation (goods movement). Distance- and work-specific NOx emission results are summarized in Report.

Benefits

This study builds on these past efforts by investigating in-use emission levels of these natural gas (NG) HDVs in the context of the 0.02 g/bhp-hr NOx certification standard, legacy 0.2 NG HDVs, multiple HDV vocations, and other fuel types. By identifying technology impacts and shortfalls potentially causing higher than expected in-use emissions, as well as areas of exceptional in-use emissions performance, the project is informing further technology development and research opportunities to maximize emission reduction benefits from deploying 0.02 NG HDVs.

Additionally, the comprehensive dataset (and the models leveraging the data) can help policymakers better understand real world emissions from California's in-use fleet (approximately one million medium- and heavy-duty vehicles). Decision makers can leverage the study results to determine the best pathways forward for meeting transportation decarbonization and air quality goals. For the on-road fleet, most of those reductions will need to come from HDVs, including newly manufactured units as well as those already in use.

Project Costs

The project cost to WVU and UCR was \$1,625,000 each for a total project cost of \$3,250,000. CEC, SoCalGas, CARB, and South Coast AQMD's costshare for the project was \$2,000,000, \$500,000, \$150,000, and \$600,000, respectively.

Commercialization and Applications

The 200 HDV Testing Program represents an important milestone for CARB, CEC, the South Coast AQMD, SoCalGas and the U.S. EPA. The results from the program are very instrumental in ongoing efforts to shape, improve and implement policies designed to attain ambient air quality standards, mitigate climate change, and displace fossil-derived diesel with low-carbon alternative transportation fuels.

December 2022

Conduct California Inland Port Feasibility Study Phase Two

Contractor

Fresno Council of Governments (Fresno COG) Global Logistics Development Partners (GLD Partners)

Cosponsors

Port of Los Angeles (POLA) Port of Long Beach (POLB) Port of Stockton (POS) San Joaquin Valley Air Pollution Control District (SJVAPCD) South Coast Air Quality Management District (South Coast AQMD) Sacramento Metropolitan Air Quality Management District (SMAQMD) County of Sacramento

Project Officer

Sam Cao

Background

The California Inland Port System Feasibility Study (FS) Phase II is the second of three feasibility study phases for the project. Project development and planning will begin concurrently with the last feasibility study phase. Phase One looked at the core feasibility test, Phase Two looked at the market, costs, and began the business model development, while Phase Three will detail sites, further define the business model, and detail the rail component. The California Inland Port System Project aims to create the largest, cleanest, and most efficient goods movement system in the nation.

Project Objective

The California Inland Port System FS is a transformational project that will have significant positive implications for improving national and statewide supply chain efficiency, while also improving air quality, economic opportunity, and other public policy objectives. In partnership with the State's major seaports, the California Inland Port System FS will be a public-private platform

to transform much of the California logistics system.

Specific objectives include: 1) Significantly reduce vehicle miles travelled, congestion, air pollution, and greenhouse gas emissions by reducing the number of truck trips from the seaports complex in the Los Angeles region to the San Joaquin Valley, the Sacramento region, and the Bay Area. 2) Create tangible new supply chain efficiencies and reduce shipping costs for shippers that manage global supply chains through direct intermodal rail service to/from the San Pedro seaports. 3) Analyze significant private sector investment and new job creation by fundamentally repositioning the economic competitiveness of the San Joaquin Valley Region. 4) Create a more robust and efficient intra-state distribution system with a specific focus on supporting the agriculture sector while spurring new high-value manufacturing and e-commerce investments. 5) Reduce highway road congestion, with a parallel reduction in the requirement for road maintenance: accident-avoidance savings; all reducing cost.

Technology Description

The California Inland Port System will be a multimodal network of integrated clean and highly efficient truck, rail, air, and cargo facilities that will underpin a next-generation ecosystem of goods movement. The system is being built from the ground up around zero-emission cargo handling equipment. Additionally, using customized technology and integration with portsupply chain data, the system will play a strategic role in increasing supply chain competitiveness and will be a major California contribution to solving the national supply chain crisis.

Status

C-21

The project has gained support from a range of interests and is entering a critical period. The overall structure of the project has been formed with identification of key elements, infrastructure, and costs. Due to circumstances, there may be an opportunity to fast-track early portions of the project, so the next six months will be a critical period in the project's development. While public funding is pursued, work will continue for certain business strategy, planning, engineering, and community engagement aspects of the project. Over the next year, it will become clear if the State will agree to fund Fresno COG's budget request for \$60M. This in turn will be important in determining if a corresponding federal funding request may be successful. If State and federal funding were in-place, the foundation would be set to develop the TradePorts with extensive private investment.

Meanwhile, work on Phase Three of the project continues and will soon be underway with U.S. Department of Transportation (U.S. DOT) related to the Regional Infrastructure Accelerator/P3 elements. Phase Three will also begin the environmental analysis process and create advance plans, develop specifications for key infrastructure projects and corresponding project finance and public-private partnership structures. Finally, the project will begin site planning, design, and engineering for the first fast-track project elements and develop a Joint Powers Authority to deliver the first phases of the project.

Results

Phase Two follows the completion of the Core Feasibility Assessment that was competed in the initial phase. This phase was designed to refine the product offer, clarify the likely market, produce infrastructure cost estimates, and define new potential economic development. During this phase of the project, several key objectives were 1) Shipper requirements and accomplished: interest were more clearly defined and clarified , 2) Capital costs for key infrastructure cost estimates were produced, 3) TradePort plans were developed, 4) Competitiveness modelling was performed to demonstrate the extent and type of economic development that would be enabled due to increased logistics connectivity to key supply chain points, 5) Sought and won U.S. DOT Regional Accelerator designation, and 6) Developed a proposal for an initial launch phase for development of the first elements of Truck Mobility Complexes.

During this phase, interactions with a range of additional work was undertaken to communicate and coordinate with ports, railroads, truck manufacturers, and fleet operators. Additional interactions are planned with each as the project proceeds into Phase Three.

Benefits

In terms of the California Inland Port System, strategic public and private investments will directly lead to an economic development system that will generate approximately 100,000 new high-quality and high-wage jobs in a range of manufacturing and logistics sectors, including automotive, agricultural processing and food production, medical products, industrial machinery, and ecommerce. Most of these new jobs will benefit the stat's most disadvantaged region, which is the Central Valley. The private investment in buildings and equipment will produce up to \$30 billion in overall gross investment. Finally, the California Inland Port System would be one of the largest, cleanest, and most efficient logistics and investment systems in the world. It would be the flagship model for the and dramatically nation would support improvements to air quality, climate resiliency, economic development and competitiveness, and the national supply chain system.

Project Costs

Phase Two FS cost \$250,000 to conduct, with South Coast AQMD's contribution being \$37,500, or 15% of the overall cost. Phase One FS cost \$250,000 while Phase Three FS will cost \$468,000. South Coast AQMD is only contributing to Phase Two and the project team does not expect South Coast AQMD to further contribute to any phase. Phase Three and beyond is/will be funded by State and federal funding. Project development is anticipated to cost upwards of \$4 million. Fresno COG has applied for U.S. DOT RAISE Planning grant funds and Governor's budget funds for the remaining portion.

Commercialization and Applications

The project team aims to have the first Truck Mobility Complexes operational by 2025, with full buildout of the system to happen in the years following, subject to various factors.

May 2022

UPS Fuel Cell Extended Range Delivery Truck Demonstration

Contractor

CALSTART Inc

Subcontractor

United Parcel Service (UPS) Unique Electric Solution, LCC (UES) Ballard Power System South Coast Air Quality Management District (South Coast AQMD)

Project Officer

Maryam Hajbabaei

Background

Parcel delivery trucks have a vital role in the modern economy, especially with the onset of the COVID-19 pandemic. Diesel-powered parcel delivery vehicles have become a significant contributor to poor air quality in the South Coast Air Basin. This project aims to demonstrate a fuelcell-powered parcel delivery vehicle for the purpose of removing the harmful emissions the vehicles emit while driving in local communities and to help meet South Coast AQMD emissions reduction goals.

Project Objective

This project aimed to develop and demonstrate a hybrid electric powertrain with a fuel-cell range extender integrated into a UPS delivery truck as a scalable, innovative, cost-effective alternative to diesel-powered parcel delivery vehicles. The project aimed to assess both the technology's performance viability and commercial viability

Technology Description

The Fuel Cell Extended Range Delivery Truck (FCXRDT) is a hybrid-electric fuel cell vehicle on a standard UPS chassis. The vehicle was a retrofitted UPS vehicle with the new technology mounted on it. The drive train consisted of a 120 kW electric motor and a 50kWh Lithium Iron Phosphate battery, with an estimated range of 120

miles. Additionally, a fuel cell range extender was attached, with 10 kg of hydrogen (H2) storage and a power rating of 30 kW. It is one of the first parcel delivery vehicles to be demonstrated with this type of propulsion system. The vehicle operates with zero emissions.

Status

The project was completed in May 2022. Both the final project report and the accompanying commercialization report are available on file. These reports describe the technical details of the project in-depth.

The vehicle's development and assembly began in 2018 and were completed in February 2019. After assembly completion, several delays prevented demonstration from beginning immediately, including difficulty supplying hydrogen, length repair times, and the onset of the COVID-19 pandemic. The vehicle was operated, and data was collected for 11 months from September 2020 to September 2021. The project was successfully completed during this demonstration period.



Results

The vehicle conducted 11 months of on-road performance testing from September 2020 to September 2021. The following table breaks down

the critical vehicle essential key performance and efficiency metrics.

Parameter	Value
Total Days of Operation	143
Average Distance Driven per day (mi)	24.07
Average Fuel Efficiency (mi/kg)	13.80
Average Energy Efficiency (kWh/mi)	0.99
Average Total Efficiency (mi/DGE)	9.07

The vehicle drove a total of 143 days throughout the testing period and averaged 24.07 miles per day. The vehicle proved to be very fuel-efficient, averaging 9.07 miles per diesel gallon equivalents (DGE) throughout the duration of the data collection period. The following table summarizes the total maintenance and service that was required on the FCXRDT throughout the project.

Parameter	Value
Vehicle Service Events	18
Vehicle Break Down Events	8
Total Days Out of Service (Days)	106
Average days out Service per Event	5.89
Maintenance Cost (\$/mi)	0.59

The vehicle had several issues with maintenance and service events throughout the period, being out of service for a total of 106 business days throughout the demonstration period. Maintenance issues, while not extremely expensive (\$0.59 per mile) proved to be reasonably common, costing a large amount of unfortunate downtime.

Benefits

The project showed the vehicle and technology were more than capable of completing the duty cycle of a package delivery vehicle. The FCXDRT was able to meet the anticipated range, charging, and power predictions stated at the project's onset. The vehicle is zero-emission and therefore provides significant reductions over a traditional package delivery vehicle. As this project was slated to demonstrate and test the viability of the fuel-cell range extender technology, these results show that the vehicle technology is viable in on-route, realworld conditions.

Project Costs

The project obtained a total funding/cost share of \$1,574,250.00 from several partners to evaluate the overall truck's performance. The UPS and South Coast AQMD supplied the most substantial sums. All additional funding sources are mentioned in the table below.

Parties Name	Amount
UPS	\$749,500.00
South Coast AQMD	\$589,750.00
UES	\$165,000.00
CALSTART	\$70,000.00
Total	\$1,574,250.00

Commercialization and Applications

This demonstration represents a significant step forward for the fuel cell industry as it able to successfully deploy a fuel cell parcel delivery truck. This demonstration provided many lessons for the industry. Hydrogen fuel cell technology has the ability to function in a variety of settings and can meet the duty cycle of the parcel delivery sector. To successfully deploy fuel cell vehicles, a fleet needs access to a well-established fueling infrastructure network.

While fuel cell technology has improved and become cheaper, there are some additional barriers to commercialization. While these barriers do not necessarily directly relate to the vehicle technology itself, they can deter customers from adopting fuel cell vehicle technology. These considerations include the availability of hydrogen infrastructure, the cost of hydrogen, hydrogen filling speeds, fuel cell technological expertise, maintenance, and the availability of parts and technician training. Nevertheless, as fuel cell technology advances, all of the concerns will be addressed to make fuel cell technology more appealing to fleets. South Coast AQMD Contract #23071

December 2022

Participate in California Fuel Cell Partnership for CY 2022

Contractor

Frontier Energy Inc

Cosponsors

Automakers, energy companies, local, state and federal public agencies, technology companies, universities, transit agencies and others.

Project Officer

Maryam Hajbabaei

Background

Established with eight members in 1999, the California Fuel Cell Partnership (CaFCP) is a collaboration in which private and public entities are independent participants. It is not a joint venture, legal partnership, or unincorporated association. Therefore, each participant contracts with Frontier Energy (previously Bevilacqua-Knight, Inc./BKi) for their portion of CaFCP administration. South Coast AQMD joined the CaFCP in April 2000. The CaFCP currently includes 16 board members, 12 steering team members, and 44 associate members with a focus on furthering commercialization of fuel cell vehicles, fueling infrastructure technologies and renewable and decarbonized hydrogen production to address climate change and emission reduction challenges.

In 2022 CaFCP began transitioning to a national public-private partnership called the Hydrogen Fuel Cell Partnership (H2FCP). The purpose was to expand progress beyond California. California remains the primary geographic objective, serving as a national leader. While the organization has formally launched as a new legal entity and has applied for 501c3 status, the transition is expected to be fully implemented in 2023. Until then, the current relationship with Frontier Energy and approach is in place.

Project Objectives

The goals for 2022 include the following:

• Identify technology challenges and information gaps within the state's hydrogen station network, and work collaboratively with members to advance the market

- Coordinate and collaborate on approaches to achieving an initial 200 light duty hydrogen stations, expanding to a state-wide sustainable infrastructure network of at least 1,000 stations in California. Build support for the FCET Vision, highlighting the need for 200 heavy duty stations to support 70,000 HD fuel cell trucks, to enable heavy duty hydrogen fuel cell truck adoption
- Identify new concepts and approaches to initiate exponential station network growth for light- and heavy-duty applications
- Communicate progress of fuel cell electric vehicles (light and heavy duty) and hydrogen to current and new stakeholder audiences
- Increase awareness and market participation of fuel cell electric trucks and buses, including supporting the deployment of pilot projects
- Coordinate nationally and internationally to share and align approaches

Status

The members of the CaFCP/H2FCP intend to continue their cooperative efforts within California and have plans to expand activities in 2023 to advance the ZEV technology benefits instate and nationally. This contract was completed on schedule.



Technology Description

CaFCP/H2FCP members together or individually are operating fuel cell passenger cars, transit buses, drayage trucks and associated fueling infrastructure in California. Passenger cars include Honda's Clarity, Hyundai's Nexo and Toyota's second generation Mirai. Fuel cell bus operators include AC Transit, Sunline Transit, Orange County Transportation Authority, Golden Empire Transit and UC Irvine Student Transportation with more agencies bringing on buses in the coming year or two, including Foothill Transit, Long Beach Transit, and others. More transit agencies are expected to adopt fuel cell buses over the next 5-10 years as they implement the Innovative Clean Transit regulation. Class 8 fuel cell drayage trucks include a Ballard powered BAE/Kenworth truck, the Cummins fuel cell powered TransPower truck, Hyundai Xcient trucks and Toyota's Portal trucks.

Results

Specific accomplishments include:

- Since 2015, more than 14,000 consumers and fleets have purchased or leased passenger FCEVs
- Transit agencies have 66 fuel cell electric buses in operation and more than 103 on order. Over 2,100 additional fuel cell electric buses anticipated (from recent CARB ACT update)
- 56 plus light-duty retail hydrogen stations in operation in California and 115 in development; 5 bus stations in operation and 3 in development, and 3 truck stations in operation, 1 in development and another 5 funded
- CaFCP/H2FCP staff and members continue to conduct targeted outreach and education throughout California and provide information to non-California requestors
- CaFCP/H2FCP operates and maintains the Station Operational Status System (SOSS) that the 50-plus open retail hydrogen stations use to report status. This data, in turn, feeds realtime information (address, availability, etc.) to FCEV drivers through a CaFCP/H2FCP mobile website and other apps and systems. SOSS data also supports the new ZEV infrastructure credit in the Low Carbon Fuel Standard program
- CaFCP/H2FCP actively engages in medium-& heavy-duty FCEV codes & standards coordination, specifically through sponsoring SAE J2600 (fueling connection) for inclusion of high-flow H35 fueling geometry for fuel cell electric bus (FCEB) fueling and fueling protocol standard development
- Building on the FCET truck vision, CaFCP/H2FCP has initiated development of a national hydrogen mobility strategy. The strategy will develop infrastructure success metrics for heavy- and light-duty vehicles in California (for the ARCHES H2 Hub proposal) and nationally to connect ports, H2 Hubs, and other activities, as well as a public stakeholder engagement strategy

Benefits

Compared to conventional vehicles, fuel cell vehicles offer zero smog-forming emissions, reduced water pollution from oil leaks, higher efficiency and much quieter and smoother operation. When renewable fuels and electricity are used as a source for hydrogen, fuel cell vehicles also encourage greater energy diversity and lower greenhouse gas emissions (CO_2).

By combining efforts, the CaFCP/H2FCP can accelerate and improve the commercialization process for all categories of vehicles: passenger, bus, truck, etc. The members have a shared vision about the potential of fuel cells as a practical solution to many of California's environmental issues and similar issues around the world. The CaFCP/H2FCP provides a unique forum where infrastructure, technical and interface challenges can be identified early, discussed, and potentially resolved through cooperative efforts.

Project Costs

CaFCP/H2FCP's annual operating budget is about \$1.4 million, and includes operating costs, program administration, joint studies and public outreach and education. All members make annual contributions towards the common budget with executive government members making an annual contribution of approximately \$40,000. Some members contribute additional in-kind products and services to accelerate specific project and program activities.

Commercialization and Applications

CaFCP/H2FCP's goals relate to preparing for and supporting market launch through coordinated individual and collective effort. CaFCP/H2FCP members, individually or in groups:

- Prepare for larger-scale manufacturing, which encompasses cost reduction, supply chain and production
- Reduce costs of station equipment, increase supply of renewable hydrogen at lower cost, and develop new retail station approaches
- Support cost reduction through incentives and targeted research, development, and demonstration projects
- Continue research, development, and demonstration of advanced concepts in renewable and other low-carbon hydrogen
- Provide education and outreach to public and community stakeholders on the role of FCEVs and hydrogen in the evolution to electric drive

January 2022

Sustainable Transportation Energy Pathways (STEPS3)

Contractor

University of California, Davis - Institute of Transportation Studies

Cosponsors

7 energy providers, 10 automakers, and 6 government agencies, 2 foundations

Project Officer

Lisa Mirisola

Background

STEPS3 (Sustainable Transportation Energy Pathways 3) is a four-year (2015-2018), multidisciplinary research consortium at the UC Davis Institute of Transportation Studies. Our mission is to generate new insights about the transitions to a sustainable transportation energy future and disseminate that knowledge to decisionmakers in the private sector and governmental agencies so that they can make informed technology, investment, and policy choices.

Project Objective

STEPS3 researchers develop the theory, tools and methods that allow for self-consistent and transparent comparisons of promising alternative energy and vehicle pathways and development of realistic integrative scenarios toward sustainable transportation goals. The STEPS3 program follows previous ITS-Davis consortium-based research programs on Fuel Cell Vehicle Modeling (1998-2002), Hydrogen Pathways (2003-2006), Sustainable Transportation Energy Pathways (STEPS) (2007-2010), and NextSTEPS (2011-2014).

Program areas continue to include, but are not limited to, consumer behavior, infrastructure system analysis, environmental impact, vehicle technology evaluation and integrative scenarios will be compared and analyzed with reference to the four energy pathways (hydrogen, biofuels, electricity, and fossil fuels including natural gas) best suited to the transportation sector.

Over 220 research publications and reports produced by STEPS3 researchers are currently available to the public at https://its.ucdavis.edu/research/publications/.

The STEPS3 program has input from a team of multi-disciplinary researchers and support from energy companies, automotive manufacturers, and government agencies. STEPS3 analyses will include a focus on Southern California as the early market for alternative fueled vehicles, specifically hydrogen fuel cells, plug-in hybrid, and battery electric vehicles.

Technology Description

Four specific STEPS 2015-2018 program goals that have direct relevance to South Coast AQMD are as follows: 1) optimize scenarios for mass transition to alternative fuels and vehicles in California; 2) model evolving relationships between future sources of mobile energy and the existing oil and gas industry; 3) describe current trends and inform policymakers of strategies for Global Urban Sustainable Transport; and 4) continue development of a wide range of models in order to progress research and improve trend recognition.

There are four (4) specified projects associated with this effort.

The first project looks at initiating transitions for 2015-2030, and asks the question, "What is required for early alternative fuel and vehicle transitions to succeed?". The key answers included were that to bring a large number of light-duty electric drive vehicles into the U.S market during a 20-year transition period, from 2015–2035, you might require a considerable investment in additional vehicle purchase incentives and refueling infrastructure, relative to an expected amount spent on all U.S. vehicles and fuels during this period. Also, most of the additional costs are for vehicle purchases; the actual subsidies needed

to spur the market to the target levels may be less than these increments.

The second project looks at the future of fuels and the oil and gas industry and asks the question, "How will changing geopolitical landscapes and disruptive technologies in the oil and gas and clean technology industries impact future business models and the competition of fuels?" The key answers to this question were first, that interest in fuel cell electric vehicle (FCV) technologies is growing in the medium-and heavy-duty (MDHD) transportation sector. Compared to battery electric technologies, FCVs have vehicle several advantages, most noticeably their low maintenance, long range and fast refueling, thus offering a promising option for zero-emission MDHD transportation. Also, costs of producing socalled advanced biofuels-those with the lowest greenhouse gas (GHG) and land use impactshave not decreased in recent years.

The third project asks, "How will a rapidly urbanizing world affect demand for transport and energy? And how can we transition to sustainable transportation in a rapidly urbanizing world with ever-growing need for mobility?"

Key answers to these questions note that three revolutions in urban transportation—vehicle electrification, shared mobility, and automation could reduce traffic congestion, save over \$1 trillion per year, and cut urban travel CO2emissions by over 90% by 2050. Also, fully automated, electric vehicles, without sharing or supporting land use, transit, active mobility and other sustainability pathways, could lead to expensive, highly congested systems.

The fourth project asks the question, "What do improved and cross-compared economic/environmental/transportation/energy models tell us about the future of sustainable transportation?"

The key answers note that in a high ZEV truck sales scenario, STEPS3 choice modeling work suggests that battery electric trucks can eventually compete in most markets, though in long-haul it is fuel cell vehicles that are expected to dominate. Also, across most classes, policy incentives will be needed to reach market share targets, including purchase subsidies. Over time these subsidies can decline as ZEV technologies become more competitive.

Status

The STEPS3 program, including the four projects listed above, was completed on Dec. 31, 2018.

Results

From 2014 to 2018, STEPS3 researchers produced over 220 major publications and journal articles as well as numerous research reports. In addition, the program held 16 symposia, sponsored workshops, and policymaker outreach events. The STEPS website (www.steps.ucdavis.edu) hosts electronic copies of selected publications and other program materials as well as the final report, submitted on January 8, 2020. In addition, a compilation of Summary Papers of STEPS3 research findings can be found at <u>https://stepsplus.ucdavis.edu/steps3summary-papers.</u>

Project Costs

As budgeted, South Coast AQMD contributed \$240,000 toward the STEPS3 program. The STEPS3 program was supported by other industry and government sponsorships and contracts, and the total support was over \$6 million over the length of the STEPS3 program (2015-2018).

Commercialization and Applications

The STEPS3 program and especially the four projects highlighted above, focusing on zero emission vehicles and low carbon fuels, have a direct relevance to South Coast AQMD's priorities in evaluating changes to criteria emission levels and vehicle technology options. In addition, outreach and communication of results from the STEPS3 program will broaden the public knowledge base and help expedite introduction of zero and near-zero emitting vehicles in the South Coast Air Basin.

Appendix D

Technology Status

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Technology Status

For each of the core technologies discussed in this report, numerous factors influence the proposed allocation of funds, ranging from overall Environment & Health Benefits, Technology Maturity and Compatibility, and Cost, summarized in the technology status table.

A separate category for zero emission infrastructure is being created. The Fueling Infrastructure & Deployment for natural gas and renewable fuels is being removed since these technologies are largely commercialized. Within the broad factors above, sub-factors for each type of project may be considered, as summarized below:

Environment and Health Benefits

Criteria Pollutant Emission Reduction potential continues to receive the highest priority for projects that facilitate NOx reduction goals outlined in the 2022 AQMP. Technologies that provide co-benefits of GHG and Petroleum Reduction are also weighted favorably, considering the Clean Fuels Program leverages funds available through several state and federal programs, as well as overall health benefits in reducing exposure to Ozone and PM2.5, especially in disadvantaged communities.

Technology Maturity & Compatibility

Numerous approaches are used to evaluate technology maturity and risk given the potential uncertainty in real world operations. This approach can include numerous weighting factors based on the assessed importance of a particular technology. Key metrics considered include Infrastructure Constructability, which evaluates the potential of fuel or energy for the technology and readiness of associated infrastructure, and Technology Readiness, which includes research and development of the technology and large scale deployments that consider ability for near-term implementation and operational compatibility for end users. These combined factors can provide an assessment for market readiness of the technology.

Cost/Incentives

The long-term costs and performance of advanced technologies are highly uncertain, considering continued development of these technologies is likely to involve unforeseen changes in basic design and materials. Additionally, economic sustainability – or market driven – implementation of these technologies is another key factor for technology research, development, demonstration and deployment projects. To accelerate the demonstration and deployment, especially of pre-commercialization technologies, local, state and federal incentive programs are crucial, but may be underfunded to enable large scale deployments.

Staff has developed an approach to evaluating core technologies, especially some of the specific platforms and technologies discussed in the draft plan and annual report. The technology status evaluation below utilizes experience with implementing the Clean Fuels Program for numerous years, as well as understanding the current development and deployment of the technologies and associated infrastructure, and are based on the following measurement:

● Excellent ● Good ○ Satisfactory ● Poor • Unacceptable

The table below summarizes staff evaluation of the potential projects anticipated in the Plan Update, and technology developers, suppliers and other experts may differ in their approach to ranking these projects. For example, staff ranks Electric/Hybrid Technologies as Excellent or Good for Criteria Pollutant and GHG/Petroleum Reduction, but Satisfactory to Excellent for Technology Readiness, Satisfactory to Excellent for Compatibility, and Satisfactory to Poor for Costs and Incentives to affect large scale deployment. It is further noted that the Clean Fuels Fund's primary focus remains on-road vehicles and fuels, and funds for off-road and stationary sources are limited.

This approach has been reviewed with the Clean Fuels and Technology Advancement Advisory Groups, as well as the Governing Board.

Technologies & Proposed Solutions	Environment & Health			Technology Maturity & Compatibility				Cost	
	Emissions Reduction	GHG/Petroleum Reduction	Health Benefits	Infrastructure Constructability	Technology Readiness	Near-Term Implementation/ Duty Cycle Fulfillment Capability	Operations Compatibility	Relative Cost & Economic Sustainability	Incentives Available
Electric/Hybrid Technologies			•						
Plug-In Hybrid Heavy-Duty Trucks with Zero-Emission Range	●	0	•		\bigcirc		٠	Θ	•
Heavy-Duty Zero-Emission Trucks	•	•	•	0	0	•	0	•	•
Medium-Duty Zero-Emission Trucks	•	•	•	•	•	•	•	•	•
Medium- and Heavy-Duty Zero-Emission Buses	•	•	•	•	●	•	0	•	•
Light-Duty Zero-Emission Vehicles	•	•	•	•	•	•	•	0	•
Plug-In Hybrid Light-Duty Vehicles with Zero-Emission Range	•	0	•	•	•		٠	$\overline{\mathbf{\Theta}}$	•
Hydrogen & Fuel Cell Technologies			1	11		11			1
Heavy-Duty Trucks	•	•	•	0	•	0	Θ	•	•
Heavy-Duty Buses	•	•	•	0	•	•	●	•	•
Off-Road – Locomotive/Marine	•	•	•	0	0	$\overline{\mathbf{i}}$	Θ	•	•
Light-Duty Vehicles	•	•	•	0	●	0	0	$\overline{}$	•
Zero Emission Infrastructure									
Light-Duty Electric Charging Infrastructure	-	-	-	•	•		٠	٠	•
Medium- and Heavy-Duty Electric Charging Infrastructure	-	-	-	●	•	●	•	e	•
Light-Duty Hydrogen Fueling Infrastructure	-	-	-	0	•		•	Θ	•
Medium- and Heavy-Duty Hydrogen Fueling Infrastructure	-	-	-	0	•	•	•	-	•
Infrastructure – Production, Dispensing, Certification	-	-	-	0	0	Θ	-	•	-
Engine Systems		1							
Ultra-Low NOx Medium- and Heavy-Duty Renewable Diesel Vehicles	●	•	0	•	0	•	•	●	•
Renewable Gaseous and Alternative Fuel Ultra-Low NOx Medium- and Heavy-Duty Vehicles	●	•	0	•	•	•	•	●	•
Ultra-Low Emission Off-Road Applications	•	●	\bigcirc	•	\bigcirc	●	•	•	\cap
Stationary Clean Fuel Technologies		1		I		11			0
Low-Emission Stationary & Control Technologies	•	•	•	•	0	0	•	0	Θ
Renewable Fuels for Stationary Technologies	0		•	•	0	0	0	0	
Vehicle-to-Grid or Vehicle-to-Building/Storage	•	•	•	0	0	$\overline{}$	0	Θ	-
Emission Control Technologies						· · ·			
Alternative/Renewable Liquid Fuels	0	•	•	•	٠		•	•	\bigcirc
Advanced Aftertreatment Technologies	•	0	•	0	0	•		\bigcirc	0
• Excellent • Good	⊖ Satisf	actory	⊖]	Poor	• Una	cceptable			

Appendix E

List of Acronyms
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LIST OF ACRONYMS

3B-MAW-3-bin moving average windows A-1—A-1 Alternative Fuel Systems AB—Assembly Bill AC-absorption chiller ACFR—Annual Comprehensive Financial Report ACT-advanced clean transportation ACT—American Clean Truck regulation ADA—American with Disabilities Act AER-all-electric range AFRC-air/fuel ratio control AFVs-alternative fuel vehicles AGL—Academy of Global Logistics ALPR-automated license plate recognition APCD—Air Pollution Control District AOMD—Air Ouality Management District AQMP-Air Quality Management Plan ARB-Air Resources Board ARM-advanced RISC machine ARRA-American Recovery & Reinvestment Act AWMA-Air & Waste Management Association BACT-best available control technology BATS-blended aftertreatment system BEB-battery electric bus BESS- battery energy storage system BET-battery electric tractor BET—battery electric truck BEV-battery electric vehicle BMEP-brake mean effective pressure BMS—battery management system BSNOx-brake specific NOx BTC-Broadband Telecom Power, Inc. CAE— computer aided engineering CAN—controller area networks CAP-Clean Air Protection CAAP-Clean Air Action Plan CaFCP-California Fuel Cell Partnership CAPP— Community Air Protection Program CARB-California Air Resources Board CATI-Clean Air Technology Initiative CBD-Central Business District (cycle) - a Dyno test cycle for buses CCF—California Clean Fuels CCHP-combined cooling, heat and power CCI-California Climate Investments CCV-closed crankcase ventilation CDA—cylinder deactivation CDFA/DMS-California Department of Food &Agriculture/Division of Measurement Standards CE-construction equipment CEC-California Energy Commission CE-CERT-College of Engineering - Center for Environmental Research and Technology

CEMS—continuous emission monitoring system CERP-Community Emission Reduction Plan CEQA-The California Environmental Quality Act CFD-computational fluid dynamic CFR—Code of Federal Regulations CHBC-California Hydrogen Business Council CHE-cargo handling equipment C-ITS—connected intelligent transportation system CMAQ—community multi-scale air quality CNG-compressed natural gas CNGVP-California Natural Gas Vehicle Partnership CO₂—carbon dioxide CO-carbon monoxide COG-council of governments ComZEV—Commercial Zero-Emission Vehicle CPA—Certified Public Accountant C-PORT—Commercialization of POLB Off-Road Technology CPUC—California Public Utilities Commission CRADA—Cooperative Research and Development Agreement CRDS-cavity ring-down spectroscopy CRT—Charge Ready Program CRT-continuously regenerating technology CSC—city suburban cycle CTE-Center for Transportation and the Environment CTF-Clean Truck Fund CVAG-Coachella Valley Association of Governments CWI-Cummins Westport, Inc. CY-calendar year DAC-disadvantaged community DC-direct connection DC-direct current DCFC-direct connection fast charger DCM-dichloromethane DEF-diesel exhaust fluid DEG-diesel equivalent gallons DER-distributed energy resource DERA-Diesel Emissions Reduction Act DGE-diesel gallon equivalents DF-deterioration factor DHE—Dependable Highway Express DME—dimethyl ether DMS—Division of Measurement Standards DMV-Department of Motor Vehicles DOC-diesel oxidation catalysts DOE—Department of Energy DOT-Department of Transportation DPF-diesel particulate filters D-PMag-dual permanent magnet motor

DPT3-Local Drayage Port Truck (cycle) - where 3=local (whereas 2=near-dock, etc.) DRC-Desert Resource Center DRI-Desert Research Institute DT-delivery truck DTNA-Daimler Trucks North America LLC EATS—emissions aftertreatment system ECM-emission control monitoring ECM-engine control module EDD-electric drayage demonstration EDTA-Electric Drive Transportation Association EERE-Energy Efficiency and Renewable Energy EGR-exhaust gas recirculation EIA-Energy Information Administration EIN—Energy Independence Now EMFAC-Emission FACtors EPRI-Electric Power Research Institute E-rEV-extended-range electric vehicles ESD-emergency shut down ESS-energy storage system EV-electric vehicle EVSE-electric vehicle supply equipment FCEB-fuel cell electric bus FCET—fuel cell electric truck FCEBCC-Fuel Cell Electric Bus Commercialization Consortium FCEV-fuel cell electric vehicle FCTO—Fuel Cell Technologies Office FCV—fuel cell vehicle FCXRDT-fuel cell extended range delivery truck FS—feasibility study FTA-Federal Transit Administration FTP-federal test procedures G2V—grid-to-vehicle g/bhp-hr—grams per brake horsepower per hour GC/MS—gas chromatography/mass spectrometry GCW-gross combination weight GCVW-gross container vehicle weight GDI-gasoline direct injection GGE-gasoline gallon equivalents GGRF-Greenhouse Gas Reduction Relief Fund GH2-green hydrogen GHG-greenhouse gas GM-goods movement GNA-Gladstein, Neandross & Associates, LLC GNSS—global navigation satellite system Go-Biz-Governor's Office of Business and Economic Development GPCI-Green Paradigm Consulting, Inc. GPS—global positioning system GPU—gas processing unit GREET-Greenhouse Gasses, Regulated Emissions and Energy Use in Transportation GTI-Gas Technology Institute

GTL-gas to liquid GVW-gross vehicle weight GVWR-gross vehicle weight rating H2-hydrogen H2NIP-Hydrogen Network Investment Plan H&SC-California Health and Safety Code HCCI-Homogeneous Charge Combustion Ignition HCD-hydrogen contaminant detector HCHO—formaldehyde HCNG-hydrogen-compressed natural gas (blend) HD-heavy duty HDD-heavy-duty diesel HDDT-highway dynamometer driving schedule HD-FTP-Heavy-Duty Federal Test Procedure HD I/M-heavy-duty inspection and maintenance HD-OBD-heavy-duty on-board diagnostics HDV-heavy-duty vehicle HEV-hybrid electric vehicle HEVI-LOAD-heavy-duty electric vehicle infrastructure load, operations and deployment HHDDT-heavy heavy-duty diesel truck schedule HMI-Human Machine Interface HPLC-high-performance liquid chromatography HRSC-heat recovery steam cycle HT—high throughput HTFCs-high-temperature fuel cells HTPH—high throughput pretreatment and enzymatic hydrolysis HV-high voltage HyPPO-Hydrogen Progress, Priorities and **Opportunities** report Hz-Hertz IBT-Intermodal Bridge Transport ICE-internal combustion engine ICEPAG-International Colloquium on Environmentally Preferred Advanced Generation ICEV-internal combustion engine vehicle ICT-Innovative Clean Transit Regulation ICU-inverter-charger unit ICTC-Interstate Clean Transportation Corridor ISX12N—11.9-liter NZE engine ITS-intelligent transportation system IVOC-intermediate volatility organic compound JETSI-Joint Electric Truck Scaling Initiative kg-kilogram kWh-kilowatt-hour L9N-8.9-liter natural gas engine LADOT-City of Los Angeles Dept. of Transportation LADWP-Los Angeles Department of Water and Power LAEDC-Los Angeles Economic Development Corporation

LA Metro-Los Angeles County Metropolitan Transportation Authority LBCT-Long Beach Container Terminal LC—lane change LCA—life cycle assessment LCFS-Low Carbon Fuel Standard LD—light-duty LED-low emission diesel LFP-lithium iron phosphate Li-lithium ion LIGHTS-Low Impact Green Heavy Transport Solutions LIMS-Laboratory Information Management System LLC-low load cycle LLNL-Lawrence Livermore National Laboratory LNG—liquefied natural gas LO-SCR-light-off selective catalytic reduction LPG-liquefied petroleum gas or propane LRUSA-Landi Renzo USA Corporation LSM—linear synchronous motor LSV-low-speed vehicle LUV-local-use vehicle LVP-low vapor pressure M&HD-medium- and heavy-duty MATES-Multiple Air Toxics Exposure Study MC-mass compensated MCE-multi cylinder engine MCFC-molten carbonate fuel cells MD—medium duty MDHD-medium- and heavy-duty MECA-Manufacturers of Emission Controls Association MOA-Memorandum of Agreement MOVES-Motor Vehicle Emission Simulator MPa-MegaPascal MPFI-Multi-Port Fuel Injection MPG-miles per gallon MPGde-miles per gallon diesel equivalent MSRC-Mobile Source Air Pollution Reduction **Review Committee** MSW-municipal solid wastes MY-model year MTA-Metropolitan Transportation Authority (Los Angeles County "Metro") NAAQS-national ambient air quality standards NAFA-National Association of Fleet Administrators NAICS-North American Industry Classification System NFPA-National Fire Protection Association NCP-nonconformance penalty NEV-neighborhood electric vehicles NextSTEPS—Next Sustainable Transportation **Energy Pathways**

NG/NGV-natural gas/natural gas vehicle NGO-non-governmental organization NH3—ammonia Nitro-PAHs-nitrated polycyclic aromatic hydrocarbons NHTSA—Natural Highway Traffic Safety Administration NMC-nickel manganese cobalt NMHC—non-methane hydrocarbon NO-nitrogen monoxide NO2-nitrogen dioxide $NO + NO_2$ —nitrous oxide NOPA-Notice of Proposed Award NOx-oxides of nitrogen NRC—National Research Council NREL—National Renewables Energy Laboratory NRTC—non-road-tested cycle NSPS-new source performance standard NSR-new source review NTE-not-to-exceed NZ-near zero NZE - near zero emission O3—ozone OBD-on-board diagnostics OCS-overhead catenary system OCTA—Orange County Transit Authority OEHHA-Office of Environmental Health Hazard Assessment OEM-original equipment manufacturer One-off-industry term for prototype or concept vehicle OP-opposed piston OSAR—Onboard Sensoring and Reporting PAH—polycyclic aromatic hydrocarbons PAMS—portable activity measurement systems PbA-lead acid PCM—powertrain control module PEMFC—proton exchange membrane fuel cell PEMS—portable emissions measurement system PEV—plug-in electric vehicle PFI—port fuel injection PHET—plug in hybrid electric tractor PHET—plug-in hybrid electric truck PHEV-plug-in hybrid vehicle PM—particulate matter PM—permanent magnet PM2.5—particulate matter ≤ 2.5 microns PM10—particulate matter ≤ 10 microns POH—Port of Hueneme POLA—Port of Los Angeles POLB—Port of Long Beach PON-Program Opportunity Notice POS-point of sale ppm-parts per million

ppb—parts per billion PSI—Power Solutions International PTR-MS-proton transfer reaction-mass spectrometry QCD-Quality Custom Distribution QVM-qualified vehicle modifiers R&D—research and development RD&D-research, development and demonstration RDD&D (or RD3)-research, development, demonstration and deployment REAL—Real Emissions Assessment Logging REMD-roadside emissions monitoring device RFA—Renewable Fuels Association RFI—Request for Information RFP-Request for Proposal RFS—renewable fuel standards RH-refuse hauler RI—reactive intermediates RISC-reduced instruction set computer RM—ramp metering RMC-ramped modal cycle RMC-SET- ramped modal cycle supplemental emissions test RNG-renewable natural gas ROG-reactive organic gases ROI-return on investment **RPS**—Rail Propulsion Systems RTP/SCS-Regional Transportation Plan/Sustainable **Communities Strategy** S2S—Shore to Store SAE—Society of Automotive Engineers SB-school bus SB-Senate Bill SCAB-South Coast Air Basin or "Basin" SCAG-Southern California Association of Governments SCAQMD-South Coast Air Quality Management District SCFM-standard cubic feet per minute SCE—single cylinder engine SCE—Southern California Edison Company SCE—Southern Counties Express SCR-selective catalytic reduction SCRT-Selective Catalytic Regenerating Technology SCCRT-Selective Catalytic Continuously Regenerating Technology SHR-steam hydrogasification reaction SI-spark ignited SI-EGR-spark-ignited, stoichiometric, cooled exhaust gas recirculation SIP—State Implementation Plan SJVAPCD-San Joaquin Valley Air Pollution Control District

SMR-steam methane reforming SNG—synthetic natural gas SOAs-secondary organic aerosols SOC-state-of-charge SoCalGas-Southern California Gas Company (A Sempra Energy Utility) SOFC-solid oxide fuel cells SPaT-single phase and timing START—Sustainable Terminals Accelerating **Regional Transportation** STEPS3— Sustainable Transportation Energy Pathways 3 SULEV-super ultra-low emission vehicle SUV-sports utility vehicle SwRI-Southwest Research Institute TAC-toxic air contaminants TAO-Technology Advancement Office TAP—(Ports') Technology Advancement Program TB-transit bus TC-total carbon TCO-total cost of ownership TEMS-transportable emissions measurement system THC-total hydrocarbons TLS—Toyota Logistics Services TO-task order tpd-tons per day TRB-Transportation Research Board TRL-technology readiness level TSI—Three Squares, Inc. TOU-time-of-use TT-Turtle Top Bus TTSI-Total Transportation Services, Inc. TWC-three-way catalyst UCI-University of California, Irvine UCLA- University of California, Los Angeles UCR-University of California, Riverside UCR/CE-CERT-UCR/College of Engineering/Center for Environmental Research & Technology UCLA—University of California, Los Angeles UDDS-urban dynamometer driving schedule µg/m³—microgram per cubic meter ULEV-ultra low emission vehicle ULSD-ultra low sulfur diesel UPS—United Postal Service U.S.—United States U.S. EPA-United States Environmental Protection Agency USTS—United States Training Ship V2B—vehicle-to-building V2G-vehicle-to-grid

- V2G/B-vehicle-to-building functionality
- VLS-variable speed limit

VMT—vehicle miles traveled VOC—volatile organic compounds V-PER—vessel performance management package VPP—virtual power plant WAIRE—Warehouse Actions and Investments to Reduce Emissions Program WGS—water gas shift WVU—West Virginia University ZANZEFF—Zero and Near Zero Emission Freight Facilities ZE—zero emission ZEB—zero-emission bus ZECT—Zero Emission Cargo Transport ZEDT—Zero Emission Drayage Truck ZET—zero emission truck ZEV—zero emissions vehicle



Background

State law requirements:

- Annual Report on Clean Fuels Program and Technology Advancement Plan Update (HSC 40448.5.1)
- 2023 Plan Update (draft) submitted to Technology Committee October 21, 2022
- Submit to Legislature by March 31 every year

Reports: https://www.aqmd.gov/home/technology/reports



2022 Key Projects Completed







Daimler Zero Emission Truck Innovation Fleet Project

Volvo Low Impact Green Heavy Transport Solutions (LIGHTS)





200 Truck In-Use Emissions Testing and Fuel Usage Profile of On-Road Heavy-Duty Vehicles

GGRF Zero Emission Drayage Truck Demonstration Project



JETSI NFI Deployment of Volvo and Daimler Class 8 Battery Electric Trucks, Charging Infrastructure and Distributed Energy Resource Technologies

JETSI Schneider Deployment of Daimler Class 8 Battery Electric Trucks and Charging Infrastructure

2022 Key Contracts

Executed





A-1 Alternative Fuel Systems to Develop and Demonstrate Hydrogen Fuel Cell Medium-Duty Buses

Frontier Energy High Flow Bus Fueling Protocol Development



UCI Study of Fuel Cell Microgrids for Backup Power and Transit

2022 Partnering to Maximize Our Cost Share

Other Funding Clean Total Sources **Fuels Fund** \$66.7 Million Project **Cost Share** \$7.4 Million Costs Transportat unding **SoCalGas** \$74.1 DAIMLER TRUCK North America NFI Million South Coast SunLine

Upcoming in 2023



Increased focus on infrastructure technologies



Continued focus on hydrogen fuel cell vehicles



Continued studies of engine emissions



Strong push for development off-road technologies

Potential Funding Distribution for Projects in 2023



Pursuing Technology Development in Offroad Sectors







Examples of Current Projects:

- OGV Water-in-Fuel retrofit
- Capture and Control System for Oil Tankers
- Battery Electric Line-Haul Locomotive
- Battery Electric Switcher Locomotives
- Battery Electric Excavator
- Zero-Emission Top Handlers

Examples of Proposed Projects:

- OGV Methanol Conversion
- Plug-in Hybrid Tugboat w. Hydrogen Fuel Cell Charging
- Hydrogen Fuel Cell Short Line Locomotive for Cargo Transport
- Battery Electric Asphalt Compactor







Proposed Advisor Group Members

<u>Technology Advancement Advisory</u> <u>Group (14 MEMBERS):</u>

Elizabeth John, CEC Rosalie Barinas, SCE <u>Clean Fuels Advisory Group</u> (13 Members):

Marcus Alexander, EPRI David Park, HFCP

Recommended Actions

- Approve Clean Fuels Program 2022 Annual Report
- Adopt Clean Fuels Program Plan Update for 2023
- Adopt Resolution finding no duplicate projects or programs funded by other state/local agencies
- > <u>Approve and adopt</u> Clean Fuels Advisory Group membership changes
- <u>Receive and file</u> Technology Advancement Advisory Group membership changes

Cont.#	Contractor	Start Date	Original End Date	Amended End Date	Contract Value	Remitted	Project Description	Award Balance	Billing Complete?
FY 2018-2021 Contracts									
Open Contr	acts								
MS21002	Better World Group Advisors	11/1/2019	12/31/2022	12/31/2024	\$448,154.00	\$155,020.20	Programmatic Outreach Services	\$293,133.80	No
MS21004	Los Angeles County MTA	1/7/2021	5/31/2023		\$814,822.00	\$0.00	Clean Fuel Bus Service to Dodger Stadium	\$814,822.00	No
MS21005	Southern California Association of G	5/5/2021	1/31/2024	7/31/2025	<i>+#############</i> #######################	\$0.00	Implement Last Mile Goods Movement Progr	*######################################	No
MS21006	Geographics	4/1/2021	6/20/2023	6/20/2025	\$20,152.00	\$7,368.75	Hosting & Maintenance of the MSRC Websit	\$12,783.25	No
MS21007	Penske Truck Leasing Co., L.P.	4/1/2022	3/31/2028		\$1,000,000.00	\$0.00	Deploy 5 Zero-Emission Yard Tractors	\$1,000,000.00	No
MS21009	ITS Technologies & Logistics, LLC	7/15/2022	7/14/2028		\$1,686,900.00	\$0.00	Deploy 12 Zero-Emission Yard Tractors	\$1,686,900.00	No
MS21010	MHX, LLC	9/29/2021	1/28/2028		\$569,275.00	\$0.00	Deploy One Zero-Emission Overhead Crane	\$569,275.00	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
MS21013	4 Gen Logistics	3/27/2022	5/26/2028		\$7,000,000.00	\$0.00	Deploy 40 Zero Emssion Trucks	\$7,000,000.00	No
MS21014	Green Fleet Systems, LLC	8/31/2021	8/30/2027	8/30/2028	\$500,000.00	\$270,000.00	Deploy up to 5 Near Zero Emission Trucks	\$230,000.00	No
MS21015	Premium Transportation Services, In	9/22/2021	5/21/2027		\$1,500,000.00	\$0.00	Deploy up to 15 Near-Zero Emissions Truck	\$1,500,000.00	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	\$0.00	Deploy up to 10 Zero-Emission Trucks & Infr	\$1,900,000.00	No
MS21018	Pac Anchor Transportation, Inc.	8/17/2021	8/16/2027	8/16/2028	\$2,300,000.00	\$0.00	Deploy up to 23 Near Zero Emission Trucks	\$2,300,000.00	No
MS21019	Volvo Financial Services	3/31/2022	3/30/2030		\$3,930,270.00	\$495,869.15	Lease up to 14 Zero-Emission Trucks and P	\$3,434,400.85	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
MS21025	Costco Wholesale	12/9/2022	12/8/2028		\$160,000.00	\$0.00	Install Five EV Charging Units	\$160,000.00	No
Total: 17									<u>.</u>
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			
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			
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Total: 5

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	
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Total: 2